

# Environmental and Social Monitoring Report

#4 Semiannual Report (October 2018 to March 2019)  
June 2019

## Maldives: Kulhudhuffushi Harbour Expansion Project

Prepared by Ministry of National Planning & Infrastructure for the Government of Maldives and the Asian Development Bank

This environmental and social monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.



## CONTENTS

	<b>Page</b>
I. INTRODUCTION.....	1
A. Purpose of the Report.....	1
B. Project Area.....	1
C. Project Background.....	1
D. Changes in the Project Scope.....	2
E. Current Status of Project.....	3
F. Environmental Impacts and Mitigation from Changes in the Project Scope.....	3
G. Progress of Works.....	5
H. Planned Activities for Next 6 months.....	5
II. STATUS OF ENVIRONMENTAL CLEARANCE AND OTHER ENVIRONMENT RELATED PERMITS.....	5
A. Environment Approval for Implementation of Project:.....	5
III. ENVIRONMENT MANAGEMENT PLAN.....	5
IV. INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTING MONITORING PLAN ...	11
V. GRIEVANCE REDRESS MECHANISM.....	13
VI. ENVIRONMENT MONITORING PLAN.....	14
A. Monitoring report format.....	15
VII. COMPLIANCE OF ENVIRONMENTAL SAFEGUARDS.....	16
A. Implementation of EMP.....	17
B. Environmental Monitoring.....	25
VIII. STATUS OF SOCIAL SAFEGUARDS.....	26
A. ADB Social Safeguards.....	26
B. Social Safeguard Areas.....	26
C. Manpower at Site.....	26
D. Compliance with Core Labor Standards and Related Provisions.....	27
IX. CONCLUSION AND RECOMMENDATIONS.....	29
A. Environmental Safeguards.....	29
B. Social Safeguards.....	30

### List of Tables

Table 1: List of Environmental Clearances.....	5
Table 2: Summary of additional activities requiring documentation.....	16
Table 3: Summary of environmental mitigation compliance.....	17
Table 4: Detailed EMP Compliance Observations.....	19



## I. INTRODUCTION

### A. Purpose of the Report

1. The objective is to allow the Asian Development Bank (ADB) and the Ministry of National Planning and Infrastructure (MNPI) to gather information for: i) evaluating the environmental management plan (EMP); and ii) identifying unanticipated impacts and plan necessary mitigation measures.
2. The environment and social safeguard monitoring plan shall be implemented by the Contractor. The Project Management Unit (PMU) and Project Management Consultant (PMC) shall monitor the implementation.

### B. Project Area

3. Kulhudhuffushi is one of the major population centres in the region with a total population of around 8,200 in 2014. Kulhudhuffushi is the capital of Haa Dhaalu Atoll and is one of the biggest and most populous Islands in the Northern part of the Maldives. Fishing (Tuna, Snapper, Marlin) is one of the biggest industries here, bringing in significant income for the islanders. Fishing is the lifeblood for Maldivians. The local men also work on the cargo vessels. Currently, Kulhudhuffushi is home to the regional hospital that provides general medical and specialist services, dental services, emergency services and intensive care units. The Island also hosts a range of education facilities such as primary schools, secondary schools, and a vocational training center, all designed to cater for the approximately 2,500 students from Kulhudhuffushi and other nearby Islands.

### C. Project Background

4. The Government of Maldives has applied for a grant from ADB for the Kulhudhuffushi Harbour Expansion Project and intends to apply a portion of proceeds to engage a consultant to support the Ministry of National Planning and Infrastructure in the project implementation process for development of Kulhudhuffushi Harbour Expansion Project.
5. Following is the harbour layout of the Kulhudhuffushi Harbour Expansion Project:



**Kulhudhuffushi Harbour Expansion Layout**

6. The salient features of the projects are as follows:

Scope/ Description	Quantity
<b>Passenger and Cargo Harbor (Water Front &amp; Land Side Facilities)</b>	
Quay wall	Length = 337 meters (m) + 136 meters (m) = 473m
Ramp for Landing Crafts	20m x 20m
Breakwater	Length = 638m
Revetment	Length = 481m
Dredging (Depth -4 m CD in Passenger and Cargo Harbour)	Approx. 1,80,296 m <sup>3</sup>
Reclamation Area 1	Area: 10,170 m <sup>2</sup> Quantity of Filling: Approx.15,000 m <sup>3</sup>
Reclamation Area 2	Area: 14,250 m <sup>2</sup> Quantity of Filling: Approx.25,000 m <sup>3</sup>
Separation wall (precast concrete box caisson, filled with sand and concrete topping)	Length = 158 m
Finger jetty (Timber) 7 Nos X 9m each	Length = 63 m
<b>Ancillaries</b>	
Pavement	Approx. 2,500 m <sup>2</sup>
Harbor navigational beacons	2 Nos.
Quay lighting	24 Nos.
Building – Ferry Terminal	33.75m x 26.0m
Market – Fish	31.8m x 12.1m

#### D. Changes in the Project Scope

7. In May 2018, EPA approved the First Addendum to the EIA Report for the project with respect to bringing following changes to the scope of the project.

- i) Increasing the channel width from 30m to 56m;
- ii) Construction of a 136m new quay wall perpendicular to the shoreline with a 20m ramp;
- iii) Reduction of breakwater length from 641m to 638m;
- iv) Reduction of revetment from 505m to 481m;
- v) Increasing dredge volume of harbour from 153,339m<sup>3</sup> to 216,663.80m<sup>3</sup>;
- vi) Expansion of Fish Market area from 15m by 10m to 31.2m by 11.1m;
- vii) Expansion of Terminal Building from 14m by 14m to 31.95m by 22.25m;
- viii) Removal of Fruit and Vegetable area from the plan; and
- ix) Removal of Ice Plant from the plan.

8. The following figure outlines these changes:



Source: First Addendum to the EIA for Kulhudhuffushi Harbour Extension Project

## E. Current Status of Project

9. The project is currently being implemented. At present only the dredging and reclamation works are being implemented and during the reporting period about 45% of the dredging works were reported to have been completed.

## F. Environmental Impacts and Mitigation from Changes in the Project Scope

- i) With the expansion of the dredging footprint (widening of the entrance channel), it is estimated that an additional 0.2ha of reef flat area will be directly affected, however, the impacts are not believed to be significant as there are no significant coverage of sea grass or live corals found within this footprint.
- ii) This expansion of dredge footprint and increase in dredging duration will likely result in alteration of seawater quality and minor impacts on live corals due to sedimentation in the surrounding environment.
- iii) The changes in the scope of the project does not specify additional mitigation measures to be implemented other than those specified in the main EIA report, which include provision of silt screens and sand bund walls from the initial dredged material in order to reduce spread of sedimentation to the surrounding areas.
- iv) Some social conflicts are foreseen due to removal of ice plant from the project.
- v) In order to mitigate such social impacts, it has been identified that the need and justification for the changes are properly communicated to the public in a timely manner.

