ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Establishment of Island Waste Resource Management Centre with Aerobic technology using Composting machine at Kolhufushi, Meemu Atoll

Report Prepared by LAMER Group Pvt Ltd
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April 2021

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Consultants Declaration

I certify that to best of my knowledge the statements made in this Environmental and Social Management Plan for the establishment of the Island Waste Resource Management Centre with Aerobic technology using composting machine at Kolhufushi, Meemu Atoll, are true, complete and correct.

Name: Hussein Zahir

Consultant Registration Number: EIA P04-07

Signature:

Company Name: Land and Marine Environmental Resource Group Pvt Ltd

Date: 21st April 2021

Proponent's Declaration

بسم الله الرحمن الرحيم

PREVENT DOMESTIC VIOLENCE

Ministry of Environment
Male', Republic of Maldives.

ދިވެހިރާއްޖޭގެ ތަރުތީބާއި ދާއިރާތަކުގެ ވަޒާރާ
މާލެ، ދިވެހިރާއްޖެ.

Date: 14 March 2021 No: 438-WMPC/203/2021/32

Mr. Ibrahim Naeem,
Director General,
Environmental Protection Agency,
Green Building, Handhuvaree Hingun, Maafannu,
Male', 20392, Maldives.

Dear Sir,

Sub: Commitment to undertake Mitigation and Environmental Monitoring

The Environmental and Social Management Plan (ESMP) prepared for the proposed establishment of the Island Waste and Resource Management Centre (IWRMC) in M.Kolhufushi has been prepared in accordance with the EIA Regulations 2012 and its amendments, issued by the Ministry of Environment.

We would like to confirm our commitment to the proposed mitigation measures and the monitoring programme that has been highlighted in the ESMP report prepared for the above referenced project.

Sincerely,

Amru Adam,
Assistant Director

Green Building, Handhuvaree Hingun,
Maafannu, Male', 20392, Republic of Maldives.
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ދާއިރާ، މާލެ، 20392، ދިވެހިރާއްޖެ.
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1 Executive Summary

Background

Kolhufushi is one of the 9 inhabited islands in Meemu atoll in the central Maldives. Similar to almost all island of Maldives, the island is vulnerable to environmental and economic development variables such as rising sea level, coastal erosion, pollution/depletion of groundwater and unmanaged waste. At present, waste disposal is carried out in 2 locations; one at the northern side and one at the western side of the island. All waste is collected at these two sites where all combustible waste gets disposed through open burning. As waste is not properly managed in the island, the two locations where waste are disposed is full of all kinds of waste and are heavily polluted. Hence, the Ministry of Environment, being the proponent of the project, through the World Bank funded Maldives Clean Environment Project (MCEP), intends to establish a full-fledged Island Waste Resource Management Centre (IWRMC) and facilitate piloting of in-vessel composting in Kolhufushi based on the findings of the technical and financial feasibility study for establishing a regional solid waste management system in Zone 4 & 5, phase 1 of which was completed in the last quarter of 2019.

The project will include construction of new infrastructure inclusive of a mechanical composting area. Once the infrastructure is in place, an Organic Waste Converter (OWC) machine will be set up at the facility to facilitate mechanical composting of the waste using aerobic technology. Upon completion of the project, the operations of the facility will be handed over to the Island Council. Training needs for the proper operation of the facility will be identified through the assessment and will also be incorporated into the report.

Key impacts

Impacts on the environment during construction and operation of the facility have been identified through interviews with the project management team, field data collection and surveys. Assessment of the environmental impacts associated with project components has been carried out using the Rapid Impact Assessment Matrix (RIAM) which allows both subjective and quantitative assessment of the project components and natural environment to understand various impacts that may arise from the project. The environmental components of the project are categorized into physical/chemical, biological/ecological, social/cultural and economic including operational aspects. The outcome of the matrix based on the project components against environmental components showed positive and negative outcomes. Significant negative impacts of the project are:

- Impacts due to the need for vegetation clearance from proposed IWRMC site
- Impacts due to sorting and storage of hazardous waste
- Health and safety risks to the workers during construction and operational work

- Air pollution due to emissions associated with construction machinery

Vegetation clearance from the IWRMC site is envisaged to be a moderate negative impact both on the natural and social environment. This impact is proposed to be mitigated through relocation of the mature trees/palms and compensation of owners of the vegetation to be removed. However, during consultations, Council have stated that there is no area on the island to transplant these palms or carryout 2:1 replantation. They further state that while they have previously tried to send palms from the island to other islands, this has also not been successful as most of the palms are mature and tall.

Lesser negative impacts from the project includes impacts on the environment due to accidental spills during transfers and material handling.

Significant positive impacts and benefits of the project are:

1. Benefits to the island community (both social and economic) due to improved waste management practices and operation of the facility,
2. Changes to the environment due to improved waste processing methods

Mitigation measures, monitoring and alternatives

The ESMP identified in this document gives mitigation measures for all significant impacts due to the project. Mitigation measures such as the following have been identified in the ESMP:

- Transplant or replant 2 palms for every palm which needs to be cut down at an allocated area on the island, or through collaboration with another island
- Compensation of owners of the palms/ trees which need to be removed
- Work to commence only after compensation has been disbursed to all individuals
- Provision of adequate training in proper method of handling of machinery and materials during both construction and operational phase.
- Provision of adequate training in proper method of handling of waste during collection and disposal during operational phase.
- Provision of all protective gear to workers during both construction and operations.
- Implementation of the Grievance Redress Mechanism which has been formulated by the proponent, both during construction and operations.

Monitoring programme identified in the report will enable the proponent to assess whether the mitigation measures which have been identified in the report are effective. Early identification of negative impacts will enable the proponent to rectify the issue.

Alternatives have also been discussed for the method of composting and source of power generation. After consideration of all alternatives, the proposed components have been selected for both.

To conclude, with due consideration to the environmental components identified and the extent of the project activities and their likely and predicted impacts identified, with proposed mitigation measures and monitoring followed, it is concluded that the project is feasible and justified. Furthermore, the positive benefits due to the project, both to the environment and island community overweigh the negative effects on the environment during the project. The Consultant further recommends the following:

1. Formulation and implementation of an Island Waste Management Plan
2. Adherence to all relevant legislations, regulations, guidelines and standards during construction and operation of the IWRMC;
3. Establish environmental and occupational health and safety procedures for all relevant components;
4. Installation of renewable energy sources at IWRMC, such as solar panels to source power for operations;
5. Carryout awareness raising campaigns to increase awareness of the public regarding proposed work;
6. Ensure all trainings identified under the Training programme of this report are properly implemented to ensure proper implementation of the project at all phases;
7. Encourage greater participation of women, especially during operational stage;
8. Ensure proper supervision and inspection of the IWRMC at regular intervals.

1. ފުރިހަމަ

ތަފާސްކުރުން

ކޮންޓްރެކްޓް ދިވެހިރާއްޖެ ޕްރައިވެޓް ލިމިޓެޑް 9 ދުވަހުގެ ތެދުވެރިކަމުގެ ބަލަނޑުގައި. ކުންފުނީ ކަންތައްތަކާ ގުޅުންހުރި ލިޔުންތަކާ ދުވަހުގެ ދަށުގައި، ދާދި ފަހުގެ ހާދިސާއެއް ތަކެއްޗާ ގުޅުންހުރި ކަންކަމުގައި ކަންކަމުގެ ތެދުވެރިކަމ

- މަޝްރޫޢު ކުރިއަށް ދާއިރާއާއި މަޝްރޫޢު ހިނގުމުގެ މަރުހަލާތަކުން މަސައްކަތުގައި އުޅޭ ފަރާތްތަކުގެ ސިއްހަތާއި ސަލާމަތަށް ހުރި ނުރައްކާ
- މަޝްރޫގައި އިމާރާތްކުރުމަށް ބޭނުންކުރާ އާލާތުގެ ސަބަބުން ނުކުންނަ ހިރަފުހާއި އެހެނިހެން ނާރު ދުމުގެ ސަބަބުން ވައިގެ މާހައުލު ތަޣައްޔަރުވުން

ކުނިކޮށި އެޅުމަށް ހަމަޖެހިފައިވާ ސަރަހައްދުން ބޭރަށް ކަނޑަށް ހުރުމުގެ ސަބަބުން ތިމާވެށީގެ ކުރިމިންވަރަކީ ނާޒުކު އަސަރެއް ކުރާނެކަމަށް އަންދާޒާކުރެވިފައެވެ. ހާއްސަކޮށްގައި މިއަސަރުތަކަކީ މިންވަރު ކުޑަކުރުމުގެ ގޮތުން، އިތުރުން ނަގާ ރުއްތައް، ނުވަތަ ބަދަލުކުރުމަށް ހާލަތުގައި ހުރި ރުއްތަކުގެ ބަދަލުގައި އިންދާ ރުއްތައް (ކޮންމެ ރުކަކަށް 2 ރުއް) ރަށުގެ އެހެން ސަރަހައްދުތަކުގައި އިންދުމެވެ. އެހެންނަމަވެސް ރަށު ކައުންސިލް އިން ވިޔަފާރިއަށްވުރެ މިގޮތަށް ރުއް އިންދާނެ ސަރަހައްދެއް ހުޅުމާލޭގައި ނެތްކަމަށެވެ. އަދި މިގޮތަށް ކުރިއަށްގެންދާ ރުއްގަސް ފައިދާ (ހިއުމަން ރިސޯސް) ބަދަލުކުރުން ފާހަގަކޮށްދީފައިވާ ވަނީ ކުރިމަތިވެފައެވެ. މިގޮތަށް ރުއްގަސް ދިރާސާކުރެވޭނެ ގޮތެއް އިތުރަށް ގެންދިއުން އުންމީދުކުރެވެއެވެ.

މީގެ އިތުރުން މިމަޝްރޫއުގެ ސަބަބުން ކުރާ ކުޑަ މިންވަރުގެ ނޭދެވޭ އަސަރުތަކުގެ ތެރޭގައި މަޝްރޫއުގެ މަސައްކަތުން ގެނެވޭ އުޅި ދުވަހު ގެއްލުންތަކުގެ ތެރޭގައި ބިންކަނޑުމުގައި ހަރަސްކޮށް ރިގާނެވަން ތިމާވެއްޓަށް ކުރާ އަސަރު ހިމެނެއެވެ.

މިމަޝްރޫއުގެ ސަބަބުން ކުރާ ބޮޑެތި ފައިދާތަކަކީ:

- ރަށުގެ ތަރައްގީގައި ކުނި ގެންބޯކުރަން ފަރުގެ ސަބަބުން ރަނގަޅުކޮށް ރައްކާތެރިކޮށްދިނުން ކުރާ ފައިދާ (އިޖުތިމާޢީ އަދި އިގުތިސާދީ)
- ރަށުގެ ތަރައްގީގައި ކުނި ގެންބޯކުރަން ފަރުގެ ސަބަބުން ތިމާވެއްޓަށް ކުރާ ފައިދާ

ތިމާވެއްޓަށް ކުރާ އަސަރު ކުޑަކުރުމަށް އެޅިދާނެ ފިޔަވަޅުތަކާއި ބަދަލުގައި ކުރެވިދާނެ ކަންތައް

މިމަޝްރޫއުގެ ސަބަބުން ކުރާ ނޭދެވޭ އަސަރުތައް ކުޑަކުރުމަށް އެޅިދާނެ ފިޔަވަޅުތައް މިރިޕޯޓުގައި ހިމަނާފައިވާ އެންވަޔަރަމަންޓަލް އެންޑް ސޯޝަލް މެނޭޖްމަންޓް ޕްލޭންގައި ހިމަނާފައިވާނެއެވެ. މީގެ ތެރޭގައި ހިމެނެނީ:

- ކުނިކޮށި އެޅުމަށް ހަމަޖެހިފައިވާ ސަރަހައްދުން ބަދަލުކުރަންޖެހޭ ރުއްތަކުގެ ތެރެއިން އަލުން އިންދޭނެ ރުއްތައް އަލުން އިންދުން
- ކަނޑާލާ ރުކެއްގެ ބަދަލުގައި 2 ރުއް އިންދުން
- ކަނޑާލާ ރުއްގަހުގެ ފޮޅެފިލިމާކަން އެގެ ބަދަލުކުރުން
- ބަދަލުކުރުމުގެ ހުރި ކަމެއް ނިމުމުންތި މަސައްކަތް ނުފުރުން

- މަޝްރޫޢުގެ އުމްރާނީ މަރުޙަލާގައާއި ތަންފީޛީ މަރުޙަލާގައި ބޭނުންކުރެވޭ އާލާތް ގެންގުޅުމުގެ އެމަސައްކަތްތަކުގައި އުޅޭ ފަރާތްތަކަށް ރަގަޅަށް އަހުލުވެރިކުރުން
- މަޝްރޫޢުގެ ތަންފީޛީ މަރުޙަލާގައި ކުނިއެއްކުރުމާއި ނައްތާލުމުގައި ކަންކުރަންވާ ގޮތްތަކާ އެމަސައްކަތްތަކުގައި އުޅޭ ފަރާތްތަކަށް ރަގަޅަށް އަހުލުވެރިކުރުން
- މަޝްރޫޢުގެ ހުރިހާ މަރުޙަލާތަކުގައިވެސް މަސައްކަތްކުރާ ކަމަށް އުޅޭ ފަރާތްތަކަށް ބޭނުންކުރަންޖެހޭ ހިފާ ސޭފްޓީ އާލާތްތައް ދިނުން
- މަޝްރޫޢުގެ މަރުޙަލާތަކުގެ ތެރެއިން ދިމާވެދާނެ މައްސަލަތަކަށް ހައްލުހޯދުމުގައި މިނިސްޓްރީގެ ފަރާތުން ބަލަހައްޓާ އެންވަޔަރަންމަންޓަލް ކޮންސަލްޓެންސް ބަޔާންކުރާ ޝަރުތުތައް ތަންފީޛުކުރުން

މިރިޕޯޓުގައި ހިމަނާފައިވާ މޮނިޓަރިންގ ޕްރޮގްރާމްގެ އެހީގައި މަޝްރޫޢުގެ ސަބަބުން ތިމާވެއްޓަށް ނުރައްކާ އަސަރުކުރާކަމަށް ބަލާނެއެވެ. މިގޮތުން އަވަހަށް މިފަދަ ކަންކަން ފާހަގަކުރެވިއްޖެނަމަ އެއަސަރު ކުޑަކުރުމަށް ފިޔަވަޅުތައް އެޅުމަށް ފަސޭހަވެގެން ދާނެއެވެ.

މިމަޝްރޫޢުގައި ކަންކުރަންޖެހިފައިވާ ގޮތުން ގޮތަކަށް ކުރުމަށް ބަލާލާފައިވާ ކޮމްޕްލަޔަންސް އުޞޫލުތަކާއި ބޭނުންކުރާނެ ގޮތާއި ކުރިޔަށް ކަރަންޓް ހުރިހާ ގޮތެވެ. މިކަންކަން ބެލުމަށްފަހު ނިންމިފައިވަނީ މަޝްރޫޢުގައި ރާވާފައިވާ ރަގަޅުގޮތަށް ކަމަށެވެ.

މިރިޕޯޓުގެ ނިންމުންތަކާއި ހުށަހެޅުންތަށް ބިނާކުރެވިފައިވަނީ މިމަޝްރޫޢުގެ ސަބަބުން ތިމާވެއްޓަށް ކުރާނެ އަސަރާއި، އަސަރުކުރާނެ މިންވަރު އަދި މިއަސަރުތަށް ކުރާނެ މިންވަރު ކުޑަކުރުމަށް ހިފަހައްޓާ ފިޔަވަޅުތަކާއި، ތިމާވެށި ބަދަލު ދެނެގަތުމުގެ ގޮތުން ކުރަން ހުރިހާ ފިޔަވަޅުތަކާ ސާރވޭތަކުގެ މަޢުލޫމާތު ބިނާކުރެވިގެންނެވެ. މިރިޕޯޓުގެ ހުށަހެޅުންތަކަށް ބަލާއިރު ކޮންސަލްޓޭޝަންގެ މައިގަނޑު ނިންމުމަކީ މިމަޝްރޫޢުގެ ސަބަބުން ކުރާ އަސަރުތަށް ކުޑަކުރުމަށް އެޅުމަށް ހުށަހެޅިފައިވާ ފިޔަވަޅުތައް ތަންފީޛުކުރުމާއި އެކު މިމަޝްރޫޢު ކުރިއަށް ގެންދެވިދާނެކަމެވެ. އަދި މިމަޝްރޫޢުގެ ސަބަބުން ކުރާ ނޭދެވޭ އަސަރުތަކަށްވުރެ ފައިދާތަކަށް މާބޮޑުކަމަށެވެ. ހަމަ މިއާއިއެކު، ތިރީގައިވާ ކަންތައްތަކަށް ކުރިމަތިލުމަށް ސަމާލުކަން ބަހައްޓަންވާނެއެވެ.

1. ރަށުގައި ކުރިއަށްގެންދާ މަސައްކަތް ގަވާއިދުން ކުރިއަށް ގެންދިއުމަށް ރަގަޅު ފެންވަރުގެ ވޯސްޓް މެނޭޖްމަންޓް ޕްލޭނެއް ހަދާ ތަންފީޛުކުރުން
2. މިމަޝްރޫޢާއި ގުޅުންހުރި ހުރިހާ ޤާނޫނު، ގަވާއިދު، މިންގަނޑުތަކާއި އަދި އުޞޫލުތަކާއި އެއްގޮތަށް މަސައްކަތް ކުރިއަށް ގެންދިއުން
3. މަޝްރޫޢުގެ ހުރިހާ ގުޅުންހުރި މަރުޙަލާތަކުގައި ޞިއްޙީ ސަރަޙައްދު ހެލްތް އެންޑް ސޭފްޓީ މިންގަނޑުތަކާ ކަށަވަރުކުރުން
4. ތިމާވެށީގެ ރިނިއުއަބަލް އެނަރޖީ މަޝްރޫޢުގެ އެކި މަރުޙަލާތަކުގައި ކުރިއަށް ގެންދެވޭނެ ގޮތަށް ރޭވުން (މިސާލަކަށް ކަރަންޓް އުފެއްދުމަށް ސޯލަރ ޕެނަލް ހަރުކުރުން)
5. މިމަޝްރޫޢާއި ގުޅޭގޮތުން މީހުން އަހުލުވެރިކުރުމުގެ ގޮތުން އެވެއާނަސް ކެމްޕެއިން ހިންގުން

6. މަޝްރޫޢުގެ މަސައްކަތް ފުރިހަމައަށް ކުރިއަށް ގެންދިޔުމަށް މިރިޕޯޓުގައި ހިމަނާފައިވާ ހުރިހާ ޓްރޭނިންގް ޕްރޮގްރާމްތަކެއް ހިންގުން
7. މަޝްރޫޢުގެ މަރުހަލާތަކުގައި (ޕާއްސަކޮން ތަންފީޒީ މަރުހަލާގައި) އަންހެނުން ބައިވެރިވުމަށް ބާރުއެޅުން
8. ކުނި މެނޭޖްކުރުމަށް ހެދޭ ސެންޓަރުގެ މަސައްކަތް ރަގަޅަށް ސުޕަރވައިޒްކޮށް ގަވާއިދުން އިންސްޕެކްޓްކުރުން

2 Introduction

2.1 Background and justification

The island of Kolhufushi of Mulak Atoll (Meemu Atoll) located at the lower central part of the Maldives is one of the 9 inhabited islands of Meemu atoll. Kolhufushi is located at geographic coordinates N 02°46'48"; E 073°25'30″. As per the most recent population data maintained by the island council, the total registered population of Kolhufushi as of January 2021 is 1,447. The resident population as of January 2021 is 1,070. Similar to almost all islands of Maldives, the island is vulnerable to environmental and economic development variables such as rising sea level, coastal erosion, pollution/depletion of groundwater and unmanaged waste.

Currently there is no formal waste management center is the island. Waste disposal is carried out in 2 locations; one at the northern side and one at the western side of the island. All waste is collected at these two sites where all combustible waste gets disposed through open burning. As waste is not properly managed in the island, the two locations where waste are disposed is full of all kinds of waste and are heavily polluted. Waste disposal at other places is also observed to some extent.

In order to address the issue of waste management in islands, the Ministry of Environment, through the Maldives Clean Environment Project (MCEP) intends to establish a full-fledged IWRMC and facilitate piloting of in-vessel composting in Kolhufushi based on the findings of the technical and financial feasibility study for the establishment of a regional solid waste management system in Zone 4&5 (CITRES and MEECO, 2019). The proposed project involves construction of a 753.12m^2 IWRMC in the MLSA approved site of Kolhufushi, which is located at the south-western side of the island. The center includes the following infrastructure:

Operational Infrastructure

- Waste unloading and loading area
- Mechanical composting
- Inorganic waste processing area and inorganic waste storage area
- Bulk waste storage area
- Hazardous waste storage area

Administrative and supporting Infrastructure

- Office
- Locker and Toilet
- Store
- Groundwater well
- Rainwater pits
- Leachate collection well connected to sewer network)

Additional details of these structures are given in Chapter 4. Once the infrastructure is in place, an Organic Waste Converter (OWC) machine will be set up at the facility to facilitate mechanical composting of the waste using aerobic technology. Detailed description of this technology is also given in Chapter 4 of this ESMP.

The proponent of this project is the Ministry of Environment through the World Bank funded Maldives Clean Environment Project. Upon completion of the civil works and set up of mechanical composting at the facility, the operations of the facility will be handed over to the Island Council. Training needs for the proper operation of the facility will be identified through the assessment and will also be incorporated into the report.

The Island Council has formulated and published in the government gazette a Regulation on waste management and disposal for the island (2013/R-1631). As per the Regulation, waste management and disposal areas have to be demarcated, based on the Land use plan of the island and within 3 months of the implementation of the Regulation. Furthermore, all plans and guidelines to ensure proper implementation of the Regulation should be formulated and publicized within 3 months of the implementation of the Regulation. However, as of today there has been no waste management plan prepared or implemented.

2.2 Purpose of the report and need for the ESMP

The Environmental Impact Assessment (EIA) Regulation of Maldives (2012/R-27) and amendments gives a list of development projects for which an EIA is required (Schedule Raa of the Regulation). With respect to waste management, EIA is required for three types of projects; installation of incinerators with a capacity of 10 or more tonnes/day, development of landfill using waste and development of large-scale waste management centres (capacity of treating 10 tonnes/day).

As per due process for projects not listed in this Schedule, a screening form for the project was submitted to the Environmental Protection Agency, to assess the level of impact due to the project. Based on this project description and areas of impact, EPA has stated that the project can commence after submission and approval of an Environmental Management Plan (EMP). At the same time, World Bank (WB), as the funding agency has also carried out screening of the project and stated that an Environmental and Social Management Plan should be prepared, based on the TOR issued by WB. As EPA does not issue a TOR for formulation of EMPs, the TOR issued by WB will be followed (see Appendix 2).

2.3 Terms of Reference (TOR)

As stated above, the Terms of Reference issued by World Bank for the project titled "ESMP for the establishment or upgrading of IWRMCs with Aerobic Technology using Composting Machine", will be followed for the formulation of this ESMP. The chapters of this report are as per the structure given in the TOR and are as follows:

1. Executive summary
2. Introduction
3. Legislative and Regulatory considerations
4. Project Description and study area
5. Existing environment
6. Environmental impacts
7. Alternatives
8. Mitigation Plan
9. Environmental management and monitoring plan and Grievance redress mechanism
10. Training recommendations
11. Contingency plans
12. Stakeholder consultations
13. Gender empowerment / Preparation of Gender Action plan
14. Conclusion

2.4 Literature review

The following documents have been reviewed to get a better understanding of the project and formulation of ESMPs for similar projects.

- Environmental and Social Assessment and Management Framework (ESAMF) & Resettlement Policy Framework (RPF) - Maldives Clean Environment Project (Ministry of Environment and Energy, 2016)
- Feasibility Study for a Regional Solid Waste Management System in Zone IV and V, Maldives - Report Phase 2 – Draft 1 Final Version. Prepared for Maldives Clean Environment Project - Ministry of Environment (CITRES and MEECO, November 2019)
- Environmental Management plan for the upgrading of Island Waste Management Centre in N. Holhudhoo. Prepared for Ministry of Environment (Ahmed Hassaan Zuhair, October 2019)
- Environmental and Social Management plan for the proposed establishment of Island Waste and Resource Management Centre in Th. Madifushi. Prepared for Ministry of Environment and Energy (Ahmed Hassaan Zuhair, January 2021)
- Waste Management Regulation (R-58/2013) and amendments
- Island Waste Management Regulation – M. Kolhufushi (2016/R-18)

- Regulation on protection of the environment – M. Kolhufushi (2019/R-690)

3 Legislative and Regulatory considerations

This chapter describes national relevant laws and regulations, as well as international agreements that are pertinent to the construction and operation of the project. The Environmental Protection and Preservation Act of the Maldives (Law No. 4/93) is the governing legislation for the protection of the environment. Several regulations have been implemented pertaining to this legislation and those of relevance to the project are given in Table 1. The Government agencies that are specifically related to the project are;

- Ministry of Environment (ME)
- Environmental Protection Agency (EPA)
- M. Kolhufushi Island Council

The national laws and regulations and the international conventions relevant to the proposed project are outlined in the following table (Table 1) with specific relevance and level of compliance.

Table 1. Legislation relevant to the project

Legislation	Description	Relevance to the project
National Laws and Regulations		
Environmental Protection and Preservation Act (Law 4/93)	This is a framework law related to overall aspects of environmental protection in the Maldives. The Environmental Protection and Preservation Act (EPPA) states that any developmental project which has a potential impact on the environment should have an EIA carried out prior to commencement of the project. List of such projects are given in the EIA Regulations 2012. Those developmental projects which do not require an EIA undergo screening to assess level of impact based on which EPA issues a decision. Article 2: Government Authorities shall provide necessary guidelines on environmental protection and all concerned parties shall take due consideration to these guidelines, Article 7: Any type of waste, oil, gas or any substance that may be harmful (e.g. toxic/hazardous or nuclear) to the environment shall not be disposed within the territory of Maldives.	The proponent (developer) shall be aware of these requirements and inform the contractor. It is advised to the proponent that the contractor is appropriately informed.
Decentralization of Administrative Areas Act (Law 6/2010)	The Decentralisation Act (2010) (D Act) formalised the roles and responsibilities of Atoll and Island Councils and required that they be democratically elected. 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 Decentralisation Act requires Island and City Councils to provide and maintain basic public services such as water, electricity, and sewage systems; to organise to sweep and clean the roads, maintain cleanliness of the island and its beauty and to build and maintain roads. Hence establishment of good waste management system with a waste management plan for the island is one of the many responsibilities of the island council. According to the act, the island council are required to prepare their own regulations to provide waste management services. This regulation may include the grievance redress mechanism proposed in the monitoring plan to this report.	
Environmental Impact Assessment Regulation	The regulation details out the screening process for environmental assessments, and the contents that need to be covered in the different types of assessments. It includes	The project has been screened by EPA for environmental compliance

(2012/R27) and amendments (5)	Initial Environmental Examination, Environmental Impact Assessment and Environmental Management Plans. The regulation also provides a list of the types of development projects that have a socioeconomic environmental relevance in Appendix Raa (D) of the regulation that would require to carry out a detailed Environmental Impact Assessment. The amendments included • Revision of EIA review period and associated costs, qualification required for monitoring the Environmental Management Plan, • Revision to the list of projects that requires EIAs, projects that can be undertaken by simply applying mitigation measures for projects such as for maintenance dredging of harbors, clearance of vegetation within allocated plots for households and for roads, • Transferring of Tourism related EIA decision making to Minister of Tourism for tourism related activities and subsequent reversal of decision making to EPA • Categorization of EIA consultants, point system for consultants to assess performance and license suspension, a code of conduct for consultants, and increment to the fine for non-compliance of regulation and violations.	level categorization and screening decision by EPA was that the proponent should attain environmental clearance through submission of an EMP for the project.
Regulation on Environmental Liabilities (2011/R-9)	The main objective if this regulation is to ensure prevention of actions violating the EPPA 4/93. The regulation also aims to ensure compensations for all the damages that are caused by environmentally detrimental activities. The regulation sets measures and standards for different types of environmental liabilities and equal standards that shall be followed by the implementing agencies 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 EPPA 4/93.	The proponent, developer and operators of the proposed project will be liable to any environmental damage caused during both construction and operation phase of the project. All parties should be well informed of such requirements. The project should ensure proper mitigation measures are in place to avoid any such damage.
Utility Regulation Authority Act (2020):	The Utility Regulatory Act establishes the powers and responsibilities of the Authority formed to plan and implement the activities with respect to utility service provision. The Act also identifies the policies and guidelines to be followed in planning such service provision.	Operator of the IWRMC shall abide by all requirements under the Act

	In this act Utility services are referred to provision of freshwater, sewerage, power and waste management services for a fee or as a business. The Act has 7 key objectives, which are as follows: • Ensure that utility services are available to the whole population at a reasonable price, and in a trustworthy, robust and sustainable manner; • Ensure that utility services are planned in an efficient and environmentally friendly manner • Ensure that the utility service provision is successful, of good quality and are able to meet the needs of the population • Ensure that utility service provision is done in a just manner, and that there is continued development of the services through a competitive market • Formulate and implement policies and guidelines to be followed in utility service provision • Ensure utility service providers abide by this Act and all other relevant acts and regulations and establish a penalization system for those who break the law • Increase awareness about the rights provided to those who receive the services and the service providers The regulatory works for waste management has been transferred to newly established Utility Regulation Authority (URA).	
Waste Management Regulation (R-58/2013)	The Waste Management Regulation of the Maldives was gazetted on the 5th of August 2013 and came into effect 6 months from the date, on 5th of February 2014. The Regulation was enacted through the powers given to the Ministry through Law 4/93. The main objective of this regulation is to implement the national policy on waste management and through its implementation, facilitate the following so as to preserve the environment: • Minimise both direct and indirect impacts due to waste on environment and human health. • Establish standards for waste management • Formulate an integrated framework for waste management, and establish environmentally sound and sustainable means for waste management	The development of the Waste management centre on the island will follow all guidelines and protocols set under this regulation. The operations will commence after obtaining all the required licenses and permits.

	• Encourage waste minimisation, reuse, recycling and recovery • Implement "Polluter Pay" principle • Introduce "Extended Producer Responsibility" The regulation has five focus areas: • Waste Management Standards; defines standards for waste collection, transfer, treatment, storage, site management, landfills and managing of hazardous waste • Procedure for approval of Waste management permits (for waste management sites) • Standards and permits required for transport of waste (land and sea) • Monitoring and reporting requirements • Enforcement and implementation procedures and penalties	
Environmental Guidelines for site selection of waste management centers	This set of guidelines formulated by EPA provides guidance in selecting an environmentally suitable site for the waste management centers in inhabited islands. It also aims to provide guidance in ways to minimize and mitigate potential environmental and social impacts from the activities that shall be carried out in the waste management center	Site allocation for IWRMC at Kolhufushi meets all requirements of EPA.
Island Waste Management Regulation - M. Kolhufushi (2016/R-18)	This regulation states that waste management and disposal areas have to be demarcated, based on the Land use plan of the island and within 3 months of the implementation of the Regulation. Furthermore, all plans and guidelines to ensure proper implementation of the Regulation should be formulated and publicized within 3 months of the implementation of the Regulation. The regulation outlines the measures the Council should consider when allocating a waste disposal site, guidelines to follow when carrying waste from one place to another, during disposal of waste and burning, both at the disposal site and within own plot. The regulation also includes the fine structure in case of breach of the articles of the regulation in managing waste in the island.	The land area allocated is in conformance to the regulation
Regulation on protection of the environment – M. Kolhufushi (2019/R-690)	This regulation was formulated to enable the Island Council to protect the environment of the island and identify the measures to be taken against those who harm the environment of the islands under the Council jurisdiction.	Disposal of hazardous waste through this project will follow this regulation as well as the Waste Management Regulation

	With respect to waste, the regulation states: a) Disposal of hazardous/ dangerous waste, fuel or oils should not be carried out in a manner which is harmful to the environment, at any area under the Council jurisdiction b) The council should designate a specific area for disposal of material if required c) Disposal of such waste through burning can only be carried out by the Council or through Council authorization d) If the Council does undertake disposal of such waste through burning it should be done so in a manner which is not harmful to the health and wellbeing of the personnel involved as well as the community e) The regulation does not impede the Council from taking a fee for such service provision	
Maldives Land Act	The act governs allocation of Maldivian land for different purposes and uses and other issues regarding the issuing of land, issuing of state dwellings or private dwellings constructed for residential purposes and the sale, transfer and lease of Maldivian Land. Under article 2, all transactions concerning issuing, receiving, owning, selling, lease, utilizing and using Maldivian land shall be conducted in compliance with this Act.	Land allocation for development of IWRMC has been approved by the Maldives Land and Survey Authority (Letter from MLSA in Appendix 3)
Water and Sewerage Act 8/2020	The Act was enacted on 5th August 2020 with immediate effect. This act will precede any law or regulation that would coincide with this law. All related articles on water and sewerage stipulated in the General Regulations Act (6/2008) will be redundant with the enactment of this law. The act has 11 key objectives it aims to achieve. Among these are the establishment of safe and suitable potable water and appropriate sewerage systems for all the inhabited islands of the Maldives. In addition, one of the key objectives (Objective 4) is to ensure establishment of appropriate water and sewerage systems in the islands and places designated for other purposes such as tourism and industrial. The Act also ensures the protection and conservation of the natural water resources available through guidelines and procedures stipulated within the act and also other relevant guidelines that will be formulated under this act.	Groundwater usage for the project will conform with this Act.

	Other objectives detail out the establishment of the regulatory framework for managing the water and sewerage systems. The Act reiterates the need of EIA for all water and sewerage establishments. It states that the permit for construction of the systems can only be given after the formulation and approval of EIA. The main Article that concerns the proposed project at this stage is Article 18 (Haa) which states that groundwater (and other natural water bodies such as mangroves) cannot be used for industrial purposes, or on islands leased for agricultural purposes or tourism. The act does not state that groundwater cannot be used for construction work on inhabited islands.	
Land Use Planning regulation (2002)	Land Use Planning (LUP) regulations were first issued in 2002 by the former Maldives Housing and Urban Development Board (MHUD) to provide the necessary policy framework and guidelines to improve land use and development activities nationally, with an emphasis on optimizing the use of the limited land available. It sets out a broad framework for land use activities in planning policies and processes including planning procedures and categories, plan preparation, consultation and approval processes and implementing strategies Clauses specific to waste management in the LUP regulation states that: a) Consideration shall be given to allocation of a waste management site. The waste management site shall be located away from the population and consideration given to wind direction, smell, smoke, flies and other nuisances that impact on local amenities. b) There shall be a buffer zone between the waste management site and the population. The buffer zone can be used to accommodate industrial activities or may consist of vegetation. c) The exact details and stages of how the waste is managed need not be given on the land use plan. However, the land use plan should be prepared in such a way, that it would accommodate a sustainable waste management practice.	The site proposed for development of the IWRMC has been allocated with due consideration to the guidance given in this regulation.

	d) The rules and regulations of the Government agencies on waste management should be followed in terms waste management.	
By-law on cutting down, uprooting, digging out and export of trees and palms from one island to another	The bylaw states that the cutting down, uprooting, digging out and export of trees and palms from one island to another can only be done if it is absolutely necessary and there is no other alternative. It further states that for every tree or palm removed in the Maldives two more should be planted and grown in the island. The bylaw prohibits the removal of the following tree types; • The coastal vegetation growing around the islands extending to about 15 meters into the island are protected by this bylaw; • All the trees and palms growing in mangrove and wetlands spreading to 15 meters of land area are protected under this bylaw; • All the trees that are in a designated protected area; • Trees that are being protected by the Government in order to protect species of animal/organisms that live in such trees • Trees/palms that are unusual in structure	Vegetation clearance is necessary for the project and will be done so as per regulations and guidelines. Due to lack of land area on the island to replant or transplant these palms and trees, a collaboration has been established with Kudahuvadhoo Council, so as to undertake 2:1 replantation of palms on Kudahuvadhoo as per regulation (details in Chapter 12). Compensation will be provided to owners of palms which need be removed
Protected Areas Regulation on Protected Areas Regulation (2018/R-78)	This regulation was published in 2018 under the EPPA 4/93 pursuant to Article 4. The objectives of this Regulation are; (a) to establish effective guidelines for declaration and management of protected areas; (b) to ensure that the process of protected area declaration is consultative transparent; (c) to enlist environmentally significant areas in the Maldives; (d) to establish and sustainably a mechanism to maintain a framework for protected areas; (e) to enhance awareness and participation of community in protected area designation and management; (f) to ensure future generations benefit from natural resources, ecosystem services and biodiversity richness of the country. 61 sites as of July 2019 has been declared as protected areas in the Maldives. These include dive sites, mangroves and some ecologically significant islands.	There are no protected sites within vicinity of project site
Environmentally Sensitive Areas (ESAs)	ESAs include possible fish breeding areas, bird sanctuaries, micro atolls, islands, mangroves and marine areas. A total of 274 ESAs has been designated as of 2017.	There are no ESAs within vicinity of the project site or on the island

	Ministry of Environment has designated these areas as Environmentally Sensitive Areas (ESAs) with regards to the richness of its biodiversity and significance to the ecosystem. These areas are given careful consideration before approval of any type of development to ensure sustainable development which mitigates any negative impact to the environment.	
Regulation of Health and Safety measures specific for the Construction industry (2019/R-156)	The Regulation on Health and Safety measures specific for the Construction industry was published in the government gazette on 30th January 2019 and came into effect on the same day. The implementing agency for the regulation is the Ministry which is mandated with enforcing the legislations relevant to the Construction industry at any given time (at present MNPHI). The main purpose of the Regulation is twofold: 1. Identify and specify the minimum measures which need to be in place to ensure safety of the workers and the general public 2. Identify the penalties which will be given and personnel responsible for this action, in instances where construction projects do not abide by the Regulation Second chapter of the Regulation identifies the roles and responsibilities of the Contractors and Construction companies/workers. Key points include: • Formulation of a Health and Safety operations manual for projects exceeding MVR 1.5million in cost. These manuals will be used to train the workforce in this aspect • Formulation of an Emergency response plan • Appointment of a Site Safety Supervisor and details of their roles and responsibilities • Insurance scheme (to ensure compensation of workforce and/or neighboring houses should the need arise during construction work) • Measures to ensure public safety during construction work • Proper use or Personal Protective equipment (Contractor's responsibility to provide these to their workforce)	The proposed project will have to adhere to this regulation taking all precautionary measures identified in the regulation during the construction phase of the project.

	• Regulation further specifies measures to be in place when working on different phases of the project and while using different equipment for work (working at levels 3m high from ground level, on rooftops, in enclosed areas, using scaffoldings, ladders, working with electricity, use of chemicals and welding, use of electric power tools and mechanical tools, heavy machinery) • Measures to be in place when storing materials for construction • Use of safety boards issued by relevant authorities • Use of safety measures (such as demarcation tape) to clearly demarcate construction site, so as to ensure safety of public • Operation procedures in instance of accidents at the site Chapter 3 of the Regulation identifies measures to be taken by enforcement authority in instances of an accident at the construction site. The chapter also details penalties to be issued in instances where the Regulation is not adhered to during construction projects.	
Public Health Protection Act (07/12)	The Public Health Protection Act aims to establish policies to protect public health and identify the institutional arrangement for implementing the polices, regulations and guidelines. The act has a chapter on health hazards which should be adhered in any development project as well. It also includes a section on establishing policies to respond to public health emergencies.	The proposed project should adhere to this act in relation to identifying the potential health hazards during construction and operation stage of the IWRMC. Furthermore, as per this act the policies and guidelines formulated under this act and the ones formulated for the ongoing COVID pandemic should be strictly followed during the development phase of the project. During the preparation of the ESMP, HPA guidelines are followed in carrying out the field surveys and also the stakeholder discussions.
Guideline on travel related quarantine among people	This guideline highlights the measure to observe if group of 10 people or more stays in a shared accommodation (room or barracks or dormitory) during travel related	Construction workforce will abide by these guidelines prior to

travelling in 10 or more groups (HPA Guidelines of relevance to present COVID 19 situation)	quarantine. This guideline also applies to those who are travelling to an island where there is no community spread, from any island where there is community spread of COVID19. Clauses of this guideline of relevance to this project include: • If Maldivians and expatriates living in an island where there is community spread of COVID-19 travels to an island where there is no community spread of COVID-19, PCR test must be done not more than 72 hours prior to the scheduled time of departure to the island and should have a negative PCR result prior to travel. • People who have COVID-19 like symptoms such as fever, cough, respiratory symptoms etc., must not travel until 48 hours after resolution of symptoms even if their PCR test results are negative. The Guidelines also details procedures for travel applications, procedures to be followed during quarantine period inclusive of accommodation (such as accommodation in small groups, without meeting people from outside, distance between beds of 3ft etc.) during this period. It also gives details on procedures to be followed if someone who is in quarantine shows symptoms of COVID 19.	departure to the island and during their stay on the island. During the preparation of the ESMP, HPA guidelines are followed in carrying out the field surveys and also the stakeholder discussions
Labour and Working Conditions National Laws	The national laws and regulations relevant to labour and working conditions include: • Employment Act (2/2008) • Immigration Act (1/2007) • Anti-Human Trafficking Act (12/2013) • Pensions Act (8/2009) • Human Rights Act (6/2006) • Regulation on Employment of foreign workers in the Maldives (2011/R-22) • Work Visa Regulation (2010/R-7)	Contractors should ensure that all workers are treated according to the Employment Act. Contractor should ensure that all foreign workers have relevant documentations including the work visa as per Immigration Act and Work Visa Regulation.
National Policies and Action Plans		
National Biodiversity Strategy and Action Plan 2016 – 2025 (NBSAP) prepared under the	NBSAP is a 10 year plan with the vision of Maldives is to be *"a nation of people that co-exist with nature and has taken the right steps to fully appreciate, conserve, sustainably use, and equitably access and share benefits of biodiversity and ecosystem services."* by integration of biodiversity conservation into all areas of national planning, policy development and administration (MEE, 2015).	The current project conforms to these policies, by carrying out the ESMP work prior to commencement of the project, so as to minimize impact on the environment and to incorporate ways of environmental

Convention of Biological Diversity (CBD)	The 6 strategies developed to achieve this includes; S1: Strengthen governance, policies and strategies for biodiversity, S2: Enhancing communication and outreach through awareness programs and capacity building, S3: Work together globally for biodiversity conservation, S4: Ensure sustainable use of biological resources, S5: Address threats to conserve biodiversity, S6: Strengthen information management and resource mobilization. Among these strategies, includes identifying ways to address threats to conserve biodiversity conservation (Strategy 5) under which targets includes: Target 17: By 2025 pressures on coral reefs and other vulnerable ecosystems due to anthropogenic activities and climate change are minimized Target 19: By 2025, impacted ecosystems that provide essential services related to water, human health, wellbeing and livelihood are restored significantly Target 23: By 2020 pollution from waste and sewage has been brought to levels that are not detrimental to ecosystem functions and biodiversity.	monitoring and management during the project works.
National Waste management policy (2015)	The key objective of the National Waste Management Policy is to ensure that all the policies, regulations, standards plans and masterplans are prepared with a common basis. The policy includes roles and responsibilities of waste management at individual level, household level, atoll level, regional level and national level. The policy outlines 10 strategies to address the issue of waste management in Maldives. These include the individual responsibilities of managing waste and island councils' responsibilities to prepare waste management plans and manage the waste at island levels; Collecting fees from households to manage waste; Encourage the utilities companies to carry out the task of managing waste at the islands; Establishment of regional waste management centers; Encourage and provide means to generate income using waste products; carry out trainings on waste management at national level.	Operations of the waste management centre will be as per this policy and other waste management guidelines. Island Waste management plan will be implemented to ensure proper operations.
International legal frameworks		
IFC guidelines	This set of Guidelines are applicable to all projects involving the management of municipal solid waste and industrial waste, including waste collection and transport;	

Environmental, Health and Safety guidelines for Waste management facilities	waste receipt, unloading, processing, and storage; landfill disposal; physico-chemical and biological treatment; and incineration projects The Guideline has two main parts: 1. Industry specific impacts on the environment, occupational health and safety and community health and safety. Recommendations on ways to mitigate and manage these impacts are also given in the guideline. 2. Performance indicators and industry benchmarks for environmental performance and occupational health and safety performance.	
Labour and Working Conditions	Maldives has signed 10 convention of the International Labour Organization with regards to labour and working conditions These includes: Fundamental 8 conventions • C029 - Forced Labour Convention, 1930 (No. 29) *ratified on 04 Jan 2013* • C087 - Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87) *ratified on 04 Jan 2013* • C098 - Right to Organize and Collective Bargaining Convention, 1949 (No. 98) ratified on *04 Jan 2013* • C100 - Equal Remuneration Convention, 1951 (No. 100) *ratified on 04 Jan 2013* • C105 - Abolition of Forced Labour Convention, 1957 (No. 105) ratified on 04 Jan 2013 • C111 -Discrimination (Employment and Occupation) Convention, 1958 (No. 111) ratified on 04 Jan 2013 • C138 - Minimum Age Convention, 1973 (No. 138) Minimum age specified: 16 years r*atified on 04 Jan 2013* • C182 - Worst Forms of Child Labour Convention, 1999 (No. 182) *ratified on 04 Jan 2013* Technical 2 conventions • C185 - Seafarers' Identity Documents Convention (Revised), 2003, as amended (No. 185) *ratified on 05 Jan 2015* • Amendments of 2016 to the Annexes of the Convention No. 185 *ratified on 08-Jun-2017*	The contractor (s) should adhere to the measures mentioned in these conventions where relevant. Among the many things, abiding to these laws would ensure no exploitation of foreign migrant. The contractors should make timely payment to the workers (in full) and they should not hold documents of the workers against their will. It is important to know that foreign migrant workers are not required to pay recruitment fees and there should not be any forced labour. Contractors should ensure that all workers local or foreign should be treated with equality, dignity and respect.