10. Following is the Impact Identification Matrix due to changes in the project scope:

Proposed changes to the project	Ambient Noise Level	Ambient Air Quality	GHG emissions	Groundwater	Coastal Processes	Marine Water	Terrestrial Flora and Fauna	Soil Conditions	Marine Flora and Fauna	Landscape Integrity/ Scenery	Natural Hazard Risk	Health and Safety	Demand for Resources and Services	Local Economy	Social Cohesion
Additional quay wall	-	-	-	X	-	-	X	X	-	-	X	-	X	+	+
Changes to length of the proposed revetment and breakwater	X	X	X	X	+/-	-	X	X	-	-	X	-	X	+	+
Expansion of harbour dredging footprint and increase in dredge quantity	-	-	-	-	-	-	X	-	-	-	X	-	-	X	X
Relocation and expansion of the proposed fish market area	-	-	-	X	X	X	X	X	X	-	X	-	-	+	+
Relocation and expansion of the proposed Terminal Building Area	-	-	-	X	X	X	X	X	X	-	X	-	-	+	+

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

Source: First Addendum to the EIA for Kulhudhuffushi Harbour Extension Project

## G. Progress of Works

Sl. No.	Activities	Status
1	Inception Report	Completed
2	Topographic Survey	Completed
3	Bathymetry Survey	Completed
4	Geotechnical Investigations	Completed
5	Final Bidding Documents	Completed
6	Design Completion Report	Completed
7	Tender Documents	Completed
8.	Award of Civil Works Contract	Completed
9.	Mobilization of Contractor	Completed
10.	Start of Construction Activities at site by the Contractor.	Completed

## H. Planned Activities for Next 6 months

Sl. No.	Activities
1.	Completion of Dredging and Reclamation Works
2.	Completion of Separation Wall
3.	Start construction of quay wall, breakwater and revetment, timber jetty, fish market and ferry terminal building

## II. STATUS OF ENVIRONMENTAL CLEARANCE AND OTHER ENVIRONMENT RELATED PERMITS

### A. Environment Approval for Implementation of Project:

11. The revised Environmental Approval for Implementation of the Project has been received till May 2019.

**Table 1: List of Environmental Clearances**

Required Permit/Approval	Law/Regulation	Authority	Status
EIA for the overall project	Environmental Protection and Preservation Act/ EIA Regulation	EPA	Approved
EIA Addendum for changes proposed to the project	Environmental Protection and Preservation Act/ EIA Regulation	EPA	Approved
Dredging and reclamation approval	Dredging and Reclamation Regulation	EPA	Approved

## III. ENVIRONMENT MANAGEMENT PLAN

12. The following table provides environmental mitigation measures for all relevant components identified that may have an impact on either natural or socioeconomic environment. It was provided an indication of the duration and magnitude of impacts and specific institutional responsibility for both construction and operation phase of the project.

**Table for Possible environmental impacts and mitigation measures for harbour expansion construction and operation phases**

Potential impacts	Mitigation measures	Location	Impact intensity	Implementing agency	Supervising agency	Estimated cost (USD)
<b>1. Detailed design and pre-construction stage</b>						
1.1 Non compliances due to lack of clearances and permits	Secure the environmental clearance before the start of any civil works.  Secure all other permits and no objections that may be necessary for construction works.	N/A	High	PMU	MHI	Covered by MHI
1.2 Inadequate EMP	Review the EMP and revise it based on the detailed design as necessary for approval by the PMU.	N/A	Moderate	PMC	PMU	Covered under PMC costs
1.3 Poor environment safeguards planning and implementation documents	Prepare the following plans for review and approval by the PMC and before the start of the respective works: - Construction camp layout and management plan; - Dredge management plan; - Spoil disposal plan; and - Emergency management plan.	N/A	Moderate	Contractor	PMC	Covered under Contractors costs
<b>2. Construction stage</b>						
2.1 Littering on terrestrial and marine environment	Littering, accidental disposal and spillage of any construction wastes should be avoided by pre-planning ways of their transportation and unloading at site. Careful planning of the work activities can also reduce the amount of waste generated.	Land and Lagoon	Minor to moderate, short term impact	Contractor	PMU, PMC	N/A (no additional cost)
	During works over water structures, all construction related waste will be collected and sent to the waste management site. Burnable waste will be sent to local disposal site.	Land and Lagoon	Minor	Contractor	PMU, PMC	Included in the initial cost of project
2.2 Damage to reef by unloading works	Awareness raising of project managers on environmentally friendly practices to minimize negative impacts on all aspects of construction.	Temporary access area and land	Minor, short term impact	Contractor	PMC, PMU	N/A

Potential impacts	Mitigation measures	Location	Impact intensity	Implementing agency	Supervising agency	Estimated cost (USD)
	<p>Remaining material and machinery demobilized after completion of dredging works.</p> <p>Reclamation and dredging operational area be limited to bare minimum so that the impacted zone is minimal.</p>	On land	Minor	Contractor	PMC, PMU	N/A (may cost more, for the material unloading process)
2.3 Sedimentation and siltation on the reef and lagoon	<p>Operation of heavy machinery only in the low tide (dredging and piling works).</p> <p>Clearly mark needed areas for dredging and reclamation.</p> <p>Install silt screens and of bund wall around the dredging area to confine sediments within the construction site.</p> <p>Limit dredging and reclamation works mostly today time and where possible to low tide. Working at low tide will ensure fine sediments are not readily washed off to residual impact areas.</p>	Lagoon	Major to moderate, short term impact	Contractor	PMC, PMU	<p>Cost of heavy machinery increase of 20%</p> <p>Silt curtain cost unit rate is \$55.00, total length required is 680 m plus installation charges of \$7,500 therefore, cost is \$44,900.00</p> <p>Development of bund walls by the reclamation sites will cost \$75/m</p>
2.4 Physical damage to marine flora and fauna	<p>Avoid operation of heavy machinery out of construction area or boundary.</p> <p>Prohibit workers from harvesting/fishing or intestinally harming any marine flora or fauna and penalize them if anyone carries out any of these prohibited activities.</p>	Lagoon / reef	Minor to moderate	Contractor	PMC. PMU	N/A

Potential impacts	Mitigation measures	Location	Impact intensity	Implementing agency	Supervising agency	Estimated cost (USD)
2.5 Seawater contamination,	<p>Oil /chemical handling and management procedures will be made known to all relevant staff, appropriate supervision.</p> <p>Take precaution to avoid spillage or leakage of diesel, oils and lubes from construction vehicles.</p> <p>Conduct maintenance of these vehicles only at designated areas and surfaces in the construction yard and not inside the water.</p> <p>Spills / leaks, if any, will be recovered and disposed according to local standards.</p> <p>Locate worker camps within the reclaimed land and away from the beach area.</p> <p>Equip camps with necessary facilities / amenities such as water supply, power supply, wastewater collection, solid waste collection and sanitation.</p> <p>Domestic wastes generated from the camps will be disposed at local waste disposal site.</p>	Reef flat area/ lagoon	Moderate impact	Contractor	PMC, PMU	N/A (included in the initial project cost)
2.6 Air pollution	<p>Heavy machinery used dredging and reclamation works operated minimized.</p> <p>Regularly maintain diesel driven engines of work boats, barges and dredgers and ensure they meet required emission levels for diesel vehicles.</p>	Air	Minor/short termed	Contractor	PMC, PMU	N/A (may increase labor cost)

Potential impacts	Mitigation measures	Location	Impact intensity	Implementing agency	Supervising agency	Estimated cost (USD)
2.7 Noise pollution	Avoid use of heavy machinery during night hours.	At construction site	Minor/short term	Contractor	PMC, PMU	N/A (same as above)
2.8 Poor occupational Health and Safety	<p>Provision of adequate safety gear to workers such as gloves, face masks, earplugs, boots, life jackets etc.</p> <p>Maintain a fully equipped first aid kit on the construction site and establish proper links with the local medical facility to treat more injuries and sickness.</p> <p>Maintain hygienic environment in construction camp site by providing proper waste management facilities, clean drinking water and proper toilet facilities.</p> <p>Provide proper fencing and signage to ensure public do not enter unsafe areas in and around the construction site.</p> <p>Installation of firefighting and pollution control equipment at the construction sites.</p>	Construction site	Moderate	Contractor	PMC, PMU	<p>Covered under contractor's costs.</p> <p>Firefighting equipment \$15,000 and pollution control equipment \$10,000</p>
<b>3. Operational stage</b>						
3.1 Solid waste generated at harbor, ferry terminal and fish market	<p>All waste generated from harbor related activities with appropriate guideline.</p> <p>Place bins in key areas of the terminal, café and fish market.</p> <p>Install grease traps in the café wastewater collection system.</p>	On land and in harbour	Minor if proper waste management plans are in place	Harbor management unit	EPA, Kulhudhuffushi Council	N/A (included in the initial project cost)

Potential impacts	Mitigation measures	Location	Impact intensity	Implementing agency	Supervising agency	Estimated cost (USD)
	<p>Solid waste sorted at service outlets and sorted at the waste processing area.</p> <p>Reuse and recycle waste where possible.</p>					
3.2 Release of liquid waste from boats into the harbor, ferry terminal and fish market	<p>Encourage boat passengers to use the toilet facilities in the Harbor terminal.</p> <p>Explore technical solutions with the boat to have liquid waste storage systems to be disposed on land.</p> <p>Ensure waste oil from boats is not dumped within the harbor.</p>	Harbor	Moderate	Harbor management unit, Kulhudhuffushi Council CDTA consultant	EPA	
3.3 Damage to the reef by boat land recreational activity	<p>Harbor entrance channel clearly marked.</p> <p>Marked access and recess from recreational harbor with appropriate buoys.</p>	Lagoon, reef	Monitoring term	Harbor management Kulhudhuffushi Council	Kulhudhuffushi Council	USD 100–150 (cost of making markers and buoys) N/A (included in the staff training program)
3.4 Air pollution from boat operation	Engine running of the vessels when in harbor is minimized.	Air	Minor if properly managed, long term	Harbor management	Kulhudhuffushi Council	N/A

#### IV. INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTING MONITORING PLAN

13. Effective implementation and supervision of the environmental mitigation measures and monitoring activities identified in this document can only be achieved through a suitable institutional mechanism involving stakeholders of the project. A broad institutional mechanism for environment safeguards associated with the project, roles and responsibilities of various agencies and parties for implementing environment safeguards are provided below.

14. **Project Management Unit (PMU):** The Project Director (PD) under the PMU is responsible for the overall compliance of the project with the SPS and the applicable environmental laws and rules under the Government of Maldives. The Environmental officers under the Environment Unit of MHI are responsible for processing the environmental clearance and addressing environmental concerns under the project as needed. The PD is responsible for:

- i) Reviewing and approving all environment safeguards related documents such as the IEE report, safeguard monitoring reports prepared by the PMC and forwarding to ADB for disclosure on the ADB website;
- ii) Conducting monthly site visits;
- iii) Timely endorsement and signing of key documents and forwarding to the respective agency required for processing of environmental clearance and other environment safeguards related permits and licenses;
- iv) Award the civil works contract only after the environmental clearance has been received from EPA;
- v) Ensure all contractors obtain permits, licenses etc. for activities such as dredging and others before the implementation of the respective construction activity; and
- vi) Taking proactive and timely measures to address any environment safeguards related challenges and significant grievances (during construction stage).

15. **Project Management Consultant (PMC):** The Environment Specialist under the PMU monitored implementation of the EMP and monitoring plan by the contractor. Specific responsibilities of the Environmental Specialist are:

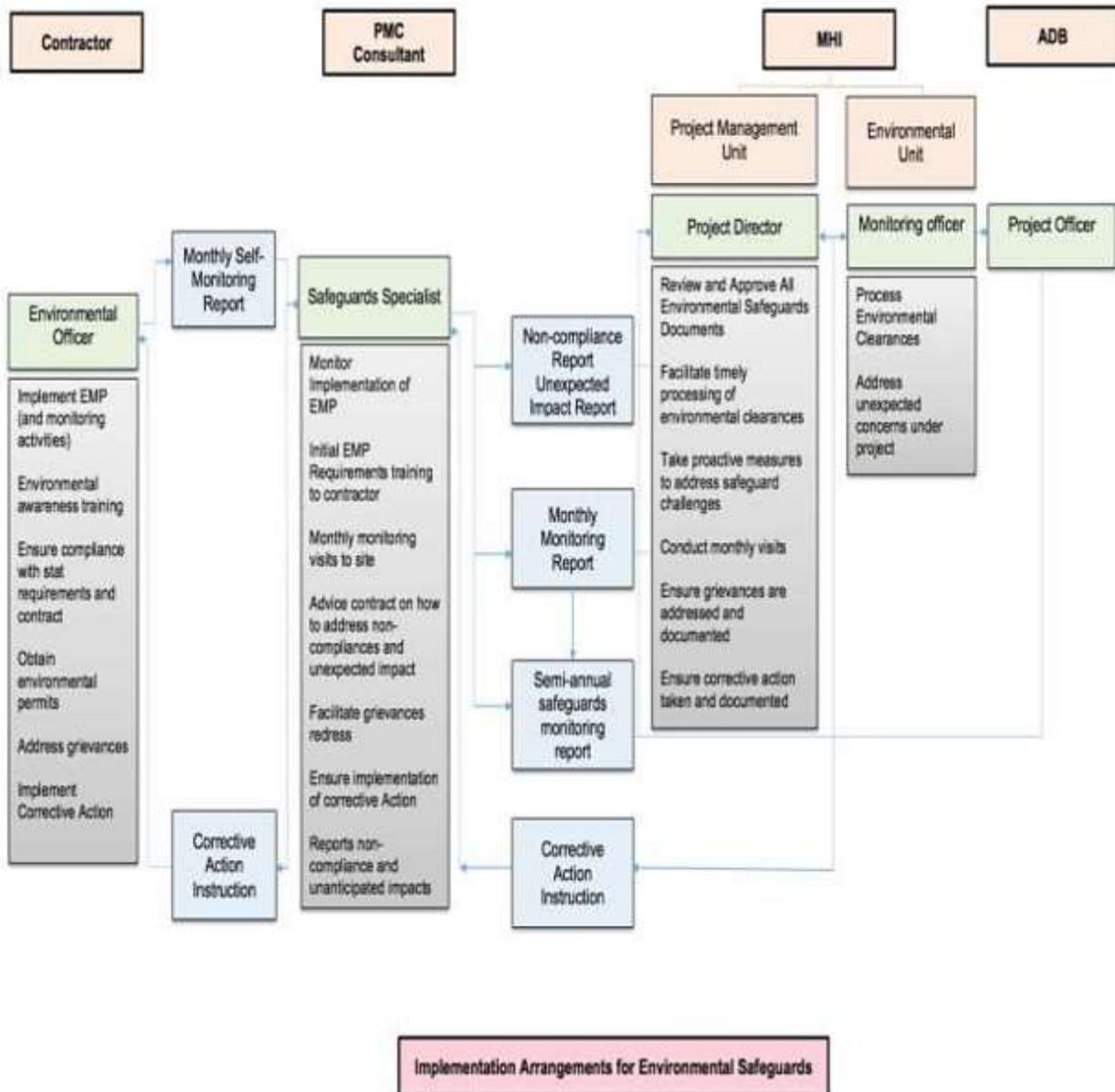
- i) Review the detailed design of the harbor and ensure it includes the least impacts on the local environment and follows recommendations made in the IEE report;
- ii) Conduct an initial training on implementation of the EMP requirements for the contractor including providing guidance on format of monitoring checklists/reports to be maintained by the contractor;
- iii) Provide on the job training for contract workers as needed during project construction;
- iv) Conduct monthly site visits to the construction site;
- v) Review the test results for testing the seawater quality and air quality;
- vi) Review the EMP implementation records of the contractor and crosscheck with the project site conditions;
- vii) Ensure contractors secure necessary permits and clearances on a timely basis;
- viii) Prepare monthly monitoring reports based on the site visit and submit it to the PD for review and approval;
- ix) Based on the monthly reports prepare a consolidated Semi-Annual Safeguards;
- x) Monitoring reports with inputs from the Social Development Specialist of the PMC on social safeguards. The Semi-Annual Safeguards Monitoring Report will be submitted to the PD for review and approval and further submission to ADB for disclosure on the ADB website;
- xi) Advise the contractor on how to address non-compliances;