	• MLC, 2006 - Maritime Labour Convention, 2006 (MLC, 2006) *ratified on 07 Oct 2014* Al these conventions are considered in-force in the Maldives. Hence these should be strictly adhered in relation to all labour and working affairs.	

4 Project Description

4.1 Study Area

The proposed project will be undertaken in Kolhufushi, Meemu Atoll located in lower central region of Maldives. The island is located on the southern peripheral reef of the atoll, at the geographic coordinates of N 02°46'48"; E 073°25'30″. There exists two more inhabited islands and 2 resorts within the same reef. This includes M. Muli which is the capital of Meemu atoll, at an approximate distance of 23.6km from Kolhufushi. With a total area of 76ha, settlement is observed at the central area which has spread across the island except the most southern area of the island which does not have any residential areas at present (Figure 1) as it is mostly wetlands. The proposed work will be undertaken on the southwestern side of the island. The land area required for project development was allocated for the purpose and approved by Maldives Land and Survey Authority in 2018 (evidence of land area approval is given in Appendix 3). Waste disposal is carried out in 2 locations; one at the northern side and one at the western side of the island. All waste is collected at these two sites where all combustible waste gets disposed through open burning (Figure 1). Figure 1 shows the location of Kolhufushi in Meemu Atoll and location of the proposed area for IWRMC and current waste dumping grounds. The closeup image shows the proposed area.

Figure 1. Location of Kolhufushi in Meemu Atoll (top left), proposed location of IWRMC (bottom left) and Kolhufushi island showing the current waste dumping areas (yellow outlines) and proposed IWRMC in blue (right)

4.2 **Project components**

The proposed project involves construction of a 753.12m^2 IWRMC in the MLSA approved site of Kolhufushi, which is located at the south-western side of the island. IWRMC infrastructure will be developed to cater to the requirements of setting up of a proper IWRMC with mechanical composting setup. Figure 2 gives a schematic of the layout for proposed IWRMC. A larger scale drawing is given in Appendix 4 of this report.

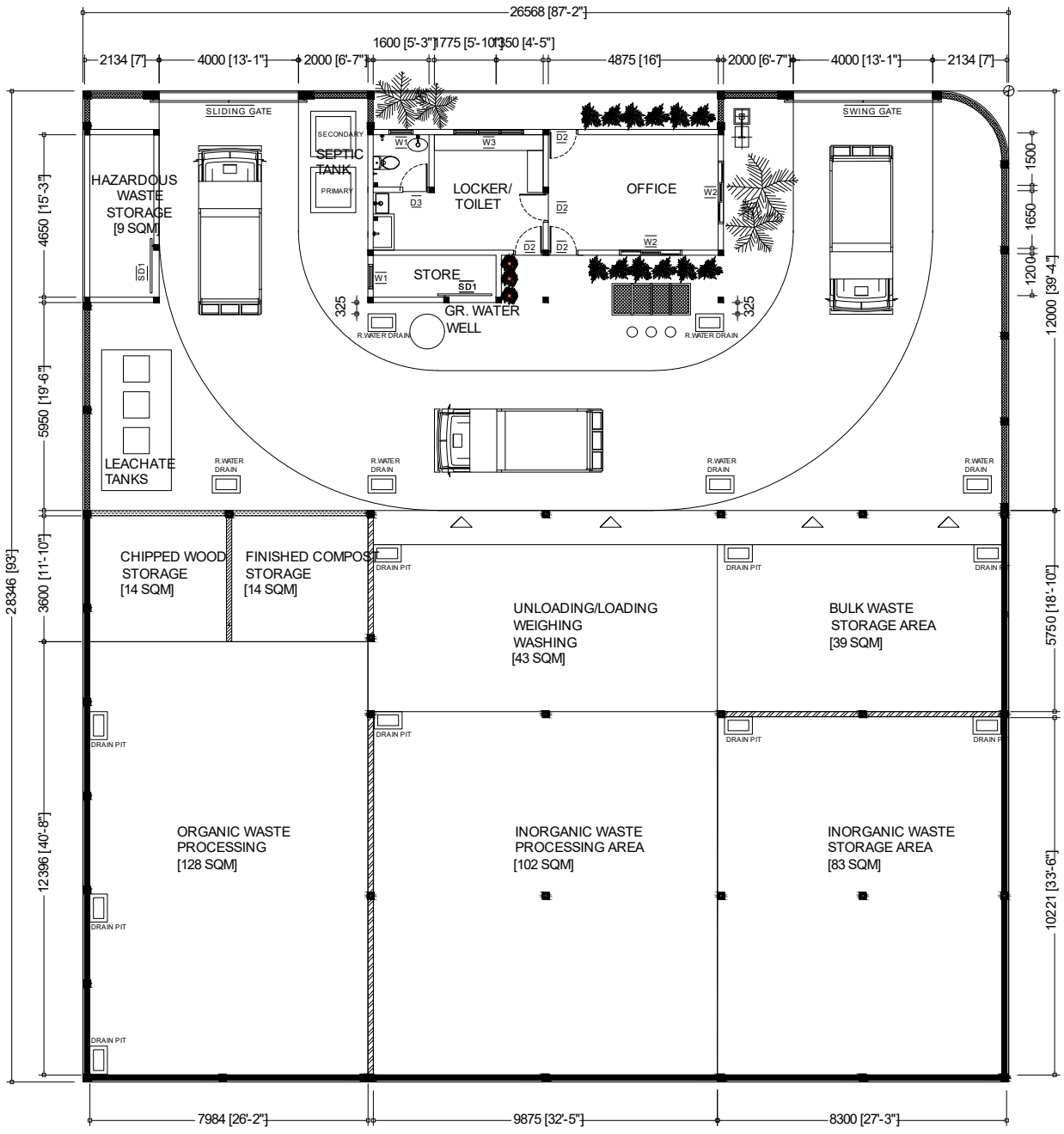

Figure 2. Schematic layout of IWRMC proposed (scaled site plan given in Appendix 4)

4.2.1 Construction phase

The construction contractor for the project has not been identified yet. The contractor will be identified upon approval of ESMP. The contractor shall provide details of materials and methodology for construction subject to approval from the client. Hence, construction work will be carried out as per contract for various components of the project. Machinery and materials to be used (including sand required for construction) will be bought locally or imported if not available. The center includes the following infrastructure.

Operational Infrastructure

1. **Waste unloading, loading and weighing area**

   A roofed area of 43m^2 with concrete slab designated for weighing and sorting of incoming waste to organic and inorganic fractions.

2. **Organic waste composting area**

   A fully enclosed roofed area with concrete slab and brick walls to be developed, where in-vessel composting will be carried out. The organic waste composting area has an area of 128m^2 with additional storage areas of 14m^2 each for the storage of finished compost and chipped wood at this area.

3. **Inorganic waste processing area**

   A roofed area with concrete slab where waste will be further segregated into plastic, metal, glass etc. and processed via baling, compaction and crushing. This processing area has an approximate area of 102m^2.

4. **Processed inorganic waste storage area**

   A roofed area with concrete slab where the processed inorganic waste will be stored. The storage area has an area of 83m^2. The design considers storage of such waste for 4 – 6 months, which will then have to be transferred to the Regional Waste Management Facility (RWMF).

5. **Bulk waste storage area**

   A roofed area of approximately 39m^2, with concrete slab, designated for the storage of bulk waste such as old furniture, roofing sheets etc.

6. **Hazardous waste storage area**

   A fully enclosed room of 9m^2 area, with a roof, concrete slab, 4 walls and a gate, where the received hazardous waste will be stored prior to its final disposal at a RWMF. Appropriate hazard, flammable liquid and warning signage will be installed.

Administrative and Supporting Infrastructure

7. **Office / Store / Toilet**

   This is the space and essential utilities operational and administrative staff.

8. **Groundwater Well**

   A groundwater well will be constructed at the open area in front of the proposed store. Water for operations will be drawn from this well.

9. **Installing drains**

   Drains will be installed at the waste unloading and loading areas, the waste processing areas, waste storage areas, and the mechanical composting area, which will be subsequently connected to the septic tank. This will also allow collection and drainage of any leachate which might be produced, although this will be of comparably minor quantity (to windrow- based composting) with the proposed method of composting.

10. **Rainwater pits**

    Rainwater pits will be installed throughout the open area of the IWRMC to deal with potential storm water produced during rainy seasons.

11. **Water connection**

    Internal water piping and taps will be laid to connect water to the different parts of the IWRMC. A water pump will be installed to connect water to the toilet, wash area, waste sorting / processing areas and the mechanical composting area from the groundwater well.

12. **Connecting Electricity**

    3 phase electricity required for the operations of the IWRMC will be sourced from the island powerhouse. A 4-core power cable will be laid from the nearest distribution box which is located 20m from the proposed site.

13. **Fire safety equipment**

The IWRMC will be developed with required fire safety equipment as listed below:

- 50KG DCP Trolley (2 nos.);
- 50LTR Foam Trolley (1 nos.);
- Wet Chemical 6Ltr with Cabinet for hazardous waste area (1 nos.);
- Water 9Ltr with Cabinet for Office Area – Outside (1 nos.); and
- CO_2 2KG with Cabinet for Office Area – Outside (1 nos.).

All the main infrastructures of the IWMC will be fully enclosed by lockable roofed areas with brick walls, while fencing will be used to enclose the boundary of open areas.

4.2.1.1 Construction methods

Details of construction methods given below are as provided by the proponent (in the absence of a contractor). As per the proponent, normal civil works will be undertaken for the construction of the building.

Foundation

Once vegetation clearance is done, plot area will be back filled, due to low elevation of the area. Approximately 750 cbm of sand will be required for this work. It is proposed to source sand from the planned coastal protection project by Ministry of National Planning, Housing and Infrastructure (MNPHI). Communications have been undertaken between MCEP and MNPHI to this effect and MNPHI has agreed to provide the required material for backfilling from excess dredged materials envisaged through their project (evidence of communications in Appendix 5).

Foundation works will be done after completion of backfilling and levelling works. The proposed method of foundation construction for the IWRMC is using concrete footing and concrete foundation beams. As detailed designs are not available at present, depth of excavation is unavailable. However, since this is a single storey structure, it is assumed that depth of excavation will not exceed 600mm. Excavation will be done manually. However, due to the low elevation of the area, some level of dewatering might be required and if so, water extracted will be disposed at nearby areas. Groundwater level is at 1.5ft and even at present some areas are waterlogged during high tide. Ordinary Portland cement will be used for all concrete works.

Construction of concrete slab

The Concrete foundation beams will be covered with a concrete slab with varying thickness at different areas of the IWRMC. Thickness of slab at the office area is proposed to be 75mm, while that at hazardous waste storage area, bulk waste storage area and mechanical composting area will be 100mm. The concrete slab at the rest of the waste processing areas will have a thickness of 150mm.

Construction of groundwater well

A groundwater well will be constructed for non-portable use with water pump installed to release water to the different parts of the IWMC. Water will be connected to the toilet and wash area. Water taps will be installed at waste sorting (loading / unloading / weighing), mechanical composting and inorganic waste processing areas for washing the floors.

Excavation depth will depend on the depth of water table. Once excavation is completed, well base and body is fitted into the pit and covered. A pump will be installed with connections to the

toilet and wash area, as well as the waste sorting, mechanical composting and inorganic waste processing areas. Groundwater will be used at these areas for all non-potable uses such as washing the floors.

Installation of Drains

The sewerage generated during the operational phase of the project will be managed through existing sewerage network system. Drains will be installed at the mechanical composting and inorganic waste processing areas for dealing with wastewater produced during washing of floors. The drain at the mechanical composting area will be connected to the adjacent leachate well, which will be subsequently released to the sewer network of the island via a connection made to nearest sewer connection point (approximately 150m from the IWMC). The drain at the inorganic waste processing area and the toilet will also be released to the island sewer network.

4.2.2 Operational phase

The main component of this project is the setup of mechanical composting at the new IWRMC to be setup at M. Kolhufushi. However, the operational phase components of the project also involves waste collection, sorting and management of inorganic waste as well as transfer of waste to the RWMF.

1. **Waste Collection Services**
   After construction works are completed the IWRMC will be officially handed over to the Island Council. The Island Council will manage the operation of the IWRMC according to an approved Island Waste Management Plan (IWMP). Daily collection services will be provided at a cost as per the IWMP. Each house will be supplied with bins to facilitate segregation of waste at household level. Two battery operated vehicles are proposed to be used for household waste collection.

2. **Sorting**
   Collected waste will be sorted into organic and inorganic waste at site. After sorting, the inorganic waste will be further segregated into plastic, metal, glass etc., and processed via baling, compaction and crushing. The processed waste will be stored at the area designated for storage of processed inorganic waste for offsite disposal (at Thilafushi, which is the designated RWMF for Zones 4 & 5 based on feasibility study and is currently being developed into a contemporary facility under ADB financing). The organic waste will be composted through mechanical composting. The facility also has separate storage areas for bulk waste and hazardous waste.

3. **Composting**

   The proposed method of composting is through use of mechanical composting (using an aerobic system). The proposed technology is more advantageous and convenient than the traditional windrow-based composting, which many of the islands are struggling to effectively implement due it being highly labor intensive. Unlike a normal windrow-based system, the technology involves initial 'in-vessel' processing of the waste in the "Organic Waste Converter (OWC)" machine (detailed process is given in Section 4.2.2.1 below).

4. **Leachate Management**

   The given method of composting is envisaged to greatly reduce leachate generation, especially in comparison to windrow-based composting method. Even so, installation of drains in all areas of the waste management centre gives provision for leachate drainage and management (mostly to counter for that generated during cleaning of floors at the composting area). The drains will be connected to the septic tanks constructed in the open area within the centre.

5. **Waste Transport to a Regional Facility**

   The stored inorganic waste needs to be transported to a RWMF every 4 to 6 months. The RWMF is at Thilafushi, which is currently being developed under financing from the Asian Development Bank.

4.2.2.1 Design of Aerobic system (composting machine)

The proposed technology for composting is through use of an aerobic system, which involves in-vessel composting in the Organic Waste Converter (OWC) machine. The OWC can compost all types of organic waste including kitchen and food waste (both raw and cooked), green waste.

The bio-degradable waste is sorted and segregated and chopped to the desired size. The chopped waste is added to the OWC machine, together with the Bioculum (a bacteria powder formulated with 5 different Bacillus species). The Bioculum improves the natural aerobic process. The Bioculum is added at the rate of 1-2g/kg of raw waste. If needed, an absorbent such as saw dust or shredded leaves can also be added at this stage to bring the mix to the desired moisture (40-45%).

The OWC unit is then operated for a period of 15 to 30 minutes, depending on size of unit and batch size. During this time the waste, Bioculum and absorbent are mixed to achieve a homogenous consistency.

At the end of the cycle, the raw compost is discharged into crates of 25kg capacity and these crates are then then placed in curing racks for a period of 10 to 12 days. The curing racks are equipped with an automatic fogging device that maintains moisture content at the correct level thereby ensuring curing is completed. Figure 3 shows a flow diagram of the process.

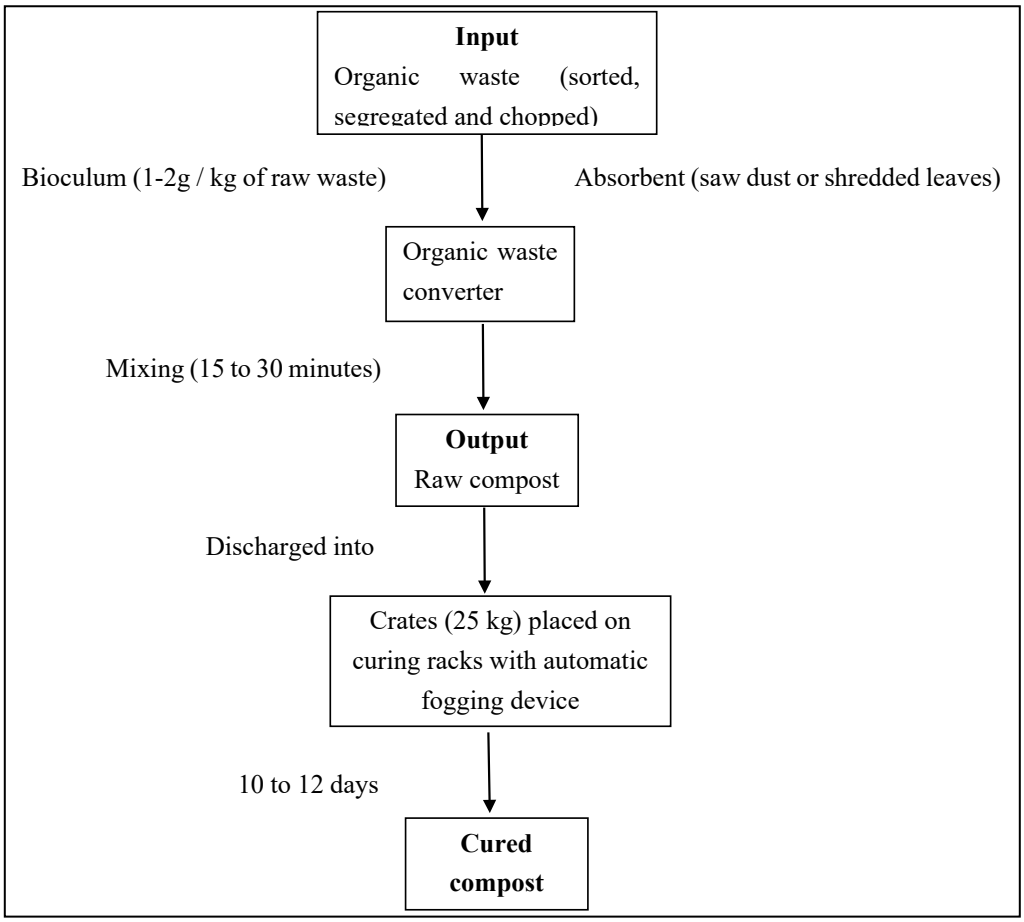

Figure 3. Flow diagram of the OWC machine / composting process

At the end of the curing period, the crates are emptied with the cured compost ready for use; however, after emptying the crate, leaving the cured compost for a further seven days enhances the composts maturity, providing a higher quality product. Typically, the cured compost amounts to approximately 25 – 35%, by weight, of the raw waste input.

The amount of waste that can be processed through the OWC each day is determined by the operating hours. This provides flexibility during times of unexpectedly high inputs or following unanticipated outages. It also allows increasing throughputs to be accommodated at minimal cost. The components of the system which require critical sizing is the curing system; however, additional racks and/or crates require only small areas of land and modest capital expenditure. Some of the advantages reported with the use of this system are:

- Simple and convenient to operate without the need for constant attention;
- Short processing times ensures economic in use with low energy consumption;
- Requires minimal maintenance;
- Beneficial to the environment;
- Overcomes the problems of odour, leachate generation and ground water contamination associated with traditional methods of waste disposal.

4.2.3 Schedule for implementation

As per information provided by the Client, all civil works of the project is anticipated to be completed within 6 calendar months. An estimated schedule for construction (as given by Client) is provided in Table 2.

Table 2. Tentative Project Schedule

Activity	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Mobilization & Supply of Construction Materials						
Site Preparation: removal or translocation of vegetation cleared, backfilling and ground improvement						
Civil Works						
Demobilization						

The Client informs that the in-vessel composting machine will be supplied at a later stage after the completion of the civil works required for its installation and hence is considered as an associated activity of the subject project. As per the current project implementation schedule, the machine is expected to be supplied, installed and commissioned within the last quarter of 2021.

4.2.4 Major inputs and outputs

4.2.4.1 Inputs

Access to site, mobilization and material unloading

Access to site and material unloading will be via existing harbour on the western side of the island. Materials will be transported to the project site and stored at the site.

Workforce requirements, availability and logistics

Work will be carried out by a Contractor, though contractor for the project has not been assigned as yet. Based on information provided by client, workforce will comprise of approximately 10 personnel inclusive of Site supervisor (1), engineer (1) and laborers (8). Workforce will be accommodated through rental of property from the island. If workforce is to be mobilized during the current COVID-19 health emergency, they will follow all required guidelines by HPA prior to and during their time on the island (inclusive of required tests, quarantine etc.).

Provision for water, electricity and Sewerage services during construction

Electricity, Water and Sewerage services required for the workers will be arranged via the existing facilities available on the island as the workforce will be accommodated in existing houses and/or guesthouses.

Neither electricity nor non-potable water are available at the proposed site, where water required for construction has to be attained from a nearby groundwater well. A temporary connection from the powerhouse (20m from the site) may have to be established if electrical equipment are required for the intended civil works.

Mineral water bottles or rainwater will be used for drinking purposes.

Provision for Electricity, Water and Sewerage during Operations

Electricity will be required for the operations of equipment (compactors, crushers, balers etc.) and the in-vessel composting machine. A 25 sqmm 4 core power supply cable will be laid from nearest distribution box to the electric distribution board of the IWMC.

A groundwater well will be constructed for non-potable use with water pump installed to release water to the different parts of the IWMC. Water will be connected to the toilet and wash area. Water taps will be installed at waste sorting (loading / unloading / weighing), mechanical composting and inorganic waste processing areas for washing the floors.

Drains will be installed at the mechanical composting and inorganic waste processing areas for dealing with wastewater produced during washing of floors. The drain at the mechanical composting area will be connected to the adjacent leachate well, which will be subsequently released to the sewer network of the island via a connection made to nearest sewer connection point (approximately 150m from the IWRMC). The drain at the inorganic waste processing area and the toilet will also be released to the island sewer network.

Vegetation clearance

The proposed work will be carried out at the land area already allocated for the IWRMC. However, the area has not been cleared yet and hence vegetation clearance will be required through the project. Significant vegetation at the site is mainly composed of Coconut palms (*Cocos nucifera*). Details of quantities will be given in Section 5.9 of this report. The Council states that there is no available land area to transplant the palms removed (details in Chapter 12), hence this has not been shown in the report. However, this has been addressed as a mitigation measure in Chapter 8 and arrangements have now been made to relocate these or replant as per 2:1 ratio at reclaimed area in Kudahuvadhoo (Dhaalu Atoll).

Fire hazard, health and safety

The IWRMC will be developed with required fire safety equipment as listed below:

- 50KG DCP Trolley (2 nos.);
- 50LTR Foam Trolley (1 nos.);
- Wet Chemical 6Ltr with Cabinet for hazardous waste area (1 nos.);
- Water 9Ltr with Cabinet for Office Area – Outside (1 nos.); and
- CO_2 2KG with Cabinet for Office Area – Outside (1 nos.).

The IWRMC will be operated by the Council. During consultations it was identified that training would be required for those involved in the operations, both in operations of the centre and firefighting skills. This is hence involved in the training programme identified in Chapter 10 of this report.

Construction waste and waste oil

The type of waste expected to be generated from construction activities of the project include parts of removed vegetation, empty cement bags, empty aggregate bags, pieces of GI pipes, PVC mesh, wood, waste oil and other irregular objects. Such waste will be reused as much as possible and the remaining non-hazardous inorganic waste disposed as per the current arrangements.

Hazardous waste such as used thinners, paint cartons and waste oil will be properly sealed in barrels, stored on an impermeable surface and transferred to the nearest RWMF prior to contractor's demobilization.

The branches and root bulbs of the vegetation found at the site that is required to be felled should be cut using a chainsaw and the trunks reused for construction purpose or stockpiled and given to the community free of cost. Branches shall be cut to a manageable size while leaves should be left for sun drying. Root bulbs can be used for backfilling during construction.

A garbage bin will be placed at the site to dispose general waste produced by the workers and to maintain the cleanliness of the site.

4.2.4.2 Outputs

The key output of the project is a full-fledged IWRMC setup with mechanical composting using an aerobic system. In the absence of a contractor, inputs / outputs of the project have been provided after discussion with the PMU of the MCEP. Table 3 gives details of inputs of the project while Table 4 gives details of outputs of the project.

Table 3. Inputs of the project

	Input resource	Type and amount	Means of obtaining the resource
Construction phase	Workforce	Site supervisor – 1 Site engineer - 1 Workers - 8	Contractor hired for the project
	Water for Construction	Ground water (150 litres per day)	Groundwater well at the site
	Dredge material for backfilling	750m^3	Excess material sourced through planned coastal protection project by MNPHI
	Construction Materials .	Concrete Cement Sand Masonry Block Flood lights G.I. pipes Metal sliding doors Emulsion paint Lysaght Roofing Sheet 3 phase power sockets Ceiling fan Timber	Imported or purchased where available locally. Contractor will make arrangements to import or purchase these materials and transport to the island
	Construction Machinery	Compactor (for ground levelling), pickups or trucks (for land transport of construction material), Concrete mixing machine and concrete supply pump and pipe	Responsibility of the contractor. Local resources such as pickups for hire will be utilized as much as possible. If not available locally the contractor will import these machineries.
	Fuel	Diesel	Local suppliers
	Firefighting	Portable fire extinguisher	Responsibility of the contractor. Imported or purchased locally and to be brought to the site during mobilization.
Operational phase	Equipment	Glass crusher Metal Can Baler Plastic Shredder Woodchipper Organic Waste converter machine Crates Curing racks Waste Collection Vessel	Purchased locally or imported. Responsibility of the Proponent (Capital Investment) and Island Council (O&M). Purchased locally or imported.
	Water	Groundwater	Groundwater well within the IWRMC
	Power	3-phase power for operation of waste management equipment.	From local powerhouse. A 25mm, 4 core power supply cable will be laid from nearest distribution box to waste yard distribution board (approximately 225)). Total estimated power requirement for operations of the centre is 42KW.
	Labour	3 workers - to manage waste in the IWRMC	To be sourced ideally from within the community, or if not available, other locals or expatriate workers.

		3 workers - to provide collection services to the community	Responsibility of the Island Council. The Council or the outsourced third party will make accommodation arrangements within local houses or guest houses is expatriate workers are hired.
	Fuel	Diesel	Local suppliers
	Firefighting equipment	• 50KG DCP Trolley (2) • SOL TR Foam Trolley (1) • Wet Chemical 6Ltr with Cabinet for hazardous waste area (1) • Water 9Ltr with Cabinet for Office Area - Outside (1) • CO_2 2KG with Cabinet for Office Area - Outside (1)	Responsibility of the Proponent (Capital Investment) and Island Council (O&M). Purchased locally or imported.
	Waste	Waste generated within the island	Waste will be collected from households and businesses within the island

Table 4. Project outputs

	Output	**Type and amount**	**Means of managing the output**
Construction phase	General Construction Waste	Moderate amount of Solid Waste	General construction waste will be reused as much as possible. Any remaining waste will be transferred to the nearest regional facility by the contractor/operator.
	Municipal Waste	Small quantity	Removed to the disposal site designated by the council.
	Removed vegetation/ green waste/ wood waste	Moderate quantity	Green waste will be reused as much as possible. Remaining green waste will be transferred to current waste disposal site on island.
	Soil	Excavation for substructure	Product at site, will be used as backfilling during construction.
	Dust	Moderate amount during cement mixing and excavation	Product at site
	Waste oil and diesel	Small quantity	By-product at site
	Greenhouse Gas Emissions	Small quantity. Emissions from construction material transporting vehicles and construction machinery.	By-product at site .
Operational phase	Compost	In-vessel composting and curing in racks	Produced at site, used locally for agricultural purposes or sold to nearby resorts.
	Inorganic Waste	Crushed glass, compacted metal, shredded plastic	Produced at site and reused within community as much as possible. Remaining waste to be stored in their

			respective area within the IWRMC and transferred to a regional facility every 4 to 6 months.
	Greenhouse Gas Emissions	Electricity usage (Minute quantity)	N/A

5 Existing environment

5.1 Current waste management practices

Currently there is no waste management plan or formal waste management center on the island. Waste disposal is carried out at 2 locations; one at the northern side and one at the western side of the island (Figure 1). All waste is collected at these two sites where all combustible waste gets disposed through open burning. As waste is not properly managed in the island, the two locations where waste are disposed is full of all kinds of waste and are heavily polluted. Waste disposal at other places is also observed to some extent.

However, during the consultation with the Island Council it was noted that the waste disposal ground 2 (on western side of island) will not be there when the planned coastal protection works start (this project is also currently at EIA stage). The second dumping area is further away at the northern tip and hence too far for the residents at the central and southern side of the island. The residents will have to carry the waste in wheel burrows for quite a distance to dispose their waste and this is not practical (the reason why they have 2 grounds even now). Furthermore that area is full even now and waste is easily carried away into the waterway between the islands. During the consultation, it was also noted that when the nuisance of flies increases, people throw food waste in plastic bags into the waters and these bags get collected in other parts of the island. This practice continues even with repeated requests by the Council to stop the practice.

The council have stated that a second alternative location needs to be selected to be used for waste disposal by the residents living in the southern side of the island. This issue was raised during consultations and communicated to PMU of MCEP. Outcomes of these communications are discussed in Chapter 12, Section 12.1. To summarisr, PMU has stated that as this is a direct result of the proposed coastal project, any compensation required should be provided by MNPHI, the proponent of the coastal project.

The Feasibility Study for the development of a RWMF for Zones 4 & 5 reports that an estimated quantity of 450kg of organic waste will be generated per day for the period of 2021-2051 (CITRES and MEECO, 2019).

5.2 Proposed IWRMC site and access road

Figures 4 and 5 shows a closeup of the study area with nearest residential areas, utility connections and nearby sensitive area and historical site. A large-scale drawing of the study area and project location is given in Appendix 6. The project site located on the southern side of the island is approximately 150m area from residential area. Football ground and thick coconut grove is between proposed plot and residential area. The closest mosque is approximately 110m away while, school (700m), council offices (650m) and health centre (600m) are also at a distance from the site.

The nearest 3phase electricity distribution box is at a distance of 20m from project site (powerhouse located immediate west of project site). Nearest sewerage connection point is 150m away (north side of football ground)

The IWRMC is located at the south western side of the island, located approximately 75m offset from vegetation line. Access to the site will be made by clearing roads on the eastern and northern side, this component will be covered by Island Council. At present the site can be accessed from road leading to Powerhouse. However, during consultations, the Council stated that they do not want to utilise this road, as they did not want to transfer the waste via road which goes in front of the powerhouse for various reasons.

Figure 4. Image showing study area with project site and nearest utility facilities as well as other critical infrastructures (Concentric circles give scale: 50m offset circles)

Figure 5. Proposed IWRMC and proposed access roads (access roads will be cleared by Island Council)

5.3 Open dumping areas – present

Two open dumping areas are located at Kolhufushi, one for each ward, and an additional green waste dumping area located at northern side of the island. The dumping area of the southern side ward is located approximately 170m northwest of proposed IWRMC site, while the dumping area allocated for the northern ward is approximately 1,275m north. The green waste disposal area is located at 900m north of the IWRMC site, north of harbour facility. All of the waste dumping areas are reclaimed land or temporary sand bunds reclaimed during post tsunami reconstruction projects.

Waste disposal at the dumping sites is unmanaged, and all types of waste including food waste are dumped at the sites. Open burning is done when the sites are full, according to Council. Consultation with council was done regarding unmanaged dumping; Council informed that it is big issue they face and requires awareness programs to improve the issue. Sorting waste and stocking them appropriately is needed for these two areas. Food waste, plastic bottles, electronic waste, scrap metal and hazardous waste (paint cans) are observed to be dumped haphazardly at the site. The waste dumping areas are both open to lagoon waters at the shoreline and no retaining structures are observed at the sites. Hence floating waste is observed flowing out of the site. The waste disposal site at the northern end of the island is located where strong currents are experienced. Remnants of old wire screen is observed around the periphery (lagoon side). According to Council the structure was damaged and now in need of repair.

The southern side dumping site has an approximate area of 2,000m^2, with an approximate volume of 247m^3 of garbage. The northern side dumping site has an area of 790m^2, with volume of 530m^3 of garbage.

The green waste dumping area located at the northern side of the harbour is approximately 380m^2, waste dumped at the area mostly consisted of green waste from cleaning of roads and clearing of vegetation.

Figure 6. Green waste disposal site

Figure 7. Aerial view of green waste dumping site

Figure 8. Waste disposed at current waste dumping site at southern side of the island

Figure 9. Aerial view of Southern side dumping site

Figure 10. Waste disposed at current waste dumping site at northern side of the island

Figure 11. Aerial view of Northern side dumping site

5.4 Unassigned Waste Dumping

Apart from unmanaged waste disposal at the dumping sites, the island is kept relative clean, no unassigned waste dumping is observed on the island. Typical to all islands of Maldives, flotsam waste (plastic bottles) are observed at the shoreline area around the island.

5.5 Temporary waste relocation area

The proposed location for construction of IWRMC is different from the existing waste disposal area. Hence there is no need for identification of a temporary waste relocation area for the project duration.

5.6 Ground condition and soil

The IWRMC plot is thickly vegetated with Coconut palms. The soil condition was assessed visually. Thick layer of humus (dark soil) is observed. The soil is composed of coarse coral sand.

Figure 12. Soil condition at IWRMC site

5.7 Coastal Modification / Erosion

Kolhufushi is one the islands which was most severely hit during 2004 tsunami event, with large scale damage to the residential area. During the tsunami event, the south eastern side marsh area was breached causing previously enclosed water body to open to eastern side lagoon. Seawater entered the inland depression during high tide causing damage to the marsh area and subsequent death of Coconut palms and encroachment of marsh land westwards. According to Council large areas are dying and land is lost due to enlargement of marsh area due to saltwater intrusion.

This was further aggravated due the construction of groyne structure at the south eastern corner area causing water pile at the previously breached area, forcing greater loss of shoreline area. Currently 2 openings are observed, each approximately 20m long, effectively making the south eastern marsh area open to lagoonal waters during high tide (Figure 13).

During the tsunami event, breach was also observed at the north eastern side of the island where Fenfuraveli and Kolhufushi joins (Figure 14). Later on, the two islands were joined by reclaiming a sand bund during the tsunami reconstruction period. This path was removed after completion of reconstruction works.

Figure 13. Breached areas at the marsh area at south-eastern side of Kolhufushi

Figure 14. Breached area at the northern side of Kolhufushi between Fenfuraveli and Kolhufushi (image source: https://img.17qq.com/images/nmhchlphklv.jpeg)

Kolhufushi experiences seasonal erosion and storm surge related flooding at the eastern and western side of the island. Erosion is observed at the north western side of the island and south eastern side of the island. The project site is on the southwestern side where erosion is not observed.

Most notable coastal modification at the island is the harbour facility located at the western central area of the island. Other coastal changes made on the western side are the temporary sand bunds reclaimed as access to borrow sites on the lagoon, used during the tsunami reconstruction stage. Part of the bunds are removed, while the rest is currently used as waste dumping areas. Remnants of old access jetty is also observed at the north western side of island.

Figure 15. South eastern side of the island observed with erosion (near the historical site)

Figure 16. Breached area at the south eastern side marsh area

Figure 17. South eastern corner area

5.8 Vegetation cover

5.8.1 Project site

Vegetation cover at the proposed site was assessed using high resolution orthomosaic drone image and field observation at the site, noting types of major vegetation. The proposed IWRMC site and proposed road networks (scope undertaken by Council) is composed entirely of Coconut palms. According to the council, large areas of the island were cleared and used as Coconut plantations. Due to this reason, all undergrowth died and subsequently large areas of the island are composed entirely of Coconut palms. The Coconut palms at site are observed to be old palms of length approximately 25 to 30m long. 31 Mature (old) Coconut palms were counted using high resolution image (Figure 18); immature or juvenile palms (as undergrowth) was not considered in the count. However, as per information provided by the Council, there are 54 mature/tall Coconut Palms and 12 small/medium coconut palms at the site. There are an additional 48 Coconut palms within 10ft radius around the site, which would also need to be cleared to enable construction work at the site.

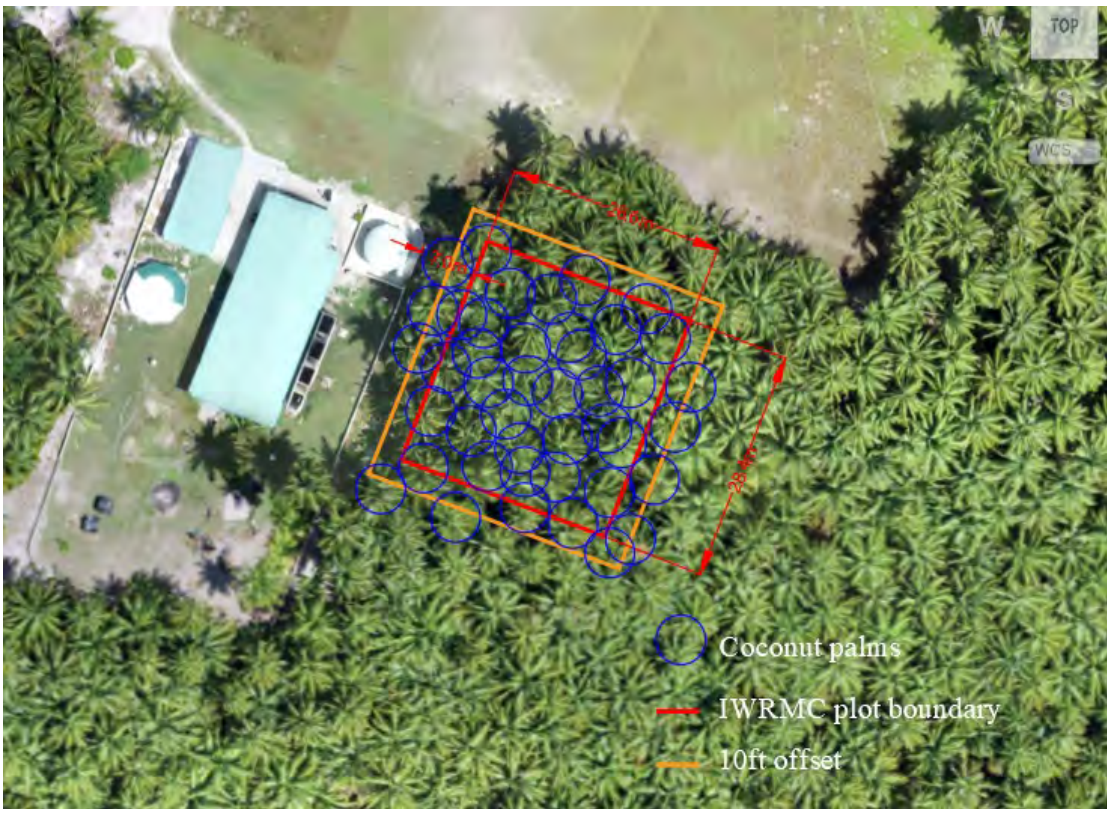

Figure 18. Vegetation at the plot area is entirely Coconut palms (red square – IWRMC plot, Orange square – 10ft offset)

Figure 19. Vegetation cover at proposed IWRMC site and road

Figure 20. Drone image showing proximity of IWRMC site to encroaching marsh land

5.8.2 Access road

Clearing of the access road is not part of the scope of current project. However, the area is thickly vegetated and has a large number of coconut palms. During the consultation with the Island Council, they have informed that access road clearance will be undertaken by the Island Council prior to project commencement and they also have the finances required for the work. If the formulation of an EIA is required for the work (due to the high number of coconut palms which would need to be cleared), the Council has stated that they will also carry out this work through their own funding and this has no bearing on current project or project funds.

5.8.3 Compensation

Compensation has not been given as yet to the owners of the mature trees and palms which will be removed from the site. Council states that there are a total of 66 palms within the site, which need to be compensated for, and rates for compensation are MRF 750/ mature palm and MRF 500 per small/medium sized palm. Total cost of compensation is given in Chapter 8 (Mitigation). An inventoried list will be provided by the Council to the proponent.

Owners of the mature vegetation to be removed will have to be compensated prior to project commencement. In order to do so, the following process will be followed. PMU of MCEP will coordinate with the Island Council to get details of the beneficiaries. The cost of compensation will then be handed over by PMU to the Island Council to facilitate the process of compensation. Island Council will assist the PMU to disburse the compensation payments and provide proof of compensation to the PMU.

As the vegetation clearance of the access road will not be undertaken as part of current project, compensation for owners of these palms/trees will not be required through the current project. The Council have the finances for this and will undertake this work prior to clearing the access roads.

5.9 Groundwater Quality

In accordance with TOR groundwater sampling was done at proposed project site. Additionally, as a measure of best practice, Consultant also sampled groundwater from a control site (well inside Mosque). Geographic coordinates of groundwater sample sites are:

- Project site: N 02°46'21.62"; E 73°25'20.34"
- Control site: N 02°46'26.18"; E 73°25'25.38"

Water samples were tested both in situ and by sending to National Health Laboratory at Maldives Food and Drug Authority (to test for Nitrates). Results of groundwater quality tests are given in Table 5 and water test result report from MWSC is given in Appendix 7.

Table 5. Results of groundwater tests

Site	IWCRM Site	Control (Mosque)	EPA optimum range
Temperature (°C)	27.06	27.71	25-30
pH	14.00	14.00	6.5 - 8.5
Electrical Conductivity (µS/cm)	9979.73	169.44	<1500
Total Dissolved Solids (ppm)	4990.68	84.69	<1000
Salinity (psu)	5.60	0.08	
Dissolved Oxygen (mg/l)	3.56	4.89	
Nitrates (mg/L)*	0.03	0.06	

**tests undertaken at National Health Laboratory*

As evident from Table 5, groundwater quality at the project site is poorer than at the control site, in terms of higher salinity, total dissolved solids and conductivity, which is possibly due to low elevation of the area and consequent saltwater intrusion.

5.10 Protected Areas and Environmentally Sensitive Sites

There are no protected areas or Environmentally Sensitive Sites (EPA listed) found in Kolhufushi. The Marsh land located at the south eastern side, at an approximate distance of 100m from project site, is almost entirely composed of Coconut palms. 1 mangrove plant was observed at the entire site, *Rhizophora mucronata* (Ran'doo).

5.11 Areas of Historic and Cultural Significance

Historical mosque (*Ghaazee Miskiy*) is located approximately 280m east of the proposed IWRMC site, separated by thick Coconut grove and marsh area. This is the only area of historic or cultural significance on the island.

Figure 21. *Ghaazee Miskiy*, old mosque located at the south eastern side of Kolhufushi

5.12 Socio-Economic Environment

Information on the current socio-economic environment was sourced from the Island Council office and statistics reported below are from the data obtained (Secretariat of Kolhufushi Council, 2021).

5.12.1 Demography

Total registered population of the island at present was reported to be 1447 persons, while the current resident population is 1070. The segregation of the total population by major age categories is depicted in Figure 22.

Figure 22. Current registered and resident population of M. Kolhufushi as reported by the Island Council

The total number of registered housing plots on the island are 296, of which 103 are at present empty plots and 11 are uninhabited houses. There are total 182 inhabited houses, of which 25 are households headed by females.