- xii) Report the occurrence of any unanticipated impacts to the PD and recommend mitigation measures and need for the IEE report to be updated;
- xiii) Accordingly advise the contractor on how to address the unanticipated impact; and
- xiv) Facilitate the functioning of grievance redress mechanism and ensure that all complaints are resolved on a timely basis.

16. **Contractor:** The Contractor is the principal agent to implement the EMP during the pre-construction and construction stage. Specifically, the contractor does the following:

- i) Retain a qualified environment focal person to implement the EMP and monitoring plan;
- ii) Obtain necessary environmental license(s), permits etc. from relevant agencies as prior to commencement of civil works contracts;
- iii) Implement all mitigation measures in the EMP and activities in the Monitoring Plan;
- iv) Submit monthly self-monitoring reports to the PMU;
- v) Ensure that all workers, site agents, including site supervisors and management participate in training sessions delivered by PMU;
- vi) Ensure compliance with environmental statutory requirements and contractual obligations;
- vii) Participate in resolving issues as a member of the GRC;
- viii) Respond promptly to grievances raised by the local community or any stakeholder and implement environmental corrective actions or additional environmental mitigation measures as necessary; and
- ix) Based on the results of EMP monitoring, cooperate with the PIU to implement environmental corrective actions and corrective action plans, as necessary.

17. Implementation arrangements for environmental impact mitigation and monitoring to ensure both local and ADB specific environmental safeguards are met are given in following Figure.



## V. GRIEVANCE REDRESS MECHANISM

18. GRC was established at two-levels, one at the project site level and another at PMU level, to receive, evaluate and facilitate the resolution of concerns, complaints and grievances of all affected persons.

19. First Level of GRC: The project site level GRCs functions on site where the harbor expansion is being implemented. The GRC is chaired by the Resident Engineer and the members comprise of the following as members, including 2 women members.

- i) Island Council representative;
- ii) NGO representative / Person of standing from the community;
- iii) NGO representative / Person of standing from the community; and
- iv) Contractor representative.

20. Second Level GRC: Project Steering Committee

- i) Senior Official, MoFT;
- ii) Senior Official, MHI; and
- iii) Senior Official, MED.

21. Include information on grievances received, number of grievances received through formal and informal channels, nature of grievances and aspects of work/project implementation which the grievances were about.

## VI. ENVIRONMENT MONITORING PLAN

22. Monitoring works during the construction and operational phase are carried out according to the following Tables. Cost for the monitoring (data collection) activities are covered by Project Management Consultant (commitment to carry out and finance environmental mitigation and monitoring work has been provided by Project proponent (MHI). Letter of commitment is given in the Proponent's declaration EIA Report, page xiii).

23. The monitoring report structure provided in the EIA Regulations 2012 (2012/R-27) is used for the monitoring report preparation. Environmental monitoring reports including social safeguard inputs are submitted every six months to EPA and ADB for the duration of construction phase with data collected as scheduled on environmental attributes as proposed in monitoring program. Environmental monitoring report during operation stage of the project shall be submitted to EPA and ADB on an annual basis with data collected as scheduled on environmental attributes as proposed in the monitoring program during operation (see following Table).

Reef community	Methodology	Sampling frequency	Responsibility
<b>Construction phase</b>			
Reef benthos (coral and other benthic cover)	Photo quadrat method at 250 by 5-meter belt transect areas at baseline project impact area and control site.	Every 3 months	Contractor, Verification by PMC
Reef fish community, diversity and abundance	Visual Census of reef fish diversity and abundance at baseline data collection locations.	Every 3 months	Contractor, Verification by PMC
Seawater (seawater tested for contaminants or increased in nutrients due to dredging, reclamation and harbor protection related works),	Water sampled from baseline sampling locations. Water samples tested by a Nationally accredited laboratory. Following parameters are to be tested;  <b>Physical properties:</b> Salinity, pH, Electrical conductivity, Dissolved oxygen, Turbidity  <b>Chemical properties:</b> Biological Oxygen Demand, Nitrite, Nitrate, Phosphate, Sulfates, Hydrocarbon  <b>Biological properties:</b> Total coliforms, fecal coliforms  <b>Metals including heavy metals:</b> Iron, Copper, Zinc, Magnesium	Every 1 month	Contractor, Verification by PMC