5.12.2 Economic activities and livelihood patterns

The main economic activities of the island are agriculture and is fisheries (mainly tuna, with few reef fishermen). Other areas through which income is earned includes construction and carpentry industry, employment in civil services and service provision sectors such as teaching and health sector, business operations and operation of restaurants etc.. While majority of people involved in all sectors are Maldivians, there are a few foreigners involved in some sectors. Table 6 gives details of personnel involved in the different sectors.

Table 6. Areas of employment and number of persons involved

Area of income generation	Maldivians employed	Foreigners employed
Construction/ carpentry	20	11
Agriculture	75	-
Fisheries	50	1
Fish processing	5	2
Health Sector	16	7
Teaching	37	7
Civil service	40	-
Businesses	13	-
Cafes/ Restaurants	4	1
Pharmacies	2	-

The island council reports a total of 46 sea vessels; 22 fishing vessels (mainly reef, grouper and sea cucumber fishing vessels), 17 Dinghies, 2 supply/ferry boats and 5 speed launches. With

respect to the different businesses on the island, there is 1 shop selling general goods, and 8 café/restaurant and pharmacies.

5.12.3 Status of access to market, health facilities, banking, communication, etc.

As stated above, the island community operates 1 main general goods shop where things required for daily needs can be purchased. The community also has access to health facilities through the Health Centre on the island, while the Island school provides education from Grade 1 to 10. There is also 1 pre-school on the island and 3 tuition classes. Additional facilities available to the community include postal facilities, internet and Cable TV. Waste management services are through disposal by households themselves and have been described in Section 5.1.

5.12.4 Electricity

The island community has access to power 24 hours a day. The powerhouse on the island has a total capacity of 710kW (2 gensets of 280kW capacity each, 1 set of 150kW) and the average load is 260kW.

5.12.5 Water Resources and Sewerage

Sewage disposal at present is through a septic tank system (as reported by the Council) from where the effluent is disposed to sea. However, based on observations during the field survey, a sewerage network is present on the island. Harvested rainwater and bottled water are used for potable uses, while groundwater is used for non-potable uses.

6 Environmental Impacts

Various methods are available to categorize impacts and identify the magnitude and significance of the impact, such as checklists, matrices, expert opinion, modeling etc. Impacts on the environment from various activities of the project construction work (constructional impacts) and post construction (operational impacts) have been identified through interviews with the project management team and field data collection surveys. Data collected during field surveys have been used to predict outcomes of various operational and construction activities on the various related environmental components. This data can also be used as a baseline for future monitoring of the environment. The basis for environmental impact evaluation for this report is based on Rapid Impact Assessment Matrix (RIAM) which allows judgements (both subjective and quantitative assessments) to be made and provide good understanding of these decisions (Pastakia and Jensen, 1998).

6.1 Impact analysis methodology

The environmental impacts as a result of this project was analysed using the Rapid Impact Assessment Method (RIAM). The RIAM approach allows us to analyse and present the results of an all-inclusive EIA, which analyses impacts on all environmental components (physical, biological, social, cultural, economic etc.); the approach allows for data from these different components to be analysed against common important criteria within a common matrix, thus providing a rapid, clear assessment of the major impacts (Pastakia and Jensen, 1998).

Methodology description has been sourced from Pastakia and Jensen (1998). The approach is based on standard definition of important assessment criteria and collation of partially quantitative values for each of these criteria so as to achieve an accurate and independent score for each of the environmental conditions being assessed. The assessment criteria fall into two groups A and B as described in Table 7 below.

Table 7. Assessment criteria used in RIAM approach

Criteria		Scale	Description
A - Criteria that are of importance to the condition, and which can individually change the score obtained	A1 – importance of condition	4	Important to national/international interests
		3	Important to regional/national interests
		2	Important to areas immediately outside the local condition
		1	Important only to the local condition
		0	No importance
	A2 – Magnitude of change / effect	+3	Major positive benefit
		+2	Significant improvement in status quo
		+1	Improvement in status quo
		0	No change / status quo
		-1	Negative change to status quo

		-2	Significant negative disbenefit or change
		-3	Major disbenefit or change
B - Criteria that are of value to the situation, but individually should not be capable of changing the score obtained.	B1 – Permanence	1	No change / not applicable
		2	Temporary
		3	Permanent
	B2 – Reversibility	1	No change / not applicable
		2	Reversible
		3	Irreversible
	B3 – Cumulative	1	No change / not applicable
		2	Non – cumulative / single
		3	Cumulative / synergistic

The value for each of these criteria is obtained through a series of simple formulae as below:

- (A1) x (A2) = AT
- (B1) + (B2) + (B3) = BT
- Environmental score (for any given condition) = (AT) x (BT)

Multiplication of the values of group A ensures that the weight of each score is expressed, while summation of values of group B ensures that the individual value scores cannot influence the overall score, but that the collective importance of all values group (B) are fully considered.

Environmental components to be assessed are identified through the EIA process and in the RIAM approach, these are divided into four categories as below:

- Physical/Chemical (PC): covers all physical and chemical aspects of the environment
- Biological/Ecological (BE): covers all biological aspects of the environment
- Sociological/Cultural (SC): covers all human aspects of the environment, including cultural aspects.
- Economic/Operational (EO): qualitatively to identify the economic consequences of environmental change, both temporary and permanent.

A matrix is then produced for the different components identified for the project set against the different assessment criteria. Criteria scores are then given to each component and the environmental score for each component calculated using the formulas given above.

The scores obtained are then interpreted based on range bands, as given in Table 8. Each range band describes the level of an expected change (positive or negative) and they also represent the final assessment from the RIAM analysis. Once the ES score is set into a range band, these can be shown individually or grouped according to component type and presented in a graphical or numerical form as preferred.

Table 8. Range bands used for RIAM approach, with Environmental scores, criteria number and code

Scoring values (ES)	Range band	Criteria Number	Criteria Colour Band Description
72 to 108	**E**	**5**	Major positive change/impact
36 to 71	D	4	Significant positive change/impact
19 to 35	C	3	Moderate positive change/impact
9 to 18	B	2	Positive change/impact
1 to 9	A	1	Minimal positive change/impact
0	N	0	No change/status quo / not applicable
-1 to -9	-A	-1	Slight negative change/impact
-10 to 18	-B	-2	Negative change/impact
-19 to -35	-C	-3	Moderate negative change/impact
-36 to -71	-D	-4	Significant negative change/impact
-72 to -108	-E	-5	Major negative change/impact

Possible impacts arising from the construction and operation works are categorized into physical, biological, socio cultural and economic including operational aspects of the project. Environmental impacts of the project are evaluated against these environmental components. The impacts identified are also described according to their location, extent (magnitude) and characteristics. Positive and negative impacts are categorized by intensity of impacts for identifying best possible remedial (mitigation measures) action to be taken. Below are the impact scale and categories.

6.2 Impact Analysis

The significance of environmental impacts associated with the project (positive and negative) is ranked and colour coded to show the intensity of the impact for each environmental component as listed in Table 8. Impacts are assessed according to probability, significance, magnitude and duration. Table 9 gives the assessment for the impacts, and these are further discussed in the following sections.

Figure 23 provides a graphic summary of the overall impacts for all the environmental components considered. Negative impacts of the project and their negativity scale was in the low range (-A to -B) while positive impacts were in the low to high range (A to D).The most significant negative impact was that due to the need for vegetation clearance from the site and sorting and handling of hazardous waste, while the benefits on the environment and community due to proper waste management was the most significant positive impacts.

Table 9. Outcome of the environmental impacts with reference to environmental components considered. (PC = Physical/Chemical, BE = Biological/Ecological, SC = Social/Cultural and EO = Economic/Operational. Colour codes refers to intensities of impact each component subjected to assess)

Code	Description	RIAM Criteria Scores					Environmental Value Score (ES)	Range Value Band (RB)	Criteria number
		A1	A2	B1	B2	B3			
PC 1	Changes to the ambient air quality (smell) due to waste sorting and processing	2	1	3	2	2	14	+B	2
PC 2	Changes to the ambient noise due to waste sorting and processing	1	-1	3	2	2	-7	-A	-1
PC 3	Air pollution at the project site due to emmisions associated with construction machinery and vehicles and dust	2	-1	2	2	2	-12	-B	-2
BE 1	Impact on island environment/soil due to waste handling and processing	1	-1	1	1	1	-3	-A	-1
BE 2	Impact to the groundwater due to use for construction	1	-1	1	1	1	-3	-A	-1
BE 3	Impact to the groundwater due to proper waste handling and processing	1	1	2	2	2	6	+A	1
BE 4	Impact to the groundwater due to use for IWRMC operations	1	-1	3	2	3	-8	-A	-1
BE 5	Impact to the flora (vegetation) due to the land clearing required for the project	1	-2	3	3	2	-16	-B	-2
BE 6	Impact to the flora and fauna (animals) due to material transfer	1	-1	1	1	1	-3	-A	-1
SC 1	Health and safety risks to the workers due to construction works	2	-1	2	2	2	-12	-B	-2
SC 2	Health and safety risks to the workers due to operation of waste facility	1	-1	2	2	2	-6	-A	-1
SC 3	Impacts of hazardous waste sorting and storage and disposal to the workers	2	-1	2	2	3	-14	-B	-2
SC 4	Benefits associated with improved waste processing and disposal to the community	2	3	3	1	3	42	+D	4
EO1	Changes to the environment due to improved waste processing	2	2	3	3	3	36	+D	4
EO2	Benefits ito the community due to improved waste management practice and operation of the facility	2	2	3	3	3	36	+D	4
EO3	Changes to the ambient air quality (smell) due to waste sorting and processing	1	2	3	2	3	16	+B	2
EO4	Changes to the ambient noise due to waste sorting and processing	1	-1	3	2	3	-8	-A	-1
EO5	Health and safety risks to the workers due to operation of waste facility	1	-1	3	3	3	-9	-A	-1
EO6	Impact on island environment/soil due to waste handling and processing	1	2	3	2	3	16	+B	2
EO7	Impact to the groundwater due to use for IWRMC operations	1	-1	3	2	3	-8	-A	-1
EO8	Impact to the groundwater due to waste handling and processing	1	1	3	2	3	8	+A	1

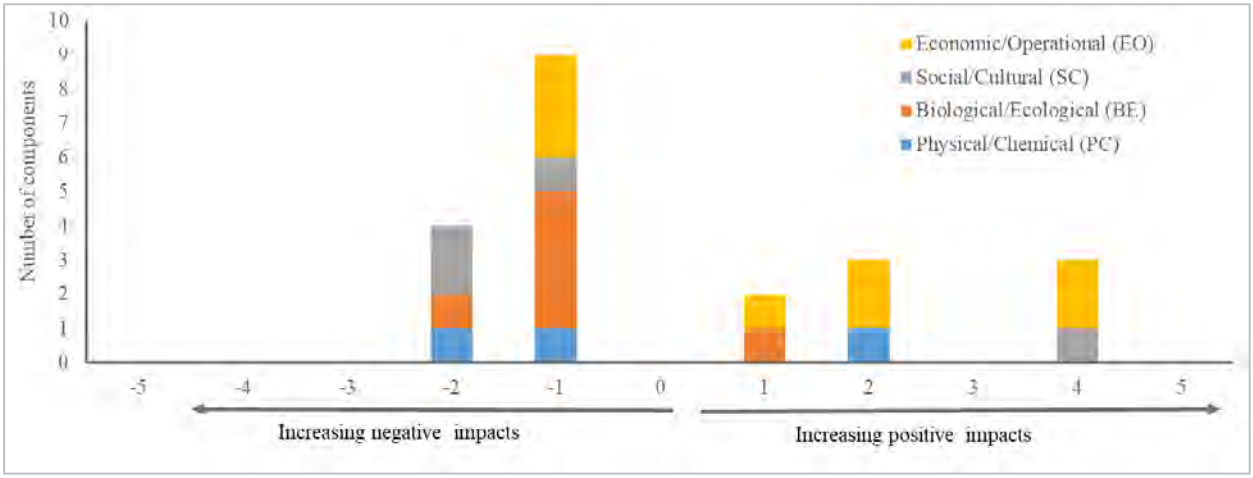

Figure 23. Graphic summary of RIAM analysis for the upgrading of IWRMC at M. Kolhufushi. Y-axis shows the number of components

6.2.1 Construction phase

Impacts on noise pollution and disturbances (PC and SC)

The project site is at a distance of approximately 150m from the nearest residential. While noise impacts during construction work is an unavoidable impact, the work entailed does not require use of much heavy machinery. This coupled with the distance between project site and residential area is hence envisaged to result in negligible impact due to noise during construction phase.

Impacts on groundwater table and quality due to construction work (PC)

Groundwater quality of the island is good overall, although it is poor (saline) at project site, possibly due to low elevation and consequent saltwater intrusion. Furthermore, construction phase will utilise groundwater resource for civil works. This would have a localised negative impact on the groundwater resource of the island, thus further deteriorating the condition of the resource at the site. However, this impact is envisaged to be for the short term.

Impacts on ground vibrations to nearby houses and buildings (PC)

The nearest residential area is approximately 300m from project site. Furthermore, the scope of work and construction required is not envisaged to have any disturbances in terms of ground vibrations as no heavy machinery or vehicles will be used.

Impacts on air quality (PC)

The construction work requires civil works, with main machinery used being a cement mixing machine. The construction work is envisaged to have a negative impact on the air quality at the

site, due to generation of dust. This will be a short-term impact, which would clear up after construction work is completed.

Impacts due to material spillage during transfer of construction materials to the project island (PC and BE)

Construction material will be carried to site on barges and bigger vessels. There is always the chance of pollution of the marine environment during mobilization and material unloading. However, given that the materials will be packaged with no loose items, this impact is envisaged to be minor to negligible. However, any oil spills during such trips has the potential to have a significant negative impact both on the physical (seawater quality, reef health) and biological aspects (marine fauna and flora) of the marine environment.

Impact due to vegetation removal (PC and BE)

The proposed work requires removal of a number of old/mature coconut palms from the site, which would have a moderate impact due to need for this clearance. Furthermore, during consultations, the Council stated that they do not have any land area where the palms can be transplanted, or new plants can be planted as per 2:1 ratio. Hence, this removal of vegetation will have a significant impact which cannot be mitigated.

Impacts to vegetation and fauna due to improper handling and driving during material transportation (PC and BE)

Material transportation during construction phase will be from the harbour to the project site, through the access road which as per the Island Council, would be cleared prior to project commencement. Hence, while impacts due to transport of material is envisaged to be negligible, that due to handling of materials and potential accidents, if it happens, is envisaged to be minor to moderate, depending on the material being handled. Pollution due to accidental spill of construction materials to be used (due to improper handling), especially oil will have a significant negative impact on the environment at the site (on groundwater resource and fauna).

Impacts due to arrival of workforce (SC)

The proposed work will be carried out by an assigned contractor who have their own workforce. Majority of development projects are carried out in the same manner and arrival of workforce on the island to carry out construction work would not be a new aspect for the island community. The Contractor has the responsibility to ensure that the workforce is comprised of all legal personnel and that their actions while on the island are within accepted social norms. The Contractor also has the responsibility to ensure that the workforce also have the required needs met, such as proper

accommodation and daily meals as well as other logistics. This component of the project is not envisaged to have a significant impact on the social environment of the island.

Health and safety of workforce (SC)

The Contractor has the responsibility to ensure the health and safety of the workforce which will be taken to the island. As such the Contractor must ensure that their accommodation and meals while on the island are taken care of regularly. Accommodation in cramped quarters, especially during the COVID 19 pandemic has the potential to have a significant negative impact on the health and safety of the workforce and even the community. First aid kits available on site will ensure that any minor injuries are easily taken care of without delay.

Impacts due to road closure (SC)

Proposed work will be carried out a site located 150m from residential area and on the uninhabited side of the island. Hence any road closure (if required) is not envisaged to have an impact on the day-to-day life of the island community.

Impact due to loss of land (SC)

The site proposed for the work has been allocated for the construction of the waste management centre and approved by MLSA for this purpose. Hence no negative impact is envisaged in this aspect. However, vegetation clearance means removal of a large number of palms belonging to individuals of the community and this thus has a negative social impact. Compensation should be given prior to project commencement to mitigate this impact.

6.2.2 Operational phase

Impacts on noise pollution and disturbances (PC and EO)

The operations of the IWRMC and the technology to be used for composting is not envisaged to have a significant impact in terms of noise pollution. Furthermore, operation of the facility would alleviate existing other disturbances such as that due to open burning currently practiced on the island.

Impacts due to litter, odour and vectors (PC, SC and EO)

The collected waste which is transferred to the IWRMC should be unloaded and stored in the appropriate areas. Improper handling of waste at this stage has the potential to increase the severity of impact due to litter, odour and vectors.

Furthermore, at present waste is disposed at open dumping areas which are not managed. Even at present the area on the northern side is very full, resulting in waste spill over into the sea, thus polluting the area. Hence setup of the IWRMC will allow proper disposal of waste and removing this cause of pollution.

Impacts on groundwater table and quality due to operations (leachate/ stormwater runoff) (PC and EO)

The IWRMC has been designed with provisions in place for drainage of wastewater and any leachate which maybe generated. One of the advantages of the proposed composting technology is that it overcome leachate generation. Hence, even if leachate is generated this would be in minor quantities, mostly due to cleaning of the floors, where the product would be mixed with any leachate generated during composting. The centre also has rainwater pits installed throughout the open area of the IWRMC to deal with potential storm water produced during rainy seasons. Hence no impacts are envisaged on the groundwater quality due to operations at the centre.

However, operational phase of the project proposes to use groundwater for non-potable uses at the centre. The existing quality of groundwater resource at the site is already poor and hence continued usage would have a long-term negative impact on this resource.

Impacts due to material spillage during transfer (PC, BE and EO)

Waste materials will be collected from households and transferred to the centre by staff hired to the centre. They will undergo all necessary training to ensure that the operations are carried out as per all operation guidelines. However, accidental spills during material transfer to site is a potential impact, with significance of impact dependent on the type of material spilled.

Health and safety of the IWRMC operators (SC and EO)

The workforce hired for IWRMC operations will be given all necessary trainings and provided with all required safety equipment and attire. First aid kits will also be available on site to handle any minor injuries. Impact on health and safety during general operations is envisaged to be minor to moderate (if proper care is not taken), especially since the technology to be used at the site is quite environmentally friendly.

The new waste collection would be more efficient and attract more waste which will include hazardous waste (e.g., waste oil, solvents, batteries, hospital and industrial waste etc) sorting and storage before disposal or transfer. Handling of hazardous waste would be harmful and of high risk to the IWRMC workers and extra precaution needs to be taken by the workers to avoid contamination or any health issue.

Economic impacts due to the IWRMC (SC and EO)

Development of the IWRMC opens employment opportunities for the island community, to be involved in different stages of implementation of the work Island Waste Management Plan. Hence this is a major social benefit due to the centre, which would be for the long term. Additionally, the compost generated through the project is a potential source of income through sale of the product. At present, waste disposal on the island is by the community themselves, hence at no cost. Once the facility becomes operational, waste collection and disposal will be carried out through the staff of IWRMC at a cost.

Island community health (SC and EO)

The setup of the IWRMC would enable proper and safe disposal of the waste generated by the island community. This has a multitude of benefits key of which are improved health of the community and improved aesthetics. The operation of the facility would bring a cessation to the practice of open dumping and burning. Hence the project is envisaged to have a major socioeconomic benefit.

Impacts associated with proposed technology

The proposed composting technology is quite simple and requires very little manpower. The composting of the materials happens inside the machine, thus addressing the issue of odours generated during composting periods. The raw compost is kept in crates on curing racks, which are also setup within the area constructed for the composting work. The dry compost at the end of the curing period can be sold to the agricultural market or even to nearby resorts for their gardening/landscaping purposes, thus being a beneficial impact.

The in-vessel composting method also overcomes the issue of leachate generation, hence minimising the need for construction of additional leachate collection tanks. The design of the structure incorporates drains which will provide the necessary means for removal of any leachate generated.

The IWRMC will be connected to the existing power grid of the island which can cater to the additional load. Hence there is no need for setup of a separate power generator at the site. While one impact due to the sourcing of power is the generation of greenhouse gases through burning of fuel, this is an existing impact due to operation of the powerhouse. The additional load due to connection of IWRMC to the power grid is not envisaged to be of significance.

Overall, the proposed technology is not envisaged to have significant negative impacts on the environment. Moreover, it is envisaged to have major positive impacts due to proper waste disposal.

7 Alternatives

Alternatives for a project are considered for various components of the project, in terms of location, methodology to be implemented etc. Alternatives considered will identify the best practical environmental option for the different components.

Location for the proposed work has already been approved by respective government authorities. Furthermore, the only negative impact on environment with regards to the choice of location, is due to selection of location from a vegetated area. However, there are no cleared areas which can be used at present. Hence an alternative in terms of location will not be considered in this plan.

7.1 Considered alternatives

Waste treatment method / technology

The feasibility report for the project considers different types of waste treatment methods and their advantages and disadvantages (CITRES and MEECO, 2019). The recommended method for organic waste treatment, based on rationales given in the feasibility report (waste quantity currently produced on the island and its projections for 2050) is in-vessel composting. Alternatives considered in this report are:

- Proposed method: In-vessel composting
- Alternative 1: Windrow-based open composting
- Alternative 2: Anaerobic digestion

The environmental, social and economic aspects of In-vessel composting (proposed option) are;

- Small land area required for setup (environmental)
- Overcomes the problem of leachate containment (environmental)
- Burning of waste is not required (environmental)
- Moderate energy is required for operation (environmental)
- Low labour requirement (social)
- Compost can be prepared in a short time frame (15 to 30 minute cycles in OWC machine and 10 to 12 days for curing) (social/environmental)
- Minimal odour associated with processing of waste (social/environmental)
- Highly dependent on mechanical equipment (economic)
- High capital cost (economic)
- Moderate operations and maintenance cost (economic)
- Economic turnover is very high due to fast process (economic)

Appendix 8 gives a matrix of the environmental, economic and social aspects of these three different methods of waste treatment (Table 1 in Appendix 8). The Appendix also gives mitigation measures for each of the alternatives (Table 2 in Appendix 8).

Although the capital cost of using the in-vessel composting method is slightly higher than that for windrow-based composting, all other aspects are positive for the in-vessel composting method (see Appendix 8 Land area requirement being small is a big benefit for small islands of Maldives such as Kolhufushi. In addition to this, controlled leachate and odour generation as well as the absence of burning greatly reduces the negative impacts due to the method, both on the natural environment and community. Low labour requirement is another advantage.

Anaerobic digestion means a higher capital cost, greater land requirement and higher operation and maintenance costs, while use of windrows-based composting also means greater land area and higher labour requirement. The piles have to be turned manually every 5 days and usually takes longer to process (2 to 4 months for final product). Additionally, given that this is undertaken in an open area, this will inevitably attract vectors such as flies and rats and other pests.

Given these benefits of the in-vessel composting method, with the higher capital cost than that for windrows-based composting, and lesser capital costs than Anaerobic digestion option considered, the proposed method of in-vessel composting as proposed in the feasibility study (CITRES and MEECO, 2019) is considered as the most feasible option for organic waste management in this project for construction of IWRMC at Kolhufushi.

Power supply and energy source

A second component for which an alternative can be considered is the energy source to be used for power generation and operation of the IWRMC.

- Proposed method: power to be sourced from existing grid at the island
- Alternative 1: installation of solar panels
- Alternative 2: installing a generator in the IWRMC specific for each operation.

The proposed method of sourcing power for the IWRMC is through connection to the existing power grid of the island. Total power requirement for the project is 42kW and the existing capacity of the island power facility is 710kW, with average load of 260kW. While use of fuel as energy source at the power facility is a negative impact on the environment, the additional load is not expected to increase the significance of this impact by a great extent. The capital cost is low though, and an operations and maintenance cost will be incurred due to monthly bills. The absence of fuel handling however greatly lowers the risk of environmental pollution due to accidental spills and fire hazards at the centre.

An alternative and more environmentally friendly method is to install solar panels on the roofed areas of the IWRMC so as to generate the required electricity for operation of the centre. However, this would increase the financial cost of the proposed project, as this would incur a high capital cost, although in the long term has the potential to be financially more feasible, due to minimal operations and maintenance cost. Furthermore, the roof areas of the centre can be used, as there is no open burning or incineration at the centre. Other benefits include the avoidance of pollution of groundwater and other environmental components due to accidental spills, nullification of emissions of greenhouse gases due to fuel burning for IWRMC operations and reduced risk on workforce due to use of flammable liquids.

A second alternative option is to install a generator at the IWRMC, specifically for use of the centre and its operations. This option would greatly increase the negative impact due to the project, through contribution of burning of fuel for the operations. Furthermore, additional land area would be required for the installation of the generator and set up of a small power facility within the IWRMC. This space could however be put to better use. Set up of a power facility would also increase the scope and cost of the project.

While the installation of a solar panel to source power is seen to be most environmentally feasible option of the three options considered, this is an unaccounted high capital cost at present, which is not financially feasible. Hence the proposed option for sourcing electricity to the waste management facility is considered to be feasible as it simply requires establishing a connection to an existing power facility. The Consultant, however, strongly urges the installation of renewable energy sources at IWRMC, through a separate project.

Mitigation measures for the alternative energy sources are also given in Appendix 8 (Table 3).

8 Mitigation Plan

Environmental impacts that are associated with the project, both during construction and operational phase and which have been identified as significant impacts are discussed in this chapter. These are discussed in the context of various components of the project; evaluation of baseline environmental conditions at the project impact area and vicinity; concerns raised by the stakeholders through consultations and review of the literature of similar projects and experience of the EIA Consultant.

There are a number of actions that can be taken to minimize or avoid impacts altogether. Mitigation measures are selected to reduce or minimise the severity of any predicted adverse environmental effect and improve the overall environmental performance and acceptability (lower environmental damage) of the project from the perspective of construction and operation.

Mitigation measures are discussed for the construction and operational phase of the project with respect to various components and their likely impacts on physical, biological (within the project area), and social and economic environment (health, culture and economy). Impacts due to the project based on the assessment principles followed are foreseen as low negative to highly positive. In order to further minimise potential negative impacts, mitigation measures have been discussed below (Table 10). Translation of the proposed ESMP in Dhivehi is given in Appendix 9 of this report.

Table 10. Mitigation measures proposed for the project (ESMP matrix)

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
Detailed design and Planning Phase	Improper functioning of the waste management facility and associated environmental impacts due to improper design	• Ensure detailed design takes into account details of the proposed layouts and all designs are as per specifications required, taking into account the environmental components that may be affected.	Proponent	NA	NA	
	Noise pollution	• Ensure that the site selection sets a minimum distance of 60m from residential and public areas	Island council MLSA Proponent	NA	NA	Already approved site
	Coastal erosion due to the proximity of the facility to the shoreline	• Vegetation buffer of 20m maintained between IWRMC boundary extent and high tideline.	Island council MLSA Proponent	NA	NA	
Pre-construction Phase	Impact on marine and terrestrial environment during handling and transport of construction materials	• Material should be sourced from the closest point or should be brought in bulk and transported to the island. • Detailed BOQ shall be made and should be followed to reduce the waste and to reduce the number of trips	Contractor (implementation) Proponent (supervision)	N/A	N/A	

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		made to the island to provide the resources • Ensure all materials being transferred are packed properly with no loose materials • Monitor oil spills and maintain machinery				
	Impact on environment due to improper storage	• Storage areas for construction materials should have an impermeable surface and should be covered • Materials should be stored in appropriate containers • Area should be regularly monitored for any leaks • Storage facility should be setup within project site to minmise vehicle movements	Contractor (implementation) Proponent (supervision)	N/A	N/A	
	Impact on flora, fauna and groundwater due to handling of construction related materials and equipment	• Ensure workforce are trained and supervised to handle materials during transfer, and unloading so as to minimize accidental spills, littering etc. • Ensure materials are properly packed and any oil/fuel is	Contractor (implementation) Proponent (supervision)	N/A	N/A	Pre-construction – site preparation phase

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		properly stored in containers used for that purpose				
	Sociocultural impact due to arrival of workforce	• Recruit local companies and Maldivians for the work (priority given to locals) • Workforce should be sensitized to the social norms and acceptable behaviour of the Maldivian culture. • Workforce should be fully aware of the Do's and Don'ts of the Maldivian culture. • Develop Contractor's Code of Conduct (sample Code of Conduct provided by World Bank given in Appendix 10) • Establish Grievance Redress mechanism given in the report. Information displaying contact details of the focal points (Tier 1 and Tier 2) should be displayed on the project board, council notice board and via posters displayed in public areas. QR code for downloading the forms and information on	Contractor (implementation) Proponent (supervision)	Grievance Redress Mechanism given Section 9.4 to be enforced.		Council / MCEP PMU staff to be assigned as focal points hence no additional cost for implementation of GRM

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		GRM should be given in each of the media used				
Construction Phase	Vegetation clearance impacts	• Transplant palms which need to be removed and replant 2 palms for every palm which needs to be cut down on the island or through collaboration with another island (Kudahuvadhoo) • Compensation to be given to owners of plants/palms within plot area • Vegetation clearance will not commence before payment of compensation to all beneficiaries.	Proponent / Contractor Island Council	N/A	MRF 68,300 based on normally used rates for compensation (MRF 700 for mature/good condition palms and MRF 500 for small/medium palms)	Compensation cost should be included in the project cost Transplantation work and cost should be included in construction contract
	Noise pollution	• Operate machinery during daytime hours (6am to 6pm)	Contractor (implementation) Proponent (supervision)	N/A	N/A	
	Air pollution / Dust	• Regularly maintain machinery so as to reduce emissions. • Provide workers with masks and other required gear	Contractor (implementation) Proponent (supervision)	As per operational manual of machinery	N/A	Should be included in the construction contract

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Regular watering of site to minimize dust (after work every day)				
	Impact on groundwater table and groundwater quality	• Extract only quantity of water required for the civil works.	Contractor (implementation) Proponent (supervision)	N/A	N/A	
	Impact on health and safety of workforce	Occupational Health and Safety measures • Ensure workers are well briefed on the health and safety measures to be followed during the project • Ensure work force are given all the appropriate safety equipment and gear required for the work (safety hats, boots, glasses, masks and gloves) • Display PPE requirement board at site which should the PPE required by the workers when carrying out different tasks of the construction work • Minimal use of manual lifting must be practiced.	Contractor / Island Council (implementation) Proponent (supervision)	Contractor to provide Health and Safety Plan	N/A	Should be included in the construction contract

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Ensure set up of easy access toilets, wash basins at the site. either through rental from nearby area or installation of a portable toilet. • Provision of regular meal breaks and an onsite resting area for the workers, where they can rest during the breaks • Ensure provision of first aid kit on site ensure readily available transfer in instances of emergency use • Ensure workforce are accommodated in appropriate quarters where they are not cramped. • All staff handling hazardous waste should be given the proper protective gear (protective eye gear, protective gloves) • Open burning of waste should not be carried out at existing waste disposal location during				

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		this period (due to very close proximity to IWRMC site) • Waste to be removed from existing waste disposal site on a regular schedule COVID 19 related preventative measures • Ensure that there is set number of workers in each room so as to allow social distancing • Ensure that workforce follows all HPA guidelines at all times, with respect to COVID 19 pandemic. • Measures should be in place to undertake daily temperature checks of workforce and enable social distancing at the accommodation facilities and work site				
	Impact on public health and safety	• Clearly demarcate project area through metal sheet fencing • Ensure public does not have access to the project site and	Contractor (implementation) Island Council	N/A	N/A	Should be included in the project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		appropriate signs are put up at the required areas# • Establish Grievance Redress mechanism given in the report. Information displaying contact details of the focal points (Tier 1 and Tier 2) should be displayed on the project board, council notice board and via posters displayed in public areas. QR code for downloading the forms and information on GRM should be given in each of the media used.				
	Fire safety	• Ensure connections to power facility are established by trained and competent personnel • Ensure construction workforce are trained in firefighting so as to address any fire hazards promptly • A portable fire extinguisher should be used at the site. • Installation of a fire hydrant / water point at site	Contractor (implementation) Island Council	Firefighting equipment should be included as part of equipment inventory of IWRMC	Should be included in the project cost	

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
	Waste Management During Construction Phase .	• Construction waste produced should be reused for the construction of the IWRMC as much as possible. The remaining reusable materials such as (metal bars and roofing sheets) should be given to the island community or the island council free of cost. • Green waste to be sundried and left at the forest area for natural decomposition. • Any remaining construction waste shall be temporarily stored and taken out of the island to a RWMF at the time of demobilizing. • Hazardous waste generated should be collected and stored in sealed containers • Area where hazardous waste is stored should have an impermeable surface (such as concrete layer, metal sheet) and should be clearly marked with warning signs	Contractor / Island Council (implementation) Proponent (supervision)	N/A	N/A	Should be included in the project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
Operation and maintenance phase	Impacts due to waste spillage during transfer of waste from households to the centre	• Identify correct way in which waste should be left for collection (properly closed bags with no leakage) • Ensure transport vessel carrying the waste carries only a set load • Vessels should be enclosed on all sides to prevent spills • Setup of appropriate bins at identified locations • Provision of proper and complete training to IWRMC operators (in all aspects of operations) • Provision of all required PPE to the staff of IWRMC • Protective clothing, gloves, respiratory face masks and slip-resistant shoes are recommended for waste transport workers and hard-soled safety shoes for all workers to avoid puncture wounds to the feet. • Noise protection gear such as earmuffs should be provided	Waste Facility Operator Island Council	Operational plan should be prepared and IWRMC should be registered and licensed by EPA as per Waste Management Regulation.	N/A	Should be included in the project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		to all workers operating or working within vicinity of loud equipment • Provision of hard hats for workers operating or working within vicinity of heavy mobile equipment, and at the discharge location for collection trucks, include provision of hard hats				
	Impacts due to installation and operation of OWC machine	• Design and construct an appropriately sized area for machine installation, with curing racks. The area should have an impermeable layer with drains installed to drain any leachate generated • Ensure Bioculum is added at the correct rate to enhance the natural aerobic process • Ensure moisture level while in the machine is kept at required levels for that specific machine • Ensure moisture level of compost while curing on racks is maintained through	Waste Facility Operator Island Council	N/A	N/A	Should be included in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		installation of automatic fogging devices				
	Impacts due to machine malfunction	• Provision of proper and complete training to IWRMC operators (in all aspects of operations and machine maintenance) • Undertake routine maintenance of machinery as per the manual • 1 year stock of bioculum and other spare parts that might be required for the routine functioning of the OWC machine should always be maintained.	Waste Facility Operator Island Council	N/A	N/A	Should be included in project cost
	Impacts of hazardous waste sorting and storage and disposal to the workers	• Specific times should be allocated to receive hazardous waste in the facility. • Dedicated area should be marked for collection and storing of hazardous waste. • The floor should be concrete to minimize seepage into ground should there be a spill or an accident.	Waste Facility Operator Island Council	N/A	N/A	Should be included in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Chemicals and other hazardous material should be placed in closed containers with proper signage. • Fire extinguishers should be available in close proximity.				
	Impact on groundwater resource due groundwater usage, leachate and wastewater processing	• Use alternate source of water for operations to reduce impact on water quality • Ensure drains are cleaned regularly to prevent clogs • Organic waste brought to the IWRMC must be prepared for composting / composted on a regular schedule	Waste Facility Operator Island Council	Associated with operation	Associated with operation	Estimated cost MVR 25,000.00
	Litter, odour and vectors	• Sort waste brought to IWRMC and compost organic waste regularly. • Store inorganic waste and other bulk waste in their allocated storage areas • Undertake volume reduction via glass crushing, metal can baling, plastic shredding, wood chipping etc.	Waste Facility Operator Island Council		N/A	Should be included in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Arrange regular disposal of inorganic waste through transportation to the RWMF				
	Socio-cultural conflicts	• Hiring of locals (especially from within the island community) to operate and manage the IWRMC and implement the Island Waste Management Plan • Establish the Grievance Redress Mechanism given in this report. Information displaying contact details of the focal points (Tier 1 and Tier 2) should be displayed on the project board, council notice board and via posters displayed in public areas. QR code for downloading the forms and information on GRM should be given in each of the media used.	Waste Facility Operator Island Council	Costs associated with the contract	Not known	Should be included in project cost
	Workplace safety	• Set up of all required sign boards as per the Waste Management regulation • Ensure all firefighting equipment required for the	Waste Facility Operator Island Council	Fire safety equipment to be supplied and installed as part of the contract: • 50KG DCP Trolley (2)	N?A	Should be include in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		facility are in place and in good condition • Provide protective gears to the workers (gloves, waterproof footwear, protective eye wear, masks) • Ensure provision of a first aid kit on site so as to attend to any medical emergencies immediately. Cover open wounds to prevent contact with the incoming loads		• 50LTR Foam Trolley (1) • Wet Chemical 6Ltr with Cabinet for hazardous waste area (1) • Water 9Ltr with Cabinet for Office Area – Outside (1) • CO2 2KG with Cabinet for Office Area – Outside (1)		
	Impact on resources	• Prepare a plan to switch on the compactors and shredders depending on the incoming waste stream to conserve electricity. • Ensure that all equipment is serviced and kept clean daily, to reduce the amount of water required for cleaning. • Work shall be planned to be carried out during day times. • Use solar lights in the premises.	Waste Facility Operator Island Council	N/A	N/A	Should be included in project cost

9 Environmental Management and Monitoring Plan

Monitoring is the systematic collection of information over a long period of time. It involves the measuring and recording of environmental variables associated with the development impacts. Monitoring is needed to:-

- Compare predicted and actual impacts;
- Test the efficiency of mitigation measures;
- Obtain information about responses of receptors to impacts;
- Enforce conditions and standards associated with approvals;
- Prevent environmental problems resulting from inaccurate predictions;
- Minimize errors in future assessments and impact predictions;
- Make future assessments more efficient;
- Provide ongoing management information; and
- Improve EIA and monitoring process.

Impact and mitigation monitoring are carried out to compare predicted and actual impacts occurring from project activities to determine the efficiency of mitigation measures. This type of monitoring is targeted at assessing human impacts on the natural environment. Impact monitoring is supported by an expectation that at some level anthropogenic impacts become unacceptable and action will be taken to either prevent further impacts or re-mediate affected systems.

Table 11 shows the monitoring work to be carried out for the construction and operational phase of the project. Commitment to carrying out and financing the mitigation and monitoring work is given in the proponent's declaration at the beginning of the report.

Table 11. Monitoring programme for the project

Proposed mitigation measure	Parameters to be monitored	Location	Measurements	Frequency of monitoring	Responsibility	Cost (MRF)
Pre-construction phase						
Monitor oil spills	Spill events	Sea/land	Logs of spill events	After every event	Contractor	N/A
Construction phase						
Groundwater quality	Temperature, Conductivity, pH, Total Dissolved Solids and Nitrate	Project site and control site	Water samples tested in-situ using probe or sent to competent laboratory if necessary	Once every 2 months during construction phase	Contractor	6,000.00

Workforce health and safety	Daily temperature checks General health and wellbeing of workforce	Project site	Logs of any illness amongst workforce	Daily	Contractor	Part of the contract
Grievance redress mechanism	Monitor grievances by the community or other personnel	Whole island	Log of grievances filed and how these were handled	Continuous process	Island Council / MCEP	Included in operational cost
Operational phase						
Monitor spills during the waste collection and disposal process	Spill assessments during collection, transfer, with IWMRC and transfer to RWMF Littering around the island	IWRMC site and transport route Around the island	Logs of spills and type Logs of littering incidents (date, location and type of waste)	Spill logs after every incident Littering monitoring every 3 months	IWRMC operator / Island Council	Part of operational cost
Monitor IWRMC operations	Waste generated and disposed quantities	IWRMC	Daily logs of waste generated Composting logs with details of input/output quantities Logs of disposal of inorganic waste	Daily / for every incidence of disposal of inorganic waste	IWRMC operator / Island Council	Part of operational cost
Groundwater quality	Temperature, Conductivity, pH, Total Dissolved Solids and Nitrate	Project site and control site	Water samples tested in-situ using probe or sent to competent laboratory if necessary	Once every 6 months	IWRMC operator / Island Council	4,000.00 (per year)
Grievance redress mechanism	Monitor grievances by the community or other personnel	Whole island	Log of grievances filed and how these were handled	Continuous process	Island Council / MCEP	Included in operational cost

9.1 Reporting Procedures and Implementation Schedule

The reporting procedures and schedule is for the various monitoring components are given in Table 12 below.

Table 12. Reporting schedule for the monitoring programme

Phase	Deliverables	Responsibility	Accountability
Construction phase	Monitoring report (as per format provide by MCEP Safeguards Specialist) submitted every 3 months or earlier based on date of invoice submission by the Contractor which should include the following: • Log of spill events during material transfer • Groundwater quality monitoring reports • Outcomes of grievances filed	Contractor	MCEP
Operational phase	Monitoring report submitted once a year (as per format provide by MCEP Safeguards Specialist) which should include the following: • Logs of spill / littering assessments • Waste quantification logs • Compost quantification logs • Groundwater quality monitoring reports • Outcomes of grievances filed	IWMRC Operator / Island Council	MCEP

9.2 Cost Estimates and Sources of Funds

The cost estimates for the different mitigation measures and monitoring work are given in Tables 10 and 11 respectively. The Tables also identify the personnel responsible for the implementation of these measures, who will also be responsible for funding these components.

9.3 Contract Clauses

Contractual clauses have been identified to ensure that the full implementation of the ESMP which is a requirement of both the World Bank and EPA is carried out during the construction phase of the project. Operation of the facility will be handed over to the Island Council. The Consultant recommends incorporation of the following clauses into the agreement signed with the construction contractor for the project:

1. Contractor should submit a report inclusive of photographic evidence of implementation of mitigation measures such as set up of sign boards, provision of safety gear to workforce at the start of construction
2. Payment invoices must be accompanied with progress reports, which give the following details:
    - Work completed to date of invoice

- Delays faced and reasons for delay
- Mitigation measures implemented during the time period
- Environmental impacts observed during the work period and measures taken to correct these impacts

3. Monitoring reports should be submitted in the format required by MCEP, as per the schedule identified in this ESMP. Employer has the right to withhold payment if reports are not submitted as per schedule and in required format
4. The Employer or the Contractor have the right to terminate the contract, if either party is in violation of any part of the contract. Termination in such instances will be effective immediately from the date of termination.

9.4 Grievance redress mechanism

The Maldives Clean Environment Project has formulated a Grievance Redress Mechanism (GRM) for these projects, which would facilitate the receiving and addressing of any grievances which may arise during both the construction and operational phase of the project. The mechanism has two tiers, whereby Tier 1 will be facilitated by the Island Council and Tier 2 by the MCEP.

The Island Council were briefed about the mechanism during the stakeholder consultation meeting held with them regarding the project and operations of the IWRMC. The Council have also been requested to identify a focal point for managing the GRM at Tier 1. Details of focal point identified by the Council are:

- Name: Hassan Nafiz
  - Designation: Director
  - Contact number: 9114489

Tier 2 will be managed by the MCEP, with the Environmental and Social Safeguards Specialist as the focal point.

Table 13 below gives the details of the GRM formulated by MCEP.