Reef community	Methodology	Sampling frequency	Responsibility
Sedimentation rates	Set up sediment traps on baseline data collected as project impact area and control site.	Every 2 weeks for the entire duration of dredging and reclamation works, 3 months post dredging and reclamation.	Contractor, Verification by PMC
<b>Operation phase</b>			
Reef benthos (coral and other benthic cover)	Photo quadrat method at 250 by 5-meter belt transect areas at baseline project impact area and control site	Every 6 months after construction phase is completed (total 2 years).	PMU
Reef fish community, diversity and abundance	Visual Census of reef fish diversity and abundance at baseline data collection locations.	Every 6 months after construction phase is completed (total 2 years).	PMU
Sediment quality	Sediment sampling at harbor basins (2) are core samples and analyzed for physico-chemical properties and heavy metals by a Nationally accredited laboratory to include pH, organic matter, nutrients, Iron, Copper, Tin, Zinc, Magnesium, Mercury.	Quarterly for 2 years	PMU
Seawater (seawater tested for contaminants or increased in nutrients due to waste from vessels, fuel and waste oils,	Water sampled from baseline sampling locations. Water samples tested by a Nationally accredited laboratory Following parameters are to be tested;  <b>Physical properties:</b> Salinity, pH, Electrical conductivity, Dissolved oxygen, Turbidity  <b>Chemical properties:</b> Biological Oxygen Demand, Nitrite, Nitrate, Phosphate, Sulfates, Hydrocarbon  <b>Biological properties:</b> Total coliforms, fecal coliforms  <b>Metals including heavy metals:</b> Iron, Copper, Zinc, Magnesium	Quarterly for 2 years	PMU

#### A. Monitoring report format

24. Monitoring reporting and format follows the schedule and report structure shown in Environmental Impact Assessment Guidelines by EPA.
25. The following Monitoring Report Format is being followed;
  - a. Summary monitoring report
    - i) Title, date, Consultant

- ii) Summary of parameters measures, methods, equipment, location and frequency
  - iii) Highlight and discuss any unusual and/or significant results that may be of concern based on the IEE/EIA report
- b. Final monitoring report
- i) Title, date, Consultant;
  - ii) An executive summary;
  - iii) Basic information on the project;
  - iv) Drawing/plans as appropriate showing the project area, any environment sensitive receivers and the location of the monitoring and control stations;
  - v) Discussion on the implementation of the mitigation measures and pollution control measures;
  - vi) Parameters monitored, methodology used, environment quality performance/standards limit;
  - vii) Monitoring results including date, time, frequency and duration;
  - viii) Presentation of monitored parameters (graphical plots and trends);
  - ix) Constrains and any factors which might have affected the monitoring results;
  - x) A summary of non-compliance of the environmental quality performance limits and discussion of their implications;
  - xi) Description of the actions taken in the event of non-compliance;
  - xii) A summary record of all complaints received (written or verbal) for each media, including locations and nature of complaints, liaison and consultation undertaken, actions and follow-up procedures taken;
  - xiii) A forecast of the works programme, impact prediction and monitoring schedule for the remainder of the project; and
  - xiv) Comments, recommendations and conclusions for the monitoring period.

## VII. COMPLIANCE OF ENVIRONMENTAL SAFEGUARDS

26. It was observed that some activities were taken on the island that requires written approval from EPA and Council before commencement of works. The following activities were noted on site:

- a. Placement of dredge waste within an area designated for future commercial and housing development in the land use master plan. The Contractor, PMC and PMU notes that the works are undertaken in accordance with consultations with Island Council.
- b. Transplanting 4 trees from areas designated for removal to project site. This is done based on good will by Contractor and to prevent loss of trees during other clearing activities.
- c. Works were being undertaken during night to allow the Contractor to work during low tide periods.

**Table 2: Summary of additional activities requiring documentation**

<b>Activity</b>	<b>Current approval</b>	<b>Additional approval requirements</b>
Permanently storing access dredge waste on the island	As per the EIA approval, excess dredge waste can be stored close to a site near reclamation Area 2 based on onsite consultation with contractor and Council.	The temporary storage site needs to be approved in writing by Island Council. The new site needs to be informed to EPA and approved in writing since it

		is not close to Reclamation Area 2.
Tree relocation	No specific provision in the EIA, but EPA allows less than 10 trees to be transplanted without written approval from EPA.	Written approval from Island Council to plant trees.
Working during night hours	EIA and EMP recommends not to undertake works during nighttime due to potential noise disturbance to public.	Written approval from Island Council. EPA needs to be informed of the change to mitigation measures.

## A. Implementation of EMP

27. The project EMP has been prepared and is approved by EPA. EMP requirements were included in the contractual arrangements and the Contractor is responsible to implement them. Table 3 below summarizes Project construction stage compliance to the EMP during March 2019. A detailed assessment of the EMP compliance is presented in Table 4 below.

**Table 3: Summary of environmental mitigation compliance**

No	Key environmental mitigation measures	Compliance	Compliance Notes
1.	Interaction with local communities and community leaders will be held so that they are made aware of the construction.	Compliant	Regular interaction with Island Council held but presentation of the final project to community required.
2.	The construction zones would be demarcated along with display / signboards restricting movement of locals, limited to the construction period, in and around the construction limits	Partially compliant	All areas except the southern end of the project boundary are well enclosed. The enclosure needs to extend to dredge waste disposal site.
3.	Fire-fighting equipment will be installed at the construction sites for addressing potential fire related risks and accidents.	Non-Compliant	Equipment not installed at the time of survey.
4.	Mitigation measures like provision of silt screens and creation of bund wall from initial dredge material will be adopted. The dredging and reclamation works will be limited mostly to daytime and where possible to low tide. Work at low tide will ensure fine sediments are not readily washed off to residual impact areas.	Partially Compliant	Bund walls are in place but they are being regularly repaired. Silt screens are not used. Dredging works are being undertaken at low tide and therefore requires working during night as well.
5.	Reclamation and dredging operational area be limited to bare minimum so that the impacted zone is minimal.	Compliant	Footprint is minimal.
6.	Diesel driven engines of workboats, barges and dredgers will be well-maintained and will meet emission norms of diesel vehicles.	Compliant	Emission data for vehicles not available but equipment appear to be well maintained.
7.	Seawater quality monitoring program will be initiated with special emphasis on turbidity and will follow the schedule given in the monitoring program.	Non-compliant	Not undertaken at the time of survey but an assessment was undertaken on 26 March.
8.	Extreme precaution will be taken to avoid spillage or leakage of diesel, oils and lubes from construction related vehicles. To reduce the impacts from spills or leaks occur during operation and maintenance of these vehicles will be done only at designated and surfaces in	Partially Compliant	Vehicle maintenance and parking zones are well defined. However, the oil leaks were observed around the parking and maintenance zones which needs to be

No	Key environmental mitigation measures	Compliance	Compliance Notes
	the construction yard. Spills / leaks, if any, will be recovered and disposed according to local standards.		controlled and managed in a timely manner.
9.	Pollution control equipment such as boomers and dispersants will be made available at the construction sites for addressing potential pollution risks and accidents.	Partially Compliant	Dispersants available but boomers not available
10.	The worker camps will be located close to the harbor within the reclaimed land.	Compliant	
11.	The camps will be adequately equipped with all the necessary facilities / amenities such as water supply, power supply, wastewater collection, solid waste collection and sanitation.	Compliant	
12.	The domestic wastes generated from the camps will be disposed at local waste disposal site.	Partially Compliant	All general waste except food waste and construction waste taken to waste disposal site.

**Table 4: Detailed EMP Compliance Observations**

Potential impacts	Mitigation measures	Observations	Actions Required
1.1 Non compliances due to lack of clearances and permits	<p>Secure the environmental clearance before the start of any civil works.</p> <p>Secure all other permits and no objections that may be necessary for construction works.</p>	<p>EIA, EIA Addendum and Dredging and Reclamation permits completed</p> <p>Additional works undertaken that requires Island Council Approval and information to be shared with EPA are:</p> <p>a. New Disposal site for dredge waste not as per the EIA approval.</p> <p>b. Transplanting 4 trees to project site from airport site (does not require EPA approval; a council approval exists).</p> <p>c. Working during nighttime.</p>	<p>None</p> <p>Inform EPA of the change in dredge waste disposal location and method, along with written approval from Island Council and a stamped map showing the agreed disposal site.</p> <p>If more than 10 trees are to be removed, EPA approval is required. This is a good practice to vegetate the area, but it should follow the existing master plan. Need to inform EPA of the change in mitigation measure along with Council approval.</p>
1.2 Inadequate EMP	Review the EMP and revise it based on the detailed design as necessary for approval by the PMU.	Changes required to EMP as sand is being placed outside the project boundary. The impact footprint and impact timeframe has changed.	Update EMP for both construction and operations staged to reflect expanded footprint
1.3 Poor environment safeguards planning and implementation documents	<p>Prepare the following plans for review and approval by the PMC and before the start of the respective works:</p> <ul style="list-style-type: none"> <li>- Construction camp layout and management plan</li> <li>- Dredge management plan</li> <li>- Spoil disposal plan</li> <li>- Emergency management plan</li> </ul>	All documents handed and approved by PMC.	None
2.1 Littering on terrestrial and marine environment	Littering, accidental disposal and spillage of any construction wastes should be avoided by pre-planning ways of their transportation and unloading at site. Careful planning of the work activities can also reduce the amount of waste generated.	<p>Some oil leaks from vehicles observed while parked.</p> <p>Two sites identified with bins; office area and staff area.</p> <p>Food waste is disposed to sea. This is the norm practiced on the island. It is not recommended to take food waste to current waste management centre as it cannot be managed properly.</p>	<p>Oil leaks from parked vehicles need to be controlled and its effects on soil need to be minimized. Use designated spots for parking, fuelling and maintenance (as is mostly practiced now) and place a hard surface or medium underneath the vehicles to prevent direct leaks to soil.</p> <p>Clean affected areas regularly.</p>

Potential impacts	Mitigation measures	Observations	Actions Required
	<p>During works over water structures, all construction related waste will be collected and sent to the waste management site. Burnable waste will be sent to local disposal site.</p>	<p>Waste segregation done at site, but waste management centre does not have proper facilities to handle segregated waste.</p> <p>Steel and other construction waste has been stored on site for transport to Thilafushi Island waste management centre.</p> <p>Burnable waste sent to Island Waste Management Centre Used oil barrelled and reused Construction waste stored in a designated site.</p> <p>No signs at waste management sites</p>	<p>Food waste disposal needs to be reviewed with Island Council but disposing to sea from this project needs to be stopped.</p> <p>Alternative options to create a compost pit or bury food waste under landscaping zones need to be explored.</p> <p>Explore options to transport plastic and metal to Thilafushi Island, instead of waste management centre. If there is a local business involved in export of recyclable material, it can be handed over to them.</p> <p>Signs are required in waste storage area on site</p>
<p>2.2 Damage to reef by unloading works</p>	<p>Awareness raising of project managers on environmentally friendly practices to minimize negative impacts on all aspects of construction.</p> <p>Remaining material and machinery demobilized after completion of dredging works.</p> <p>Reclamation and dredging operational area be limited to bare minimum so that the impacted zone is minimal.</p>	<p>Contractor notes that they do it regularly. Next round during second week of April.</p> <p>Work site footprint is kept to a minimum, but dredge waste has been placed out of the site to be reused by Council. This could be a potential issue in the future as the material contains a lot of rubble and Council might not be able to handle it, becoming a burden.</p>	<p>Environment Consultant to participate in this session and provide a briefing of their own.</p> <p>Need to update EMP to ensure that the material can be properly disposed during operations stage. Also See section 1.1 above.</p>
<p>2.3 Sedimentation</p>	<p>Operation of heavy machinery only in the low tide (dredging and piling works)</p>	<p>Contractor notes that they only operate at low tide. Observed to be working at low tide during</p>	

Potential impacts	Mitigation measures	Observations	Actions Required
and siltation on the reef and lagoon	<p>Clearly mark needed areas for dredging and reclamation.</p> <p>Install silt screens and of bund wall around the dredging area to confine sediments within the construction site.</p> <p>Limit dredging and reclamation works mostly today time and where possible to low tide. Working at low tide will ensure fine sediments are not readily washed off to residual impact areas.</p>	<p>site visits. They can work if required at high tide within in enclosed bunds.</p> <p>Marked with white and red flags.</p> <p>Bund walls constructed. Bunds keep falling down and they replace it. Reworking bunds everyday have an impact on the environment as turbidity and sedimentation increases each time bund is adjusted, making bunds themselves a significant source of marine environmental impact.</p> <p>No bunds for the channel area. Channel already dredged so material keeps flowing out.</p> <p>They are working during night to accommodate working only during low tide.</p>	<p>Contractor needs to find an alternative method to maintain bunds like using bags, large coral pieces and/or geotextile.</p> <p>Silt screen or an option to stop turbid waters to leave through the channel is recommended; in hindsight, channel could have been dug later. See 1.1.</p>
2.4 Physical damage to marine flora and fauna	<p>Avoid operation of heavy machinery out of construction area or boundary.</p> <p>Prohibit workers from harvesting/fishing or intestinally harming any marine flora or fauna and penalize them if anyone carries out any of these prohibited activities.</p>	<p>Reef areas generally not used (see imagery).</p> <p>Contractor notes they don't allow fishing. Need to conduct training on this matter. Boats from outside come to fish and harvest sea cucumber.</p>	<p>Place a sign in staff area to warn staff not to fish. Penalizing violators has not been explored per assessment, there is no specific need to define extensive measures given the condition of the reef and compliance of workers.</p>
2.5 Seawater contamination,	<p>Oil /chemical handling and management procedures will be made known to all relevant staff, appropriate supervision.</p> <p>Take precaution to avoid spillage or leakage of diesel, oils and lubes from construction vehicles.</p> <p>Conduct maintenance of these vehicles only at designated areas and surfaces in</p>	<p>Part of staff training.</p> <p>Not implemented properly. Need measures to prevent leaks directly onto the soil.</p> <p>A specific area used but the soil gets affected</p>	<p>Need written procedures for oil and chemical handling.</p> <p>As discussed above need measures to prevent oil leakage from vehicles.</p> <p>See 2.1</p>

Potential impacts	Mitigation measures	Observations	Actions Required
	<p>the construction yard and not inside the water</p> <p>Spills / leaks, if any, will be recovered and disposed according to local standards.</p> <p>Locate worker camps within the reclaimed land and away from the beach area</p> <p>Equip camps with necessary facilities / amenities such as water supply, power supply, wastewater collection, solid waste collection and sanitation.</p> <p>Domestic wastes generated from the camps will be disposed at local waste disposal site.</p>	<p>See 2.1</p> <p>Implemented</p> <p>01 dormitory style temporary accommodation made available for foreign migrant laborers. The room is properly ventilated, however, there is scope for improvement in cooling through providing more insulation. 02 workers are employed to maintain the cleanliness of accommodation.</p> <p>Engineers given separate accommodation.</p> <p>Maldivian staff are provided separate accommodation – 02 persons per room</p> <p>04 toilets provided for laborers. Toilets were found to be hygienic and well maintained.</p> <p>Two washing machines are provided for self-service laundry.</p> <p>Piped desalinated water made available for staff near the toilets</p> <p>Yes, but food waste is disposed in the sea as the waste site do not accept food waste.</p>	<p>See 2.1</p> <p>See 2.1</p>
2.6 Air pollution	Heavy machinery used dredging and reclamation works operated minimized.		This measure needs to be removed from the EMP as it is impractical since dredging and reclamation require heavy machinery.