Table 13. Grievance Redress Mechanism for the project, formulated by the PMU

Tiers of Grievance Mechanism	Nodal Person for Contact	Contact Communication and other facilitation by the project	Timeframe to address grievance
First Tier: Island Council	Island Council will be the first point of contact for any grievances. The staff designated as the waste management focal point by the island	GRM should be publicly displayed in the construction site as well as the council office. GRM should also be outlined in official website and/or social media pages of Council, ME (and/or the project), including contact details of the nodal person in each tier.	15 working days

	council will manage grievances on behalf of the council.	Grievances can be addressed informally by contacting the council through email / telephone / in person. If the grievance cannot be resolved informally, an aggrieved party must submit a complaint on the Tier I Complaint Form. A copy of the form (with the council seal) should be provided to the aggrieved party as evidence of receipt. Electronic version of the complaint form should be available from the websites and/or social media pages of ME and the council. Physical copies of the form should be available from the council front office. Council will provide assistance to fill the form for those who cannot write. The council should keep separate registries for informal and formal complaints and maintain records of all complaints received. The council will discuss the matter with all relevant stakeholders (Farmers, Fishermen, School, Health Centre, Women's group etc.), where deemed necessary and attain views of them. If such meetings are arranged, the date, time, location or venue, list of participants (with contact details) and a summary of the main outcome of the consultation must be annexed to the written decision issued by the council. If the complaint is resolved within 15 working days, the council must communicate the decision to the aggrieved party in writing. The aggrieved party must acknowledge the receipt of decision and submit their agreement or disagreement with the decision within 10 working days. If no acknowledgement is submitted from the aggrieved party	

		within this period, then the decision will be considered as accepted. If a complaint requires more time to address, this requirement must be communicated to the aggrieved party in writing and the aggrieved party must consent and sign-off the request for the extension to take effect. An extension can be made to an additional 15 working days. The staff designated as the waste management focal point by the island council will manage and provide feedback for grievances submitted to the council.	
Second Tier: Ministry of Environment (ME)	Environmental and Social Safeguards officer at the Project Management Unit (PMU)	If the grievance cannot be resolved through Tier 1 to the satisfaction of the aggrieved party or if the issue is outside the jurisdiction of the council (issues related to RWMF), an aggrieved party may submit a complaint on the Tier 2 Complaint Form. A copy of the form (with ME seal) should be provided to the aggrieved party as evidence of receipt. Electronic version of the complaint form should be available from the websites and/or social media pages of ME and the council. Physical copies of the form should be available from the council and ME front office. A copy of the Tier 1 Complaint Form should be submitted with the Tier 2 Complaint Form. ME will forward the grievance to PMU. PMU screens the grievance and determine if it is related to MCEP. If it is unrelated, the aggrieved party must be notified in writing and the way forward must be outlined to them including the necessary government institutions to follow up. Environment and Social Safeguards Officer at the PMU will be the	15 working days

		contact person in processing a grievance through the Second Tier. PMU will discuss the matter with EPA and other relevant institutions, where deemed necessary and attains views of them. PMU will also arrange site visits and hold onsite discussions and meetings if necessary. The PMU will be responsible to ensure that there is no cost imposed on the aggrieved person, due to the grievance mechanism at the second tier. If the complaint is resolved within 15 working days, the PMU must communicate the decision to the aggrieved party in writing. The aggrieved party must acknowledge the receipt of decision and submit their agreement or disagreement with the decision within 10 working days. If no acknowledgement is submitted from the aggrieved party, then the decision will be considered as accepted. If a complaint requires more time to address, this requirement must be communicated to the aggrieved party in writing and the aggrieved party must consent and sign-off the request for the extension to take effect. An extension can be made to an additional 15 working days. If the grievance is not resolved to the satisfaction of the aggrieved party within 15 working days of submission of the grievance to tier 2 then the aggrieved party may notify the ME, in writing, of the intention to move to tier 3.	

Third Tier: Judiciary Power / Assistance to Vulnerable Persons beyond the Project's Grievance Redress Mechanism	Judiciary system is an option for an aggrieved person and/or community in case that the other tiers have not been effective	The legal system is accessible to all aggrieved persons. Assistance from the PMU of MCEP is available only for vulnerable person(s)* as per this grievance mechanism. In cases where vulnerable person(s) are unable to access the legal system, the Attorney General´s office will provide legal support to the vulnerable person(s). The PMU must assist the vulnerable person(s) in getting this support from Attorney General´s Office. PMU must also ensure that there is no cost imposed on the aggrieved person if the person belongs to the vulnerable groups. The list of vulnerable groups is as defined in the footnote but may be further defined by MEE. The verdict of the Courts will be final.	As per established Judicial Procedure

*Vulnerable person(s): A vulnerable person(s) for the purpose of this project is a person who is poor, physically or mentally disabled/handicapped, destitute, disadvantaged for ethnic or social reasons, an orphan, a widow, a person above sixty years of age, or a woman heading a household.

10 Training recommendations

During consultations meetings with the Island Council, it was identified that operations of the IWRMC can only be effectively and fully implemented with training of the staff involved in the operations. As a result of this, the ESMP identifies areas where training is required and who the training is targeted for and this is given in Table 14. Consultant would like to note that given that training needs for most of these IWRMC projects would be very similar, some details of the training programme have been sourced from ESMP carried out for upgrading of IWMC in N. Holhudhoo (Zuhair, 2019).

Table 14. Training requirements for the implementation of the ESMP

Training activity	Participants	Type of training and content	Responsibility	Scheduling	Cost estimates
Strengthening the capacity of the contractor on ESMP implementation and reporting.	PMU personnel and Contractor	Brief of the ESMP and monitoring requirements Data to be collected and how to be presented (Format of monitoring report)	PMU / Environmental and Social Safeguards Specialist	Kick off meeting	N/A
Strengthening PMU's capacity on compliance monitoring	All PMU staff involved in the work	Familiarisation with monitoring requirements and monitoring report template	Environmental and Social Safeguards Specialist	Construction phase	N/A
General awareness on health, safety and environment	Construction workforce	Introduction to the health and safety precautionary measures to be implemented (site safety rules / PPE / emergency response) Training in environmentally friendly ways of carrying out construction work with minimal littering	Site Supervisor / Contractor	Pre-construction phase Construction phase	N/A

		Training in following COVID 19 guidelines at workplace and accommodation.			
Community Mobilization	Waste Management Committee	Introduction (Refresher) to the Waste Management Regulation, Policy and Guidelines Introduction (Refresher) to the Island Waste Management Plan and Waste Management Committee Training in ways to segregate waste at household level Training in marketing of compost product	Communication Specialist of MCEP	Pre-construction phase	Travel cost of facilitators Designing and printing of training materials and workshop costs
Operation and Maintenance training of the OWC machine and curing system	IWMRC staff	Introduction to compost preparation using organic waste Step by step guidance on mechanical composting using aerobic systems Step by step guidance to use of the organic waste converter machine	Zone-5 Project Coordinator of MCEP WMPCD Island Council Communications Specialist of MCEP	Prior to commencement of operations	Travel cost of trainer Developing and printing of Training Manual

Fire safety training and fire drills.	IWRMC staff	Introduction to potential hazard scenarios and fire safety Training in use of fire safety equipment on the site Emergency response and evacuation plan and drill	PMU/ MCEP MNDF	Prior to commencement of operations	Travel cost of trainer Developing and printing of Training Manual

11 Contingency plans

The following contingency plan is proposed in case that the project planning, construction and operation as scheduled have not been met due to unforeseen circumstances such as failure to meet specific performance criteria established by law or necessary for the project to meet its commitments in the ESMP and including responses to natural and other risks identified and mitigated in the ESMP. The project related risks and mitigation measures addressed in the report are mainly environmental and socio economic. The significance of environmental and other impacts identified through RIAM are low negative and failure to or deviation from the proposed mitigation measure will not significantly affect the outcome of the project from impact on natural environment and in the worst-case scenario the island waste management system defaults to current status quo. Nevertheless, the following sections highlights proposed measures in the event the upgraded facility and its operations are interrupted.

11.1 Natural Disasters

Natural disaster such as earthquakes are rare in the Maldives. However, the risk of flooding associated with extreme weather such as storm surges and heavy rain is notable. Climate change risks such as sea level rise is projected as long term and such future risks are high with respect to the low elevation of islands in the Maldives.

This ESMP has not addressed potential risks to the project with respect to project design. It appears, from the limited information made available with regard to architectural design of the layout of the facility from the proponent, that the design has not included project sea level risk mitigation factor into the design, somewhat considered for critical infrastructures as general policy (legally not required by law or regulation as yet). That been said, it is challenging to identify what becomes a critical infrastructure or not as any infrastructure (public or private) are equally vulnerable to flooding.

Locally applicable regulation such as EIA regulation requires for all development project to ensure that a minimum 20m vegetation buffer be maintained. The location of this project conforms to that requirement. Additionally, it may be important to review the design of the facility to assess whether the design has considered climate proofing (e.g. flooding risks) as part of the design. If not, identify potential costs involved for such design so that future projects of similar nature consider such cost if they are feasible or important as part of national sustainable development strategy.

11.2 **Disruptions to operation of the facility**

Few aspects may be associated with potential destruction to the operation of the facility. These include;

- Breakdown of the machinery
- Components required for optimal processing of organic waste not available
- Staff not appropriately trained to operate the machinery

Breakdown of the machinery is often associated with lack of routine maintenance services that are required for any machinery. Hence the facility operator should ensure that adequate supply of materials are stocked at site so that any minor breakdown or disruption to the operation of the machinery is immediately or quickly addressed. Required routine services to the machinery or other equipment or vehicle should be followed according to the operation manuals and guidelines. The facility or operation supervisor shall ensure such protocols are maintained through proper logs and documentations.

Interruption to the operations of vehicles and machinery is also associated with lack of or inadequate training provided to the machinery operators. Adequate training provided to the operators of the machinery or equipment is thus essential. Hired staff shall be based on optimal technical qualifications. If technical qualification are not available due to local human resources capacity that project shall include training to the staff hired prior to the facility become operational.

In case of interruption to the operation of the facility, place for storage of the unprocessed waste at the site should be established by an agreed SOPs established as part of the operation of the facility, between stakeholders of the project. Such shall be agreed by;

- Formulation of agreements with the facility operator, island council and ME to agree on a procedure to handle waste in case of emergency
- Transport the waste to nearby island where such facility is operational until operational issues are rectified
- Ensure appropriate and secured finance is made available in the operational budget.

12 Stakeholder consultation

Stakeholder consultations with relevant personnel, as identified in the TOR for the ESMP, was carried out as online meetings, telephone conversations and through a short survey of households. Key stakeholders identified in the TOR are:

- Island Council of M. Kolhufushi
- Environmental Protection Agency
- FENAKA Corporation Limited
- Health Protection Agency
- Ministry of National Planning, Housing and Infrastructure and Maldives Land and Survey Authority (MLSA)
- Maldives National Defense Force
- Women's Development Committee of the island
- Community Consultation or Household Survey on their perception of the project
- Ministry of Environment / MCEP

Table 15 gives details of the discussion points of the different stakeholder consultation meetings. Details of personnel consulted with are given in Appendix 11.

Table 15. Outcomes of the consultation meetings

Meeting details	Discussion points and feedback (in italics)
Consultation with the Island Council Date: 28th February 2021 Meeting held via Google meet	EIA Consultant enquired about the waste management plan of the island and current waste management practices • *Currently waste is disposed at 2 locations (northern tip and western side of island). These sites have been assigned based on the waste disposal practices which exists on the island. Waste is not segregated and all waste is disposed at these locations. Combustible waste is burnt (though not per a schedule).* • *However, the waste disposal ground 2 (on the western side) will not be there when the coastal protection works start (this project is also currently at EIA stage). Hence, given that this area will no longer be available and the second dumping area is further away at the northern tip, this area is too far for the residents at the central and southern side of the island.* • *Council recommends allocating another land for temporary disposal for south half of the island. If not, then the residents will have to carry the waste in wheel burrows to a distance of more than 1km to dispose their waste and this is not practical (the reason why they have 2 grounds even now). Furthermore that area is also full even now and waste is easily carried away into the waterway between the islands. It was also noted that when the nuisance of flies increases, people throw food waste in plastic bags into the*

	waters and these bags get collected in other parts of the island. This practice is being carried out even with multiple requests by the Council. • *Consultant informed that the issue of allocating another area as a second waste disposal site will be communicated to the Ministry for their feedback.* EIA Consultant enquired about alternative location which can be used in such an instance • *Council noted that they do not have any empty plot. All available land is full of coconut palms/vegetation. So, their recommendation is to allocate a plot land, but this will need vegetation clearance. If this is approved, they can then use the cleared area later for another use in the LUP.* • *The consultant explained that this may not be possible as clearing land area for temporary site is not under the scope of this work and this needs to be further discussed.* EIA Consultant explained the proposed work and shared the location and enquired about their concerns/ comments • *They are aware of the project and location* • *Operations will be through staff hire* • *The Council informed that they were in full support of the project and look forward to commencement of work soon, as they have been waiting for a long time for this and it would be of great benefit to have an operational waste management center in place. At present they have a lot of difficulties in this aspect, especially with disposal of waste. Waste is burnt at the dumping site.* EIA Consultant explained the Grievance Redress Mechanism and explained the responsibility of the Council in implementing this mechanism • *The focal point for the project will also be the focal point for the implementation of the Grievance Redress Mechanism.* EIA Consultant enquired about access roads to the project site • *Council noted that currently they have been asked to carry out all necessary works to clear the access road to the proposed IWMRC and they have started the process of providing required information to Local Government Authority and Ministry of Environment. They think an EIA will be required for this as the number of coconut palms exceeds the maximum number they can cut without an EIA. Land clearance work and compensation for palms cut down will be carried out by the Council through their budget and is not part of the scope of this project.* EIA Consultant enquired about area for transplantation of vegetation removed from the plot

	Council informed that the island does not have any land area available and the whole vegetated area is composed of coconut palms. Furthermore, palms are old palms and very tall, so even previously they have been unable to relocate these palms to another island, when they have had to remove for land clearance purposes
Consultation with the Environmental Protection Agency Date: 12h January 2021 Meeting held via Googlemeet	EIA Consultant enquired about the licensing requirements for operating island waste management centers: • *Operation License needs to be acquired for the vehicles and vessels used for transport of waste from one place to another.* • *Operation Permits are given to operate the waste management center upon submission of waste management plans.* • *All waste management practices should be in accordance with the guidelines provided in the waste management regulation* EIA Consultant enquired about the duration of the operation permits issued: • *The duration depends on the method of waste management planned for that island. It may be 5 years, 2 years or even 1 year. The duration is determined after reviewing the waste management plan.* • *The permits can also be renewed with completion of terms*. EIA consultant enquired if there would be any inspection carried out by the EPA before renewing operating permits of the centers. • *EPA will carry out an inspection and decide on renewal of permit*. EIA Consultant enquired if EPA has any comments on the design of the waste management centers • *There are no specific design requirements yet from EPA. The participant noted that the drawings shared were not very clear and to send clear drawings for them to review.* Meeting was ended with no further comments. It was agreed to share the drawings for their review.
Consultation with the FENAKA Date: 19h January 2021 Meeting held telephone conversation	EIA Consultant briefed about the project and explained that the estimated power requirement for the IWRMC operations was 42kW. Consultant enquired about existing power capacity and whether it would be sufficient to cater to the needs of the IWRMC. • *Existing power capacity of the power facility is 710kW (2 gensets of 280kW capacity each, 1 set of 150kW) and the average load is 260kW. Hence existing system will be able to cater to the needs of the IWRMC. Furthermore, an upgrade of the facility (400kw genset) is being planned.* EIA Consultant enquired about proximity of nearest power distribution box to the site. • *Nearest power distribution box is approximately 150ft from project site and it was informed that it can be easily connected to the proposed site.*

Consultation with the MNPHI / MLSA Date: 11h January 2021 Meeting held via Googlemeet	Meeting was held with participant from Land use planning department. EIA Consultant briefed the participant about the project and enquired whether they had any issues with respect to the area allocated for the project site. EIA Consultant also informed that the Client had already received letters from MLSA, approving the locations (for at least majority of the islands)and agreed to send a list of islands for which letters had been received. • *Participant of the meeting stated that if approval had already been given, then they had no further comments or issues. They further stated that once the list is shared with them, they will also discuss with MLSA and communicate their comments to the consultant in writing.*
Consultation with MNDF Date: 28th January 2021 Meeting held via Googlemeet	Meeting was held with personnel from the fire safety and training departments of MNDF. EIA Consultant briefed the participant about the project and stated that main points of discussion for the meeting was with respect to fire safety and willingness of MNDF to assist in training the IWRMC operators on firefighting. EIA Consultant enquired whether they had any concerns about the project from a fire safety / hazards aspect. • *Since there is no fuel storage on site or use of fuel for any purpose on the site, they had no major concerns* • *Some drawings for these centres have been shared with MNDF. Request to send all drawings, inclusive of fire safety measures to them for their approval.* • *Recommend to formulate a firefighting and fire safety plan prior to project commencement, so that in the instance of a fire incidence, personnel are well aware of how to handle the situation.* • *The plan should include details of firefighting team, leading staff, equipment details, assembly points and .emergency contact numbers. The plan should be approved by MNDF fire department.* • *Fire hydrant or water point to be established on site and a water pump should be added to the list of firefighting equipment to be sourced for the site. This will be used for handling of any major fire events.* EIA Consultant enquired about the willingness of MNDF personnel to give the required training for the workforce of the IWRMC • *The MNDF regional branch at L. Kahdhoo, F. Nilandhoo and Dh. Kudahuvadhoo can undertake the trainings for the IWRMC staff of Faafu, Dhaalu, Thaa and Laamu atoll as required by the proponent. Ministry should send a formal request to MNDF to this effect and the public affairs department of MNDF will arrange the trainings.* Meeting adjourned with no further questions or queries on either sides.
Ministry of Environment / MCEP	A formal consultation/meeting with the project PMU was held at the Inception stage.

	Regular communications have also been carried out via phone or email throughout the report formulation process, which also includes communications regarding project progress, delays, request for information.

Note: Consultation with the focal group of women from the island was not carried out, as the Island Council were unable to arrange a meeting or provide contact numbers, even with repeated requests. Additionally, meeting request has been made to Health Protection Agency with numerous followups, though a meeting has not been scheduled to date (copies of email communications given in Appendix 12).

12.1 **Outcome of consultations**

This section looks at key issues raised by stakeholders and feedback from MCEP (Table 16). The feedback from MCEP have been communicated to the island council

Table 16. Key issues raised by stakeholders and feedback from the project

Inputs received by stakeholders	Response given by Project
• The waste disposal site on the western side will not be there when project on coastal protection starts. Hence, given that this area will no longer be available and the second dumping area is further away at the northern tip, the Council recommends allocating another land for temporary waste disposal for south half of the island. • Council noted that they do not have an empty plot for this purpose and any area allocated will have to be cleared. If this is approved, they can then use the cleared area later for another use in the LUP.	• As highlighted in your document, the waste disposal ground 2 is going to be lost as a result of the proposed coastal project (at the EIA stage), which has no relevance to our project. Thus, we believe that any compensatory measures required as such should be provided by the PIU of the coastal project (proponent: MNPHI) and the council should coordinate with them to seek a favourable solution on this matter.
• Council noted that currently they have been asked to carry out all necessary works to clear the access road to the proposed IWMRC and they have started the process of providing required information to Local Government Authority and Ministry of Environment. They think an EIA will be required for this as the number of coconut palms exceeds the maximum number they can cut without an EIA. • Land clearance work and compensation for palms cut down will be carried out by the Council through their budget and is not part of the scope of this project.	• *On the issue of access roads highlighted, this is something outside our scope, as road development falls under council's responsibility and is not under ME's mandate. Therefore, the council should seek additional financing from MoF and other line Ministries if required. Project fund is only allocated and approved to clear the actual site/plot where IWRMC is to be established. As far as we know, this issue was not discussed within the PMU or ME.* • *If an EIA is required for the access road clearance due to the large number of trees perceived to be removed (in excess of 200), this should also be covered by the island council.*

	This issue was further discussed with Council during a second meeting held with PMU, Council and Consultant. The access road given in the report has been revised based on outcomes of this meeting (Minutes of meeting given in Appendix 11)
• Council informed that the island does not have any land area available and the whole vegetated area is composed of coconut palms. Furthermore, palms are old palms and very tall, so even previously they have been unable to relocate these palms to another island, when they have had to remove for land clearance purposes *NOTE: EIA Consultant has discussed this issue with the PMU as well as EPA. EPA states that since this is mandated by Regulation, this would need to be implemented. Replantation can also be undertaken on another island (if no available space on Kolhufushi)*	• This issue was discussed with Council of Kudahuvadhoo (another island where IWRMC is being developed through this project) during one of the consultation meetings. Kudahuvadhoo Council were willing to go into discussions with Kolhufushi Council regarding this issue, so as to transplant palms removed from the Kolhufushi site at the reclaimed area on Kudahuvadhoo, or replant as per 2:1 ratio at Kudahuvadhoo. Meeting minutes of this consultation and communications regarding this between PMU and Kudahuvadhoo Council are given in Appendix 11.

12.2 **Results of the Household survey**

A household survey was undertaken to assess the perception of the community with regards to the current waste management practice and their willingness to pay for a proper waste management system. Survey forms were sent to the Island Council so as to enable the household survey data collection (copy of survey form is given in Appendix 13). Questions were asked about their waste segregation methods, waste disposal methods for both biodegradable and non-biodegradable waste and their perception on the location and size of proposed IWRMC. A total of 37 households took part in the survey, which is approximately 20% of households on the islands. Key findings of the survey include:

- On average, all households produce more biodegradable waste than non-biodegradable waste.
- Majority of respondents reported to disposing of biodegradable and non-biodegradable waste to the garbage dump, while some stated that they disposed of their waste at other empty areas as well, and to the sea
- Waste segregation is not being carried out at household level and all waste is dumped together at the disposal areas, as observed during the site visit
- The council at present is not implementing waste collection from island and waste disposal is carried out by the households themselves. Hence no fee is collected from the households.
- Majority of respondents felt that the project site was too close to residential area and hence island community would face a lot of negative impacts such as smell and smoke impacts, nuisance due to vectors etc.

- When enquired about the size of the proposed IWRMC, 83% felt that it was too small to properly manage waste generated on the island, while remining % felt that the size was suitable or too big.
- Cessation of open burning of waste and regular disposal of waste from the site were cited as most recommended mitigation measures (by respondents) to minimize impacts on residential area due to operation of IWRMC at proposed site

13 Gender Empowerment / Preparation of Gender Action Plan

Traditionally cleaning the roads, houses and waste collection and disposal are carried out mostly by women. With establishment of waste management centres with machinery and facilities in some islands, the activities related to waste management are not only a responsibility of women but men are also actively involved in the process. In most islands with waste management systems in place, women are mostly involved at household level; in cleaning and waste segregation, whereas men are involved in collecting waste from the households and managing the waste at the waste management centres.

As per most recent reports of registered population of the island 51% of the population are men and 49% are women (NBS, 2020). Currently 14% of the households are headed by women whereas 86% is headed by men (as per island council). From the consultations carried out to discuss the proposed project, it was evident that women do not have a significant role in the waste management of the island at present.

The Environmental and Social Assessment and Management Framework and Resettlement Policy Framework for the MCEP consists of a Gender Development Plan which identifies Gender Issues, Strategies and Proposed activities relevant to the project (MEE, 2016). As this is the basis for the formulation of a Gender Action Plan for the components under the MCEP and hence is of significant relevance to the proposed project, the Gender Development Plan has been directly sourced from Zuhair (2021) and is given in Table 17 below.

As highlighted in the Gender Development Plan, in general, currently women feel they are excluded from the opportunities of being part of the waste management system, and they have suggestions that would help in management of waste at the island. Based on the findings listed in the Gender Development Plan and the findings from the consultations, a Gender Action Plan is proposed as given in Table 18.

Table 17. Gender Development Plan as in the ESMF for the MCEP (sourced from Zuhair, 2021)

Gender issues	Strategy	Proposed Activities
Lack of awareness	Awareness campaign about the project for the community focusing on the vulnerable group including women.	Formation of women groups around specific project areas. Share information about the project benefits with local community.
Low Level of literacy	Support functional literacy campaign and develop extension programs to take the benefits from the project as per the needs of illiterates.	Undertake literacy programs as built- in activities coordinated with literacy programs. Develop the implementing strategies to communicate real time information

		specifically for economically weaker section. Develop audio-visual aids and documentary for training programs about the project for illiterate women groups.
Excluded from opportunities because of social boundaries as a result low level of participation in decision making process	Rapport building with Women Development Office at District or local level involving them in Program. Gender sensitization to all stakeholders including project entities. Ensure Women‘s participation during meetings, project implementation and monitoring.	Carry out meetings and interaction program with and orientation to women in the community. Conduct leadership training for women members of commodity groups.
Lack of knowledge / access to technical knowhow	Promote need based technical awareness and support services.	Organize training on technologies. Provide opportunities of exposure or study visit to women's group to develop their leadership capacity.
Disparity in Wages	Accord Priority Employment to women in project generated construction activities. Promote equal wages for equal work.	Inform women groups regarding proposed construction works. Identify women interested to Work; assess their skills and involve them as per their capabilities. Monitor women wage rate and do the needful to ensure wage equality for similar type of construction works. Inclusion of the above elements in the contractors’ document

Table 18. Gender Action Plan for the project

Gender Activity/Action Plan	Performance Indicators / Targets	Responsibility	Timeline
Outcome: M. Kolhufushi IWRMC is established with the required environmental and social safeguards as per the existing laws and regulations of the Maldives and the World Bank's Safeguard Policies			
Output 1: Promote gender equality in employment and income			
1.1 Ensure both genders gain employment and economic benefit during the construction and implementation phase of the project. This may include, but not be limited to architects, quantity surveyors, human resource managers, procurement experts, waste management experts and engineer, fire and safety personnel, heavy duty vehicle drivers, operators and machines.	1.1.1 Include a minimum of 30% female staff in the construction of the project (2021 baseline: 0) 1.1.2 Include a minimum of 50% female staff in the implementation of the project (2021 baseline: 0)	Island council Island council	2021 2021
Output 2: Promote gender equality in capacity building and training			
2.1 Ensure trainings conducted for the staff of the waste management center including training for operation of various vehicles and machines, will be conducted for both male and female staff.	2.1.1 Include participation from both genders with a minimum of 30% females in all trainings conducted as part of the project (2021 baseline: 0)	Ministry of Environment	2021 – 2022
Output 3: Ensure safety and protection from sexual harassment for all staff			
3.1 Ensure safety of both male and female workers as per the health and safety measures and policies in place	3.1.1. Ensure strict policies are in place in order to prevent acts of sexual harassment among the workers and/or by any member of the workers towards someone in the community (2021 baseline: 0)	Ministry of Environment	2021 – 2022

	3.1.2 Ensure strict actions are taken against those who violate such health and safety regulations and policies	Ministry of Environment Island council	 2021 - continuous
Output 4: Gender equal participation in decision making			
4.1 Ensure gender equality in decision making level including but may not be limited to architects, quantity surveyors, human resource management experts, waste management experts and engineers, fire and safety personnel, heavy duty vehicle drivers operators and machinery. 4.2 Ensure equal representation of men and women in public consultations with regards to the project. This will ensure key decisions regarding the project are made in consultation with both genders.	4.1.1 Include a minimum of 30% females at decision making level (2021 baseline: 0). 4.1.2 Include 50% of women in any public consultations held with regards to waste management in the island 2021 baseline: 0).	Ministry of environment Island council Ministry of environment Island council	2021 – continuous 2021 - continuous

14 Conclusion

The findings of this assessment for the formulation of an Environmental and Social Management Plan for the proposed project by the Ministry of Environment through the Maldives Clean Environment Project to establish a full-fledged IWRMC and facilitate piloting of in-vessel composting in Kolhufushi shows that the project has low to moderate negative impacts on the environment. The process followed to identify environmental impacts associated with project was Rapid Impact Assessment Matrix (RIAM) which is based on standard definition of importance assessment criteria, with semi quantitative values for each of these criteria, to provide an accurate and independent score (environmental value) for each condition.

The environmental score for the project is of positive and negative. Positive changes that are of importance (highest positive environmental score) are;

1. Benefits to the island community (both social and economic) due to improved waste management practices and operation of the facility
2. Changes to the environment due to improved waste processing methods

Negative changes or impacts that are of significance (highest negative environmental score) are;

1. Impacts due to the need for vegetation clearance from site
2. Impacts due to sorting and storage of hazardous waste
3. Health and safety risks to the workers during construction and operational work
4. Air pollution due to emissions associated with construction machinery

Vegetation clearance from the IWRMC site is envisaged to be a moderate negative impact both on the natural and social environment. This impact is proposed to be mitigated through relocation of the mature trees/palms and compensation of owners of the vegetation to be removed. However, during consultations, Council have stated that there is no area on the island to transplant these palms. They further state that while they have previously tried to send palms from the island to other islands, this has also not been successful as most of the palms are mature and tall. While this impact cannot be mitigated on the island, discussions were undertaken with Kudahuvadhoo Council and it has now been arranged to replant/transplant same number of palms at the reclaimed area at Kudahuvadhoo, so as to ensure compliance with regulations.

Lesser negative impacts from the project includes impacts on the environment due to accidental spills during transfers and material handling. The proximity of the project site from the residential area aids to minimize a lot of impacts due to the project, such as that due to noise and air pollution

and other disturbances. The land area allocated for the project had been allocated and approved by MLSA. Hence loss of land is not an impact of this project.

The proposed method of composting, which will be done in the machine itself is predicted to have minimal negative impacts as it greatly overcomes the issues faced by other methods of composting such as windrow-composting. On the other hand, it has several benefits, some of which that have been reported are:

- Simple and convenient to operate without the need for constant attention;
- Short processing times ensures economic in use with low energy consumption;
- Requires minimal maintenance;
- Beneficial to the environment;
- Overcomes the problems of odour, leachate generation and ground water contamination associated with traditional methods of waste disposal

Stakeholder consultations carried out as part of the project showed support for the project overall, with great emphasis on expedited project commencement, especially by the Island Council and community.

A household survey was undertaken to assess the perception of the community with regards to the current waste management practice and their willingness to pay for a proper waste management system. Results of the survey showed that on average, all households produce more biodegradable waste than non-biodegradable waste. Waste segregation at household level was not being implemented at present and all waste was disposed at the same disposal areas, which were largely unmanaged and polluting nearby waters as well. Waste disposal was carried out by the community themselves and hence they were unable to identify a fee for waste management. Residents felt that the disposal site was too close to the residential area, which would result in negative impacts such as smell and smoke. It should be noted that these views were mainly based on current waste management practices.

Mitigation measures considered for the various impacts predicted for the project include:

- Transplant or replant 2 palms for every palm which needs to be cut down at an allocated area (on the island or through collaboration with another island)
- Compensation of owners of the palms/ trees which need to be removed
- Work to commence only after compensation has been disbursed to all individuals
- Provision of adequate training in proper method of handling of machinery and materials during both construction and operational phase

- Provision of adequate training in proper method of handling of waste during collection and disposal during operational phase
- Provision of all protective gear to workers during both construction and operations
- Implementation of the Grievance Redress Mechanism which has been formulated by the proponent, both during construction and operations

Mitigation measures have also been discussed for the alternative methods discussed in the report. However, should the proponent decide at a later stage to choose one of the alternative methods, rather than the selection option in this report, the Consultant stresses the importance of getting environmental clearance for the change in design and scope through a separate document, as the process would require consultations with the Council amongst other additional information.

Monitoring programme identified in the report will enable the proponent to assess whether the mitigation measures which have been identified in the report are effective. Early identification of negative impacts will enable the proponent to rectify the course of activities.

In order to further minimise and manage environmental and social impact associated with the project the following are recommended:

1. Formulation and implementation of an Island Waste Management Plan
2. Adherence to all relevant legislations, regulations, guidelines and standards during construction and operation of the IWRMC;
3. Establish environmental and occupational health and safety procedures for all relevant components;
4. Installation of renewable energy sources at IWRMC, such as solar panels to source power for operations;
5. Carryout awareness raising campaigns to increase awareness of the public regarding proposed work;
6. Ensure all trainings identified under the Training programme of this report are properly implemented to ensure proper implementation of the project at all phases;
7. Encourage greater participation of women, especially during operational stage;
8. Ensure proper supervision and inspection of the IWRMC at regular intervals.

In the context of the above conclusions and recommendations, with due consideration to the environmental components identified above and the extent of the project activities and their likely and predicted impacts identified, with proposed mitigation measures and monitoring followed, it is concluded that the project is feasible and justified. Furthermore, the positive benefits due to the project, both to the environment and island community overweigh the negative effects on the environment during the project.

Acknowledgements

The consultant acknowledges the contribution provided by the team members in this report for the valuable contribution to the report and especially at the field. The consultant also acknowledges the assistance provided by the PMU of MCEP. Appreciation also to the Island Council of Kolhufushi, especially the focal point for the project, Hassan Nafiz for their continuous assistance during the project report formulation and survey work.

CVs of team members are given below.

Curriculum Vitae

Position	Environmental Consultant
Name	Shahaama Abdul Sattar
Address	G. Helengeli, Lily Magu Male', Rep. of Maldives
Contact	Mobile: +9607904985 Email: shahaama.abdulsattar@lamer.com.mv shahaama.sattar@gmail.com
Date of Birth	30 September 1980
Nationality	Maldivian
Education	**Master of Science (MSc)** in Fisheries Biology and Fisheries Management, University of Bergen. Bergen, Norway, 2004 - 2006 **Bachelor of Science (BSc.),** The Flinders University of South Australia, Adelaide, South Australia, 1999 - 2001
Membership of Professional Associations	Small Island Research Group (SIRG) Maldives, Vice President
Countries of Work Experience	Maldives
Languages	**Dhivehi** Mother tongue **English** Fluent

Employment Record

From: 2008 - 2011
Employer: Marine Research Centre, Ministry of Fisheries and Agriculture, Male', Maldives.
Position: Fisheries Biologist

From: 2006 to 2008
Employer: Marine Research Centre, Ministry of Fisheries Agriculture and Marine Resources, Male', Maldives.
Position: Senior Research Officer

From: 2002 – 2004
Employer: Marine Research Centre, Ministry of Fisheries Agriculture and Marine Resources, Male', Maldives.
Position: Research Officer

Line of work at MRC included:
Assessment of the reef and grouper fisheries of Maldives, with surveys to monitor fisheries and fish species behavior. Compilation and analysis of data, for regular reviews and reporting and formation of management recommendations. Key role in the formulation of the Grouper Fisheries Management Plan / Grouper Fisheries and Export Regulation

Focal point for the IUCN funded project on identification of reef fish spawning aggregations in the Maldives through fishermen interviews (2007)

Secretariat and key organizer – Indian Ocean Cetacean Symposium 2009

Project Partner for Maldives for the Darwin Initiative Coral Reef Fish Project, Maldives

MRC Focal Point for the Atoll Ecosystem Conservation Programme, Ministry of Housing and Environment (2009 – 2011)

Participated in the Biodiversity Valuation survey of Baa Atoll Maldives carried out by AEC project and IUCN

From: May 2011 – Dec 2012
Employer: Darwin Reef Fish Project / Marine Research Centre (Maldives) and Marine Conservation Society (UK)
Position: Consultant, Darwin Reef Fish Project (4 year joint collaboration between MRC and MCS, UK)
Assess the various reef fisheries (grouper, aquarium and food fisheries) of the Maldives and aims to establish management plans for these fisheries. Provision of technical support and assistance to the project staff and MRC in implementing the project and formulation of the management plans.

From: July 2011 – Dec 2011
Employer: Bay of Bengal Large Marine Ecosystem Project
Position: BOBLME Sharks Working Group Coordinator
Coordinator for the Sharks WG of BOBLME project, and work with the focal points in the member countries, to assist in the formulation and implementation of their National Plans of Action for Sharks.

From: June 2011 to Present
Employer: Land and Marine Environmental Resource Group Pvt Ltd
Position: Environmental Consultant

Workshops/Seminars Participated

15-21 March 2003 - Training Workshop on the Implementation of Multilateral Agreements in the Conservation of Biodiversity with special focus on Marine Biodiversity. Kushiro, Japan

14-16 November 2006 – Sixth William R. and Lenore Mote International Symposium – Life history in Fisheries Ecology and Management. Sarasota, Florida

03-05 March 2008 – Olhugiri and Dhigalihaa Protected Areas Management Planning Workshop. Eydhafushi, Maldives

11 March 2008 – Applying the Ecosystem Approach to managing Atoll Ecosystems in the Maldives. Hulhule Island Hotel, Maldives

24-26 March 2008 – Regional Consultation on Preparation of Management Plans for Shark Fisheries. Beruwela, Sri Lanka

17-19 June 2008 – Workshop on Assessment and Management of the Offshore Resources of

South and Southeast Asia. Bangkok, Thailand
22-23 March 2009 – BOBP-IGO National Workshop on Monitoring, Control and Surveillance in Marine Fisheries. Male', Maldives

18 – 20 July 2009 – Indian Ocean Cetacean Symposium 2009. Paradise Island Resort and Spa, Maldives.

09-11 August 2009 – Second Regional Consultation on Preparation of Management Plans for Shark Fisheries. Kulhudhuffushi, Maldives

24-25 February 2010 – BOBLME Project – National Inception Workshop, Male', Maldives

2-3 June 2010 – BOBP-IGO Technical Advisory Committee – 5th Meeting, Male', Maldives

13-14 September 2010 – BOBLME Fisheries Assessment Working Group – 1st Meeting, Bangkok, Thailand

14-16 December 2010 – EWS-WWF 2nd Marine Conservation Forum for the Gulf Region In partnership with the Pew Environment Group – Local Actions for Global Challenges, Abu Dhabi, United Arab Emirates

18-19 January 2011 – Bay of Bengal Large Marine Ecosystem Project – Workshop on the Status of Marine Managed Areas in the Bay of Bengal, Penang, Malaysia

5-7 July 2011 –Bay of Bengal Large Marine Ecosystem Project – First meeting of the BOBLME Sharks Working Group, Male', Maldives

7-8 September 2011 – Workshop to formulate the Grouper Fisheries Management Plan, DRFP/MRC, Male', Maldives

15-17 September 2011 – SEAFDEC Special Meeting on Sharks Information Collection in Southeast Asia, Bangkok, Thailand

10 April 2014 - Stakeholder Consultation to present the National Plan of Action on the Conservation and Management of Sharks (NPOA-Sharks), Male', Maldives

Publications

Sattar, S. A., Najeeb, A., Islam, F., Afzal, M. S. and Wood, E. (2012) Management of the grouper fishery of the Maldives, *Proceedings of the 12th International Coral Reef Symposium, Cairns, Australia*, *9-13 July 2012, Session 13E* (in press)

Ushan, M., Wood, E., Saleem, M. and Sattar, S. A (2012) Maldives Sharkwatch Report for 2009 - 2010, *Proceedings of the 12th International Coral Reef Symposium, Cairns, Australia*, *9-13 July 2012, Session 13D* (in press)

Sattar, S. A., Andréfouët, S., Ahsan, M., Adam, M. S., Anderson, C. R. and Scott, L (2012) Status of the Coral Reef Fishery in an Atoll under tourism development: the case of Central Maldives, *Atoll Research Bulletin 590*: 163-186

Sattar, S. A., Amir, H. and Adam, M. S. (2012) Reef fish tagging programme – Baa Atoll Pilot project, *Atoll Research Bulletin 590*: 187-200

BOBLME (2011) Report of the BOBLME Sharks Working Group, 5-7 July 2011, Male' Maldives,

Prepared for the Bay of Bengal Large Marine Ecosystem Project by Sattar, S. A. and Anderson, R. C.
Saleem, M., Sattar, S. A. (2009) Study on post-tsunami restoration and conservation projects in Maldives, *Prepared for the International Union for Conservation of Nature*.

Tamelander, J., Sattar, S., Campbell, S., Hoon, V., Arthur, R., Patterson E. J.K., Satapoomin, U., Chandi, M., Rajasuriya, A. and Samoilys, M. (2009) Reef fish spawning aggregation in the Bay of Bengal: Awareness and Occurrence, *Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, 7-11 July 2008,* Session 22

Sattar, S. A*.,* Jørgensen, C., Fiksen, Ø. (2008) Fisheries Induced Evolution of Energy and Sex Allocation. *Bulletin of Marine Science*, 83(1): 235-250

Sattar, S. A. (2008) Review of the Reef fishery of the Maldives, Marine Research Centre, Male', Maldives. 62 pp

Sattar, S. A. and M. S. Adam (2005) Review of the Grouper fishery of the Maldives with additional notes on the Faafu Atoll fishery. Marine Research Centre, Male', Maldives. 54 pp

Environmental Impact Assessments Reports and other studies

The following are a selected list of the projects I have been involved in as an environmental consultant at LaMer Group Pvt Ltd.

Name of assignment or project	EIA for development of domestic airport facility at Funadhoo, Shaviyani Atoll
Year	2018
Location	Funadhoo, Shaviyani Atoll, Maldives
Client	Regional Airports, Ministry of Tourism
Project features	Development of domestic airport facility at Funadhoo
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA for agricultural development project at Hulhidhoo, Vaavu Atoll
Year	2017
Location	Hulhidhoo, Vaavu Atoll, Maldives
Client	Aarah Investments Pvt Ltd
Project features	Development of Hulhidhoo as a mix-use island with an agricultural (hydroponics) and tourism component
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA for development of 100 bed hospital at Addu City
Year	2017
Location	Addu City, Maldives
Client	Ministry of Housing and Infrastructure
Project features	Redevelopment of Equatorial Convention Centre as a 100 bed tertiary level hospital
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA for relocation of sewer outfalls at IGMH and Westpark area, Male' City
Year	2017
Location	Male', Maldives
Client	MWSC Pvt Ltd
Project features	Relocation of sewer outfalls at IGMH and Westpark area to industrial village area of Male'
Positions held	EIA team member

Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA for resort development at Islands I and E of Emboodhoofalhu Finolhu Development project
Year	2017
Location	Emboodhoofalhu Finolhu, Maldives
Client	Dream Islands Development Project
Project features	Development of reclaimed islands I and E of Emboodhoofalhu Finolhu as tourist resorts
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	Environmental Impact Assessment Report for aquatic animal quarantine facility at Hulhumale'
Year	2016
Location	Hulhule, Maldives
Client	Ministry of Fisheries and Agriculture
Project features	Setting up an animal quarantine facility within plant quarantine service area in Hulhule
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	Environmental Impact Assessment report for relocation of Male' Submarine cable landing
Year	2016
Location	Male', Maldives
Client	Dhiraagu
Project features	EIA related to relocation of the submarine cable from existing location to a new location
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	Socioeconomic Situation analysis of selected fishing communities as part of formulation of Master Plan for Sustainable Fisheries (MASPLAN)
Year	2015
Location	ADh. Mahibadhoo, F. Bilehdhoo, GA. Villingili, HA. Ihavandhoo, L. Gan, L. Maamendhoo, Lh. Naifaru, S. Maradhoo, Maldives, Maldives
Client	Ministry of Fisheries and Agriculture
Project features	Socioeconomic survey of selected islands, to undertake a situational analysis of the island communities
Positions held	Fisheries Management Consultant
Responsibilities	Carryout socioeconomic surveys in forms of group discussions and household surveys. Data collection and analysis and report formulation (trip reports and overall situational analysis).
Name of assignment or project	Development of Training material for project staff on mainstreaming and increasing awareness on climate change adaptation and mitigation measures in tourism operation
Year	2015
Location	Male', Maldives
Client	Ministry of Tourism
Project features	Mainstreaming and increasing awareness on climate change adaptation and mitigation measures in tourism operation
Positions held	Team member
Responsibilities	Material development and presentation
Name of assignment or project	Development of water supply and a sewerage system at Fuvahmulah
Year	2015
Location	Fuvahmulah, Gnaviyani atoll. Maldives
Client	Ministry of Environment and Energy
Project features	Setting up a water supply and a sewerage facility
Positions held	EIA team member

Responsibilities	Preparation of the EIA report
Name of assignment or project	Environmental Impact Assessment for soft coastal protection works at GDh. Thinadhoo
Year	2014
Location	GDh. Thinadhoo, Maldives
Client	Ministry of Environment and Energy
Project features	Beach Nourishment and Coastal protection
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	Beach Nourishment and Coastal Protection works at a private land at Praslin, Seychelles
Year	2014
Location	Praslin, Seychelles
Client	Ahmed Didi
Project features	Beach Nourishment and Coastal protection at Praslin, Seychelles
Positions held	Environmental assessment team member
Responsibilities	Preparation of the report submitted to the client
Name of assignment or project	1500 Housing Unit construction Project Maldives
Year	2014
Location	Fuvahmulah, Gadhdhoo, Hoadedhdhoo, Hithadhoo, Holhudhoo, Madaveli, Thinadhoo, Maldives
Client	Ministry of Housing and Infrastructure
Project features	Construction of Housing Units at the specified Islands
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for Coastal modification at Robinson Club Maldives
Year	2013
Location	Ga. Funamaudua, Maldives
Client	Robinson Club Maldives, Maldives
Project features	Coastal modification at the NW side of the island, construction of geo-bag revetment and harbor basin maintenance dredging works
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for construction of gravity type waste water collection system at ADh Omadhoo
Year	2013
Location	ADh Omadhoo, Maldives
Client	ADh Omadhoo Island Council Office
Project features	Construction of gravity type waste water collection system and sea outfall pumping system
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for upgrading of Maldive Gas Pvt Ltd Gas jetty
Year	2013
Location	Thilafushi, Maldives
Client	Maldive Gas Pvt Ltd
Project features	Reconstruction of existing gas jetty head and expansion of jetty head
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for Resort development at GDh Havvodaa
Year	2013
Location	GDh Havvodaa, Maldives
Client	Crystal Plaza Pvt Ltd, Maldives
Project features	Construction of a resort hotel and all the related amenities
Positions held	EIA team member
Responsibilities	Preparation of the EIA report

Name of assignment or project	EIA report for Coastal protection, coastal modification, beach nourishment, coral nursery setup and entrance channel maintenance dredging work
Year	2013
Location	Gili Lankanfushi, Maldives
Client	Gili Lankanfushi, Maldives
Project features	Coastal protection, coastal modification, beach nourishment, coral nursery setup and entrance channel maintenance dredging work
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for Harbor development project at Dh. Maaenboodhoo
Year	2013
Location	Dh. Maaenboodhoo, Maldives
Client	Ministry of Housing and Infrastructure
Project features	Development of harbor facility (dredging of harbor basin, construction of wharfs and breakwater)
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for Flood mitigation and reclamation work at Faresmaathoda
Year	2013
Location	GDh. Faresmaathodaa, Maldives
Client	United Nations Office for Project Services (UNOPS)
Project features	Construction of breakwater and reclamation of land
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for Development of Domestic Airport Facility
Year	2012
Location	Th. Thimarafushi, Maldives
Client	Maldives Airports Company Limited
Project features	Construction of runway apron
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for Wharf reconstruction and upgrading of existing berthing facility and slipway
Year	2012
Location	Thilafushi, Maldives
Client	Fuel Supply Maldives Pvt Ltd, Maldives
Project features	Reconstruction of wharf and upgrading of existing berthing facility and slipway
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for Resort development at B. Kanifinolhu
Year	2012
Location	B. Kanifushi, Maldives
Client	Coastline Hotels and Resorts Pvt Ltd, Maldives
Project features	Construction of a resort hotel and all the related amenities
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for Borehole construction at Cyprea Mrine Food Fish Factory
Year	2012
Location	K. Himmafushi, Maldives
Client	Cyprea Marine Food Pvt Ltd, Maldives
Project features	Construction of a 8 inch borehole at factory premise
Positions held	EIA team member
Responsibilities	Preparation of the EIA report

Name of assignment or project	EIA report for resort development at K. Kudavilligili, Maldives
Year	2011
Location	K. Kudavilingili, Maldives
Client	Yacht Tours Pvt Ltd, Maldives
Project features	Construction of resort hotels and all the related amenities. In addition a large reclamation of the shoreline as additional land as part of the resort development is also part of the project
Positions held	EIA team member
Responsibilities	Preparation of the EIA report
Name of assignment or project	EIA report for development of city hotel, hospitality institute and resort development at Gasfinolhu and Bodufinolhu, L. Atoll
Year	2011
Location	L. Gan, Bodufinolhu and Gasfinolhu, Maldives
Client	Premier Equities Pvt Ltd, Maldives
Project features	Construction of a resort hotel and required amenities including a training hotel for hospitality industry
Positions held	EIA team member
Responsibilities	Preparation of the EIA report

Referees

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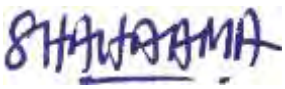
Certification

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes my qualifications, my experience, and me. I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.