Potential impacts	Mitigation measures	Observations	Actions Required
	Regularly maintain diesel driven engines of work boats, barges and dredgers and ensure they meet required emission levels for diesel vehicles.	Contractor notes equipment are well maintained.	
2.7 Noise pollution	Avoid use of heavy machinery during night hours.	Contractor has to work during nighttime to work during low tide hours. Council informed and PMC has agreed.	See 1.1
2.8 Poor occupational Health and Safety	<p>Provision of adequate safety gear to workers such as gloves, face masks, earplugs, boots, life jackets etc.</p> <p>Maintain a fully equipped first aid kit on the construction site and establish proper links with the local medical facility to treat more injuries and sickness.</p> <p>Maintain hygienic environment in construction camp site by providing proper waste management facilities, clean drinking water and proper toilet facilities.</p> <p>Provide proper fencing and signage to ensure public do not enter unsafe areas in and around the construction site.</p> <p>Installation of firefighting and pollution control equipment at the construction sites.</p>	<p>Not well implemented. Even if they are provided, sometimes they do not wear it. General procedure is that no one can walk out of designated zones without vests, helmet and shoes.</p> <p>First aid kit available at site office. One occupational health and safety exposure incident. An excavator battery burst. There were no injuries to workers.</p> <p>Implemented.</p> <p>Signs provided; Issues with visitors having no directions showing PPE free routes to project office.</p> <p>No pollution control; firefighting equipment and two trained fire fighters on site. Firefighting equipment not installed.</p>	<p>Need to implement this procedure thoroughly. Contractors have been instructed to strictly implement the rule on wearing PPE. Awareness programs for workers on health and safety needs to be conducted.</p> <p>Incident reporting (IR) in general has to be improved. IR forms need to be provided.</p> <p>Need signs and a clearly marked route showing a PPE free zone to access the Site office.</p> <p>Need to install firefighting equipment urgently. Pollution control equipment required on site.</p>
	Interaction with local communities and community leaders will be held so that they are made aware of the construction.	Regular meetings with Council but no evidence that meetings were held with general public after project commenced. Meetings with Council have taken place on key issues like dredge disposal.	Elaborated in detail in Social Safeguards assessment.

Potential impacts	Mitigation measures	Observations	Actions Required
<p>3.0 Grievance redress mechanism Mechanism</p>	<p>Community has lodged grievances with the Island Council. Some of these grievances are filed in Island Council and documents are maintained. However, there are no written records of grievances communicated verbally to Council.</p> <p>However, it is not clear if these issues have been lodged with the Grievance Committee.</p> <p>There is no evidence if the grievances lodged at Island Council have been properly communicated to PMU.</p>	<p>Not being implemented properly or ineffective.</p>	<p>Need a re-evaluation of the structure and composition of grievance committee.</p> <p>Need to evaluate how the committee has functioned to-date and determine if changes are required.</p> <p>PMU Needs to inform Island Council and Contractor on the need to fully implement the grievance mechanism.</p>

## B. Environmental Monitoring

28. Environmental monitoring has not been undertaken for the project. Requirements for the project and their status are summarized in the table below.

Reef community	Methodology	Sampling frequency	Status
<b>Construction phase</b>			
Reef benthos (coral and other benthic cover)	Photo quadrat method at 250 by 5-meter belt transect areas at baseline project impact area and control site	Every 3 months	Not undertaken
Reef fish community, diversity and abundance	Visual Census of reef fish diversity and abundance at baseline data collection locations	Every 3 months	Not undertaken
Seawater (seawater tested for contaminants or increased in nutrients due to dredging, reclamation and harbour protection related works),	Water sampled from baseline sampling locations. Water samples tested by a Nationally accredited laboratory. Following parameters are to be tested;  <b>Physical properties:</b> Salinity, pH, Electrical conductivity, Dissolved oxygen, Turbidity  <b>Chemical properties:</b> Biological Oxygen Demand, Nitrite, Nitrate, Phosphate, Sulfates, Hydrocarbon  <b>Biological properties:</b> Total coliforms, fecal coliforms  <b>Metals including heavy metals:</b> Iron, Copper, Zinc, Magnesium	Every 1 month	Contractor notes water samples were taken from site twice monthly – but no evidence if the tests were submitted to a laboratory.
Sedimentation rates	Set up sediment traps on baseline data collected as project impact area and control site	Every 2 weeks for the entire duration of dredging and reclamation works, 3 months post dredging and reclamation	Not undertaken

29. Environmental monitoring needs to start as a matter of urgency. It is understood that the first assessment was undertaken on 26–27 March 2019. The agreed timeline is provided in the annexure.

## VIII. STATUS OF SOCIAL SAFEGUARDS

### A. ADB Social Safeguards

30. ADB safeguard policies are generally understood to be operational policies that seek to avoid, minimize, or mitigate adverse environmental and social impacts, including protecting the rights of those likely to be affected or marginalized by the development process. There are 3 areas under ADB safeguard policy statements:

- i) Involuntary Resettlement;
- ii) Indigenous People; and
- iii) Environment.

31. The Harbour Expansion Project is considered a Category C for both involuntary resettlement and indigenous peoples safeguards. This project category means there is unlikely adverse impacts.

### B. Social Safeguard Areas

32. The social safeguard areas applicable to this project are:

- i) Involuntary Resettlement;
- ii) Project site is free from encumbrance;
- iii) Core labor standards;
- iv) HIV AIDS/Anti-trafficking and child labor awareness campaign;
- v) Opportunities for women entrepreneurs; and
- vi) Design provisions for elderly-women-children-disabled.

### C. Manpower at Site

33. According to records provided by MTCC, on 26 March 2019, there were 56 workers recruited on site at Kulhudhuffushi. Of them 6 were Maldivians and 50 were foreign migrant workers. There were no female workers recruited for the project. The number of workers and their nationality are given below.

Nationality	No. of people
Maldivian	6
Indian	23
Bangladeshi	22
Sri Lankan	3
Nepal	2

34. Description of workers on site at Kulhudhuffushi harbor on 26 March 2019:

Sr. No	Description	No of people
1.	Civil Engineer	1
2.	Regional Supervisor	1
3.	Assistant Supervisor	1
4.	Assistant Site Officer	2
5.	Assistant Surveying Officer	1
6.	Excavator Operator	9
7.	Driver	5
8.	Loader Operator	2
9.	Mason	3
10.	Carpenter	2

Sr. No	Description	No of people
11.	Mechanic	2
12.	Laborer	19
13.	Electrician	1
14.	Welder	2
15.	Cook	3
16.	Cook Helper	2
<b>TOTAL</b>		<b>56</b>

#### D. Compliance with Core Labor Standards and Related Provisions

Area	Status	Compliance	Recommendation
Recruitment	56 workers are working at project site. There are total of 56 workers of whom 51 are foreign migrant workers and 5 Maldivian workers. All are male workers. There was no new recruitment for the project. Most of the staff who were mobilized for this project have been with MTCC for several years. There have been only six new recruits for this project.	Yes	Verify the staff records maintained at MTCC head office
Passports and Identity Documents	All the original passports are kept at MTCC head office. Since the workers are in temporary accommodation and there is no safe storage for documents and valuables, the documents are kept in Male'	Partial	MTCC needs to develop a policy on the safe keeping of documents and valuables of foreign migrant workers.  Scanned copies of passports to be provided to workers.  Safe storage options to be provided on project site.
Payment of wages	Worker's wages are paid directly to the personal accounts of workers on time.	Yes	Validation by document checks for salary slips
Working conditions	The workers operate in two shifts; 7 AM to 7 PM and 7 PM to 7 AM.  Teams of 15 people are organized for operations work in a shift.  Dredging works is carried out during nighttime.  One day per week is given as off day for workers.  Uniforms are given for workers by MTCC. Drinking water is available at kitchen. Workers fill drinking water bottles and use during work hours.	Yes	Program to raise staff awareness on importance of drinking water

Area	Status	Compliance	Recommendation
Food	03 meals are provided with an evening tea break. Food quality is good. Monthly food stock is provided by MTCC Male' HQ and perishables are obtained from local shops. There are five different nationalities on site.	Yes	Provide a written guideline for meal preparation for multicultural team of workers.
Worker-Community Conflicts	Meeting with Island Council on a monthly basis. Frequent visits by Island Council to project site to discuss issues of concern.  Contractor maintains good relations with community through CSR. Has provided dredged sand for community uses.  Workers are not allowed to go out of project site after 10 PM.  Restriction of access to swimming area at the start of dredging resulted in minor conflicts.	Yes	Proper records of meetings need to be maintained.  Special attention is needed to ensure community grievances are lodged according to the Grievance Protocol and are reported to PMU.
HIV/AIDS prevention	Awareness program on HIV/AIDs is planned for second week of April 2019.	Planned	The training shall be conducted with participation of Public Health Officials

35. In addition to above, following are some more observations for the period from October 2018 to March 2019:

- i) **No involuntary resettlement:** As per the Land Use Plan of Kulhudhuffushi island, the proposed area for the expansion of the harbor is earmarked for this purpose. Furthermore, the Land Use Plan demarcates areas to be used for industrial and commercial purposes hence, clearly separating the designated area from residential land use. Furthermore, the project site that has been earmarked is reclaimed land through a Government of Maldives funded project in 2010. Additionally, there are no agricultural activities or any other such investments in this area, though the community uses this area for recreational purposes such as swimming. Given that the proposed harbour expansion project and construction will be confined to this distinct project site, there will be no temporary disruption of livelihoods, for any private party, or community group in Kulhudhuffushi during the project period.
- ii) **Project site is free from encumbrance:** The Government records till date show that the proposed project area does not have any privately-owned land. This has been visually confirmed by the site visits as there are no households or private commercial activities being carried out on the land where the harbour is planned to be developed. As there is no encroachment of the land, it is observed that the project site is free from encumbrance.
- iii) **Opportunities for women entrepreneurs:** Currently, in Kulhudhuffushi a lot of the businesses are established near the harbor, hence the development of the passenger harbour will increase the economic benefits to the existing local businesses, including women entrepreneurs with the ease of connectivity and better market access. Additionally, new avenues will arise for Small Medium Entrepreneurs (SME's) to flourish in the region, and women entrepreneurs interested in local farming or making local delicacies, etc. will have more

opportunities to start a small business or to expand their home based operations with the envisaged increase in the visitors with the increase in marine traffic volume.

- iv) **Design Provisions for elderly-women-children-disabled:** In the design of Ferry Terminal building, two 6° Slope Ramps have been provided beside the Entrance Porch for ease in access to the PWD including elderly. Further, provisions for separate washrooms have been kept in the ferry terminal building area for the male passengers, female passengers and PWD including elderly. In the design, provisions have been kept for separate ablution/prayer rooms for male and female passengers. Provisions for mother's room has also been kept for the female passengers with infants.

## IX. CONCLUSION AND RECOMMENDATIONS

### A. Environmental Safeguards

36. The project is progressing well and the dredging and reclamation works are were at an advanced stage during the field visits. The following key issues needs to be addressed urgently.

- i) Environmental monitoring needs to be started by the Contractor urgently. Particular attention needs to be given to dredging phase monitoring phase as it is considered to have the most impact from the project.
- ii) Changes to the project can affect the environmental clearance issued for the project. The following changes need to be informed to EPA in writing, along with the relevant Island Council Approval, to determine of any further clearances required.
  - a) Changes to work times. i.e. working during night hours; and
  - b) Changes to dredge disposal site, specifically relating to temporary storage of dredge waste for future island use. Island Council may need to specify what this material will be used for in the future.
- iii) The expanded footprint of temporary dredge waste storage needs to be included as the project footprint until the completion of dredging component. The EMP should be updated to cover this footprint as well.
- iv) Oil leaked from parked construction vehicles need to be managed better. Oil leaks to the ground surface must be controlled and regularly cleaned.
- v) Waste management is being undertaken as specified except for food waste disposal. Food waste is currently being disposed to sea as the current waste management site is unable to handle food waste. It is not recommended to dispose food waste to sea from this project. Hence, an alternative method such as composting needs to be explored by Contractor to dispose food waste. Options to transport metal and plastics to Thilafushi Island in Male' Atoll, where it has a better chance of being recycled must be explored.
- vi) The current method of building sand bunds for dredging needs to be reviewed. The need to periodically rebuild the bunds during high tides may be leading to constant turbidity and sedimentation in the area. If the bunds need to be repaired more than three times a week, an alternative method to hold the bunds such as placing sand filled jumbo bags, rocks or large coral pieces or using geotextile needs to be considered to prevent bund material loss.
- vii) It is recommended to review the Grievance Redressal Mechanism for effectiveness. PMU needs to take the lead in communicating to Island Council and Contractor on the full implementation of Grievance Redressal Mechanism and the necessary communication protocols. A review and recommendations will be included in the next ESSM report.

**B. Social Safeguards**

37. There are no social safeguard concerns of significance. The contractor has followed good protocols and procedures with regard to social safeguards. In order to ensure continuation of the good practices, it is recommended that consultations and verifications be carried out at MTCC HQ to determine the status of documented policy and practices.

38. The HIV AIDS awareness program needs to start as a matter of urgency. The first session shall be conducted before mid-April 2019.