Shahaama A. Sattar Date: October 2018

CURRICULUM VITAE

1. POSITION: Environment Analyst

2. NAME OF FIRM: LaMER Group Pvt.Ltd

3. NAME: Azim Musthag

4. DATE OF BIRTH: 13th December 1985

5. NATIONALITY: Maldivian

6. PERSONAL ADDRESS: M. Anthias, Fulooniya Magu, Malé, Maldives

7. EDUCATION

Bachelor of Marine Science (Majoring in Marine Ecology), Griffith University, Queensland, Australia.

DELF (Diplôme d'études en langue française) Level A1 and Level A2

8. MEMBERSHIP OF PROFESSIONAL SOCIETIES: Master Instructor with the Scuba Schools International (SSI).

9. OTHER TRAINING:

Fish Watch Training Workshop conducted by Darwin Reef Fish Project initiated by the Marine Research Centre of Maldives in collaboration with Marine Conservation Society (UK) in 2009.

IUCN Manta Ray Workshop in 2013.

National Coral Reef Monitoring Framework monitoring protocols training in 2014 conducted by IUCN Maldives.

10. COUNTRIES OF WORK EXPERIENCE: Maldives and Australia

11. LANGUAGE AND DEGREE OF PROFICIENCY:

English - Native or bilingual proficiency
Dhivehi - Native or bilingual proficiency
French - Limited working proficiency

12. EMPLOYMENT RECORD:

2005 - 2011	Dive Instructor, Maldivers Diving Centre, Malé.
2012 – 2014	Dive Instructor, Diveoceanus Dive Centre at Paradise Island Resort
2017 - 2017	Research Assistant Griffith University, Gold Coast, Australia.
2018 (Present)	Environmental Analyst Lamer Pvt Ltd

13. DETAILED TASKS ASSIGNED:

WORK UNDERTAKEN THAT BEST ILLUSTRATES CAPABILITY TO HANDLE TASKS:

Project: Ecological surveys for the proposed, potential UNESCO biosphere reserves.
Year: 2018

Location: Maldives
Client: IUCN Maldives
Main project features: Surveying of 5 reefs and 3 islands.
Position: Consultant.
Activities performed:
Conducted ecological (marine and terrestrial) surveys at the proposed sites
Data compilation and analysis
Assisted in the final report development.

Project: Environmental Monitoring Report for resort development
Year: 2018
Location: Maldives
Client: Pearl Atoll Pvt Ltd
Main project features: Survey for the Environmental Monitoring Report
Position: Environmental Analyst
Activities performed:
Conducted the marine component of the survey. The seawater quality analysis, sedimentation analysis, reef benthic surveys, and fish surveys.

Project: Environmental Impact Assessment Report for resort development
Year: 2018
Location: Bodufushi, Raa Atoll.
Client: Alibey Maldives Pvt Ltd
Main project features: EIA Survey for an addendum
Position: Environmental Analyst
Activities performed:
Conducted the marine component of the survey. The seawater quality analysis, reef benthic surveys, and fish surveys.

Project: Environmental Impact Assessment for Coastal Protection and Entrance Clearance.
Year: 2018
Location: Bandos Island Resort, Kaafu Atoll.
Client: Bandos Island Resort.
Main project features: EIA Survey
Position: Environmental Analyst
Activities performed:
Conducted the marine component of the survey. The seawater quality analysis, reef benthic surveys, and fish surveys.

Project: Third Addendum to the Environmental Impact Assessment Report
Year: 2018
Location: Enboodhoo Finolhu Lagoon
Client: Dream Islands Development Pvt Ltd
Main project features: Reclamation of Islands for Resort Development at Enboodhoo Finolhu Falhu, South Malé Atoll
Position: Environmental Analyst
Activities performed:
Conducted the marine component of the survey. The seawater quality analysis, reef benthic surveys, and fish surveys.

14. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

Date: 05th August 2018

[*Signature of staff member or authorized representative of the staff]* *Day/Month/Year*

Full name of staff member: Azim Musthag

بسم الله الرحمن الرحيم

CURRICULUM VITAE (CV)

1. **Full Name/ Address:** Aishath Abdulla

2. **Date of Birth**: 10/09/1986 **Nationality**: Maldivian

3. **Education**: 2012 Masters in Environment & Development, University of Melbourne, Australia

   2010 BA (Hons) in Urban and Regional Planning, International Islamic University Malaysia, Malaysia

4. **Membership of Professional Associations/Non-Governmental Organisations**: - Secretary of Small Island Research Group NGO

5. **Other Training**: Attended the Expert Group Meeting (EGM) on: Urbanization in Small Island Developing States as an Urban Planner from the Maldives; at the United Nations in New York (June 2016)

6. **Countries of Work Experience**: Maldives, Malaysia

7. **Languages**: Dhivehi-Good, English-Good

8. **Experience/ Employment Record (General)**

February 2013- Present	Senior Planner: Work in environmental and planning consultancies, including preparation of plans, studies and EIA reports etc LAMER Group Pte Ltd Male' Maldives
November 2010 – January 2011	Urban Planner/ Acting- Business Development Manager: Work in handling and managing bidding processes, HR, project proposals, Marketing. Planning related projects Riyan Pte.Ltd Male' Maldives
May 2009 - July 2009	Urban Planner-Trainee ANZ PLANNERS SDN. BHD Selangor Malaysia

9. Specific Experience/ Employment Record (as per TOR requirements)

Maldives Housing Market Needs and Assessment Study; Maldives Urban Development and Resilience Project (MUDRP)
Year: September 2020-Ongoing
Client: Ministry of National Planning, Housing and Infrastructure
Position Held: Qualitative Analyst
Duties Rendered: Design, conduct and reporting of Consumer Research; mapping of existing regulatory and institutional frameworks related to housing and land in Maldives; provide input to the recommendations to develop national housing policy and housing strategy.

Developing International Port Facilities in the North or South of Maldives; Stage 2 Reports – Transhipment Hub in Ihavandhippolhu Atoll
Year: July 2020
Location: Upper North Atoll, Maldives
Client: Ministry of Economic Development
Positions Held: Social Impact Assessment Consultant
Duties Rendered: Assessment of socio-economic setting and impacts, stakeholder consultations, public perception survey, social impact analysis and report writing.

Preparation of an Integrated Urban Development Master Plan for Addu City
Year: October 2019-Onhold
Client: Addu City Council
Position Held: **Urban** Planner and Project Manager
Duties Rendered: Carry out consultations and assessments, preparation of plans, overall management of the project

Preparation of B. Hithaadhoo Land Use Plan
Year: August 2019 to October 2019
Client: Hithaadhoo Island Council
Position Held: Planner
Duties Rendered: Community Consultations, land use planning and reporting

Preparation of Ga. Kondey Land Use Plan
Year: March 2019 to July 2019
Client: Kondey Island Council
Position Held: Planner
Duties Rendered: Community Consultations, land use planning and reporting

Maldives Building Regulatory Capacity Assessment (BRCA), Building Regulation for Resilience Program
Year: January 2018- October 2019
Location: Male', Maldives
Client: Ministry of National Planning and Infrastructure, Maldives
Positions Held: Urban Planner,
Duties Rendered: Technical contribution to BRCA Component 1 and 3 assessment for Maldives, and associated recommendation development. Material and technical support to 2. Participation and

facilitation of kick-off workshop in Maldives. Facilitation and logistical support for the Action-Planning Workshop in Maldives

Environmental and Social Impact Assessment for the proposed North Upgrading of Infrastructure at North Regional Waste Management Facility Zone 2, Raa Vandhoo
Year: December 2018 – January 2019
Location: Raa atoll Vandhoo, Maldives
Client: Ministry of Environment, Maldives
Positions Held: Urban Planner, Social Impact Assessment Consultant
Duties Rendered: Assessment of possible environmental and social impacts of the proposed upgrade at the WMC. Community consultations, social impact analysis and report writing

Assessment of Climate Sensitive Natural Resources in Laamu Atoll and Preparation of Resources Maps
Year: July 2016- July 2018
Client: UNDP
Position Held: Project Coordinator
Duties Rendered: Overall coordination of the project which includes project planning, keeping PMU updated on the progress of the project, facilitate the project team in addressing the issues, delays etc during the project.

Preparation of R. Inguraidhoo Land Use Plan
Year: March 2018 to May 2018
Client: Inguraidhoo Island Council
Position Held: Planner
Duties Rendered: Community Consultations, land use planning and reporting

Development of Training Modules, Materials and Field Training; Organic Farming and Handicraft, Climate Change Adaptation Project (CCAP), Livelihood support program for wetland management
Year: June 2017 to February 2018
Client: Ministry of Environment and Energy
Position Held: Project Leader
Duties Rendered: Development of training materials, project Coordination and Reporting

Formulation of Coastal Protection Regulation, ICCRRIP Project
Year: September 2014 to January 2015
Client: Ministry of Environment & Energy
Position Held: Project Coordinator
Duties Rendered: Consultations, Input in formulation of Regulation and reporting

Developing a Handbook to Enhance the Capacity of Trainers to Increase the Resilience of People with Disabilities to DRR and CCA
Year: 2016
Client: National Disaster Management Center
Position Held: Consultant
Duties Rendered: Review and analyze existing; provide input in relevant stakeholder consultations;

Preparation of the handbook Preparation of AA. Feridhoo Land use plan
Year: 2016

Client: Feridhoo Island Council
Position Held: Planner
Duties Rendered: Community Consultations, land use planning and reporting

Preparation of K. Himmafushi Land use plan
Year: February 2016 to March 2016
Client: Himmafushi Island Council
Position Held: Planner
Duties Rendered: Community Consultations, land use planning and reporting

Tool Kit and Training Materials for Increasing Awareness on Climate Change Adaptation & Mitigation Measures in Tourism Sector (Kaaf, Alif Alif, Alif Dhaal, Baa & Lhaviyani Atoll)
Year: May 2015 to August 2015
Client: Ministry of Tourism
Position Held: Project manager
Duties Rendered: Preparation of Materials, Conducting workshops

Tool Kit and Training Materials for Increasing Awareness on Climate Change Adaptation & Mitigation Measures in Tourism Sector (For Tourism Staff)
Year: December 2015 to February 2015
Client: Ministry of Tourism
Position Held: Project manager
Duties Rendered: Preparation of Materials, Conducting workshops

Situation Analysis for the formulation of Master Plan for Sustainable fisheries (MASPLAN)
Year: February 2015 to March 2015
Client: JICA
Position Held: Consultant
Duties Rendered: Community Consultations, Analysis and reporting

Preparation of AA. Bodufolhudhoo Land use plan
Year: May 2015 to June 2015
Client: Bodufolhudhoo Island Council
Position Held: Planner
Duties Rendered: Community Consultations, land use planning and reporting

Preparation of AA. Mathiveri Land Use Plan
Year: June 2014 to July 2014
Client: Mathiveri Island Council
Position Held: Planner
Duties Rendered: Community Consultations, land use planning and reporting

Development of a National Framework/Plan on managing IDP's (internally displaced) persons/population caused by crises, emergencies and climate change
Year: May 2014 –Dec 2014
Client: UNDP/NDMC
Position Held: Team Leader
Duties Rendered: Overall project coordination and delivery

Preparation of Disaster Management Plan for a Guest House

Year: 2014
Client: Sea Side Lodge Guesthouse Manager, Hulhumale'
Position Held: Planner
Duties Rendered: Preparation of the disaster management plan according to the guidelines set by

Perceptions and understandings of climate change and migration survey (K.Guraidhoo and R.Dhuvaafaru) carried out by a Norwegian Research Institute
Year: August 2013 September 2013
Client: CICERO - Center for Climate and Environmental Research – Oslo; Norwegian Academic Institution
Position Held: Local Consultant
Duties Rendered: Assisted (CICERO to carry out the household survey, focus group discussions and the key informant interviews

Review and Update the Detailed Island Risk Assessment in the Maldives prepared for HDh. Kulhudhuffushi and GDh. Thinadhoo
Year: March 2013 to September 2013
Client: Ministry of Environment and Energy
Position Held: Social Planner/Project Coordinator
Duties Rendered: Review all relevant documents related to DIRAM study, study the social aspects impacting the risks of the islands and overall management of the project.

Integration of Climate Change Risk Resilience into Land Use Planning
Year: February 2011 to April 2011
Client: Ministry of Housing and Environment
Position Held: Planner/Project Coordinator
Duties Rendered: Provide input in planning perspective and also over all coordination of the project inclusive of conducting a workshop to present the findings

Preparation of Heritage Action Plan and Preliminary Inventory
Year: September 2011 to November 2011
Client: Department of National Heritage
Position Held: Team Leader
Duties Rendered: Proposed action plan for the protection and safeguarding of national heritage. Prepared a preliminary inventory of the existing tangible and intangible heritage of Maldives

Preparation of Atoll and Island Development Plans for AA. Atoll
Year: September 2011 to December 2011
Client: Secretariat of AA Atoll council
Position Held: Planner/ Project Manager
Duties: Manage and prepare the development plans

Reviewing the Third Tourism Master Plan 2005-2011
Year: December 2010 to October 2011
Client: Ministry of Tourism Arts and Culture
Position Held: Planner/Project Coordinator
Duties Rendered: Provide input in planning perspective and also over all coordination of the project inclusive of conducting a workshop to present the findings

Preparation of a detailed Layout Plan for Tourism Zone (Asseyri Project)

Year: December 2010 to February 2011
Client: Ministry of Tourism Arts and Culture
Position Held: Planner/Project Coordinator
Duties Rendered: Provide input in planning perspective through preparing the layout plan and also over all coordination of the project inclusive of conducting a workshop to present the findings

Appraisal of Hithadhoo Regional Hospital Development
Location: S. Hithadhoo, Maldives
Year : November 2010
Client: OPEC Fund for International Development (OFID)
Position Held: Socio Assessment Specialist/Project Coordinator
Duties Rendered: Overall Coordination of the project and carry out social Impact assessment study.

Mapping study of infrastructure and resources for Youth
Location:
Year : January 2010 to April 2010
Client: UNDP
Position Held: Assistant project coordinator
Duties Rendered: Assisting in overall coordination of the project

Professional Referees

Name: Najfa Shaheem Raazee

Position: Project Manager of ICCRRIP Project, Ministry of Environment and Energy

Email Address: najfa.raazee@environment.gov.mv

Name: Hamdhaan Zuhair

Position: Environmental and Social Safeguards Officer (CCAP), Ministry of Environment and Energy

Email Address: hamdhaan.zuhair@environment.gov.mv

Name: Ismail Abid

Position: Managing Director, Land and Marine Environmental Resource Group Pvt Ltd.

Email Address: ismail.abid@lamer.com.mv

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Falkland, A.C., 1993. *Hydrology and water management on small tropical islands. Hydrology of the warm humid tropics (Proceedings of the Yokohama Symposium)*. Yokohama, July 1993. IAHS Publication No. 216.

MEE, 2016. *Environmental and Social Assessment and Management Framework (ESAMF) & Resettlement Policy Framework (RPF)* - Maldives Clean Environment Project. 203 pp

NBS, 2020. *Statistical Pocketbook of Maldives 2020*, Ministry of National Planning, Housing and Infrastructure, Maldives.

Pastakia C. M. R and Jensen A, 1998. The Rapid Impact Assessment Matrix (RIAM) for EIA. *Environmental Impact Assessment Review* 18: 461-482.

Secretariat of Kolhufushi Council, 2021 – Island information sheet

World Bank Group , 2007. Environmental, Health, and Safety Guidelines for Waste Management Facilities. Washington, D.C., United States

Zuhair, A. H., 2019. *Environmental Management plan for the upgrading of Island Waste Management Centre in N. Holhudhoo*. Prepared for Ministry of Environment

Zuhair, A. H., 2021. *Environmental and Social Management plan for the proposed establishment of Island Waste and Resource Management Centre in Th. Madifushi*. Prepared for Ministry of Environment

Appendices

Appendix 1 List of abbreviations

EIA	-	Environmental Impact Assessment
EPA	-	Environmental Protection Agency
ESMP	-	Environmental and Social Management Plan
GoM	-	Government of Maldives
IWRMC	-	Island Waste Resource Management Centre
IWMP	-	Island Waste Management Plan
MCEP	-	Maldives Clean Environment Project
ME	-	Ministry of Environment
MSL	-	Mean Sea Level
OWC	-	Organic Waste Converter
PMU	-	Project Management Unit
RIAM	-	Rapid Impact Assessment Matrix
RWMF	-	Regional Waste Management Facility
SOP	-	Standard Operating Procedures
TOR	-	Terms of Reference
WB	-	World Bank
WMPCD	-	Waste Management and Pollution Control Department

Appendix 2 Terms of Reference issued by World Bank

ANNEX 2: TECHNICAL TOR B

ESMP for the establishment or upgrading of IWRMCs with Aerobic Technology using Composting Machine

Technical Terms of Reference B: ESMP for the establishment or upgrading of IWRMCs with Aerobic Technology using Composting Machine

Objective and Scope of Preparation of ESMP

In order to ensure short and long term environmental and social impacts that would arise due to the proposed development are adequately mitigated and monitored, following the screening decision from EPA and the World Bank, an ESMP will need to be developed as per the scope presented below and in accordance with the ESAMF of the Project and the Environmental Impact Assessment Regulations (2012). The project IWMPs should be reviewed and used as the basis for baseline information. Field level verification should be conducted prior to the preparation of the ESMP.

While every attempt has been made to ensure that this TOR addresses all of the major issues associated with development proposal, they are not necessarily exhaustive. They should not be interpreted as excluding from consideration matters deemed to be significant but not incorporated in them, or matters currently unforeseen, that emerge as important or significant from environmental and social studies, or otherwise, during the course of preparation of the ESMP report.

Following should be the key components/assessment outline of the ESMP:

19. **Executive Summary:** An executive summary of the significant findings of the report shall be prepared both in Dhivehi and English language. The executive summary shall include summaries of project description and how significant environmental and social issues will be resolved. The conclusion of the study must be stated.

20. **Introduction:** Briefly describe the major components of the proposed project. Provide a brief history and justification of the project and describe how the proposed development will improve on the current arrangements for waste management in the project area. Provide details of the proponent, and institutional arrangements for implementation and operations of the proposed development, and environmental and social issues of similar projects. Include desktop studies and review of similar ESMPs and ESIAs.

Major components of the Island Waste Management Regulation and the Island Waste Management Plan (IWMP) should be described (fee structure, consultations undertaken for plan preparation etc.), indicating the status of approval (prepared, under review or approved by EPA) and highlighting any

challenges faced by the council in plan preparation and approval (if any). The report also should indicate whether a study or public consultation has been (or should be) undertaken to assess willingness / ability to pay.

21. **Legislative and Regulatory Considerations:** This chapter should cover the legal aspects related to the project. Outline the project's consistency with the existing national, state, regional and local planning that apply to the project include reference to relevant statutory and non-statutory plans, planning policies, guidelines, strategies and agreements as appropriate. Outline the pertinent policies, regulations and standards governing project location, land use, environmental quality, and public health and safety. This should cover information on legal requirements specific to the project, such as permits to be taken under the Environmental Impact Regulations (2012) and the land allocation process followed with MLSA and other relevant institutions. There should be a brief description on the process (and law) pertaining to the allocation of land to development projects, in general, and to the IWRMC, in particular. Issues related to land acquisition and resettlement should be addressed, stating no impact or minimal impact.

22. **Study Area:** Submit an A3 scaled plan with indications of all the proposed land infrastructures. Specify the boundaries of the study area for the ESMP highlighting the location and size of the proposed construction. The study area should include nearby environmentally and socially sensitive areas (EPAs / ESAs, houses, mosques, schools, playgrounds etc.), nearest 3 phase distribution box, water connection point (if water network system is present at the island), sewer connection point (if sewer network system is present at the island). Justification for site selection shall be provided. Relevant developments in the area must also be addressed including residential areas and all economic ventures and cultural sites.

23. **Project Description:** Provide a full description and justification of relevant parts of the project, using maps at appropriate scale where necessary. The following should be provided including all inputs and outputs related to the proposed activities shall be justified.

<u>General Construction and Operations</u>

- Provide a clearly labelled concept design and scaled site plan of the project boundary. If the project involves upgrading of an existing IWRMC, the infrastructure already present and those that will be introduced as part of the upgrading works should be clearly distinguished in the concept design presented.
- Submit a detailed description of the components of the project and how the project activities will be undertaken.

- Describe the construction phase components of the project including but not limited to site clearance, collection bay area, composting machine room, equipment room, groundwater well, toilet, septic tank, leachate collection tank, resting area and perimeter walls and fences. If the project involves upgrading of an existing IWRMC, provide information on the existing structures of the IWRMC and how these structures will be incorporated into the design for upgrading.
- If the project involves upgrading of an existing IWRMC, suggest ideal locations for temporarily relocating the waste currently present at the existing IWRMC (if any). Propose adequate mitigation measures to prepare the temporary storage site with particular emphasis given to leachate prevention.
- Describe the operational phase components of the project including but not limited to waste collection services, method of storing, composting method, leachate management, arrangements for the removal of inorganic waste from the IWRMC and clean-up of existing small open dump sites.
- Details, types and numbers of labor/workers required during construction/establishment and during operation.
- Include a project schedule.
- A matrix of inputs and outputs related to the project activities shall be included and described separately for construction and operational phase.

Design of the Aerobic System (Composting Machine)

- Concept design and process flow diagram of the proposed technology for aerobic digestion using composting machine.
- Type and amount of waste that it can treat (food waste, green waste, paper etc. in mixed form or separated) and details of any products required for activation (such as bioculum) including its corresponding quantities to operate for a period of 1 year.
- Solid and liquid bi-products and output of the process (wet / dry compost) including the method for their potential use and/or disposal.

Fire hazard, health and safety

- Vulnerability analysis of the operational processes proposed for the IWRMC to fire, electrical and explosion hazard.
- Provision to fire safety, including details of firefighting equipment that will be established, signage, alarm system etc.
- Firefighting capacity of IWRMC operators. If not found to be adequate, recommend a fire safety training program to the IWRMC operators which should be completed prior to

operationalization of the center. Indicate the availability of fire wardens in the island and their capability to assist in such a program.

Construction waste and waste oil

- Waste fuel and oil management details.
- Construction waste management and disposal.

24. **Existing Environment:** The existing environment study will not require complex data collection and survey analysis techniques since this is an ESMP and not a full ESIA study. However, a vegetation survey of the site must be presented since a large number of vegetation are subject for clearance. The vegetation analysis should be supplemented by drone imagery and / or photographs. The following information should also be provided based on field observations and consultations with the island council and the community. Photographic evidence should be provided where appropriate.

m) Current Waste Management Practices: Describe how waste is managed at present. This should include information about waste collection method and times, means of disposal (both organic and inorganic), staffs managing waste etc. Information about existing open dump sites (if any) and method of disposal should also be provided. Provide a map indicating the locations and dimensions of the open dump sites. Describe the waste composition and estimated volumes of each open dump site with photographic references.

n) Unassigned Waste Dumping: Describe the overall cleanliness of the island and whether unassigned waste dumping is observed. This should include an assessment of the status of contamination of the site as well via visual observation.

o) Project Site and Access Road: Describe the condition of the ground and soil of the project site (visual analysis). Provide an estimate of the amount and composition of waste present at the existing IWRMC and existing environments of temporary relocation sites (only applicable if an upgrading project). Provide information related to distances between residential areas, commonly used public places (mosques, schools, parks etc.), nearest 3 phase electricity distribution box, water connection point (if water network system is present at the island), groundwater wells and sewer connection point (if sewer network system is present at the island). Additionally, information related to the access road and route to waste unloading area shall be provided.

p) Land ownership and usage: Describe the legal boundaries of the site, and identified current usage of the land in terms of squatters, land encroachments, fixed and movable structures, trees and wells, etc. Describe land allocation/ownership details of the project area and any need for land taking causing resettlement impacts.

q) Coastal Modification / Erosion: Provide information related to any coastal modifications undertaken in the island in recent history and the side of the island subjected to coastal erosion. Indicate whether any coastal erosion is noticed from the shoreline closest to the proposed development.

r) Vegetation present at the site: Describe the number and type of vegetation present at the project site and access road including scientific and local names. The amount of vegetation that require compensation and estimated cost must be indicated (separate for project site and access road, as the proponent of the access road is the island council). An explanation on how the rate of compensation is set by the Council and the process undertaken for the payment of compensation for loss of coconut palms and other trees should be given. Vegetation cover maps shall be included where appropriate (identifying the areas subjected for vegetation removal and translocation). Emphasis must be given to translocate trees (within the source islands or out of the island in instances where space scarcity is an issue) as much as possible. Methods of vegetation removal and translocation must be described, which should yield the preferred method for the project site and access road. Locations for compensatory 2:1 replantation must be identified and indicated on a map. *(Note: If development of an access road is found to be an associated project to which the island council will be the proponent, commitment letter from the island council stating their full responsibility to implement mitigation measures and assume monitoring responsibilities for the associated project must be included in the ESMP).*

s) Protected Areas and Environmentally Sensitive Sites: Provide information on the environmentally protected and sensitive areas that exists close to the proposed development. Indicate distances from the project sites and if the protected area is in the project impact zone and if there are any observed potential impacts. Proximity of the site to surface water bodies or sensitive habitats (e.g. coats, mangroves, wetlands) should also be identified.

t) Areas of Historic and Cultural Significance: Provide information on areas of historic and cultural significance that exist close to the proposed development. Indicate distance from the selected project site.

u) Socio-Economic Environment: Describe the socio-economic environment of the island.

- Demography: total population segregated by gender, density, growth and pressure on land and marine resources.
- Details of vulnerable/marginalized groups (households headed by females, households' special needs, households below poverty line etc.) and community-based organizations (i.e. women's/youth groups etc.) & their activities.
- Economic activities and livelihood patterns: Major economic activities of the community including but not limited to local tourisms (no. of operational guesthouses), businesses (no. of wholesale and retail shops), cafés / restaurants, fishing vessels etc.
- Status of access to market, health facilities, banking, communication, etc.
- Electricity: Describe how electricity is provided at the islands and the capacity of the generators installed.
- Water Resources and Sewerage: Source of portable and non-portable water supply. If through RO indicate the type and capacity of the plant and water storage tanks. Describe how sewerage is treated at the island (i.e. through septic tanks or sewer network system).

25. **Impact Identification:** The ESMP should identify all the impacts, direct and indirect, during and after construction, as well as for the operations of the IWRMC and evaluate the magnitude and significance of each. Particular attention shall be given to impacts associated with the following:

g) Physical / Chemical: describe impacts on groundwater, soil, noise, air and waste.

- Impacts on noise pollution and disturbances (both in construction and operations)
- Impacts on groundwater table and quality due to construction, operations (leachate / stormwater runoff).
- Impacts on ground vibrations to nearby houses and buildings.
- Impacts on air quality.
- Marine water pollution due to spillage during material transfer.

h) Biological: describe impacts on vegetation and fauna.

- Impact due to vegetation removal.
- Impacts to vegetation and fauna due to improper handling and driving during material transportation.
- Impacts due to material spillage during transfer of construction materials to the project island.

i) Any resettlement impact - such as loss of land, livelihoods, assets etc. due to land taking/acquisition and/or other project interventions.

- Verify the legal status of the land required; document existing structures, land plots, and other physical assets at the project site to establish a cut-off date for entitlements in accordance with the policies given in ESMF.
- Identify the persons and their families likely to be affected by the project including those who are vulnerable. This should cover information pertaining to members of families who are residing, practicing any trade, occupation or vocation in the project affected area, including those who may potentially lose income due to loss of coconut palms having a moderate economic value.
- Project Affected Families are those who are likely to lose their house, homestead, commercial establishment, agricultural land, employment or are alienated wholly or substantially from the main source of their trade, occupation or vocation, or who will lose any other immovable property or their source of livelihood. Including people losing access to private property or common property resources.

j) Sociological / Cultural: describe impacts of road closure, nearby sensitive areas (mosques, schools etc.), health and safety of surrounding community / contracted labor and sociocultural conflict.

- Sociocultural conflict due to arrival of expatriate workers and recruitment of expatriate IWRMC operators.
- Impacts due to illegal immigrants being potentially recruited by the contractor.
- Contractors code of conduct and communication.
- Loss of source of sand for local public use due to sand mining from the area of the lagoon permitted for local public sand mining (which is prohibited under law).
- Health and safety of the construction workers and the IWRMC operators.
- COVID19 restrictions and special considerations for the contractor (potential mitigation measures may include daily temperature checks, cleaning procedures, shift roaster, arrangement for social distancing in labor camps, establishment of handwashing facilities at work site and labor camp etc.).
- Fire hazard due to improper handling of waste.

k) Economic / Enhancement Plans: describe any potential benefits or losses to the economy.

- Employment opportunities.
- Impacts to the local economy due to purchasing of locally available construction materials.

- Impacts to the public due to high user fees.
- Cost saving in IWRMC operations due to electricity being generated from waste.
- Some of these opportunities can be further developed to draw environmental and social benefits to the local area. The ESMP should identify such opportunities and develop a plan to systematically harness any such benefit.

l) Specific Impacts Associated with the Proposed Technology: The Consultant should assess the following aspects in line with the proposed technology.

- **Odor Management:** Assess if the technology has an inbuilt odor management system and managed odors automatically.
- **Fluid and Discharges:** Will there be any fluid discharges from the proposed technology, will the machines require any extra piping space or water discharge systems or expansion of the existing leachate management system provided via the design, the consultants should propose suitable design requirements if so in the ESMP.
- **Waste Inputs:** Assess if the technology requires additional segregation of pre management of the incoming organic waste. Indicate specifically under the section on operational aspects of the ESMP what steps need to be taken specifically by the IWRMC operators in handling in coming waste to ensure it can be efficiently used in line with the proposed technology.
- **Energy Requirements and Efficiency:** The energy requirement to run the machinery and the status of energy efficiency of the machinery proposed should be assessed, i.e. the consultants should assess the energy requirements for operating the technology and propose the most efficient means of managing. Can a connection be made to the existing Island Grid, if so, will the capacity suffice, can a solar and battery generator be used as an energy source and if diesel generators are to be used which is the least alternative, the amount of fuel required etc. should be asses as part of the project alternatives analysis. For all energy sources impacts in terms of emissions, noise, safety risks etc. should be assessed and mitigatory measures suggested in the ESMP accordingly.
- **Sludge and Residuals:** The nature and amount of all residual material produced, solid and liquid should be assessed and recommend means by which it can be re-used and/or managed in the ESMP. If reuse is recommended the consultant should also recommend the requirements for routine monitoring of quality of the digestate and liquid residue for instance if it is recommended to be used in agricultural processes.

- **Safety features on the machinery:** such as presence of emergency stop buttons, emergency lights and/or alarms for emergency use are equipped to ensure the best level of safety should be present and the consultants should assess if the proposed technology, especially machinery include these in addition to proposing other safety features in the ESMP.

The methods used to identify the significance of the impacts shall be outlined. One or more of the following methods must be utilized in determining impacts; checklists, matrices, overlays, networks, expert systems and professional judgment. Justification must be provided to the selected methodologies. The report should outline the uncertainties in impact prediction and also outline all positive and negative/short and long-term impacts. Identify impacts that are cumulative and unavoidable.

26. **Project Alternatives:** Describe alternatives including the "no project option" should be presented. Alternative examined for the project should include alternative locations, design and technology options, and alternative energy sources which shall be evaluated in environmental, social and economic terms. Alternative technology options for the treatment of organic waste may include manual composting and anerobic digestion systems. Depending on the source of energy proposed to operate the IWRMC, alternative energy sources evaluated shall include connection from existing power grid, solar, battery and diesel generators. For all energy sources impacts in terms of emissions, noise, safety risks etc. should be assessed and mitigatory measures suggested accordingly. All alternatives must be compared according to commonly accepted standards and norms and international standards as much as possible. The comparison should yield the preferred alternative for implementation. Mitigation options shall be specified for each component of the proposed project.

27. **Mitigation and management of negative impacts:** Identify possible measures to prevent or reduce significant negative impacts to acceptable levels. These will include both environmental and socio-economic mitigation measures. Mitigation measures to avoid or compensate habitat destruction caused by land clearance will have to be considered. Mitigation measures should be provided for COVID19 related aspects such as daily temperature checks, cleaning procedures, shift roaster, arrangement for social distancing in labor camps, establishment of handwashing facilities at work site and labor camp etc. Measures for both construction and operation phase shall be identified. Cost the mitigation measures, equipment and resources required to implement those measures. The confirmation of commitment of the developer to implement the proposed mitigation measures shall also be included. An Environmental and Social Management Plan for the proposed project, identifying responsible persons, their duties and commitments shall also be given. The

environmental and social management plan should be presented in matrix format, clearly indicting the responsible person, cost, equipment and resources required for each proposed action. In cases where impacts are unavoidable arrangements to compensate for the environmental and / or social effect shall be given.

Depending on the source of energy proposed to operate the IWRMC, alternative energy sources evaluated shall include connection from existing power grid, solar, battery and diesel generators. For all energy sources impacts in terms of emissions, noise, safety risks etc. should be assessed and mitigatory measures suggested accordingly.

Mitigation measures should be presented as a matrix consistent to the format provided below.

Project Activity	**Potential Environmental Impacts**	**Proposed Mitigation Measures**	**Institutional Responsibilities** (Implementation and Supervision)	**Estimated Quantities Required and Material Specifications Recommended**	**Cost Estimates**	**Comments** (e.g. secondary impacts**)**
Detailed design and planning Phase						
Pre-Construction Phase -Site Preparation						
Construction Phase						
Operation and Maintenance Phase						

The proposed ESMP matrix shall be translated to Dhivehi language and provided as an Annex to the report.

28. **Development of monitoring and reporting plan:**

10.5. Monitoring Program: Identify the critical issues requiring monitoring to ensure compliance to mitigation measures and present impact management and monitoring plan for vegetation clearance, soil, groundwater, noise and air quality, spillage assessment and grievance redress mechanism. Detail of the monitoring program including the physical and biological parameters for monitoring, cost commitment from responsible person to conduct monitoring in the form of a commitment letter, detailed reporting scheduling, costs and methods of undertaking the monitoring program must be provided.

The monitoring program 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
- Cost of monitoring
- Responsible party

The recommended format for presenting the monitoring program is given below.

Proposed Mitigation Measure	**Parameters to be monitored**	**Location**	**Measurements** (Incl. methods & equipment)	**Frequency of Measurement**	**Responsibilities** (Incl. review and reporting)	**Cost** (equipment & Individuals)
Detailed design and planning Phase						
Pre-Construction Phase						
Construction Phase						
Operation and Maintenance Phase						

10.6. Reporting Procedures and Implementation Schedule: The consultant should propose adequate reporting mechanisms with frequencies for the implementation of the ESMP and the proposed monitoring program.

10.7. Cost Estimates and Sources of Funds: Implementation of mitigatory measures mentioned in the ESMP will involve an initial investment cost as well as recurrent costs. The ESMP should include costs estimates for each measure and also identify sources of funding, which is to be covered under section 9. In addition to this, estimated costs shall be provided (separate for construction and operational phase activities) for specific items and materials that the contractor and the operators would require to implement the ESMP effectively. Such items may include the cost of purchasing PPEs, fire extinguisher, signages, trainings etc. This would essentially enable the contractor to reflect accurate costs in the bid documents. Potential sources of funding for the operational phase should be reflected.

10.8. Contract Clauses: This is an important section of the ESMP that would ensure recommendations carried in the 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.

29. **Management of Other On- or Off-Site Environmental Pollution Control and Infrastructure**

This section should address management of critical elements of pollution control and infrastructure that are not otherwise included in the mitigation plan because they were considered an essential part of the proposed project.

30. **Summary of all Training Recommendations**

This section should include programs targeted to increase the capacity of the contractor and the operator in the implementation of the ESMP. A capacity needs assessment for the operations of the IWRMC should be undertaken, highlighting gaps and training recommendations for a fully functional system. Special consideration must be given to cover operational training requirements of the proposed AD plant and associated bio-generator (if included with the project scope).

The training recommendations are likely to include the following:

- Strengthening the capacity of the contractor on ESMP implementation and reporting.
- Strengthening PMU's capacity on compliance monitoring.
- General awareness on health and safety.
- Contractor's code of conduct.
- Community Mobilization: Based on the assessment, the consultant should describe key messages for communication/awareness and recommend methods/tools. Also, recommend approaches to mobilize communities, enhance community participation (including that of women's groups) and create ownership/interest around waste management.
- Operation and Maintenance training of the AD plant and bio-generator.
- Fuel handling (if applicable).
- Fire safety training and fire drills.

Institutional Strengthening Activity	Position(s)	Scheduling	Responsibility(is)	Cost Estimates	

Training Activity	Participants	Types of Training	Content (modules, Etc.)	Scheduling	Cost Estimates

31. **Contingency Plans**

Contingency plans shall be prepared and described to address: a) failure to meet specific performance criteria established by law or necessary for the project to meet its commitments in the ESMP and b) respond to natural and other risks previously identified and mitigated in the ESMP in the event reasonable and feasible mitigation measures to address the risks are inadequate.

- Performance-related Contingency Plans, indicating the steps that will be taken should monitoring indicate that:
  - Environmental standards are not being met
  - Impacts are greater than predicted
  - Mitigation measures and/or rehabilitation are not performing as predicted
- Natural Disaster Risk Response Plan (assumes that risk identification and risk reduction have been addressed in other parts of the EA)
- Other Risks Response Plans (assumes that risk identification and risk reduction have been addressed in other parts of the EA)
- Contingency plans for maintaining service or reducing downtime in the event of accidents or natural catastrophes that disrupt project operation

32. **Grievance Redress Mechanism (GRM):** Describe the proposed grievance redress mechanism of the project developed by the PMU and offer suggested improvements including naming the responsible person in each tier.

33. **Stakeholder consultation:** Identify appropriate mechanisms for providing information on the development project and the GRM to relevant stakeholders. Consultations must be undertaken with all key stakeholders – including communities, government officials etc. During consultations the project activities should be introduced, and stakeholders given opportunity to ask questions/clarifications, raise their objections/concerns and the consultant should provide relevant feedback – this discussion should be documented in the form of a table noting the points discussed/issues raised and feedback provided. The report shall include a brief description of the Council's plan for GRM execution at tier 1. The report should include a list of people/groups consulted, their contact details and summary of the major outcomes. The following people or institutions should be consulted.

- Island Council (on GRM, Island Waste Management Plan, fee collection system, plan for 2:1 replantation, and the overall project in general)
- EPA (on the overall design of the IWRMC and operation licensing requirements).
- FENAKA (on the capacity of the existing power plant to cater for the energy requirements of the IWRMC).
- Health Protection Agency (on COVID19 health and safety requirements).
- Ministry of Planning and Infrastructure and Maldives Land and Survey Authority (regarding land use plan).
- Maldives National Defense Force (on fire safety and willingness to assist in training the IWRMC operators on firefighting).
- Waste Management Committee (on their role of waste management at the island).
- Women's Development Committee (on their involvement and perspectives on how waste management can be improved in the Island)
- Community Consultation or Household Survey (randomly selected with emphasis given to those residing at a close proximity to the project site: on the adequacy of the proposed site, feasibility of overall design of the IWRMC and the proposed technology, health and safety considerations, proposed fee collection structure, willingness to pay and waste management plan of the council).
- Ministry of Environment / MCEP (on the overall project as the proponent and GRM at tier 2)

The consultant should take into consideration COVID19 safety measure during consultations, follow WHO/WB & GoM guidelines when conducting consultations and explore remote/online options when conducting consultation.

34. **Gender Empowerment / Preparation of Gender Action Plan**

The consultants will carry out Gender analysis as an integral part of the social assessment. The project designs should be gender responsive based on the gender analysis. The findings and recommendations from the gender analysis during project planning and feedback from beneficiaries during implementation must be discussed thoroughly to determine the need for further action. Listed below are the key action points:

- Identify key gender and women's participation issues.
- Conduct gender analysis as part of overall Social Assessment.
- Examine gender differences in knowledge, attitudes, practices, roles, status, wellbeing, constraints, needs, and priorities, and the factors that affect those differences.
- Assess men's and women's capacity to participate and the factors affecting that capacity.

- Assess the potential gender-differentiated impact of the project and options to maximize benefits and minimize adverse effects.
- Identify government agencies and nongovernmental organizations (NGOs), community-based organizations (CBOs), and women's groups that can be used during project implementation and assess their capacity. The possibility of utilizing such ground to execute 2:1 replantation and if so the requirement to provided financial assistance with estimates must be provided.
- List out major gender actions.
- Develop gender-disaggregated indicators and monitoring plan.

35. **Validation and Disclosure**

The draft executive summary and the ESMP (matrix table in mitigation chapter) in local language should be disclosed in all major affected settlements and at island level in printed format and disseminated as appropriate or made available via online means for public commenting. This should be completed prior to or at the time of submitting the report to the EPA and the World Bank for clearance, so the period for public commenting can be sequenced in parallel to the review process. The consultant will assist the project in disclosure documents in all major affected settlements and at island and national level. The final cleared version of the report will be disclosed in major project websites and social media platforms with a summary of major findings through the disclosure process reflected as an annex.

36. **Conclusion**

This section shall specify the environmental acceptability of the project, taking into account the impacts and measures identified during the assessment process. It shall also identify any other conditions or external requirements for ensuring the success of the project.

Presentation- The ESMP or ESIA report, to be presented in digital format, will be concise and focus on significant environmental issues. It will contain the findings, conclusions and recommended actions supported by summaries of the data collected and citations for any references used in interpreting those data. The ESMP or EISA report will be organized according to the final TOR, in accordance to, but not necessarily limited by, the outline the Environmental Impact Assessment Regulations (2012) and the ESAMF. The report shall include Dhivehi translations of the executive summary and the ESMP matrix. All raw data collected, including maps and surveys should be submitted in Raw form to the client in digital format.

Appendix 3 Approval letter from MLSA

بسم الله الرحمن الرحيم

Maldives Land and Survey Authority
Ministry of Housing and Infrastructure
Male', Republic of Maldives.

މޯލްޑިވްސް ލޭންޑް އެންޑް ސަރވޭ އޮތޯރިޓީ
މިނިސްޓްރީ އޮފް ހައުސިންގ އެންޑް އިންފްރާސްޓްރަކްޗަރ
މާލެ، ދިވެހިރާއްޖެ.

އިޤްތިޞާދީ ފުދުންތެރިކަން - އިޖްތިމާޢީ ހަމަޖެހުން

ނަންބަރު: 431-LIS/367/2018/3

މުލަކަތޮޅު ކޮޅުފުށީ ކައުންސިލްގެ ރައީސް އަލްފާޟިލް ހުސައިން ޝާމިލްއަށް،

ވެދުން ސަލާމަށްފަހު ދަންނަވަމެވެ.

ވީއާ އިދާރާގެ ނަންބަރު: 367/431/2018/2 (04 އޭޕްރީލް 2018) ސިޓީއާ ހަވާލާދީ ދަންނަވަމެވެ.

މިއޮފީހުގެ ނަންބަރ: 431-AHP/367/2018/2 (13 ފެބްރުއަރީ 2018) ސިޓީއިން ކުނިކޮށި އެޅުމަށް ދޫކޮށްފައިވާ ބިމުގެ ބަދަލުގައި ހަވާލާދެވުނު ސިޓީއާއެކު ފޮނުވާފައިވާ މ.ކޮޅުފުށީ ޗާޓުގައި ކުނިކޮށި އެޅުމަށް ފާހަގަކޮށްފައިވާ ސަރަހައްދުން 8106.5 އަކަފޫޓު ބިން ކުނިކޮށި އެޅުމަށް ދޫކުރުމުގެ ހުއްދަދިނުމެވެ.

އަދި ދަންނަވަމެވެ. ކުނިކޮށި އެޅުމަށް ހުއްދަދިނުމަށް ބިން ދޫކުރެވިދާނެ ގޮތް މިސިޓީއާއެކު ފޮނުވީމެވެ.

އިޙްތިރާމް ޤަބޫލުކުރައްވަން އެދެމެވެ.

09 ޝަޢުބާން 1439

25 އޭޕްރީލް 2018

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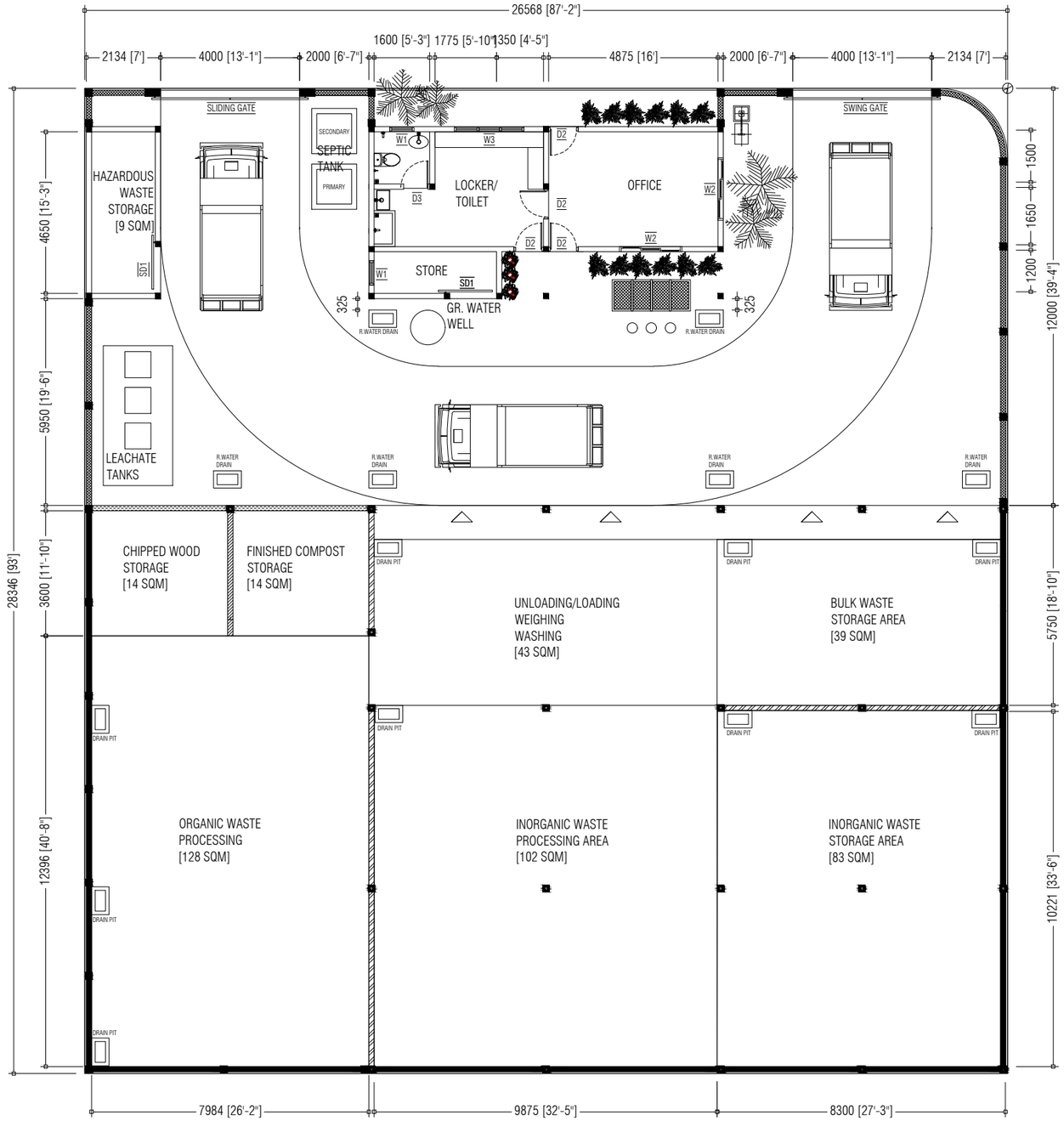
މުޙައްމަދު ފާސިލް

ޑިރެކްޓަރ

މުލަކަތޮޅު ކޮޅުފުށީ ކައުންސިލްގެ އިދާރާ
މ.ކޮޅުފުށި، ދިވެހިރާއްޖެ.

ކޮޕީ: މުލަކަތޮޅު އަތޮޅު ކައުންސިލްގެ އިދާރާ

Appendix 4 Site plan



NOTE:

- 2500mm HEIGHT WALL
- 1500mm HEIGHT WALL
- OFFICE / HAZARDOUS WASTE BUILDING WALLS
- 2500mm HEIGHT MASONRY WALL + CLADDING ON TOP
- 2500mm HEIGHT MASONRY WALL + LOUVERS ON TOP
- BOUNDARY WALLS

PREPARED BY

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PROJECT	CONSTRUCTION OF ISLAND WASTE MANAGEMENT CENTRE M.KOLHUFUSHI
TITLE	FLOOR PLAN
CLIENT DEPARTMENT	WMPC DEPARTMENT
PAPER SIZE	A3
PAGE NO.	02
DESIGN BY	AFRAZ
STRUCTURE BY	AFRAZ
DRAWN BY	AFRAZ
SCALE	1:150
DWG NO.	KOLH-A1-02
DATE	16.02.2021
NOTES / AMENDMENTS	MECHANICAL COMPOSTING FOR ORGANIC WASTE MANAGEMENT

Appendix 5 Letter from MNPHI

بسم الله الرحمن الرحيم

ވ.އަވަސް

މިނިސްޓްރީ އޮފް އެންވަޔަރަންމަންޓް
މާލެ، ދިވެހިރާއްޖެ.

Ministry of Environment
Male', Republic of Maldives.

ނަންބަރު: 438-WMPC/471/2021/29

މިނިސްޓަރ އޮފް ނޭޝަނަލް ޕްލޭނިންގ، ހައުސިންގ އެންޑް އިންފްރާސްޓްރަކްޗަރ އަލްފާޟިލް
މުޙައްމަދު އަސްލަމް،

ވެދުން ސަލާމަށްފަހު ދަންނަވަމެވެ.

މ. ކޮޅުފުށީގައި ކުނޑާއި ވަސީލަތް މެނޭޖުކުރާ މަރުކަޒު ޤާއިމުކުރުމާގުޅޭ

މުލަކު އަތޮޅު ކޮޅުފުށީގައި ކުނޑާއި ވަސީލަތް މެނޭޖުކުރާ މަރުކަޒު ޤާއިމުކުރުމާއި ގުޅޭގޮތުން 17 މާރިޗު 2021 ގައި މި މިނިސްޓްރީން ތިޔަ މިނިސްޓްރީއަށް ފޮނުއްވާފައިވާ ލިޔުމަށް ހަވާލާދީ ދަންނަވަމެވެ.

ސުރުޚީގައި ދަންނަވާފައިވާ މަސައްކަތާއި ގުޅޭގޮތުން މި މިނިސްޓްރީން ހަދާފައިވާ އެންވަޔަރަންމަންޓަލް ބޭސްލައިން ސްޓަޑީރިޕޯޓުން ދެއްކޭގޮތުން އެ މަރުކަޒު ޤާއިމުކުރުމަށް ހަމަޖެހިފައިވާ ބިމަކީ [illegible] ބިމެކެވެ. ވީމާއެކު، ހަވާލާދީފައިވާ ބޭސްލައިން ސްޓަޑީގައި ދަންނަވާފައިވާ ގޮތުން، މ.ކޮޅުފުށީގައި ކުނޑާއި ވަސީލަތް މެނޭޖުކުރާ މަރުކަޒު ޤާއިމުކުރުމަށް ވަރަކަށް 800m³ ގެ ފިލް ބޭނުންވެއެވެ. އަދި މި މިނިސްޓްރީއަށް އެނގިފައިވާގޮތުން، ތިޔަ މިނިސްޓްރީން އެ ރަށުގައި ކޮށްފާ [illegible] ފިލް [illegible]. އެހެންކަމުން، މި މިނިސްޓްރީއަށް ބޭނުންވާ ފިލް އަދި [illegible] (ސީ.އެން.ޖީ) [illegible] އެ މަސައްކަތުގެ [illegible] މި މިނިސްޓްރީއަށް [illegible]. އަދި، ސީ.އެން.ޖީ [illegible] މ.ކޮޅުފުށީގައި މި މިނިސްޓްރީގެ މަސައްކަތަށް [illegible]. އަދި މ.ކޮޅުފުށީގައި ކުނޑާއި ވަސީލަތް މެނޭޖުކުރާ މަރުކަޒު ޤާއިމުކުރުމަށް [illegible]

ގަވަރުން ތިބަ ފިޔަވަޅުއަޅުވާ ފަރާތްތަކުން ތަކެތި ދިއުމަށް ފާސްކުރަން ތަކެތި ކައުންސިލަށް ހުށަހަޅާ ފުރުޞަތު ދިނުމާ ގުޅިގެން ދަންނަވަމެވެ.

ވީދ، ކަނޑުގެފަރާތް ތިމާވެށި ދާއިރާ ހުސްކުރުމަށް ގަވަރުން، ގައުމީ ސަރަހައްދު ކައުންސިލުގެ ވެރިކަމުގައި ހުންނަ ދަތުރުގައި ކައުންސިލަށް ތަކެތި ދިއުމަށް ފާސްކުރުމަށް ތިރީގައި ލިޔެ ހުށަހަޅަމެވެ.

ތިރީގައިވާ ކަންތައްތަކަށް ފާހަގަ ކުރަމެވެ.

09 ރަމަޟާން 1442ވ.

22 ފެބްރުވަރީ 2021ވ.

ފާތިމަތު ދުނިޔާ

ތަކެތި ފޮނުވާ ފަރާތް

ދިގުދަށް 2 ފޫޓް

Green Building, Handhuvaree Hingun,
Maafannu, Male', 20392, Republic of Maldives.
+(960) 301 8300
www.environment.gov.mv

ފޯނު ނަންބަރު، ފެކްސް ނަންބަރު،
ފޯސްޓް ކޯޑް، 20392، ދިވެހިރާއްޖެ.
secretariat@environment.gov.mv
www.twitter.com/MoEnvmv
www.facebook.com/environment.gov.mv

بسم الله الرحمن الرحيم

Ministry of National Planning, Housing and Infrastructure
Male', Republic of Maldives

މިނިސްޓްރީ އޮފް ނޭޝަނަލް ޕްލޭނިންގ، ހައުސިންގ އެންޑް އިންފްރާސްޓްރަކްޗަރ
މާލެ، ދިވެހިރާއްޖެ.

ނަންބަރު: 471-PIDS2/438/2021/12

މިނިސްޓަރ އޮފް އެންވަޔަރަންމަންޓް ޑޮކްޓަރ ހުސައިން ރަޝީދު ހަސަންއަށް،

ވެދުން ސަލާމަށްފަހު ދަންނަވަމެވެ.

<u>މ. ކޮޅުފުށީގައި ކުންޏާއި ވަސީލަތް މެނޭޖުކުރާ މަރުކަޒު ގާއިމުކުރުމާބެހޭ</u>

މިއީ މިނިސްޓްރީގެ ނަންބަރު 438-WMPC/471/2021/29 (22 މާރިޗު 2020) ސިޓީއާ ހަވާލާދީ ދަންނަވަމެވެ.

ހަވާލާދީފައިވާ ސިޓީގައި ދަންނަވާފައިވާ މ. ކޮޅުފުށީގައި ކުނި މެނޭޖުކުރާ މަރުކަޒު ގާއިމުކުރުމުގެ މަޝްރޫޢުގެ އާރާމް ފާރކާސްއަރ ބޭނުންވާ 800m³ ގެ ފިލް، މި މިނިސްޓްރީއިން ކުރިއަށް ގެންދިއުމަށް ރާވާފައިވާ މ. ކޮޅުފުށީގެ ގޮނޑުދޮށް ހިމާޔަތްކުރުމުގެ މަޝްރޫޢުން ބޭނުންވާ ފިލް ނުގެނެވޭގޮތަށް ނިމިފައިވާކަމުގައި ދަންނަވަމެވެ.

ނަމަވެސް މިހާރު އިތުރު ބަރަކަތް ހިނގާނަމަ، އެބަރަކަތް މިއީ މިނިސްޓްރީއިން ކުރާގޮތަށް ހަމަޖެއްސަވައިދެއްވުން އެދެމެވެ. އަދި މަޝްރޫޢު ހިނގަމުންދާއިރު ކޮންސްޓްރަކްޝަން އެންޑް ޑިމޮލިޝަން (ސީ އެންޑް ޑީ) ކުނި އުފެދިއްޖެ ނަމަ، އެތަކެތި މިއީ މަޝްރޫޢުން ބޭނުންކުރެވިދާނެ ވަރަކަށް ދަންނަވާލަމެވެ.

އެހެންނަމަވެސް، މ. ކޮޅުފުށީގެ ގޮނޑުދޮށް ހިމާޔަތްކުރުމުގެ މަޝްރޫޢު ޓެންޑަރކުރަން ތައްޔާރުކޮށްފައިވަނީ މި އަހަރުގެ ފަހުކޮޅުގައި މިއީ މިނިސްޓްރީގެ މައުލޫމާތުގައި ދަންނަވާލަމެވެ.

އިޙްތިރާމު ޤަބޫލުކުރެއްވުން އެދެމެވެ.

16 ޝަޢުބާން 1442ހ.

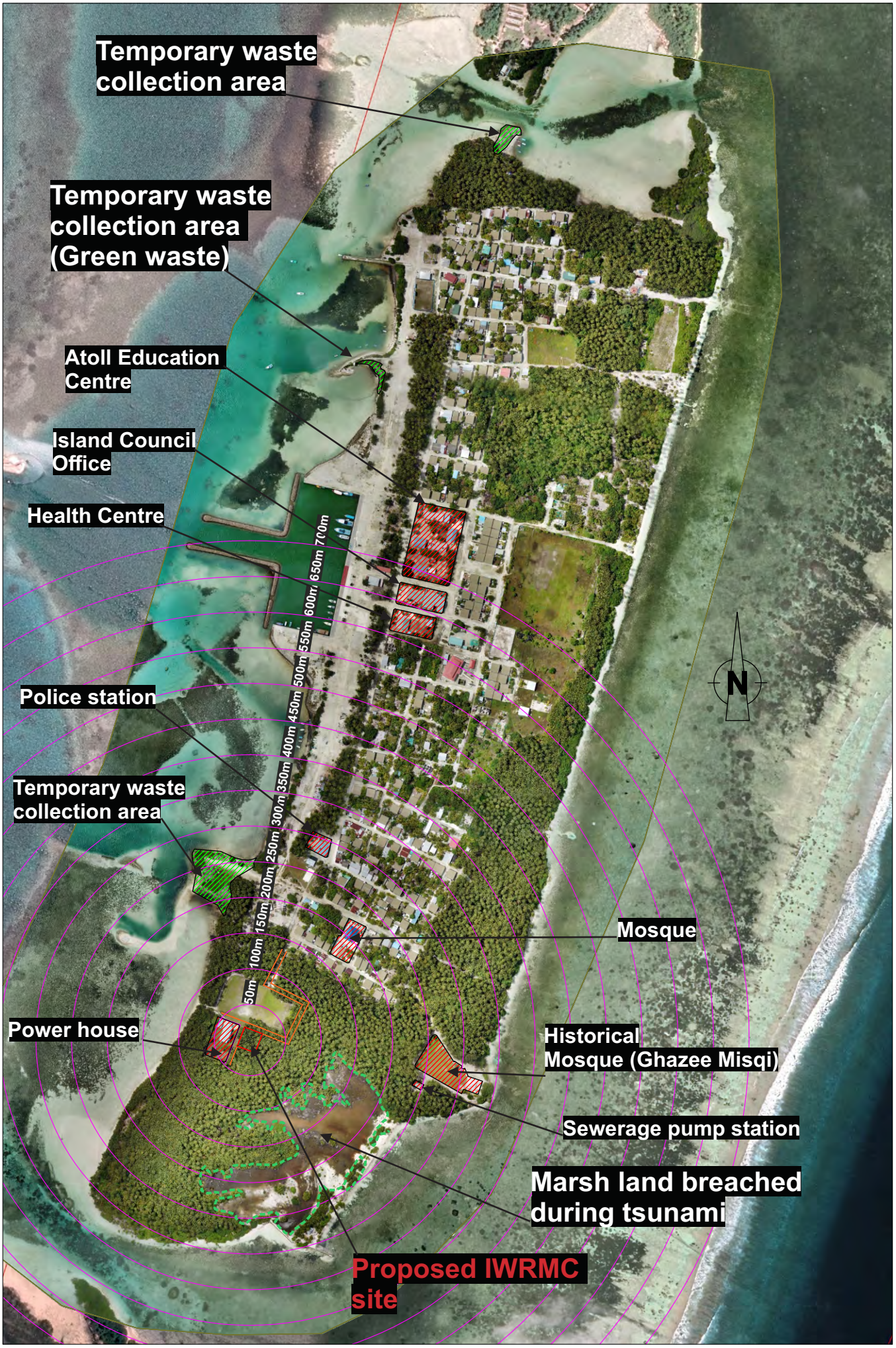
29 މާރިޗު 2021މ.

ޚާދިމުކުމް

މުޙައްމަދު ރިޔާޟް
ސީނިއަރ ޕްރޮޖެކްޓް ކޯޑިނޭޓަރ

މިނިސްޓްރީ އޮފް އެންވަޔަރަންމަންޓް،
މާލެ، ދިވެހިރާއްޖެ.

Appendix 6 Map of study area


Temporary waste collection area
Temporary waste collection area (Green waste)
Atoll Education Centre
Island Council Office
Health Centre
Police station
Temporary waste collection area
Power house
Mosque
Historical Mosque (Ghazee Misqi)
Sewerage pump station
Marsh land breached during tsunami
Proposed IWRMC site
50m
100m
150m
200m
250m
300m
350m
400m
450m
500m
550m
600m
650m
700m
N

Appendix 7 Water quality results report from MWSC

بسم الله الرحمن الرحيم

National Health Laboratory
Maldives Food and Drug Authority,
Sosun Magu, Male' 20184, Republic of Maldives
Telephone #3014346 / 3014347, Email: nhl@health.gov.mv

WATER CHEMISTRY ANALYTICAL RESULTS

REPORT NUMBER: NHL/WC-2021/TR0053

•NAME AND ADDRESS OF CLIENT: LAND AND ENVIRONMENT RESOURCES GROUP PVT LTD
AMEENEE MAGU, K.MALE'
TEL: (+960)7919555

TIME TESTED: -
•COLLECTED BY: AHMED HASSAN

•PURPOSE OF TESTING: Quality Monitoring

•LOCATION OF SAMPLE	*LAMER*		TEST METHOD
	KOLHUFUSHI G1	*KOLHUFUSHI G2*	
Requisition Form No:	*NHL/WC-2021/RQ0044*		
•Date sampled	*02/03/2021*	*02/03/2021*	
•Time Sampled	*21:00*	*21:00*	
•Type of water	*Ground*	*Ground*	
Date tested	*08th – 09th March 2021*		
Sample ID	*080321WC011*	*080321WC012*	
PARAMETER TESTED			
pH	7.2 at 23.6°C	7.3 at 23.7°C	Method adapted from Hach HQ11D Manual and standard methods for the examination of Water and waste water by APHA, AWWA, WEF, 23rd edition, 2017, Part 4500-H+B*
Nitrate (as NO_3)	0.03 mg/L	0.06 mg/L	Method 8039, 8171 (Adapted from DR4000™/5000™ Spectrophotometer procedure manual), Nitrate Test Spectroquant® 109713

COMMENT:-

Authorized by

National Health Laboratory
Male', Republic of Maldives

Quality Manager
Fathimath Safoora

Date: 10th March 2021

NOTE: •Information supplied by the client
This result is valid only for this sample and apply to the sample as received. National Health Laboratory does not involve in the sampling process and does not take responsibility for errors that could arise from sampling and transport of sample. This report is not for duplicate or advertisement without prior approval from National Health Laboratory.

Appendix 8 Alternatives proposed and respective mitigation measures

This section provides comparative description of organic waste composting technologies considered in the ESMP prepared for managing organic waste at Kolhufushi. In-vessel composting is the preferred technology where windrow-based open composting and anaerobic digestion has been compared with preferred option. The following matrix provides a comparative assessment of the three options considered for the project from environmental, social and economic perspective (Table 1).

Table 1. Comparison of organic waste treatment option selected with alternatives considered

	Environmental aspects	Social aspects	Economic aspects
In-vessel composting (preferred option)	• Small land area required for setup • Overcomes the problem of leachate generation • Burning of waste is not required • The system is only slightly affected by environmental conditions, as work will be carried out indoors (sheltered area) • Moderate energy is required for operation	• Labour requirement is low (2 to 3 persons can carry out operations) • Compost can be prepared in a short time frame (15 to 30 minute cycles in OWC machine and 10 to 12 days for curing) • Minimal odour associated with processing of waste	• Highly dependent on mechanical equipment High capital cost • Moderate operations and maintenance cost • Economic turnover is very high due to fast process
Windrow-based open composting	• Large land area required for setup • High leachate generation with potential for groundwater contamination • The system is only highly affected by environmental conditions, as it is carried out in the open • Attracts flies, rodents and other pests • Low energy requirement	• Labour requirement is high as it involves strenuous work. The pile needs to be turned every 5 days or so to ensure even composting • The whole process is time consuming and may require months to complete the process • Strong odour associated with the processing, especially when the pile is being turned • Attracts flies, rodents and other pests	• Minimally dependent on mechanical equipment • Low capital cost • Low operations and maintenance cost • Economic turnover low due to the long time taken for composting

Anaerobic Digestion	• Relatively large land area required for set up • Biogas generated can be reused as a potential source of energy (for cooking or converted to electricity). • Organic nutrient content (liquid residue and undigested biproduct) can be used as a liquid fertilizer and compost • High energy requirement	• Labour requirement for operation of Anaerobic digestion composting machine is low • Processing time approximately 1 month • Low to moderate odour due to waste processing	• Highly dependent on mechanical equipment • Very high capital cost • High operation and maintenance cost • Economic turnover is high (shorter time than windrow-composting and high value product) • Potential to use bi products for economic use

The following table provides environmental and social impact mitigation measures proposed for the alternative technologies compared (Table 2).

Table 2. Mitigation measures proposed for the alternative waste treatment methods

Method	**Mitigation measures proposed**
In-vessel composting	Mitigation measures for the process as reported in ESMP matrix given in this report (Chapter 8, Table 11)
Windrow-based open composting	• Design and construct an appropriately sized compost slab with an impermeable layer, drainage mechanism with leachate collection tank established • Design of composting area should be at least partially shaded to enable composting during rainy season • Ensure compost material are appropriately segregated to avoid potential vermin infestation. Open compost is most suitable for garden waste (branches, twigs, and leaves), vegetable waste and fruit waste • Maintain adequate aeration, temperature and retention time in biological treatment systems to achieve pathogen destruction (World Bank Group, 2007) • Maintain Carbon: Nitrogen (C:N) ratio between 30:1, moisture content between 40-60%, temperature between 30-50^{o}C and pH between 6 and 8 (CITRES and MEECO 2019)

	• Ensure that the windrow is high enough to retain the heat and maintain the temperature, but still small enough to let air diffuse to the centre. • Ensure that the compost pile is regularly turned to allow for air diffusion into the material and mixing of the material in order to move larger particles into the core to undergo composting. • As per IFC EHS Guidelines "avoid conditions that can lead to spontaneous combustion (e.g., moisture between 25 – 45 percent and temperatures above about 93ºC. This can be achieved for example by keeping windrows less than about 3m high and turning them when the temperature exceeds 60ºC)" (World Bank Group, 2007) • Water the compost pile depending on the moisture content in the waste • Isolate workers from spore dispersing components of the composting process such as turning, by opting to mechanical turning (e.g., by using tractors). • Provide protective gears to the workers (gloves, waterproof footwear, protective eye wear, masks) • Provide appropriate training to workforce with regard to waste handling, processing and management • Ensure provision and use of dust masks or respirators under dry and dusty conditions (e.g., when compost is being turned) • Ensure provision of a first aid kit on site so as to attend to any medical emergencies immediately. Cover open wounds to prevent contact with the incoming loads
Anaerobic Digestion (AD)	• Design and construct an appropriately sized area for machine installation, with an impermeable layer, drainage mechanism and leachate collection tank for leachate management • Ensure Carbon: Nitrogen (C:N) ratio is between 20:30.1 optimum methane production. If ratios is higher than this, the nitrogen availability will limit the process and consequentially decrease gas production and digestate produced will be less in nutrient quality (Environment Agency, 2013) • Ensure that the AD plant is operated at the correct operational temperature for the specific plant being used (Environment Agency, 2013) • Operate an anaerobic digester under thermophilic digestion conditions, in order to increase the pathogen destruction, biogas production rate (hence higher energy recovery) and the retention time (World Bank Group, 2007) • Ensure pH inside the AD plant is maintained between 6.5 to 8 which is the wider range for optimum growth rate of methane producing organisms (Environment Agency, 2013). • Recycle wastewater to the reactor to the greatest extent possible

	• Explore the potential use of biogas (Methane) such as use for cooking or generating electricity • Explore the potential use of liquid and solid residues for liquid fertilizers and compost • Provide protective gears to the workers (gloves, water proof footwear, protective eye wear, masks) • Provide appropriate training to workforce with regard to waste handling, processing and management • Ensure provision of a first aid kit on site so as to attend to any medical emergencies immediately. Cover open wounds to prevent contact with the incoming loads

Alternative sources of electricity for the operation of preferred waste management technology also have been considered. The following table provides options considered for using electricity and their potential impact mitigation measures (Table 3).

Table 3. Mitigation measures proposed for the alternative energy sources

Method	**Mitigation measures proposed**
Electricity to be sourced from existing power grid at the island	Mitigation measures for the process as reported in ESMP matrix given in this report (Chapter 8, Table 11)
Installation of solar panels	• Roof structure is appropriately designed and constructed to ensure that the solar panels and substructure load can be sustained • Enough roof area made available to ensure that the energy requirement can be tapped from photo voltic structures (PV) installed • Establish a way to provide the excess energy produced to the island electric grid
Installation of a generator in the IWRMC specific for its operations	• Ensure required approvals and permits are obtained prior to construction of facility (design should meet all required criteria by relevant authorities) • Ensure that the generator set installed is sufficient to cater to the needs of the IWRMC • Ensure that the floor of the power facility is leak-proof to prevent groundwater contamination due to spills • Ensure fuel is stored in appropriate leak proof containers and area where fuel is enclosed by a bund wall to prevent leakage • Ensure there are no accidental spills during transfer of fuel • Ensure that the power facility is soundproof.

	• Restrict operations to daytime hours • Ensure all the required sign boards are in place • Ensure power facility operators are provided with all the required protective gear • Ensure that there is sufficient and relevant fire prevention and firefighting equipment at the facility • Ensure that all waste oils, oily rags, lubricants etc. are stored in appropriate, tightly sealed containers and are disposed to the RWMF at regular intervals (4 to 6 months) • Ensure that power facility operators are properly trained in all aspects of the operations and maintenance of the facility • Ensure that the generator set is regularly maintained and that the whole facility is kept in clean conditions • Ensure there are sufficient stock parts for a period of 1 year at any given time

Appendix 9 Translation of ESMP

ފުރިހަނޑުކުރާ ގޮތް	ތަންފީޒުކުރާ ތަނާ	ބަލައިގަންނަ ތަކެތި	ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ (ފަސޭހަ ކުރެވޭނެ ގޮތަށް)	ތަކެތި ހޯދުމުގެ ކުރިން ހަދަންޖެހޭ ކަންކަން	ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ
ފާސްކޮށް ދައްކައި ކަންކަމުގެ ގަބޫލުކުރެވޭ ގޮތް ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ)	-	-	- ފުރިހަނޑުކުރާ ގޮތް	ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ކަންތައް ހިންގުމަށް ބޭނުންވާ ތަކެތި ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ)	ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް
ފާސްކޮށް ދައްކައި ކަންކަމުގެ ގަބޫލުކުރެވޭ ގޮތް ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ)	-	-	- ކަނޑައެޅުން - ލިޔުންތައް ހުށަހެޅުން (ތަފްޞީލް ބަލާ) ފުރިހަނޑުކުރާ ގޮތް	ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ކަންތައް ހިންގުމަށް ބޭނުންވާ ތަކެތި ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ)	ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް
ފާސްކޮށް ދައްކައި ކަންކަމުގެ ގަބޫލުކުރެވޭ ގޮތް ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ)	-	-	- ކަނޑައެޅުން - ލިޔުންތައް ހުށަހެޅުން (ތަފްޞީލް ބަލާ) ފުރިހަނޑުކުރާ ގޮތް	ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ކަންތައް ހިންގުމަށް ބޭނުންވާ ތަކެތި ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ) ތަކެތި ހޯދުމުގެ ގޮތް (ދަށ ބަލާ)	ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް ތަކެތި ހޯދުމަށް ކުރަންޖެހޭ ގޮތް

އިމާރާތް ކުރުމުގެ ކުރީ މަރުޙަލާ	އިމާރާތް ކުރުމަށް ބޭނުންކުރާ ތަކެތި ގެންގުޅުމުގާއި އެއްތަނުން އަނެއްތަނަށް އުފުލުމުގައި، ދޫދާއި ވަޔުގެ މާހައުލާއި ރަށްތެރޭގެ މާހައުލަށް ކޮށްފާނެ ނޭދެވޭ އަސަރު	- އިމާރާތް ކުރުމަށް ބޭނުންކުރާ ތަކެތި އެއްތަނުން އަނެއްތަނަށް ގެންދެވޭއިރު ހުންނަނީ ރަނގަޅަށް ބަންދުކޮށްފައިވާ ކަން ޔަޤީންކުރުން - އެކި ދިމާލުގައި ތަކެތި ނުބެހެއްޓުން - ފެންސިންގްތައް ރަނގަޅަށް ބެހެއްޓުމާއި ތޮށިގަނޑުތަކާއި ފީލާ ބޭރަށް އެތެރޭ ބެލުން	- ކޮންޓްރެކްޓަރު-އިމާރާތް ކުރާ ފަރާތް (މެނޭޖް ކުރުން) - ޕްރޮޖެކްޓް ހިންގާ ފަރާތް (ސުޕަރވައިޒް ކުރުން)			
	އިމާރާތްކުރުމަށް ގެންގުޅޭ ތަކެތި ގުދަންކުރުމުގައި ތިމާވެއްޓަށް ކުރާ ނޭދެވޭ އަސަރު	- ދިޔަތަކެތި ބެހެއްޓޭ ސަރަހައްދުތަކުގައި ބިމަށް ނުފޭދޭ ގޮތަށް އެއްޗެއް އެތުރުމަށްފަހު ގުދަންކުރުން - ތަކެތި ބެހެއްޓޭ ސަރަހައްދު ރަނގަޅަށް ހިފާޒަތްކުރުން އަދި ގަވާއިދުން ބަލާ ޗެކްކުރުން - ރަނގަޅުގޮތުގައި އުޅަނދުފަހަރު ދުއްވުން މަރުކަޒުތަކަށް މަސައްކަތުގެ ސަރަހައްދާއި ވީހާވެސް ގާތުން ގުދަން ކުރުން	- ކޮންޓްރެކްޓަރު-އިމާރާތް ކުރާ ފަރާތް (މެނޭޖް ކުރުން) ޕްރޮޖެކްޓް ހިންގާ ފަރާތް (ސުޕަރވައިޒް ކުރުން)			
	އިމާރާތް ކުރުމާ ގުޅުންހުރި ތަކެއްޗާއި އާލާތްތައް ގެންގުޅުމުގައި ދިޔާ ތަކެއްޗާއި ކަސްތަކާގެއްސަން އަދި ވަޔުގެއަށް ކޮށްފާނެ ނޭދެވޭ އަސަރު	- މަސައްކަތް ބޭނުންވާ ތަކެއްޗާއި އާލާތްތައް އެއްތަނުން އަނެއްތަނަށް ގެންދިއުމާއި ގެންގުޅުމުގައި ނުރަކި އެޅޭ ކުނޑާއި، ބަންދުނުވާ ގެއްލުންދިނިވި ތަކެތި މަދުކުރުމަށްޓަކައި، މިކަމުގައި	- ކޮންޓްރެކްޓަރު-އިމާރާތް ކުރާ ފަރާތް (މެނޭޖް ކުރުން) - ޕްރޮޖެކްޓް ހިންގާ ފަރާތް (ސުޕަރވައިޒް ކުރުން)			

		ތަކުރާރުކުރާ ފަރާތް ހަމަ ހަމަ ގޮތަށް ދަށުގައި ބުނެފައިވާ ގޮތަށް ކަންކަން ކުރަން ދަށުގައި ބުނެފައިވާ ގޮތަށް ކަންކަން ކުރަން ދަށުގައި ބުނެފައިވާ ގޮތަށް ކަންކަން ކުރަން (ކޮންޓްރެކްޓް ކުރެވިފައި) - ތިމާގެ ކުރިން ކުރެވުނު ކޮންޓްރެކްޓް ތަކާއި ގުޅުންހުރި ކަންކަން ކުރަމުންދާ ފަރާތް، ތިމާގެ ކުންފުނި/ލޯންސަރ ފަދަ ތިރީގައި ދެންނެވޭ ގޮތަށް ކަންކަން ކުރަން ދަށުގައި ބުނެފައިވާ ގޮތަށް ކަންކަން ކުރަން			
	ފަރާތްތަކުގެ ކުރިން ކުރެވުނު ކަންކަމާ ގުޅުންހުރި ކަންކަން ކުރަމުންދާ ގޮތް ބަލާ ކަމަށާ ދެކޮޅަށް ކަންކަން ކުރަން ދަށުގައި ބުނެފައިވާ ގޮތަށް ކަންކަން ކުރަން	- ކޮންޓްރެކްޓް ހަވާލުކުރާ ފަރާތް (ތިމާގެ ކުންފުނި ކަންކަން ކުރަމުންދާ ގޮތް)	9.4 ގެ ދަށުން ހުށަހަޅާ ލިޔުންތަކުގައި ބުނެފައިވާ ގޮތަށް ކަންކަން ކުރަން (ލ. ތ.)		ތިމާގެ ތަކުރާރުކުރާ ފަރާތް ދަށުގައި ބުނެފައިވާ ގޮތަށް ކަންކަން ކުރަން

		(ޕީ.އެމް.ޑީ. އިން ހިއުސްޓަންފަވިލާ ނަމޫނާއެއް މިރިޕޯޓުގެ ޖަދުވަލު 10ގައި) - މައްސަލަ ހައްލު ކުރުމުގެ ނިޒާމް (ގްރީވަންސް ރެޑްރެސް މެކޭނިޒަމް) ގާއިމް ކުރުން، އަދި މައްސަލަފައިލް އޮފިސަރުގެނަމް ގުޅަންޖެހޭނޭ ފޯން ނަމްބަރުތައް މަސައްކަތު ސަރަހައްދުގައި، ކައުންސިލް ނޯޓިސްބޯޑް އަދި ރައްޔިތުން އެއްވާ އުޅޭ ސަރަހައްދުތަކުގައި ހަރުކުރުން				
އިމާރާތް ކުރުމުގެ މަރުހަލާ	ގަސްކަނޑަންޖެހުމުގެ ސަބަބުން ކުރާ ނޭދެވޭ އަސަރު	- މިމަޝްރޫއުގެ ތެރެއިން ކަނޑަންޖެހޭ ބޮޑެތި ރުއް/ގަސްތަކުގެ ތެރެއިން އެހެން ސަރަހައްދަކަށް ބަދަލުކުރެވޭ ރުއްގަސް އަދި އެއްތަނުން އަނެއްތަނަށް ބަދަލުނުކުރެވޭ ހާލަތުގައި ހުރި ކޮންމެ ރުކަކާ ބަދަލުގައި އިންދާ ރުއް (ކަނޑާލާ ކޮންމެ ރުކަކަށް 2 ރުއް) އެހެން ސަރަހައްދެއްގައި އިންދުން - ކަނޑަންޖެހޭ ރުއްގަހުގެ ވެރިފަރާތްތަކަށް ބަދަލު ދިނުން - ބަދަލުދޭންޖެހޭ ހިސާ ފަރާތަކަށް ބަދަލުދިނުމަށްފަހު ނޫނީ މަޝްރޫއުގެ މަސައްކަތް ނިމުމުން	- ޕްރޮޖެކްޓް ހިންގާ ފަރާތް (ސުޕަރވައިޒް ކުރުން) - ރަށު ކައުންސިލް		މިކަމަށް ހިނގާނޭ ކަމަށް އަންދާޒާކުރެވޭ ޚަރަދަކީ 68،300ރ.	ޕްރޮޖެކްޓްގެ ޚަރަދުތަކުގެ ތެރޭގައި ހިމަނަންވާނެ

	ތަފާސްކުރުމުގެ ސަބަބުން ދިވެހި ރައްޔިތުން	- ދިވެހިރާއްޖެ ކަމުގައި (ހަ 6 ދުވަސް ހުންނަ ފަރާތެއް) ވިދާޅުވެފައި ހުންނަންވާ		- ކުރިން ކަނޑައެޅިފައި ހުންނަ ގަޑިއިރުގައި (ތިން ގަޑިއިރުގެ ކުރިން) ދަތުރުގައި ދާން ބޭނުންވާ ފަރާތް (ތިން ގަޑިއިރުގެ ކުރިން)		
	ވަރިއްޔާ ކައިރީ ހިތްވަރު ދޫކުރުން	- ދިވެހިންނަށް ދެރަވެ ދިވެހި ރައްޔިތުންގެ ގައިގައި ވައްކަންކުރާ ގޮތަށް ދަތުރުކުރުން - ހަނގުރާމަ ކުރާ ގޮތަށް ދިވެހި ރައްޔިތުން ތައްޔާރުކުރުން - ދިވެހި ރައްޔިތުންގެ ދަށުން ދިވެހި ރައްޔިތުން ހަނގުރާމަ ކުރުން	- ކައިރީ ހުންނަ ފަރާތް (ތިން ގަޑިއިރުގެ ކުރިން) - ކުރިން ކަނޑައެޅިފައި ހުންނަ ގަޑިއިރުގައި (ތިން ގަޑިއިރުގެ ކުރިން)			
	ދިވެހި ރައްޔިތުންގެ ދަށުން ދިވެހި ރައްޔިތުން ހަނގުރާމަ ކުރުން	- ދިވެހި ރައްޔިތުންގެ ދަށުން ދިވެހި ރައްޔިތުން ހަނގުރާމަ ކުރުން - ދިވެހި ރައްޔިތުންގެ ދަށުން ދިވެހި ރައްޔިތުން ހަނގުރާމަ ކުރުން ކަމުގައި ވިދާޅުވެ ދިވެހި ރައްޔިތުންގެ ދަށުން ދިވެހި ރައްޔިތުން ހަނގުރާމަ ކުރުން	- ކައިރީ ހުންނަ ފަރާތް (ތިން ގަޑިއިރުގެ ކުރިން) - ކުރިން ކަނޑައެޅިފައި ހުންނަ ގަޑިއިރުގައި (ތިން ގަޑިއިރުގެ ކުރިން)			
	ދަތުރުކުރާ ފަރާތަށް ހަނގުރާމަ ކުރުން	- ދިވެހި ރައްޔިތުންގެ ދަށުން ދިވެހި ރައްޔިތުން ހަނގުރާމަ ކުރުން ކަމުގައި ވިދާޅުވެ ދިވެހި ރައްޔިތުންގެ ދަށުން ދިވެހި ރައްޔިތުން ހަނގުރާމަ ކުރުން	- ކައިރީ ހުންނަ ފަރާތް (ތިން ގަޑިއިރުގެ ކުރިން) - ކުރިން ކަނޑައެޅިފައި ހުންނަ ގަޑިއިރުގައި (ތިން ގަޑިއިރުގެ ކުރިން)	ދިވެހި ރައްޔިތުންގެ ދަށުން ދިވެހި ރައްޔިތުން ހަނގުރާމަ ކުރުން		

				- ދަސްވެހިބަސް ކަނޑާ ގުޅުވައިގެން ކަންކަމުގެ ދިހައިދުވަހުގެ ތެރެއިން ހަފްތާ ދެކުނުގެ ދުވަހުތަކުގެ ތެރެއިން ހަފްތާ ދެ ދުވަހު (ހުކުރު ދުވަހާ، ހޮނިހިރު، ހޯމަ ދަސްވެހިބަސް ކަނޑާ ހަމައެކަނި) - ބަލަދަސްވެހިބަސް ކަނޑައެޅުމުގެ ގޮތުގައި ވާދަ ކުރުމަށް ބަލަދަސްވެހިބަސް ކަނޑާ ގުޅުވައިގެން - ފަސްކުރުމުގެ ވަގުތުގައިވާ ފަރާތްތަކުގެ ތެރެއިން ކަނޑާ/ ސިފައިން ފަސްކުރުމަށް ދަނޑިން ކަނޑައެޅުން - ދަސްވެހިބަސް ބަލަ 3 ކަނޑާގުޅުވައިގެން ފަސްކުރުމަށް ބަލަ ގޮތުގައި ދަސްވެހިބަސް ކަނޑާ ގުޅުވައިގެން ދަށްކުރުމަށް ބަލަ ގޮތުގައި ދަސްވެހިބަސް ކަނޑާ ގުޅުވައިގެން ދަށްކުރުމަށް - ދަސްވެހިބަސް ބަލަދަސްވެހިބަސް ކަނޑާ ގުޅުވައިގެން ދަށްކުރުމަށް ބަލަ ގޮތުގައި ދަސްވެހިބަސް ކަނޑާ ގުޅުވައިގެން ދަށްކުރުމަށް - ދަސްވެހިބަސް ބަލަދަސްވެހިބަސް ކަނޑާ ގުޅުވައިގެން ދަށްކުރުމަށް ބަލަ ގޮތުގައި ދަސްވެހިބަސް ކަނޑާ ގުޅުވައިގެން ދަށްކުރުމަށް		

				ތަރިކައުންސިލް (ފުރިހަނޑުފަރާތް ތަކެއްޗަށް) - ކުރިއަށް ގެންދާ ކަންތައްތަކާ ގުޅޭ ފަރާތްތަކުގެ ލިސްޓް ތައްޔާރުކުރުން - ތިމާގެ ކައުންސިލްގެ ދާއިރާގައި ހުންނަ ކުރިން ހުރި ތަންތަނާ ގުޅޭ ތަފާތު ތަކެއްޗާ ގުޅޭ ލިސްޓް (ކާނާ ބޯނާ ހުށަހެޅުން ގުޅޭ ތަނެއްގައި ހުންނަ ކަންތައްތަކާ ގުޅޭ ފަރާތްތަކުގެ ލިސްޓް ތައްޔާރުކުރުން) - ތަރުތީބުކުރެވިފައިވާ ލިސްޓް ބަލައި ބަލައި ކަންތައް ކުރުން ކޮވިޑް 19 ގެ ފަރާތުން ގެނެވޭ ބަދަލުތައް - ކޮވިޑ်-19 ގެ ފަރާތުން ތިމާގެ ދާއިރާގައި، ތިމާގެ ކައުންސިލްގެ ކޮންމެ ކަންތައްތަކަށް ބާރުއެޅުން ކުރުމަށް ކުރިން ތިމާގެ ކައުންސިލްގެ ތަރުތީބުކުރެވިފައިވާ ލިސްޓް			

		- މަސައްކަތްތެރިން، ކޮވިޑް-19 ގެ ހާލަތާ ގުޅޭގޮތުން އެޗް.ޕީ.އޭ އިން ނެރެފައިވާ އެންގުމާ ގަވާއިދުތަކާ އުސޫލުތަކާއި އެއްގޮތަށް ކަންކުރާކަން ޔަޤީންކުރުން - ކޮންމެ ދުވަހަކު އެންމެންގެ ހުންބެލޭނެގޮތް އަދި އިޙްތިޔާޠީ ގައިދުރުކަން ބަހައްޓައިގެން އުޅެވޭނެގޮތް މަސައްކަތް ކުރާތަނުގައާއި ދިރިއުޅޭތަނުގައި ގާއިމްކުރެވިފައިހުރުން				
	އާންމު ރައްޔިތުންގެ ސިއްޙަތާއި ރައްކާތެރިކަމަށް ކޮށްފާނެ އަސަރު	- މަޝްރޫޢު ކުރިއަށް ގެންދާ ސަރަޙައްދު ރަނގަޅަށް އެނގޭނޭހެން ފާހަގަ ކުރުން، އަދި ސަފައިން ބޯޓުތައް ރަނގަޅަށް ބެހެއްޓުން - އާންމު ރައްޔިތުންނަށް މަޝްރޫޢު ކުރިއަށް ގެންދާ ސަރަޙައްދަށް ހުއްދަތާއި ނުލާ ނުވަދެވޭނެ ގޮތަށް ހެދުން - މައްސަލަ ހައްލު ކުރުމުގެ ނިޒާމް (ގްރީވަންސް ރެޑްރެސް މެކޭނިޒަމް) ގާއިމް ކުރުން، އަދި މައްސަލައެއް އޮވެއްޖެނަމް ގުޅަންޖެހޭނޭ ފޯން ނަމްބަރުތައް މަސައްކަތު ސަރަޙައްދުގައާއި، ކައުންސިލް ނޯޓިސްބޮޑް އަދި	- ކޮންޓްރެކްޓަރު-އިމާރާތް ކުރާ ފަރާތް (ތަން އިމާރާތް ކުރާއިރު) - ރަށު ކައުންސިލް			ޕްރޮޖެކްޓުގެ ހަރަދުތަކުގެ ތެރޭގައި ހިމަނަންވާނެ

		ތަކުރާރުވާ ގޮތަށް ބަލައި ކަށަވަރު ކުރުން				
	ތަރުބިއްޔަތު ދިނުމުގެ ކުރިން ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ކަންތައް	- ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުން - ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުން - ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ފަހުން ބަލައި ކަށަވަރު ކުރުން	- ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި	- ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި		
	ތަރުބިއްޔަތު ދިނުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުން	- ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި	- ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ފަހުން ބަލައި ކަށަވަރު ކުރުން - ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ފަހުން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ފަހުން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ފަހުން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި		
	ތަރުބިއްޔަތު ދިނުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ކުރިން ބަލައި ކަށަވަރު ކުރުމުގެ ގޮތުގައި	- ތަރުބިއްޔަތު ދިނުމަށް ބެލެނިވި ކަންކަމާ ގުޅޭ ލިޔުންތައް ހުށަހެޅުމުގެ ފަހުން ބަލައި ކަށަވަރު ކުރުން		

		- ދަނޑުކަނޑުގެ ތެދުވެރިކަން ބެލެހެއްޓުމަށް ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ދަށްކުރުމަށް ތަކެތި ބޭނުންކުރުން - ދިވެހި ގުޅި ތަކެތި ބަލަހައްޓާ ބެލެހެއްޓުމަށް ތަކެތި ބޭނުންކުރުން - ދިވެހި ގުޅި ތަކެތި ބަލަހައްޓާ ބެލެހެއްޓުމަށް ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ބޭނުންކުރުން			
ފާސްޓް ފުޅުގެ ކުރިމަގުގައި ހުންނަ ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް	ކަނޑުގެ ގޮތުގައި ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ބޭނުންކުރުން	- ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ބޭނުންކުރުން (ފިހާ ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް) - ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ބޭނުންކުރުން - ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ބޭނުންކުރުން	- ފާސްޓް ފުޅުގެ ދަށްފަރާތުގައި ހުންނަ ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް - ކަނޑު ކަނޑާ ދެމެދު	ފާސްޓް ފުޅުގެ ދަށްފަރާތުގައި ހުންނަ ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ބޭނުންކުރުން ދިވެހި ގުޅި ތަކެތި ބަލަހައްޓާ ބެލެހެއްޓުމަށް ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ބޭނުންކުރުން	ކަނޑުގެ ތެދުވެރިކަން ބަލަހައްޓާ ބެލެހެއްޓުމަށް ގުޅިގެން ދަނޑުކަނޑުގައި ތަކުރާރުކުރެވޭ ތަކެތި ބޭނުންކުރުން

		- ތަކެތި ސަރުވިސް ކޮންޓްރެކްޓް /ލީޒް ފުރަތަކުން ލިބޭ ތަންތަނުގެ ބަލި				
		- ވޯޓް ދިނުމުގެ ހައްގު ދިނުމަށް ބާރުވެރިކަން ހުރި ފަރާތް (ކޮންޓްރެކްޓް ދިނުމުގެ ކުރިން ކަނޑައެޅުނު)				
		- ކަންކަން ހިނގާ ގޮތް ބަލައިގަތުމުގެ ބާރު				
		- ސަލާމަތާ ގުޅުން، ތަކެތި ގެނައުމާ ގުޅުންހުރި ކަންކަން ބަލައިގަތުމުގެ ބާރު				
		- ތަކެތި ގެނެސްދިނުމުގެ ކަންކަން ބަލައިގަތުމުގެ ބާރު				
		- ތަކެތި ގެނެސްދިނުމުގެ ކަންކަން ބަލައިގަތުމުގެ ބާރު، ތަކެތި ގެނެސްދޭ ފަރާތްތަކާ ގުޅުން				

	ކައުންސިލްގެ ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކައުންސިލްގެ ވެރިކަމާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ކައުންސިލް ބައްދަލުތަކުގައި ބައިވެރިވުން - ކައުންސިލް ކޮމިޓީތަކުގައި ބައިވެރިވުން - ކައުންސިލް ކޮމިޓީ ތަކުގެ ރައީސް 1 ބަދަލުކުރުމަށް ހުށަހެޅުން - ކައުންސިލް ބައްދަލުތަކުގެ ގަޑި ކަނޑައެޅުން	-			
	ކައުންސިލް ހާދަ ކަންކަމާ ގުޅޭ ކަންކަން ކުރުމަށް ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ފައިނަލް ކައުންސިލް ބައްދަލުގައި ބަލާ ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ފައިނަލް ކައުންސިލް ބައްދަލުގައި ބަލާ ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު ކައުންސިލްގެ ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު ކައުންސިލްގެ ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކޮމިޓީ ތަކުގެ ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	-			
	ކައުންސިލްގެ ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	-			
	ކައުންސިލްގެ ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު
	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު
	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	- ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު - ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު	ކައުންސިލް ކަންކަން ބަލަހައްޓަންވީ ގޮތާ ގުޅޭ ގޮތުން ކަންކަން ކުރުމަށް ދަށުވާ ބަޔަކު

	ހިނިތުންވާ ބައެއް ކުދިން ހިތްވަރުގަދަ ކުދިންނަށް ދަސްކޮށްދިނުމަށް ކުރިއަށް ގެންދާ ކަންތައް	- ދިވެހި ބަސް ދަސްކުރުމުގެ ގޮތުގައި ކުދިންގެ ދަށްދުވަހުގެ ކުރިއެރުން ބެލެހެއްޓުން - ކުދިންގެ ކުރިއެރުން ބަލައިގަތުމަށް (ބައްދަލުވުން ބޭއްވުމާ ގުޅިގެން) - ކޮންސެލިންގ ސާރވިސް ލިބިދިނުން ފަދަ ކަންތައް/ ދަތުރުކުރުމާ ގުޅިގެން ކުރިއަށް ގެންދާ ކަންތައް			ހިނިތުންވާ ބައެއް ކުދިން ހިތްވަރުގަދަ ކުދިންނަށް ދަސްކޮށްދިނުމަށް ކުރިއަށް ގެންދާ ކަންތައް
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		ޑެންޓަލް ޕްރޮސީޖަރން ގެދުވާން ގޮތް ހަމަޖެއްސުން				
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	މަސައްކަތުގެ ސަގާފަތް އާއި ވަސީލަތްތަކުން ކުރާ ނުރައްކާ އަސަރު	- ސަލާމަތީ އަމާން ކުރުގެ މިންވަރަށް ބެލެހެއްޓުން ދިނުމަށްޓަކައި	-			

				ބޭނުންކުރެވޭ އެލި މެޝިން ބޭނުންކުރެވޭނެ ޝޯޓްއަލާއި ގުދަން - ސެންޓަރުގައި ބޭނުންކުރެވޭ ހުރިހާ މެޝިނެއް ސާފުތާހިރުކޮށް ބެލެހެއްޓުން - ދުވާލުގެ ވަގުތުގައި މަސައްކަތްކުރަން ރޭވުން - ސެންޓަރުގެ ތެރޭގައި ސާފު ބޮޑި ހަރުކުރުން		

Appendix 10 Sample Code of Conduct provided by World Bank

CODES OF CONDUCT

Codes of Conduct

Three Codes of Conduct are presented below:

i. **Company Code of Conduct:** Commits the company to addressing EHSH, OHS and GBV issues;
ii. **Manager's Code of Conduct:** Commits managers to implementing the Company Code of Conduct, as well as those signed by individuals; and,
iii. **Individual Code of Conduct:** Code of Conduct for everyone working on the project, including managers.

Company Code of Conduct
Implementing ESHS and OHS Standards
Preventing Gender Based Violence

The company is committed to ensuring that the project is implemented in such a way which minimizes any negative impacts on the local environment, communities, and its workers. This will be done by respecting the environmental, social, health and safety (ESHS) standards, and ensuring appropriate occupational health and safety (OHS) standards are met. The company is also committed to creating and maintaining an environment where children under the age of 18 will be protected, and where Sexual Exploitation and Abuse (SEA) and sexual harassment have no place. Improper actions towards children, SEA and sexual harassment are acts of Gender Based Violence (GBV) and as such will not be tolerated by any employee, sub-contractors, supplier, associate, or representative of the company.

Therefore, to ensure that all those engaged in the project are aware of this commitment, the company commits to the following core principles and minimum standards of behavior that will apply to all company employees, associates, and representatives, including sub-contractors and suppliers, without exception:

General

1. The company—and therefore all employees, associates, representatives, sub-contractors and suppliers—commits to complying with all relevant national laws, rules and regulations.
2. The company commits to full implementing its 'Contractors Environmental and Social Management Plan' (C-ESMP) as approved by the client.
3. The company commits to treating women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status. Acts of GBV are in violation of this commitment.
4. The company shall ensure that interactions with local community members are done with respect and non-discrimination.
5. Demeaning, threatening, harassing, abusive, culturally inappropriate, or sexually provocative language and behavior are prohibited among all company employees, associates, and its representatives, including sub-contractors and suppliers.
6. The company will follow all reasonable work instructions (including regarding environmental and social norms).
7. The company will protect and ensure proper use of property (for example, to prohibit theft, carelessness or waste).

Health and Safety

8. The company will ensure that the project's OHS Management Plan is effectively implemented by company's staff, as well as sub-contractors and suppliers.
9. The company will ensure that all persons on-site wear prescribed and appropriate personal protective equipment, preventing avoidable accidents, and reporting conditions or practices that pose a safety hazard or threaten the environment.
10. The company will:
    i. prohibit the use of alcohol during work activities.
    ii. prohibit the use of narcotics or other substances which can impair faculties at all times.
11. The company will ensure that adequate sanitation facilities are available on site and at any worker accommodations provided to those working on the project.

12. The company will not hire children under the age of 18 for construction work, or allow them on the work site, due to the hazardous nature of construction sites.

Gender Based Violence

13. Acts of GBV constitute gross misconduct and are therefore grounds for sanctions, which may include penalties and/or termination of employment and, if appropriate, referral to the Police for further action.
14. All forms of GBV, are unacceptable, regardless of whether they take place on the work site, the work site surroundings, at worker's camps or within the local community.
15. Sexual harassment of work personnel and staff (e.g. making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature) are acts of GBV and are prohibited.
16. Sexual favors (e.g. making promises of favorable treatment such as promotions, threats of unfavorable treatment such as losing a job, payments in kind or in cash dependent on sexual acts) and any form of humiliating, degrading or exploitative behavior are prohibited.
17. The use of prostitution in any form at any time is strictly prohibited.
18. Sexual contact or activity with children under 18—including through digital media—is prohibited. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
19. Unless there is full consent[1] by all parties involved in the sexual act, sexual interactions between the company's employees (at any level) and members of the communities surrounding the work place are prohibited. This includes relationships involving the withholding/promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex (including prostitution). Such sexual activity is considered "non-consensual" within the scope of this Code.
20. In addition to company sanctions, legal prosecution of those who commit acts of GBV will be pursued if appropriate.
21. All employees, including volunteers and sub-contractors are highly encouraged to report suspected or actual acts of GBV by a fellow worker, whether in the same company or not. Reports must be made in accordance with project's GBV Allegation Procedures.
22. Managers are required to report and act to address suspected or actual acts of GBV as they have a responsibility to uphold company commitments and hold their direct reports responsible.

Implementation

To ensure that the above principles are implemented effectively the company commits to:

23. Ensuring that all managers sign the project's 'Manager's Code of Conduct' detailing their responsibilities for implementing the company's commitments and enforcing the responsibilities in the 'Individual Code of Conduct'.

[1] **Consent:** refers to when an adult makes an informed choice to agree freely and voluntarily to do something. There is **no** consent when agreement is obtained through the use of threats, force or other forms of coercion, abduction, fraud, manipulation, deception, or misrepresentation; the use of a threat to withhold a benefit to which the person is already entitled, or; a promise made to the person to provide a benefit. In accordance with the United Nations Convention on the Rights of the Child, the World Bank considers that consent cannot be given by children under the age of 18, even if national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

24. Ensuring that all employees sign the project's 'Individual Code of Conduct' confirming their agreement to comply with ESHS and OHS standards, and not to engage in activities resulting in GBV, child endangerment or abuse, or sexual harassment.
25. Displaying the Company and Individual Codes of Conduct prominently and in clear view at workers' camps, offices, and in in public areas of the work space. Examples of areas include waiting, rest and lobby areas of sites, canteen areas and health clinics.
26. Ensuring that posted and distributed copies of the Company and Individual Codes of Conduct are translated into the appropriate language of use in the work site areas as well as for any international staff in their native language.
27. Ensuring that an appropriate person is nominated as the company's 'Focal Point' for addressing GBV issues, including representing the company on the GBV Complaints Team (GCT) which is comprised of representatives from the client, contractor(s), the supervision consultant, and local GBV Service Provider.
28. Ensuring that an effective GBV Action Plan is developed in consultation with the GCT which includes as a minimum:
    i. **GBV Allegation Procedure** to report GBV issues through the project Grievance Redress Mechanism (Section 4.3 Action Plan);
    ii. **Accountability Measures** to protect confidentiality of all involved (Section 4.4 Action Plan); and,
    iii. **Response Protocol** applicable to GBV survivors and perpetrators (Section 4.7 Action Plan).
29. Ensuring that the company effectively implements the agreed final GBV Action Plan, providing feedback to the GCT for improvements and updates as appropriate.
30. Ensuring that all employees attend an induction training course prior to commencing work on site to ensure they are familiar with the company's commitments to ESHS and OHS standards, and the project's GBV Codes of Conduct.
31. Ensuring that all employees attend a mandatory training course once a month for the duration of the contract starting from the first induction training prior to commencement of work to reinforce the understanding of the project's ESHS and OHS standards and the GBV Code of Conduct.

I do hereby acknowledge that I have read the foregoing Company Code of Conduct, and on behalf of the company agree to comply with the standards contained therein. I understand my role and responsibilities to support the project's OHS and ESHS standards, and to prevent and respond to GBV. I understand that any action inconsistent with this Company Code of Conduct or failure to act mandated by this Company Code of Conduct may result in disciplinary action.

Company name: _____

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Manager's Code of Conduct
Implementing ESHS and OHS Standards
Preventing Gender Based Violence

The company is committed to ensuring that the project is implemented in such a way which minimizes any negative impacts on the local environment, communities, and its workers. This will be done by respecting the environmental, social, health and safety (ESHS) standards, and ensuring appropriate occupational health and safety (OHS) standards are met. The company is also committed to creating and maintaining an environment where children under the age of 18 will be protected, and where Sexual Exploitation and Abuse (SEA) and sexual harassment have no place. Improper actions towards children, SEA and sexual harassment are acts of Gender Based Violence (GBV) and as such will not be tolerated by any employee, sub-contractors, supplier, associate, or representative of the company.

Managers at all levels have a responsibility to uphold the company's commitment. Managers need to support and promote the implementation of the Company Code of Conduct. To that end, managers must adhere to this Manager's Code of Conduct and also to sign the Individual Code of Conduct. This commits them to supporting the implementation of the Contractor's Environmental and Social Management Plan (C-ESMP), the OHS Management Plan, and developing systems that facilitate the implementation of the GBV Action Plan.

Managers need to maintain a safe workplace, as well as a GBV-free environment at the workplace and in the local community. Their responsibilities to achieve this include but are not limited to:

Implementation

1. To ensure maximum effectiveness of the Company and Individual Codes of Conduct:
    i. Prominently displaying the Company and Individual Codes of Conduct in clear view at workers' camps, offices, and in public areas of the work space. Examples of areas include waiting, rest and lobby areas of sites, canteen areas and health clinics.
    ii. Ensuring all posted and distributed copies of the Company and Individual Codes of Conduct are translated into the appropriate language of use in the work site areas as well as for any international staff in their native language.
2. Verbally and in writing explain the Company and Individual Codes of Conduct to all staff.
3. Ensure that:
    i. All direct reports sign the 'Individual Code of Conduct', including acknowledgment that they have read and agree with the Code of Conduct.
    ii. Staff lists and signed copies of the Individual Code of Conduct are provided to the OHS Manager, the GBV Complaints Team (GCT), and the client.
    iii. Participate in training and ensure that staff also participate as outlined below.
    iv. Put in place a mechanism for staff to:
        (a) report concerns on ESHS or OHS compliance; and,
        (b) confidentially report GBV incidents through the Grievance Redress Mechanism (GRM)
    v. Staff are encouraged to report suspected or actual ESHS, OHS, GBV issues, emphasizing the staff's responsibility to the Company and the country hosting their employment, and emphasizing the respect for confidentiality.
4. In compliance with applicable laws and to the best of your abilities, prevent perpetrators of sexual

exploitation and abuse from being hired, re-hired or deployed. Use background and criminal reference checks for all employees nor ordinarily resident in the country where the works are taking place.

5. Ensure that when engaging in partnership, sub-contractor, supplier or similar agreements, these agreements:
    i. Incorporate the ESHS, OHS, GBV Codes of Conduct as an attachment.
    ii. Include the appropriate language requiring such contracting entities and individuals, and their employees and volunteers, to comply with the Individual Codes of Conduct.
    iii. Expressly state that the failure of those entities or individuals, as appropriate, to ensure compliance with the ESHS and OHS standards, take preventive measures against GBV, to investigate allegations thereof, or to take corrective actions when GBV has occurred, shall not only constitute grounds for sanctions and penalties in accordance with the Individual Codes of Conduct but also termination of agreements to work on or supply the project.
6. Provide support and resources to the GCT to create and disseminate internal sensitization initiatives through the awareness-raising strategy under the GBV Action Plan.
7. Ensure that any GBV complaint warranting Police action is reported to the Police, the client and the World Bank immediately.
8. Report and act in accordance with the agreed response protocol any suspected or actual acts of GBV.
9. Ensure that any major ESHS or OHS incidents are reported to the client and the supervision engineer immediately, non-major issues in accordance with the agreed reporting protocol.
10. Ensure that children under the age of 18 are not present at the construction site, or engaged in any hazardous activities.

Training

11. The managers are responsible to:
    i. Ensure that the OHS Management Plan is implemented, with suitable training required for all staff, including sub-contractors and suppliers; and,
    ii. Ensure that staff have a suitable understanding of the C-ESMP and are trained as appropriate to implement the C-ESMP requirements.
12. All managers are required to attend an induction manager training course prior to commencing work on site to ensure that they are familiar with their roles and responsibilities in upholding the GBV elements of these Codes of Conduct. This training will be separate from the induction training course required of all employees and will provide managers with the necessary understanding and technical support needed to begin to develop the GBV Action Plan for addressing GBV issues.
13. Managers are required to attend and assist with the project facilitated monthly training courses for all employees. Managers will be required to introduce the trainings and announce the self-evaluations, including collecting satisfaction surveys to evaluate training experiences and provide advice on improving the effectiveness of training.
14. Ensure that time is provided during work hours and that staff prior to commencing work on site attend the mandatory project facilitated induction training on:
    i. OHS and ESHS; and,
    ii. GBV required of all employees.
15. During civil works, ensure that staff attend ongoing OHS and ESHS training, as well as the monthly mandatory refresher training course required of all employees to on GBV.

Response

16. Managers will be required to take appropriate actions to address any ESHS or OHS incidents.
17. Regarding GBV:
    i. Provide input to the GBV Allegation Procedures and Response Protocol developed by the GCT as part of the final cleared GBV Action Plan.

ii. Once adopted by the Company, managers will uphold the Accountability Measures set forth in the GBV Action Plan to maintain the confidentiality of all employees who report or (allegedly) perpetrate incidences of GBV (unless a breach of confidentiality is required to protect persons or property from serious harm or where required by law).
iii. If a manager develops concerns or suspicions regarding any form of GBV by one of his/her direct reports, or by an employee working for another contractor on the same work site, s/he is required to report the case using the GRM.
iv. Once a sanction has been determined, the relevant manager(s) is/are expected to be personally responsible for ensuring that the measure is effectively enforced, within a maximum timeframe of 14 days from the date on which the decision to sanction was made by the GCT.
v. If a Manager has a conflict of interest due to personal or familial relationships with the survivor and/or perpetrator, he/she must notify the Company and the GCT. The Company will be required to appoint another manager without a conflict of interest to respond to complaints.
vi. Ensure that any GBV issue warranting Police action is reported to the Police, the client and the World Bank immediately

18. Managers failing address ESHS or OHS incidents, or failing to report or comply with the GBV provisions may be subject to disciplinary measures, to be determined and enacted by the cCmpany's CEO, Managing Director or equivalent highest-ranking manager. Those measures may include:
    i. Informal warning.
    ii. Formal warning.
    iii. Additional Training.
    iv. Loss of up to one week's salary.
    v. Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
    vi. Termination of employment.
19. Ultimately, failure to effectively respond to ESHS, OHS, and GBV cases on the work site by the company's managers or CEO may provide grounds for legal actions by authorities.

I do hereby acknowledge that I have read the foregoing Manager's Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to ESHS, OHS, and GBV requirements. I understand that any action inconsistent with this Manager's Code of Conduct or failure to act mandated by this Manager's Code of Conduct may result in disciplinary action.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Individual Code of Conduct
Implementing ESHS and OHS Standards
Preventing Gender Based Violence

I, _____, acknowledge that adhering to environmental, social, health and safety (ESHS) standards, following the project's occupational health and safety (OHS) requirements, and preventing Gender Based Violence (GBV) is important.

The Company considers that failure to follow ESHS and OHS standards, or to partake in activities constituting GBV—be it on the work site, the work site surroundings, at workers' camps, or the surrounding communities—constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. Prosecution by the Police of those who commit GBV may be pursued if appropriate.

I agree that while working on the project I will:

1. Consent to Police background check.
2. Attend and actively partake in training courses related to ESHS, OHS, and GBV as requested by my employer.
3. Will wear my personal protective equipment (PPE) at all times when at the work site or engaged in project related activities.
4. Take all practical steps to implement the contractor's environmental and social management plan (C-ESMP).
5. Implement the OHS Management Plan.
6. Adhere to a zero-alcohol policy during work activities, and refrain from the use of narcotics or other substances which can impair faculties at all times.
7. Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.
8. Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
9. Not sexually exploit or abuse project beneficiaries and members of the surrounding communities.
10. Not engage in sexual harassment of work personnel and staff ―for instance, making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature is prohibited. E.g. looking somebody up and down; kissing, howling or smacking sounds; hanging around somebody; whistling and catcalls; in some instances, giving personal gifts.
11. Not engage in sexual favors —for instance, making promises of favorable treatment (e.g. promotion), threats of unfavorable treatment (e.g. loss of job) or payments in kind or in cash, dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.
12. Not use prostitution in any form at any time.
13. Not participate in sexual contact or activity with children under the age of 18—including grooming, or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
14. Unless there is the full consent[1] by all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or

[1] **Consent** is defined as the informed choice underlying an individual's free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained using threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the World Bank considers that

promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex (including prostitution). Such sexual activity is considered "non-consensual" within the scope of this Code.

15. Consider reporting through the GRM or to my manager any suspected or actual GBV by a fellow worker, whether employed by my company or not, or any breaches of this Code of Conduct.

With regard to children under the age of 18:

16. Bring to the attention of my manager the presence of any children on the construction site or engaged in hazardous activities.
17. Wherever possible, ensure that another adult is present when working in the proximity of children.
18. Not invite unaccompanied children unrelated to my family into my home, unless they are at immediate risk of injury or in physical danger.
19. Not use any computers, mobile phones, video and digital cameras or any other medium to exploit or harass children or to access child pornography (see also "Use of children's images for work related purposes" below).
20. Refrain from physical punishment or discipline of children.
21. Refrain from hiring children for domestic or other labor below the minimum age of 14 unless national law specifies a higher age, or which places them at significant risk of injury.
22. Comply with all relevant local legislation, including labor laws in relation to child labor and World Bank's safeguard policies on child labor and minimum age.
23. Take appropriate caution when photographing or filming children (See Annex 2 for details).

Use of children's images for work related purposes

When photographing or filming a child for work related purposes, I must:

24. Before photographing or filming a child, assess and endeavor to comply with local traditions or restrictions for reproducing personal images.
25. Before photographing or filming a child, obtain informed consent from the child and a parent or guardian of the child. As part of this I must explain how the photograph or film will be used.
26. Ensure photographs, films, videos and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner. Children should be adequately clothed and not in poses that could be seen as sexually suggestive.
27. Ensure images are honest representations of the context and the facts.
28. Ensure file labels do not reveal identifying information about a child when sending images electronically.

Sanctions

I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary action which could include:

1. Informal warning.
2. Formal warning.
3. Additional Training.
4. Loss of up to one week's salary.

consent cannot be given by children under the age of 18, even if national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

5. Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
6. Termination of employment.
7. Report to the Police if warranted.

I understand that it is my responsibility to ensure that the environmental, social, health and safety standards are met. That I will adhere to the occupational health and safety management plan. That I will avoid actions or behaviors that could be construed as GBV. Any such actions will be a breach this Individual Code of Conduct. I do hereby acknowledge that I have read the foregoing Individual Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to ESHS, OHS, GBV issues. I understand that any action inconsistent with this Individual Code of Conduct or failure to act mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Appendix 11 List of stakeholders consulted

Institution	Name	Designation	Contact
EPA	Inaya Abdul Raheem	Civil & Structural Engineer	inaya.abdulraheem@epa.gov.mv
MNPHI/ Landuse planning dept)	Nihaaza Anees		nihaaza.anees@planning.gov.mv
MLSA	Fathimath Shanna	Director / Land department	fathimath.shanna@mlsa.gov.mv
M. Kolhufushi Island Council	Hussein Shamil,	President of the Council	6720606
	Jaufar Moosa,	Vice President	
	Hassan Nafiz	Director	9114489
FENAKA Corporation Ltd	Hassan Ibrahim,	Assistant Manager, Kolhufushi FENAKA branch	9556514
MNDF	Warrant Officer Grade 1	Ahmed Hassan	7795838
	Warrant Officer Grade 1	Farooq Ismail	9884399
	Staff Sergeant	Mohamed Ashraf	7776098

Meeting with Kolhufushi Council_Discussion on Environment and Social Management Plan prepared for establishment of IWRMC at Kolhufushi

-Meeting Minutes-

Mode: Virtual (Google Meet)
Date & Time: 05th April 2021 (Monday)

Meeting Participants

MCEP

1. Mr. Ahmed Nizam, Project Manager
2. Mr. Ahmed Hassaan Zuhair, Environmental and Social Safeguards Specialist
3. Mr. Ibrahim Rishad, Project Coordinator
4. Mr.Eyman Ismail, Assistant Project Coordinator
5. Ms. Aishath Ajfaan Jawaadh, Assistant Project Coordinator

LaMer

1. Mr. Ismail Abid, Managing Director
2. Ms. Shahaama Abdul Sattar, Co-Team Leader

Kolhufushi Council

1. Mr. Hassan Nafiz, Director
2. Mr. Hussain Shamil, Council President

Meeting Purpose

- Meeting with Kolhufushi Council was held to discuss regarding the components in environment and social management plan developed for Kolhufushi Waste and Resource Management Centre.

Meeting Proceedings

Replantation Program

- As the island is heavily vegetated and there is no available land for replantation of the trees that will be removed from IWRMC at Kolhufushi, an alternative option has to be adopted to meet the requirements of the regulation.
- In regard to the discussion held with Kudahuvadhoo Council, Council President Mr. Sham has shown interest to carry out a replantation program in collaboration with Kolhufushi Council. However, Mr. Nizam notified that it will the decision of Kolhufushi Council, either it can be sold to an interested party in line with the requirements of the EPA and the local regulations or can collaborate with an interested island for replantation.

- Mr. Shamil added that the palm trees at the location are too matured for replantation, however, the young palm trees in the site that be used for replantation. And further informed that Council plans to outsource this work to an interested party, however, it depends on the amount of trees removed from the site.

Access road to IWRMC

- The access road with the minimum distance will be included in the ESMP, the Council is under the impression that access road development is in the scope of the project, Mr. Nizam clarified that access road development is not included in the scope of the project.
- Although road development is not included in the project, Council President requested to include the removal of trees within 10 feet boundary of the centre and informed that works to obtain approval for access road development is in progress and funds will be allocated by the Council for road development.
- Mr. Abid updated that the details of vegetation provided by the council (including the 10 feet boundary) is included in the ESMP along with the mapping of vegetation carried out by the Consultants.
- In response to Council's request, Mr. Nizam decided to facilitate the Council by including clearance of vegetation within 10 feet boundary in the scope of the project.

Materials for backfilling

- Approval received from Ministry of National Planning, Housing and Infrastructure to acquire materials removed from the planned coastal project in the island for the backfilling of IWRMC site. However, the timelines of both projects are conflicting as the coastal project is planned for the final quarter of the year.
- Council informed that they are in the process of acquiring approval from Environment Protection Agency (EPA) to obtain backfilling material required for the planned housing project and thus backfilling material can be obtained for this project simultaneously rather than relying on the coastal project.
- Mr. Nizam recommended to consider both alternatives; however, acquiring materials from coastal project is more favorable as the approval is already received and only the alignment of project timelines is required.

Meeting agreements

- Collaborating with Kudahuvadhoo Council for replantation program and assistance will be provided by the project in transporting the trees.

- Clearance of vegetation within 10 feet boundary of the center to be included in the scope of the project.
- Aligning establishment of IWRMC project with the coastal project to obtain backfill materials.

Meeting with Kudahuvadhoo Council regarding land allocation of Temporary Waste Management Site

-Meeting Minutes-

Mode: Virtual (Google Meet)
Date & Time: 04th April 2021 (Sunday)

Meeting Participants

MCEP

1. Mr. Ahmed Nizam, Project Manager
2. Mr. Ahmed Hassaan Zuhair, Environmental and Social Safeguards Specialist
3. Mr. Ibrahim Rishad, Project Coordinator

LaMer

1. Mr. Ismail Abid, Managing Director
2. Ms. Shahaama Abdul Sattar, Co-Team Leader
3. Ms. Aishath Abdulla, Social Assessment Expert

Kudahuvadhoo Council

1. Mr. Ahmed Sham, Council President

Meeting Purpose

- Meeting with Kudahuvadhoo Council was held to discuss regarding allocation of temporary waste management site.

Meeting Proceedings

Introduction

- Allocation of temporary waste management site is required to manage waste during the upgradation of waste management center at Dh. Kudahuvadhoo. During the consultation held by the Environment Consultants (LAMER) for the preparation of ESMP report, Council members were not in favor of allocating a separate site for waste management and recommends to use the existing center throughout the construction phase. Therefore, this meeting was held to discuss this further and come to an agreement on temporary waste management site.

Discussion

- Project team highlighted on the importance and need to allocate a temporary site to manage the incoming waste during the upgradation of the center. Due to the safeguard requirements of World Bank, it is important to ensure workplace safety during construction phase. Nevertheless, if the waste is managed in the center without compromising the health and safety of the workers (for instance without open burning), then it would not be a problem to manage waste in the center.
- Mr. Abid added that the waste accumulated in the center occupies majority of the area planned for upgradation thus it will not be possible to start the construction work without the removal of existing waste.
- In regard to this, Mr. Nizam added that cleanup of waste accumulated in the island is planned under the program carried out by WAMCO and PO, however it is schedule for August 2021 which doesn't coincide with project timeline. Thus, project team will request to move up the schedule to ease the upgradation works of the center.
- Council President, Mr. Sham agreed to allocate a temporary location near the center for waste management once the contractor mobilizes to the island. However, the concern of the council is the removal of waste from temporary location and thus requested for an assurance of waste clearance after the works of IWRMC is completed. Furthermore, Mr. Sham noted that waste can be properly managed within the center if the incinerator was operational and added that he was notified that cleanup of waste accumulated in the island will be carried out within few days.
- Mr. Nizam assured that Ministry will provide assistance in removing the waste from temporary location and will send formal correspondence to Council in regard to this.
- Upon the query on the possibility of replanting the trees to be removed from M. Kolhufushi IWRMC site, Mr. Sham showed interest to collaborate with Kolhufushi Council to carry out the replantation program.

Meeting agreements

- Allocation of temporary waste management site by Island Council.
- Formal correspondence will be sent to Council to request for allocation of temporary site.

بسم الله الرحمن الرحيم

Ministry of Environment
Male', Republic of Maldives.

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މާލެ، ދިވެހިރާއްޖެ.

ނަންބަރު: 438-WMPC/381/2021/2

ނިލަންދެއަތޮޅު ދެކުނުބުރީ ކުޑަހުވަދޫ ކައުންސިލްގެ ރައީސް އަލްފާޟިލް އަޙްމަދު ޝާފަރު،

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ދ. ކުޑަހުވަދޫގައި މިމިނިސްޓްރީން ކުރިއަށް ގެންދިއުމަށް ހަމަޖެހިފައިވާ އެރަށުގެ ކުނޑާއި ވަސީލަތްތައް މެނޭޖްކުރާ މަރުކަޒު ޤާއިމުކުރުމުގެ މަޝްރޫޢުގެ ދަށުން ނަގަންޖެހޭ ރުއްގަހުގެ ބަދަލުގައި "ރުއްގަސް ކަނޑާލުމާއި، އުފުރާލުމާއި، ކޮނުގަން ނަގުލާއި އަދި އެއްތަނުން އަނެއްތަނަށް ގެންދިއުމުގައި ގެންގުޅެންވީ އުސޫލު" ގެ ދަށުން އިސްތިސްނާ ރުއްގަސް އިންދަން ޖާގަ ކުޑަހުވަދޫގެ ހިއްކި ބިމުން ހަމަޖެއްސޭނެގޮތަކަށް ހަވާލުކުރުމާ ބައްދަލުވުމުގައި ތިޔަ ކައުންސިލުން ވަނީ ފާހަގަކުރައްވާފައެވެ. މިގޮތުން ކުޑަހުވަދޫގެ ބޯނިން ދޫރު ބުރުޖުގައި ވިލު ސަރަހައްދުތަކުގެ ގޮތުގައި ކަނޑައެޅިފައިވާ ބައެއް ސަރަހައްދުތަކާއި މިބިންތަކުގެ ނިސްބަތުން ކަމަށާއި އަދި ކުޑަހުވަދޫ ކައުންސިލާއި ގުޅިގެން ރުއްގަސް އިންދުމުގެ ޕްރޮގްރާމް ކުރިއަށް ގެންދިއުމުގެ ސަރުކާރުގެ ސިޔާސަތު ތިޔަ ކައުންސިލުން ވަނީ ފާހަގަކުރައްވާފައެވެ، ވީމާ އަވަސް ފުރުޞަތެއްގައި ޖަވާބުން މިކަން މިމިނިސްޓްރީއަށް އަންގަވައިދެއްވުން އެދެމެވެ.

މިފަދަ ގޮތަކުން މިމަސައްކަތް ހަވާލުކުރުމަށް ކުޑަހުވަދޫގެ ކޮމިޓީ ނަރަހަކުރުވާ ބަދަލުގެ ގޮތުގައި ރުއްގަސް އިންދަން ހުސް ޖާގަ އެރަށުގައި ނެތުމަކުން އެކައުންސިލުގެ އިތުރުން ތިލަފުށީގެ މަޝްރޫޢު ފޯރުކޮށް މަސައްކަތްތަކުގެ ހުރިހާ ކުރިއަށްގެންދާ ކޮންސަލްޓަންޓުގެ ފަރާތުން ހަވާލުކުރައްވާފައިވާތީއެވެ. އަދި އިސްވެ ދެންނެވުނު މަޝްރޫޢުގެ އަމަލީ މަސައްކަތް ފެށުމަށް ރޭވިފައިވަނީ މިއަހަރުގެ 4 ވަނަ ކުއާޓަރުގެ ތެރޭގައިކަމާއި އަދި ރުއްގަސް އިންދުމުގެ ޕްރޮގްރާމް ކުރިއަށް

ގެންދިއުމަށްޓަކައި ދެކައުންސިލު ގުޅުވައިދީ މިކަން ފަހިކޮށްދިނުމުގައި މެދުވެރިއްގެ ދައުރު މިމިނިސްޓްރީން އަދާކުރާނެ ކަމަށްވެސް ތިޔަ ކައުންސިލުގެ މަޢުލޫމާތަށްޓަކައި ދަންނަވަމެވެ.

ކުނި މެނޭޖްކުރުމުގެ ކަންކަމުގައި ތިޔަ ކައުންސިލުން މިނިސްޓްރީއަށް ދެއްވަވަމުން ގެންދަވާ އެހީތެރިކަމާއި އެއްބާރުލުމަށް މިފުރުޞަތުގައި ނިހާޔަތަށް ޝުކުރުދަންނަވަމެވެ.

އިޙްތިރާމް ގަބޫލުކުރައްވުން އެދެމެވެ.

24 ޝަޢުބާން 1442ހ.

06 އޭޕްރީލް 2021މ.

ޚާދިމުކުމް

އަޙްމަދު މުރުތަޟާ

ޑިރެކްޓަރ ޖެނެރަލް

ނިލަންދޫއަތޮޅު ދެކުނުބުރީ ކުޑަހުވަދޫ ކައުންސިލުގެ އިދާރާ،

ދ. ކުޑަހުވަދޫ، ދިވެހިރާއްޖެ.

Green Building, Handhuvaree Hingun,
Maafannu, Male', 20392, Republic of Maldives.

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މާފަންނު، މާލެ، 20392، ދިވެހިރާއްޖެ.

secretariat@environment.gov.mv
www.twitter.com/MoEnvmv
www.facebook.com/environment.gov.mv

بسم الله الرحمن الرحيم

سِرِجَسْتْمَدَهْوَدْ مُدَاسْرَهْبِرِ نَاءَسْوَهْدْ سَاهْسْتِسْوْدُ مِدْمَّبَرْ

Secretariat of the Kudahuvadhoo Council, South Nilandheatholhu

Dh.Kudahuvadhoo

Republic of Maldives

ދ.ކުޅަހުވަދޫ

ދިވެހިރާއްޖެ،

No:C-381/ 438 /2021/04 :ނަންބަރ

ފާހަގަ: ތިލަ ތަކުގެ ކުރިން ކަމަކާ ބެހޭ ކަންކަން ކުރުމަށް ކައުންސިލް ގެ ގާނޫނީ ބާރު ނެތް
ކަމުގައި ހަމަ ކަށަވަރު ކުރަން.

ތިލަ ތިއްބެވި 438-WMPC/381/2021/2 (06 ނޮވެމްބަރ 2021) ވ ގެ ގ
ންވ ގަ ކައުންސިލް ގެ ގާނޫނީ ބާރު ދަށުގައި ކަންކަން ކުރުމަށް ކައުންސިލް ގެ ކޮމިޓީ ތަކުގެ ކުރިން ކަމަކާ ބެހޭ ކަންކަން ކުރުމަށް ކައުންސިލް ގެ ގާނޫނީ ބާރު ނެތް ކަމުގައި ހަމަ ކަށަވަރު ކުރަން.

ތިލަ ތިއްބެވި ކަންކަމުގެ ތަފްޞީލު ތިރީގައި ދެކެވޭ ގޮތަށް ކައުންސިލް ގެ ކޮމިޓީ ތަކުގެ ކުރިން ކަމަކާ ބެހޭ ކަންކަން ކުރުމަށް ކައުންސިލް ގެ ގާނޫނީ ބާރު ނެތް ކަމުގައި ހަމަ ކަށަވަރު ކުރަން.

1442 ހަބަރު 02

2021 ނޮވެމްބަރ 14

ކ.ކުޅަހުވަދޫ

ކައުންސިލް ސްޓާފް

ކ.ކުޅަހުވަދޫ ދާއިރާ

ދިވެހިރާއްޖެ
ދ.ކ / ދިވެހިރާއްޖެ

E-mail: info@kudahuvadhoo·gov·mv ފޯނު:6760667 ފެކްސް:6760522

Appendix 12 Copies of emails sent to HPA regarding consultation meeting

LAMER

Shahaama Abdul Sattar <shahaama.abdulsattar@lamer.com.mv>

Formulation of ESMP for establishment or upgrading of IWRMC in Zone 4 and 5

Shahaama Abdul Sattar <shahaama.abdulsattar@lamer.com.mv> Wed, Jan 20, 2021 at 10:17 AM
To: shiyana@health.gov.mv

Dear Shiyana,

Please find below, mail sent on 9th Jan, requesting for a consultation meeting regarding the formulation of the Environmental and Social Management Plan for the establishment or upgrading of Island Waste Management and Resource Management centres in Zone IV (Meemu, Faafu Dhaalu) and Zone V (Thaa, Laamu). Would appreciate it if a consultation could be arranged at the earliest.

Thank you

Best Wishes,

Shahaama Abdul Sattar

Environmental Consultant

LAMER

LAMER Group Pvt. Ltd.

Azum(4th Floor), Ameenee Magu, Henveiru, Male' 20054, Maldives

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---------- Forwarded message ---------
From: **Shahaama Abdul Sattar** <shahaama.abdulsattar@lamer.com.mv>
Date: Sat, Jan 9, 2021 at 5:38 PM
Subject: Formulation of ESMP for establishment or upgrading of IWRMC in Zone 4 and 5
To: <hpa@health.gov.mv>
Cc: Ismail Abid <ismail.abid@lamer.com.mv>, Hussein Zahir <hussein.zahir@lamer.com.mv>, Aisha Abdulla <aishath.abdulla@lamer.com.mv>

Dear Sir / Madam

LaMer has been awarded the work to carry out environmental and social assessments for the establishment or upgrading of Island Waste Management and Resource Management centres in Zone IV (Meemu, Faafu Dhaalu) and Zone V (Thaa, Laamu) by the Ministry of Environment (Letter from ME atttached for your information).

As a part of the formulation of the Environmental and Social Management Plans for these projects, we would like to consult with you regarding the three components as below (with specific emphasis on on COVID19 health and safety requirements):

1. Piloting Anaerobic Digestion (AD) and Upgrading of the Existing IWRMC of L. Fonadhoo, Dh. Kudahuvadhoo, M. Muli and F. Nilandhoo
2. Upgrading of IWRMC at Th. Vandhoo with Aerobic Technology using Composting Machine
3. Construction of an Island Waste Management Centre with Aerobic Technology using Composting Machine at six islands (Dh. Maaenboodhoo, L. Dhanbidhoo, L. Gan, M. Kolhufushi, Th. Hirilandhoo, Th. Guraidhoo).

I have attached the project briefs and site plans for the three components. for your information. Would appreciate it if you could inform us of a time for an online consultation regarding this project.

Looking forward to an early reply.

Best Wishes,

Shahaama Abdul Sattar

Environmental Consultant

LAMER

LAMER Group Pvt. Ltd.

Azum(4th Floor), Ameenee Magu, Henveiru, Male' 20054, Maldives

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4 attachments

- **Project brief - Piloting Anaerobic digestion and upgrade of 4 existing IWRMC.pdf**
  1551K
- **Project brief - Aerobic digestion and mechanical composting in Th. Vandhoo IWRMC.pdf**
  1357K
- **Project brief - Aerobic digestion and mechanical composting new IWRMC.pdf**
  2394K
- **Letter of Award from ME.pdf**
  54K

Appendix 13 Copy of Household survey form

ފާސް 4 ތަނ 5 ގެ ތަކުރީބަށް ކައިރި ކައިރީގައި (ތަނދިގެ ފާސް ދަށުގައި ހުންނަ) ގާތްކަމުގެ ދަށުން ތަކުރީބު ކުރާ ތަކުރީބުގެ ދަށުން ތަކުރީބުކުރާ ތަނަށް ބަދަލުކުރުމަށް ތަކުރީބުވާ ތަނަށް ކުރާ ކަންކަމުގެ ލިސްޓެއް

ބަލައިގަންނަ ފަރާތް: _____

ތ ާ ކ ު ރ ީ ބ ު ވ ާ ތ ަ ނ ަ ށ ް ބ ަ ދ ަ ލ ު ކ ު ރ ު (ތ ަ ނ ދ ި ގ ެ ف ާ ސ ް ދ ަ ށ ު ގ ަ ށ ް) (ف ާ ސ ް 4 ތ ަ ނ 5) (ف ާ ސ ް) (ف ާ ސ ް) (ف ާ ސ ް

8. ކުދި ކޮދި ނުވަތަ ކުދި ފޮތްތަކާ މަދުރަސާގެ ހަމައަށް ކުދި ގެންދަނީ ކިހިނެއް؟

- އަމިއްލައަށް
- ކައުންސިލަރ ނުވަތަ އެހެން ފަރާތަކުން މީ ދައްކައިގެން

9. ކުދި އުމުރަން ތަރުގެ ކައުންސިލިން ނުވަތަ އެހެން ފަރާތަކުން ފިޔަވަޅުއަޅާނަމަ، މިކަމަށް ނަގާ ފީއެއް ގޮތް ދެކޭ ގޮތް ކޮބާ؟

- ހިތްހަމަޖެހޭ
- ހިތްހަމަ ނުޖެހޭ (ފީގެ ގޮތުގައި ކަނޑައަޅަން ފެންނަ އަދަދު ބަޔާން ކުރޭ ________________)
- ފީ އެއް ނުނަގާ

10. ކުދި ކޮދި ނުވަތަ ކުދި މަސައްކަތްކުރާ މަދުރަސާ މިހާރު ހުރި ސަރަހައްދާއި ދުރުކަން ކިހިނެއް؟

- ހިތްހަމަޖެހޭ
- ހިތްހަމަ ނުޖެހޭ (ސަބަބު:____)

11. މިހާރު ހުރި ކުދި ކޮދި ނުވަތަ ކުދި މަސައްކަތްކުރާ މަދުރަސާގެ ބޭނުންތެރިކަމުގެ ހިސާބަކީ ކޮބާ؟

- ކުޑަ
- ރަނގަޅު
- ބޮޑު

12. ކުދި މަސައްކަތްކުރާ މަދުރަސާ ގާތުގައި ކުރާއިރު ނުވަތަ މިހާރު ހުރި މަދުރަސާ މަރާމާތު ކުރާއިރު ކައިރި ގޮތްތަކަށް ހުށަހަޅާނެ ކަމަށް ލަފާކުރާ އަސަރުތަކަކީ ކޮބާ؟

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13. މި އަސަރުތަކުން ކުޑަކުރުމަށް ކުރަންވީ ކަންކަން ފާހަގަކޮށްދޭ (ތިރީގައިވާ ލިސްޓުން ނުވަތަ އެހެނިހެން ކަންކަންވެސް ފާހަގަ ކުރެވިދާނެ)

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ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Establishment of Island Waste Resource Management Centre with Aerobic technology using Composting machine at Kolhufushi, Meemu Atoll

Supplementary Report

Report Prepared by LAMER Group Pvt Ltd
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Aishath Abdulla
Shahaama A Sattar
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April 2021

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Environmental and Social Management Plan for the establishment of IWRMCs with Aerobic Technology using Composting Machine at Kolhufushi, Meemu Atoll

Location: Kolhufushi, Meemu Atoll

Supplementary Report

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Azim Musthag

Proponent: Ministry of Environment

May 2021

1 Revisions made to the ESMP based on comments from World Bank

The first version of the ESMP was submitted to World Bank for review and based on comments received, following revisions have been made to the ESMP. This document will serve as a Supplementary report to the ESMP and should be reviewed in parallel to the ESMP, as certain revisions have been made as revisions to the whole chapter. Table 1 below gives a response matrix showing comments made by World Bank and feedback from Consultant. The matrix also identifies relevant chapters and sections of the report where revisions have been made to address the comments made by World Bank. Comments made towards the Mitigation matrix have not been identified separately in the response matrix, as the whole matrix has been revised and is included in this Supplementary document.

Table 1. Response matrix with comments from World Bank and feedback from Consultant.

Comment from World Bank	Feedback from Consultant
With reference to clearance of Access roads to IWRMC (Page 5-58), which the Island Council has stated they will undertake and have finances for, WB has stated as follows "As this is a linked activity it is important to ensure SG are followed here. This will be subject to bank clearance also so any pre SG work should be checked with CEA"	As identified in the report (Page 5-58) clearing of the access road is not part of the scope of current project. During the consultation with the Island Council, they have informed that access road clearance will be undertaken by the Island Council prior to project commencement and they also have the finances required for the work. If the formulation of an EIA is required for the work (due to the high number of coconut palms which would need to be cleared), the Council has stated that they will also carry out this work through their own funding and this has no bearing on current project or project funds. Compensation for owners of palm trees will also be arranged by the Council.
In reference to Compensation of owners of palms/trees to be removed (Page 5-59), WB has stated the following "Pls include statement mentioning that no tree will be cut until compensation is paid a) for the trees within the IWRMC and b) also for trees in the road – (as it has been stated that road clearance is a linked activity and will be subject to the same SG measures)	A statement to this effect has been included in the revised ESMP mitigation matrix, which has been included in this Supplementary report. However, as the removal of trees and compensation of owners of trees along the access road is not within the scope of this project, the Consultant can only identify this as mitigation measure for removal of palms/trees within the project site.
In reference to the marshland on the southeastern side of the island (Page 5-60: Protected areas and Environmentally Sensitive sites), WB has stated "While this is not a PA the site is a sensitive ecosystem that helps with managing ground water and also water retention. As there has been previous dumping, a recommendation here should be to clear out this area and also ensure that there	Although not within the project scope, a recommendation has been made to this effect in the Conclusion chapter (revised Conclusion chapter given in this Supplementary Report)

is signage to prevent future dumping in the Marsh area."	
With respect to Impacts due to vegetation clearance and lack of space to replant/transplant palms (Page 6-68), WB has stated "This is an issue, if the palm trees cannot be re planted due to lack of land, what does the island council propose as mitigation. Can the community be supplied with fruit trees or other trees of economic value that can be planted as part of home gardening, school gardening or public space greening initiatives. We would like to see a final solution in the plan as no compensation is not an option in like with the Bank Safeguards. Do suggest options in discussion with IC and the bank team can help".	Mitigation in such instances is through replantation or transplantation of the palms/trees cut down from the island, on another island, where this can be implemented. As identified in the ESMP mitigation matrix in the report, this will be undertaken at Kudahuvadhoo and communications to this effect have already been undertaken with the Island Councils of Kolhufushi and Kudahuvadhoo. Meeting minutes and evidence of these communications are given in Appendix 11 of the ESMP.
Adherence to Covid guidelines with regard to labor influx in line with National Requirements and Bank requirements should be elaborated in the ESMP, age restrictions and labor working conditions in line with the bank guidance should be referred to	Legislation and Guidelines of relevance have been included in Chapter 3 (Legislative and Regulatory considerations) of the ESMP
The ESMP should be reviewed closely with the guidance ESMP done and where missing more specific and detailed measures should be indicated to make it clearer to contractors. PCR Chance find measures should be included as norm, missing section on GBV and SE, suggest having a specific section on covid-19 and pandemic management.	The mitigation matrix already includes measures to ensure that workforce and contractors abide by guidelines in place for pandemic management. Table has been revised with mitigation measures for incidents of Gender-based Violence being added
As a mitigation measure for coastal erosion, WB proposes the following "Is there potential to look at a more bioengineering coastal protection, such as a combination of replanting, choir logging etc. The Bank team can share guidance on this if there is willingness from the team and IC to pilot"	This cannot be included in the mitigation matrix, as the work entailed is not part of the scope of the project. Furthermore, there is an adequate buffer (about 100m) between the IWRMC and the coastal vegetation line at the southwestern side which would mitigate erosion impacts. There is also approximately the same distance on the eastern side (to the inner edge of breached marshland area). A Coastal protection project, which involves construction of 2 detached breakwater structures of lengths 384m and 122m on the SE side of the island and construction of revetments and breakwater structures on the northern side of the island is planned and currently in the EIA approval stage. The work also involves creation of two swimming areas involving lagoon deepening. The proponent of the project is the Ministry of National Planning,

	Housing and Infrastructure and the work is planned to commence during Q4 of 2021.
Project should try its best to involve the women of the island, as its seem hardly any segregation or collection takes place in the Island	This is already addressed in the Gender Action Plan for the project given in Table 18 (Page 11-113) of the ESMP report.
With respect to loss of temporary waste collection site on the island (page 12-108) WB states that "lack of land in the western side and also from the southern side has been highlighted by Island councils and even in the survey lack of space for waste disposal has been identified. Lack of land to temporary dispose garbage seems to be a serious issue. Pls clarify how this issue will be resolved".	This issue was earlier raised and the proponent has stated as follow "Since the proposed project is for establishing a new IWMRC in a completely new site in an untouched land, temporarily waste disposal sites are not required to be identified through the scope of this project as per the TOR issued. The issue referred to by the IC in the stakeholder consultations is in relation to the coastal project, which is another proposed project in the island planned by the Ministry of National Planning Housing and Infrastructure (MNPHI), where it seems that one of the existing dumping sites at the western side of the island will be lost as a direct result of the coastal project. Therefore, this is something that has to be compensated for by the proponent of the coastal project, and shall be addressed through the corresponding EIA of the coastal project, since it does not qualify even as an indirect or cumulative impact of the IWRMC project." The proponent has discussed and agreed with MNPHI to sequence coastal project and IWRMC project to commence at or about the same time (Q4 of 2021), in relation to acquiring the backfill material and also to mitigate the duration at which the dumpsite at western side will not be available to use. The IWRMC project is envisioned to be completed with 4 – 6 months. After the completion of the project and operations of the centre, there will not be a need to use the dumpsites and these will be closed via evacuation method
Due to the absence of a waste collection system at present, WB states that "Island Council should have plans to implement a waste collection system"	Once the IWRMC is operational, the Council will be required to formulate a plan for waste collection and disposal, in addition to the Regulation at the island level. Waste collection and disposal would then be undertaken as per this plan.

2 Mitigation Plan (Revised Chapter 8 of the ESMP)

Environmental impacts that are associated with the project, both during construction and operational phase and which have been identified as significant impacts are discussed in this chapter. These are discussed in the context of various components of the project; evaluation of baseline environmental conditions at the project impact area and vicinity; concerns raised by the stakeholders through consultations and review of the literature of similar projects and experience of the EIA Consultant.

There are a number of actions that can be taken to minimize or avoid impacts altogether. Mitigation measures are selected to reduce or minimise the severity of any predicted adverse environmental effect and improve the overall environmental performance and acceptability (lower environmental damage) of the project from the perspective of construction and operation.

Mitigation measures are discussed for the construction and operational phase of the project with respect to various components and their likely impacts on physical, biological (within the project area), and social and economic environment (health, culture and economy). Impacts due to the project based on the assessment principles followed are foreseen as low negative to highly positive. In order to further minimise potential negative impacts, mitigation measures have been discussed below (Table 2).

Table 2. Mitigation measures proposed for the project (ESMP matrix) (Updated Table 10 of the ESMP)

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
Detailed design and Planning Phase	Improper functioning of the waste management facility and associated environmental impacts due to improper design	• Ensure detailed design takes into account details of the proposed layouts and all designs are as per specifications required, taking into account the environmental components that may be affected.	Proponent	NA	NA	
	Noise pollution	• Ensure that the site selection sets a minimum distance of 60m from residential and public areas	Island council MLSA Proponent	NA	NA	Already approved site
	Coastal erosion due to the proximity of the facility to the shoreline	• Vegetation buffer of 20m maintained between IWRMC boundary extent and high tideline.	Island council MLSA Proponent	NA	NA	
Pre-construction Phase	Impact on marine and terrestrial environment during handling and transport of construction materials	• Material should be sourced from the closest point or should be brought in bulk and transported to the island. • Detailed BOQ shall be made and should be followed to reduce the waste and to reduce the number of trips	Contractor (implementation) Proponent (supervision)	N/A	N/A	

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		made to the island to provide the resources • Ensure all materials being transferred are packed properly with no loose materials • Monitor oil spills and maintain machinery				
	Impact on environment due to improper storage	• Storage areas for construction materials should have an impermeable surface and should be covered • Materials should be stored in appropriate containers • Area should be regularly monitored for any leaks • Storage facility should be setup within project site to minimize vehicle movements	Contractor (implementation) Proponent (supervision)	N/A	N/A	
	Impact on flora, fauna and groundwater due to handling of construction related materials and equipment	• Ensure workforce are trained and supervised to handle materials during transfer, and unloading so as to minimize accidental spills, littering etc. • Ensure materials are properly packed and any oil/fuel is	Contractor (implementation) Proponent (supervision)	N/A	N/A	Pre-construction – site preparation phase

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		properly stored in containers used for that purpose				
	Sociocultural impact due to arrival of workforce	• Recruit local companies and Maldivians for the work (priority given to locals) • Workforce should be sensitized to the social norms and acceptable behaviour of the Maldivian culture, through a training programme conducted by the Contractor (in collaboration with the Island Council). This training should also cover topics related to Gender-based violence. • Workforce should be fully aware of the Do's and Don'ts of the Maldivian culture. • Develop Contractor's Code of Conduct (sample Code of Conduct provided by World Bank given in Appendix 10) • Establish Grievance Redress mechanism given in the report. Information displaying contact details of the focal	Contractor (implementation) Proponent (supervision)	Grievance Redress Mechanism given Section 9.4 to be enforced.		Council / MCEP PMU staff to be assigned as focal points hence no additional cost for implementation of GRM

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		points (Tier 1 and Tier 2) should be displayed on the project board, council notice board and via posters displayed in public areas. QR code for downloading the forms and information on GRM should be given in each of the media used				
Construction Phase	Vegetation clearance impacts	• Transplant palms which need to be removed and replant 2 palms for every palm which needs to be cut down on the island or through collaboration with another island (confirmed for Kudahuvadhoo, as per communications between the 2 island councils) • Provide compensation to the 66 privately owned palms that falls with the IWRMC plot • Vegetation clearance will not commence before payment of compensation to all beneficiaries.	Proponent / Contractor Island Council	N/A	MRF 68,300 based on normally used rates for compensation (MRF 700 for mature/good condition palms and MRF 500 for small/medium palms)	Compensation cost should be included in the project cost Transplantation work and cost should be included in construction contract

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
	Noise pollution	• The machinery will be operated only during daytime hours, ranging from 6am to 6pm. • No noise generating machinery can be operated outside the stipulated times	Contractor (implementation) Proponent (supervision)	N/A	N/A	
	Air pollution / Dust	• Regularly maintain machinery so as to reduce emissions. • Provide workers with masks and other required gear • Regular watering of site to minimize dust (after work every day)	Contractor (implementation) Proponent (supervision)	As per operational manual of machinery	N/A	Should be included in the construction contract
	Impact on groundwater table and groundwater quality	• Extract only quantity of water required for the civil works.	Contractor (implementation) Proponent (supervision)	N/A	N/A	
	Impact on health and safety of workforce	Occupational Health and Safety measures • Contractor shall comply with the requirements for safety of the workers as per the national laws and regulations relevant to labour and working conditions (to the	Contractor / Island Council (implementation) Proponent (supervision)	Contractor to provide Health and Safety Plan	N/A	Should be included in the construction contract

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		extent that those are applicable to this contract). • Ensure workers are well briefed on the health and safety measures to be followed during the project. Basic onsite safety training should be conducted for all laborers during the EMP training prior to the start of the construction activities. • Ensure work force are given all the appropriate safety equipment and gear required for the work (safety hats, boots, glasses, masks and gloves). 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. • Display PPE requirement board at site which should the PPE required by the workers				

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		when carrying out different tasks of the construction work • Minimal use of manual lifting must be practiced. • Ensure set up of easy access toilets, wash basins at the site. either through rental from nearby area or installation of a portable toilet. • Provision of regular meals breaks, potable water supply on site and an onsite resting area for the workers, where they can rest during the breaks • Ensure provision of first aid kit on site and ensure readily available transfer in instances of emergency use. Signage providing instructions on first aid management, emergency contact and emergency operational procedures in local languages should be prominently displayed at the site				

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Ensure workforce are accommodated in appropriate quarters where they are not cramped. • All staff handling hazardous waste should be given the proper protective gear (protective eye gear, protective gloves) • The site supervisor shall undertake toolbox talks prior to commencement of daily work, where the workers should be briefed / reminded about the health and safety requirements and COVID19 measures. • Open burning of waste should not be carried out at existing waste disposal location during this period (due to very close proximity to IWRMC site) • Waste to be removed from existing waste disposal site on a regular schedule COVID 19 related preventative measures				

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Ensure that there is set number of workers in each room so as to allow social distancing • Ensure that workforce follows all relevant HPA guidelines at all times, with respect to COVID 19 pandemic (in terms of travel, quarantine, work force accommodation setup etc.) • Measures should be in place to undertake daily temperature checks of workforce and enable social distancing at the accommodation facilities and work site • Set up of relevant signage as reminders of measures to be taken (hand washing reminders and method, social distance, use of masks, no spitting, etc.) on site and accommodation camp in both local language and workforce language				

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
	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.	Contractor (implementation) Island Council / Proponent (supervision)	N/A	N/A	Should be included in the project cost
	Impact on public health and safety	• Clearly demarcate project area through metal sheet fencing	Contractor (implementation) Island Council	N/A	N/A	Should be included in the project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Ensure public does not have access to the project site and appropriate signs are put up at the required areas# • Establish Grievance Redress mechanism given in the report. Information displaying contact details of the focal points (Tier 1 and Tier 2) should be displayed on the project board, council notice board and via posters displayed in public areas. QR code for downloading the forms and information on GRM should be given in each of the media used.				
	Fire safety	• Ensure connections to power facility are established by trained and competent personnel • Ensure construction workforce are trained in firefighting so as to address any fire hazards promptly • A portable fire extinguisher should be used at the site.	Contractor (implementation) Island Council	Firefighting equipment should be included as part of equipment inventory of IWRMC	Should be included in the project cost	

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Installation of a fire hydrant / water point at site				
	Waste Management During Construction Phase .	• Construction waste produced should be reused for the construction of the IWRMC as much as possible. The remaining reusable materials such as (metal bars and roofing sheets) should be given to the island community or the island council free of cost. • Green waste to be sundried and left at the forest area for natural decomposition. • Any remaining construction waste shall be temporarily stored and taken out of the island to a RWMF at the time of demobilizing. • Hazardous waste generated should be collected and stored in sealed containers • Area where hazardous waste is stored should have an impermeable surface (such as concrete layer, metal sheet)	Contractor / Island Council (implementation) Proponent (supervision)	N/A	N/A	Should be included in the project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		and should be clearly marked with warning signs				
Operation and maintenance phase	Impacts due to waste spillage during transfer of waste from households to the centre	• Identify correct way in which waste should be left for collection (properly closed bags with no leakage) • Ensure transport vessel carrying the waste carries only a set load • Vessels should be enclosed on all sides to prevent spills • Setup of appropriate bins at identified locations • Provision of proper and complete training to IWRMC operators (in all aspects of operations) • Provision of all required PPE to the staff of IWRMC • Protective clothing, gloves, respiratory face masks and slip-resistant shoes are recommended for waste transport workers and hard-soled safety shoes for all workers to avoid puncture wounds to the feet.	Waste Facility Operator Island Council	Operational plan should be prepared and IWRMC should be registered and licensed by EPA as per Waste Management Regulation.	N/A	Should be included in the project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Noise protection gear such as earmuffs should be provided to all workers operating or working within vicinity of loud equipment • Provision of hard hats for workers operating or working within vicinity of heavy mobile equipment, and at the discharge location for collection trucks, include provision of hard hats				
	Impacts due to installation and operation of OWC machine	• Design and construct an appropriately sized area for machine installation, with curing racks. The area should have an impermeable layer with drains installed to drain any leachate generated • Ensure Bioculum is added at the correct rate to enhance the natural aerobic process • Ensure moisture level while in the machine is kept at required levels for that specific machine • Ensure moisture level of compost while curing on racks	Waste Facility Operator Island Council	N/A	N/A	Should be included in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		is maintained through installation of automatic fogging devices				
	Impacts due to machine malfunction	• Provision of proper and complete training to IWRMC operators (in all aspects of operations and machine maintenance) • Undertake routine maintenance of machinery as per the manual • 1 year stock of bioculum and other spare parts that might be required for the routine functioning of the OWC machine should always be maintained.	Waste Facility Operator Island Council	N/A	N/A	Should be included in project cost
	Impacts of hazardous waste sorting and storage and disposal to the workers	• Specific times should be allocated to receive hazardous waste in the facility. • Dedicated area should be marked for collection and storing of hazardous waste. • The floor should be concrete to minimize seepage into ground should there be a spill or an accident.	Waste Facility Operator Island Council	N/A	N/A	Should be included in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Chemicals and other hazardous material should be placed in closed containers with proper signage. • Fire extinguishers should be available in close proximity.				
	Impact on groundwater resource due groundwater usage, leachate and wastewater processing	• Use alternate source of water for operations to reduce impact on water quality • Ensure drains are cleaned regularly to prevent clogs • Organic waste brought to the IWRMC must be prepared for composting / composted on a regular schedule	Waste Facility Operator Island Council	Associated with operation	Associated with operation	Estimated cost MVR 25,000.00
	Litter, odour and vectors	• Sort waste brought to IWRMC and compost organic waste regularly. • Store inorganic waste and other bulk waste in their allocated storage areas • Undertake volume reduction via glass crushing, metal can baling, plastic shredding, wood chipping etc.	Waste Facility Operator Island Council		N/A	Should be included in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		• Arrange regular disposal of inorganic waste through transportation to the RWMF				
	Socio-cultural conflicts	• Hiring of locals (especially from within the island community) to operate and manage the IWRMC and implement the Island Waste Management Plan • Conduct a training to sensitize the labour to the local context and customs. This training should also cover topics related to Gender-based violence. • Establish the Grievance Redress Mechanism given in this report. Information displaying contact details of the focal points (Tier 1 and Tier 2) should be displayed on the project board, council notice board and via posters displayed in public areas. QR code for downloading the forms and information on	Waste Facility Operator Island Council	Costs associated with the contract	Not known	Should be included in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		GRM should be given in each of the media used.				
	Workplace safety	• Set up of all required sign boards as per the Waste Management regulation • Ensure all firefighting equipment required for the facility are in place and in good condition • Provide protective gears to the workers (gloves, waterproof footwear, protective eye wear, masks) • Ensure provision of a first aid kit on site so as to attend to any medical emergencies immediately. Cover open wounds to prevent contact with the incoming loads	Waste Facility Operator Island Council	Fire safety equipment to be supplied and installed as part of the contract: • 50KG DCP Trolley (2) • 50LTR Foam Trolley (1) • Wet Chemical 6Ltr with Cabinet for hazardous waste area (1) • Water 9Ltr with Cabinet for Office Area – Outside (1) • CO_2 2KG with Cabinet for Office Area – Outside (1)	N?A	Should be include in project cost
	Impact on resources	• Prepare a plan to switch on the compactors and shredders depending on the incoming waste stream to conserve electricity. • Ensure that all equipment is serviced and kept clean daily,	Waste Facility Operator Island Council	N/A	N/A	Should be included in project cost

Project activity	Potential Environmental impacts	Proposed mitigation measures	Institutional responsibility (implementation and supervision)	Estimated quantities required and material specifications recommended	Cost estimates	Comments
		to reduce the amount of water required for cleaning. • Work shall be planned to be carried out during day times. • Use solar lights in the premises.				

3 Conclusions (Revised Chapter 13 of ESMP)

The findings of this assessment for the formulation of an Environmental and Social Management Plan for the proposed project by the Ministry of Environment through the Maldives Clean Environment Project to establish a full-fledged IWRMC and facilitate piloting of in-vessel composting in Kolhufushi shows that the project has low to moderate negative impacts on the environment. The process followed to identify environmental impacts associated with project was Rapid Impact Assessment Matrix (RIAM) which is based on standard definition of importance assessment criteria, with semi quantitative values for each of these criteria, to provide an accurate and independent score (environmental value) for each condition.

The environmental score for the project is of positive and negative. Positive changes that are of importance (highest positive environmental score) are;

1. Benefits to the island community (both social and economic) due to improved waste management practices and operation of the facility
2. Changes to the environment due to improved waste processing methods

Negative changes or impacts that are of significance (highest negative environmental score) are;

1. Impacts due to the need for vegetation clearance from site
2. Impacts due to sorting and storage of hazardous waste
3. Health and safety risks to the workers during construction and operational work
4. Air pollution due to emissions associated with construction machinery

Vegetation clearance from the IWRMC site is envisaged to be a moderate negative impact both on the natural and social environment. This impact is proposed to be mitigated through relocation of the mature trees/palms and compensation of owners of the vegetation to be removed. However, during consultations, Council have stated that there is no area on the island to transplant these palms. They further state that while they have previously tried to send palms from the island to other islands, this has also not been successful as most of the palms are mature and tall. While this impact cannot be mitigated on the island, discussions were undertaken with Kudahuvadhoo Council and it has now been arranged to replant/transplant same number of palms at the reclaimed area at Kudahuvadhoo, so as to ensure compliance with regulations.

Lesser negative impacts from the project includes impacts on the environment due to accidental spills during transfers and material handling. The proximity of the project site from the residential area aids to minimize a lot of impacts due to the project, such as that due to noise and air pollution and other disturbances. The land area allocated for the project had been allocated and approved by MLSA. Hence loss of land is not an impact of this project.

The proposed method of composting, which will be done in the machine itself is predicted to have minimal negative impacts as it greatly overcomes the issues faced by other methods of composting such as windrow-composting. On the other hand, it has several benefits, some of which that have been reported are:

- Simple and convenient to operate without the need for constant attention;
- Short processing times ensures economic in use with low energy consumption;
- Requires minimal maintenance;
- Beneficial to the environment;
- Overcomes the problems of odour, leachate generation and ground water contamination associated with traditional methods of waste disposal

Stakeholder consultations carried out as part of the project showed support for the project overall, with great emphasis on expedited project commencement, especially by the Island Council and community.

A household survey was undertaken to assess the perception of the community with regards to the current waste management practice and their willingness to pay for a proper waste management system. Results of the survey showed that on average, all households produce more biodegradable waste than non-biodegradable waste. Waste segregation at household level was not being implemented at present and all waste was disposed at the same disposal areas, which were largely unmanaged and polluting nearby waters as well. Waste disposal was carried out by the community themselves and hence they were unable to identify a fee for waste management. Residents felt that the disposal site was too close to the residential area, which would result in negative impacts such as smell and smoke. It should be noted that these views were mainly based on current waste management practices.

Mitigation measures considered for the various impacts predicted for the project include:

- Transplant or replant 2 palms for every palm which needs to be cut down at an allocated area (on the island or through collaboration with another island)

- Compensation of owners of the palms/ trees which need to be removed
- Work to commence only after compensation has been disbursed to all individuals
- Provision of adequate training in proper method of handling of machinery and materials during both construction and operational phase
- Provision of adequate training in proper method of handling of waste during collection and disposal during operational phase
- Provision of all protective gear to workers during both construction and operations
- Implementation of the Grievance Redress Mechanism which has been formulated by the proponent, both during construction and operations

Mitigation measures have also been discussed for the alternative methods discussed in the report. However, should the proponent decide at a later stage to choose one of the alternative methods, rather than the selection option in this report, the Consultant stresses the importance of getting environmental clearance for the change in design and scope through a separate document, as the process would require consultations with the Council amongst other additional information.

Monitoring programme identified in the report will enable the proponent to assess whether the mitigation measures which have been identified in the report are effective. Early identification of negative impacts will enable the proponent to rectify the course of activities.

In order to further minimise and manage environmental and social impact associated with the project the following are recommended:

1. Formulation and implementation of an Island Waste Management Plan
2. Adherence to all relevant legislations, regulations, guidelines and standards during construction and operation of the IWRMC;
3. Establish environmental and occupational health and safety procedures for all relevant components;
4. Installation of renewable energy sources at IWRMC, such as solar panels to source power for operations;
5. Carryout awareness raising campaigns to increase awareness of the public regarding proposed work;
6. Ensure all trainings identified under the Training programme of this report are properly implemented to ensure proper implementation of the project at all phases;
7. Encourage greater participation of women, especially during operational stage;
8. Ensure proper supervision and inspection of the IWRMC at regular intervals.

9. Clean the marsh area on southeastern side of the island and put up signage to prevent future dumping in the Marsh area.

In the context of the above conclusions and recommendations, with due consideration to the environmental components identified above and the extent of the project activities and their likely and predicted impacts identified, with proposed mitigation measures and monitoring followed, it is concluded that the project is feasible and justified. Furthermore, the positive benefits due to the project, both to the environment and island community overweigh the negative effects on the environment during the project.

Additional Information requested for ESMP for the proposed establishment of IWRMC at Kolhufushi, Meemu Atoll

EPA request Reference: 203-ECA/438/2021/101 on 12th May 2021

Proponent: Ministry of Environment

Consultant: LAMER Group Pvt Ltd

16th May 2021

Below are the details for the additional information requested.

1. **Institutional arrangements for environmental and social safeguard monitoring for the project**

   Monitoring programme and responsible party for each monitoring activity is given in Table 11 of the report, while reporting schedule and responsible party is given in Table 12 of the report.

2. **Reporting procedures to ensure that the proponent is able to receive feedback from the implementation of the ESMP on an ongoing basis and to take rapid corrective actions if there are issues of non-conformance**

   Monitoring programme and responsible party for each monitoring activity is given in Table 11 of the report, while reporting schedule and responsible party is given in Table 12 of the report. Monitoring and reporting as per given schedule will ensure that the proponent will receive feedback on an ongoing basis.

3. **Implementation Schedule for Environmental and Social Safeguards Monitoring and Reporting**

   Monitoring programme and responsible party for each monitoring activity is given in Table 11 of the report, while reporting schedule and responsible party is given in Table 12 of the report.

4. **What is the outcome for the existing dumpsites within the Islands? Does clearing the dumpsites fall under this project? If not please clarify the responsible party for this component.**

   Removal of residual waste is not part of the scope of current project. This will have to be addressed through a separate project, which could be part of the current work being done as part of the President's Office legacy waste removal programme. Council would be responsible for making the necessary arrangements

Environmental Protection Agency
އެންވަޔަރަމަންޓަލް ޕްރޮޓެކްޝަން އޭޖެންސީ

DECISION STATEMENT

ތިމާވެށީގެ މެނޭޖްމަންޓް ޕްލޭން ގަބޫލުކުރުން

APPROVAL OF THE ENVIRONMENTAL MANAGEMENT PLAN

Number: 203-ECA/438/2021/109 **:ނަންބަރު**

ތިމާވެށީގެ ގޮތުން ނިންމި ގޮތުގެ މިލިޔުން ދޫކުރީ މ.ކޮޅުފުށީގައި އައިލެންޑް ވޭސްޓް އެންޑް ރިސޯސް މެނޭޖްމަންޓް ސެންޓަރެއް އެއަރޯބިކް ކޮމްޕޯސްޓިންގ މެޝިނާ އެކު ގާއިމުކުރުމުގެ މަޝްރޫއުގެ މަސައްކަތްކުރުމާއި ގުޅޭ ގޮތުން މިނިސްޓްރީ އޮފް އެންވަޔަރަމަންޓް، ކްލައިމެޓް ޗޭންޖް އެންޑް ޓެކްނޮލޮޖީ ގެ ފަރާތުން **22** އޭޕްރީލް **2021** ގައި މުރާޖާއާކުރުމަށް ހުށަހަޅުއްވާ އަދި 16 ޖޫން 2021 ގައި އިތުރު މައުލޫމާތު ހުށަހަޅުއްވާފައިވާ ތިމާވެށި އަދި ސޯޝަލް މެނޭޖްމަންޓް ޕްލޭން ބަލާ ގޮތުން ނިންމިގޮތް އަންގައިދިނުމަށެވެ. މި މަޝްރޫއުގެ ތިމާވެށީގެ ކޮންސަލްޓަންޓަކީ އަލްފާޟިލް ހުސައިން ޒާހިރު **(EIAP04-2007)** އެވެ.

This Environmental Decision Statement is issued for the purpose of communicating the decision regarding the ***Environmental and Social Management Plan for the Proposed Establishment of Island Waste and Resource Management Center (IWRMC) with Aerobic Composting Machine in Kolhufushi, Meemu Atoll,*** *which was submitted for evaluation on* ***22nd April 2021*** *and submitted Additional Information on* ***16th June 2021*** *by* ***Ministry of Environment, Climate Change and Technology.*** *The environmental consultant of this project is* ***Mr. Hussain Zahir (EIAP04-2007).***

1. This Environmental Decision Statement has been issued on behalf of the Environmental Protection Agency (hereinafter referred to as the Ministry) pursuant to the Environmental Impact Assessment Regulations 2012 (2012/R-27) to advise that the Ministry has decided that the proposed project can proceed according to the Environmental Management Plan.

1. ތިމާވެށްޓަށް އަސަރު ފޯރާނެ މިންވަރު ބައްލަވާނެ ރިޕޯޓް ހެދުމާއިބެހޭ ގަވާއިދު 2012 ގެ ދަށުން (މި ލިޔުމުގައި މިގެ ފަހުން މިނިސްޓްރީ ކަމަށް ބުނެފައި ކަނޑައަޅާ) މިޤަވާއިދުގެ ތަންފީޒީ އިދާރާ، އެންވަޔަރަމަންޓަލް ޕްރޮޓެކްޝަން އޭޖެންސީގެ ފަރާތުން މި ތިމާވެށީގެގޮތުން ނިންމިގޮތުގެ ލިޔުން ދެއްވައިރުން މަތީގައި ބަޔާންކުރެވިފައިވާ މަޝްރޫއު ތިމާވެށީގެ މެނޭޖްމަންޓް ޕްލޭންގައި ބަޔާންކުރެވިފައިވާ ގޮތަށް ކުރިއަށް ގެންދިޔުމުގެ ހުއްދަ ދިނީމެވެ.

2. The decision has been made by the Ministry on the following conditions:

   i. In the event the project activity has not commenced **within one (1) year** from the date of issue, or if the duration of this Environmental Decision Statement has not been extended, this Environmental Decision Statement shall be considered null and void.

   ii. In the event the project activities have been delayed for more than one (1) year due to unforeseen circumstances, the Ministry shall have the discretion to extend the duration of the Environmental Decision Statement, or to terminate it. In such circumstances the proponent shall write to the Minister for an extension clearly stating out the reasons for the delay.

   iii. The Minister, or his designate, may issue a cessation order requiring persons working on a Development Proposal to cease working until the order is withdrawn, if:

.2 މި ހުއްދަ މިނިސްޓްރީން ދީފައިވަނީ ތިރީގައި މިވާ ޝަރުތުތަކުގެ މަތީންނެވެ:

.i ތިމާވެށީގެ ގޮތުން ނިންމިގޮތުގެ ލިޔުން ދޫކުރި ތާރީޚުން ފެށިގެން 1 (އެކެއް) އަހަރު ދުވަހުގެ ތެރޭގައި މަޝްރޫއުގެ އަމަލީ މަސައްކަތް ނުފެށިއްޖެ ނަމަ ނުވަތަ ތިމާވެށީގެ ގޮތުން ނިންމިގޮތުގެ ލިޔުމުގެ މުއްދަތު އިތުރުކޮށްފައިނުވާނަމަ، މި ތިމާވެށީގެ ގޮތުން ނިންމިގޮތުގެ ލިޔުމާއި އެކު މި ލިޔުމުގެ 1 ވަނަ ނަންބަރުގައި ދީފައިވާ ހުއްދަ ބާތިލުވާނެއެވެ.

.ii 1 ވަނަ ނަންބަރުގައިވާ ހުއްދައިގެ ދަށުން މަޝްރޫއުގެ އަމަލީ މަސައްކަތް ނުފެށި 1 (އެކެއް) އަހަރަށްވުރެ ލަސްވީ ކުރިއަށް ލަފާކުރެވުނު ނޫނީ ކަހަލަ ކަމެއް ދިމާވެގެން ކަމަށްވާނަމަ، މުއްދަތު އިތުރުކުރުމުގެ އިޚްތިޔާރު ނުވަތަ ހުއްޓާލުމުގެ އިޚްތިޔާރު މިނިސްޓްރީއަށް ލިބިގެންވެއެވެ. މިފަދަ ހާލަތްތަކުގައި މުއްދަތު ހަމަވުމުގެ ކުރިން ސަބަބު ސާފުކޮށް ބަޔާންކޮށް އެދިއާރު ގެ ފަރާތުން މިނިސްޓްރީއަށް ލިޔުންފޮނުވާށެވެ.

.iii ތިރީގައި މިބަޔާން ކުރާފަދަ ކަމެއް ދިމާވެއްޖެނަމަ، މިނިސްޓަރު ނުވަތަ އޭނާ ޢައްޔަން ކުރާފަރާތަކުން، ހިނގަމުންދާ ތަރައްޤީގެ މަޝްރޫޢެއް ކުރިއަށް ގެންދާ ބަޔަކަށް އެމަސައްކަތް އަލުން ފަށަން އަންގަންދެން ހުއްޓާލަން އަންގާދާނެއެވެ.

a) This Environmental Decision Statement has been withdrawn or;

b) There has been a breach of the conditions of this Environmental Decision Statement.

iv. It is the Developer's responsibility to undertake all project activities in accordance with the relevant laws and regulations of the Maldives.

v. The Developer is aware that under the National Environment Protection Act (Law no. 4/93) and the Environmental Impact Assessment Regulations the Ministry reserves the right to terminate any activity without compensation if found that such an activity has caused significant, irreversible impacts on the environment.

vi. All mitigation measures proposed in the EMP report for all the phases of the project shall be fully implemented.

vii. The date of expiry stated in this Environmental Decision Statement is the duration given to commence the project activities approved under this Environmental Decision Statement.

ހ) މި ތިމާވެށީގެ ގޮތުން ނިންމިގޮތުގެ ލިޔުން ބާޠިލުކުރުން ނުވަތަ

ށ) މި ތިމާވެށީގެ ގޮތުން ނިންމިގޮތުގެ ލިޔުމުގެ ޝަރުތުތަކާއި ޚިލާފުވުން

.iv މަޝްރޫޢު ހިންގުމާއި ގުޅުންހުރި، ރާއްޖޭގައި އަމަލުކުރަމުންދާ ޤާނޫނުތަކާއި ގަވާއިދުތަކާއި އެއްގޮތަށް މަސައްކަތް ކުރަމުން ގެންދިއުމަކީ އެދިއާރުގެ ޒިންމާއެކެވެ.

.v ދިވެހިރާއްޖޭގެ ތިމާވެށި ރައްކާތެރިކޮށް ދެމެހެއްޓުމުގެ ޤާނޫނު (ނަންބަރު 4/93) އާއި ތިމާވެށްޓަށް އަސަރު ފޯރާނެ މިންވަރު ބަލާކުރާ ރިޕޯޓު ހެދުމާއިބެހޭ ގަވާއިދު 2012 ގެ ދަށުން ރާއްޖޭގެ ތިމާވެށްޓަށް އަސަރުކުރާ އިދާރަ ނުކުރެވޭ ފަދަ ބަދަލެއް އަތުވެދާނެ ކަމެއް ކުރިއަށް ބަދަލެއްގައި ކުރުވިފައިވާ މަސައްކަތްތަކެއްގެ ބަދަލެއް ދިނުމަކާ ނުލައި މަސައްކަތް ހުއްޓުވާ މަޝްރޫޢު ކުރިއަށް ގެންދިއުމަށް ދޫކުރެވިފައިވާ ހުއްދަ ބާޠިލުކުރުމުގެ ބާރުހުރިކަން އެދިއާރަށް އެނގެއެވެ.

.vi ތިމާވެށީގެ މެނޭޖްމަންޓް ޕްލޭން ރިޕޯޓުގައި މަޝްރޫޢުގެ ހުރިހާ ފިޔަވަޅެއްގައި ތިމާވެށަށް ކުރާނެ އަސަރުތައް ކުޑަކުރުމަށް އަޅަންޖެހޭ ހުރިހާ ފިޔަވަޅެއް ރިޕޯޓުގައި ބަޔާންކުރެވިފައިވާ ގޮތަށް އަޅަންވާނެއެވެ.

.vii މިތިމާވެށީގެ ނިންމިގޮތުގެ ލިޔުމުގައި މުއްދަތު ހަމަވާ ތާރީޚް ކަމަށް ބަޔާންކުރެވިފައިވާ މިހުއްދަ ދޫކުރެވުނު މަސައްކަތް ފެށުމަށް ދޭ މުއްދަތަށެވެ.

viii. Once the project activities have started, the Proponent must inform the Environmental Protection Agency, the date of commencement of project activities.

viii. މަޝްރޫޢުގެ މަސައްކަތް ފެއްޓުމަށްފަހު، ފެށި ތާރީޚް އެންވަޔަރަމަންޓަލް ޕްރޮޓެކްޝަން އެޖެންސީއަށް ޙިއްމުން އަންގަންވާނެއެވެ.

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Name: Mr. Ibrahim Naeem	ނަން: އަލްފާޟިލް އިބްރާހީމް ނައީމް
Designation: Director General	މަޤާމް: ޑިރެކްޓަރ ޖެނެރަލް
Signature:	ސޮއި: