

# External Environmental Monitoring Report

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**PUBLIC**

1st and 2nd Quarterly Report  
June 2023

## Maldives: Greater Male Waste-to-Energy Project

Prepared by Nicholas Skinner for the Republic of Maldives and the Asian Development Bank (ADB).

## CURRENCY EQUIVALENTS

(as of 30 June 2023)

Currency unit	–	rufiyaa (Rf)
Rf1.00	=	\$0.065
\$1.00	=	Rf15.380

## ABBREVIATIONS

ADB	–	Asian Development Bank
AIIB	–	Asian Infrastructure Investment Bank
CEMP	–	Contractors Environmental Management Plan
DBP	–	Design, build and operate
EIA	–	Environmental impact assessment
EMP	–	Environmental management plan
H&S	–	Health and Safety
IFC	–	International Finance Corporation
ILO	–	International Labour Organization
IEM	–	Independent environmental monitor
ME	–	Ministry of Environment, Climate Change and Technology
PMDCSC	–	Project Management Design Construction Supervision Consultants
PMU	–	Project management unit
PPE	–	Personal Protective Equipment
QEMR	–	quarterly environmental monitoring reports
SPS	–	Safeguard Policy Statement
WAMCO	–	Waste Management Corporation
WTE	–	Waste to Energy

## NOTE

- (i) In this report, "\$" refers to United States dollars.

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# EXTERNAL ENVIRONMENTAL MONITORING REPORT

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## Greater Male' Waste to Energy Project



Report Number: 1

Status: Final

Period: January – June 2023



## EXTERNAL ENVIRONMENTAL MONITORING REPORT – GREATER MALE’ WASTE TO ENERGY PROJECT

Contract Date	Location	Consultant	Position	Agreement Number
1 <sup>st</sup> November 2021	Home and Male	Nicholas Skinner	Environmental Specialist	(AGR)438- WMPC/INDIV/2021/17

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## I. INTRODUCTION AND PURPOSE OF ASSIGNMENT

### 1.1 INTRODUCTION

The Government of the Maldives is commissioning a design, build and operate (DBO) Contract for a Waste-to-Energy (WTE) Facility Project for the Greater Malé region to help in managing solid waste. The WTE Facility Project will be set up on the island of Thilafushi, Kaafu Atoll in the Greater Malé area. The project is funded by the Asian Development Bank (ADB) and Asian Infrastructure Investment Bank (AIIB) and commissioned by the Ministry of Environment (ME).

According to the concept design, the initial capacity of the facility shall be 167,000 Mg/y (two trains 250 tons per day or 10.5 tons per hour each), which then can be extended by a third train. Baled waste will be used as buffer to accommodate any waste volume fluctuations.

In relation to environmental management, the project is classified as Category A for environment per ADB Safeguard Policy Statement (SPS). An environmental impact assessment (EIA) has been conducted on the concept design and disclosed on the ADB website. The EIA contains an environmental management plan (EMP) developed to address the potential impacts and risks identified by the environmental assessment. The EMP includes the proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. This will be updated by the DBO Contractor based on the final detailed design, including the construction methods and materials to be used.

During its implementation, the project is required to monitor and measure the progress of implementation of the EMP. The extent of monitoring activities will be commensurate with the project's risks and impacts. Accordingly, SPS requires the project to retain qualified and experienced external expert to verify its monitoring information – an Independent Environmental Monitor (IEM).

### 1.2 PURPOSE OF IEM'S ASSIGNMENT

The IEM will monitor the compliance of the project in implementing the EMP but is not involved in the day-to-day project implementation or supervision of the project. The IEM will closely coordinate his/her site visits and work with the ME project management unit (PMU).

## 1.3 IEM SCOPE OF WORK

### 1.3.1 General Requirements

The following table sets out the scope of work of the IEM according to the IEM contract agreement with the ME and indicates the activities currently undertaken, or in progress. <sup>1</sup>

*Table 1: IEM Scope and Progress*

Contract Statement	Status	Next Steps
Become familiar with the project, including the EIA report and implementation arrangements for the project.	Complete. EIA has been read and implementation arrangements of the Project are understood.	None required.
Contribute to the review of the updated EIA, <b>following the final detailed design by the DBO Contractor</b> , and provide comments and recommendations as necessary relating to (a) the adequacy of monitoring arrangements, (b) the construction work method statements, (c) the proposed mitigation measures to address newly identified negative environmental impacts and risks.	Detailed design is not yet completed. Review of preliminary design EIA has been completed and comments included in this document.	Review the updated EIA based on the detailed design.
Contribute to the review of DBO Contractor's EMP (CEMP) to ensure that it addresses related issues and recommendations in the EIA.	Review of several CEMP plans has been completed and the findings discussed in this report.	Continuous review of CEMP plans as they are prepared and submitted to PMU.

<sup>1</sup> IEM LOE for the assignment is 77 days, 55 on site and 22 at home. Over the five year project period this equates to 15 days per year, 5.5 days per semi-annual mission and 4.5 days home based work over the working year for review work and report writing. Given the limited home based time any reports prepared will be concise and focused on key topics.

Contract Statement	Status	Next Steps
<p>Contribute to the review of DBO Contractor's Health and Safety Plan (H&amp;S Plan) to ensure consistency with the requirements of the EIA and necessary measures to prevent the spread of emerging infectious diseases such as the corona virus disease (COVID-19).</p>	<p>Review of the Public Health and Safety Plan complete. Findings included in this report.</p>	<p>Review of the H&amp;S Plan.</p>
<p>Review monthly environmental monitoring reports submitted by the DBO Contractor to the project management unit (PMU) and quarterly environmental monitoring reports (QEMRs) of PMU to ADB.</p>	<p>The PMU has not submitted the DBO Contractors monthly reports to IEM for review.</p>	<p>PMU to send monthly reports to the IEM for review.</p>
<p>Inspect the project construction works and following construction, plant operations (depending on final arrangements in the future) every six months, assess the environmental impacts of the project based on the EMP and any other critical issues that may arise, and prepare a report on the findings.</p>	<p>The first site visit was completed in March 2023. Site visits were not completed before this date as there we no construction works planned before this date apart from some mobilisation of staff to site to establish work site boundaries, camp site accommodation and offices. The findings of the March 2023 mission are included in this report.</p>	<p>Next mission slated for October / November 2023.</p>
<p>Recommend improvements to effectively implement the EMP and provide professional opinion on the degree of impacts, if any.</p>	<p>Recommendations for general project environmental improvements are included in this report.</p>	<p>The IEM will recommend improvements to the EMP based on future site visits.</p>

Contract Statement	Status	Next Steps
When on site, comply with all health, safety and welfare requirements, and participate in project meetings as required.	All requirements were met during the first mission, March 2023.	Continue to follow requirements during follow-on missions.
Provide expert advice to PMU and ADB on any environmental safeguards-related issues that may be encountered during project implementation.	IEM has an open communication channel with PMU on matters relating to environmental safeguards issues. A WhatsApp group has been established for regular discussion on works progress, CEMP and EIA status.	Continue to provide advice to PMU.  Establish a direct line of communication with ADB team to discuss safeguard issues.
Undertake other related tasks as may be required by PMU and ADB.	None required at this stage	None.
Submit reports to ADB, with copies provided to PMU.	First report is provided.	Reports provided following on from each six monthly mission.

## 1.4 REPORT STRUCTURE

The report is organised as follows:

- Section 1: Introduction – providing the scope and progress of IEM works.
- Section 2: Site Visits and Discussions – details of the site visits to the WTE and the discussions held with various people at the site and in Male.
- Section 4: Document Review – Review of CEMP documents, QEMRs, updated EIA and key findings.
- Section 5: Conclusions and Next Steps – summarising the key findings of the report and the next steps to be taken by the IEM and other parties.

## 2.0 SITE VISIT AND DISCUSSIONS

### 2.1 SUMMARY OF IEM ACTIVITIES

#### 2.1.1 Pre-mobilisation (intermittent) home office activities 16 March 2023

Prior to the mission the IEM spent a day reviewing and re-familiarizing himself with the project documents. Documents reviewed included the EIA and CEMP documents prepared in April 2022.

#### 2.1.2 Field Activities and People Met

Activities undertaken during the mission and the people met are summarised in the following table.

*Table 2: Field Activities and People Met*

Date	Location	Activity	Description
19 March 2023	Stockholm - Male	Transit	1. Depart Stockholm 16.10 – Arrive 07.00 (next day)
20 March 2023	Malé	Meeting with PMU	1. Discussion with PMU on project status and mission agenda. 2. Joined weekly on-line meeting with DBO Contractor, EPC Contractor, OE, PMU and PMDCSC.
21 March 2023	Malé / Thilafushi	Site visit	1. Day visit to site, including: 2. Meeting with PMU and DBO Contractors Owners Engineer (OE). 3. HSE Meeting with DBO Contractor, DBO Contractors OE and EPC Contractor 4. Site walkover

Date	Location	Activity	Description
22 March 2023	Malé / Thilafushi	Site visit	<ol style="list-style-type: none"> <li>1. Day visit to site. Including:</li> <li>2. Further discussions with PMU and DBO Contractor Project Manager</li> <li>3. Site visit to WAMCO</li> </ol>
23 March 2023	Malé	Day off	Public Holiday
24 March 2023	Malé	Meeting with PMU	1. Wrap-up meeting to discuss the weeks activities and the next steps.
25 March 2023	Malé	Transit	1. Depart Male for next mission

## 2.2 KEY FINDINGS

### 2.2.1 Site Observations

The IEM arrived at the WTE for the initial site inspection and was taken directly to the main gate where he was signed in and given PPE by security staff. A safety induction was then provided in the PMU site office by the DBO Contractors H&S staff. The WTE site was safe, and secure and the IEM did not feel at any time that he was exposed to any major safety risks. Although major works have not yet commenced at site IEM did observe that the DBO Contractor had good control over occupational health and safety (OHS) issues at site.

Site works were limited to the development of office blocks and accommodation blocks (one block completed and others in progress), installation of a temporary storage warehouse, water treatment facility and waste storage areas. The site has also been secured, with fencing and security staff at the main gate. 20-30 workers could be seen around the site, with another 20-30 DBO / EPC staff working in the office block. Correct PPE was being worn by all workers seen at the site, helmets, high viz vests, safety boots, harnesses, etc.

The newly constructed accommodation blocks were clean, tidy, air conditioned and no issues of concern were noted. There is no canteen on site and food was being bought to the site from Male every day.

*Figure 1: Foundations being prepared for prefabricated accommodation blocks*



*Figure 2: Temporary storage warehouse*



*Figure 3: Interior of storage warehouse – The floor of the warehouse was concrete. No significant volumes of hazardous liquids (e.g., above ground storage tanks, or drums of oil) were noted in the warehouse.*



*Figure 4: On-going installation of the water treatment plant*



*Figure 5: Accommodation block and safety signboards*



*Figure 6: Blocks for storage of waste materials*



*Figure 7: Full PPE, including harnesses, being worn by workers*



In terms of environmental and social aspects there was little of concern at the site, except for the neighbouring WAMCO garbage pile which borders with the eastern portion of the site. The existing garbage dump adjacent to the boundary is more than 20 meters high with very steep slopes adjacent to the WTE boundary fence. DBO Contractor informed the IEM that portions of the garbage dump nearest to the site boundary had been removed for safety reasons.

However, it is still possible that a partial collapse of the dump could occur and impact upon the areas along, or within the WTE boundary. At present there is no project work in this area, however, the stability of the garbage dump slopes should be assessed further to ensure that there is no risk of collapse affecting the WTE site, both now and in the future. This issue has also been identified in the updated EIA, and the EIA notes that “*the fencing of the project site has been completed, including a buffer safety fence zone to avoid the risk of WAMCO dumping area slope slides*” However, Figure 9 clearly shows that the slope is still very close to the site boundary and the fence offers little protection in the event of a slope collapse.

*Figure 8: WAMCO garbage dump adjacent to the site*



The IEM and PMU also made a visit to the WAMCO site. Some key issues identified during the short visit of the WAMCO site include:

- Lack of clarity regarding the material bales – WAMCO have no data specifying the exact material content of the bales and if the material was suitable fuel for the WTE.

- Bale storage – Baling is on-going with the bales already taking up a large area of the WTE. It is unclear how much more space is available for the bales and if space will run out before the WTE becomes operational.
- Hazardous waste - Some hazardous wastes, e.g., oil containers, are separated out at source, but a small percentage of hazardous waste may still make its way into the baled waste. It is unclear how this would affect the WTE and its emissions. DBO Contractor will need to take this issue into account during detailed design and ensure that the composition of baled waste is analyzed prior to use.
- The storage of hazardous waste at the WTE may be contaminating soil beneath the storage area and potentially groundwater.
- Other pollution - Delivery of waste materials by boat is currently causing pollution within the sea adjacent to the WAMCO site.

*Figure 9: WAMCO waste separation activities*



*Figure 10: Offloading of waste to the WAMCO site*



*Figure 11: Garbage from the WAMCO site in the sea*



*Figure 12: Waste grinding area*



*Figure 13: Hazardous Waste at the WAMCO site*



### **2.2.2 HSE Meeting**

IEM attended the weekly HSE meeting on site with PMU, DBO Contractor, EPC Contractor and the OE. The meeting commenced with a discussion of issues from previous meetings, including the need for toolbox training, site security, and ensuring HSE policies for sub-contractors were in place. IEM observed that the EPC Contractor appears to have difficulties managing his sub-contractors HSE performance, and this can be a problem when there are so many 'layers' of contracting. At present the DBO Contractor manages the EPC Contractor, who in turn manages further sub-sets of sub-contractors. With so many layers it can often be difficult ensuring the final layer of sub-contractors are aware of the HSE requirements of the EIA / EMP and the CEMP – further, it is also possible that these requirements may not have been included in sub-contractor agreements.

The issue of the risks associated with the adjacent dump site was also raised along with items such as establishing a permit to work system and the outstanding Emergency Response Plan (ERP) and Stakeholder Engagement Plan (SEP) as well as other CEMP plans. It was also noted that the EIA needed updating.

DBO Contractor showed his system of tracking compliance with mitigation measures and corrective actions. The excel spreadsheet appeared comprehensive and an excellent way to monitor project progress and compliance and to quickly identify issues that had been closed and any outstanding issues requiring further work. IEM has seen similar trackers used on other Category A ADB projects. IEM recommends that a dashboard be added to the tracker summarising the tracker progress and access to the tracker be provided to ADB, PMU, PMDCSC and IEM.

### **2.2.3 Other Meetings**

What is interesting from the meetings held at site, and from the site visit in general, was how much the project has evolved since the EIA was initially prepared based on concept design. Discussions with the DBO Contractor indicate that they think the EIA should not be updated now, but instead at the detailed design phase. DBO Contractor pointed out the thermal plume as an example; he noted that conditions along the coastline could change between now and the design phase, e.g., a new jetty constructed, which could affect the results of the plume model. However, it is noted that if there are significant changes in the project design which could affect the current works, then the EIA must be updated.

DBO Contractor also noted that many neighbouring activities did not follow the stringent rules applied on them relating to environmental management and that ME needed to provide better monitoring of neighbouring industrial activities.

Both the PMU and DBO Contractor indicated that review and approval of CEMP plans was taking too long. Currently CEMP plans are prepared by the EPC Contractor, then submitted to the DBO Contractor and their OE for review before being submitted to PMU and PMDCSC for review. PMU have indicated that PMDCSC review takes considerable time with multiple revisions of documents being requested. Comments on documents from the PMDCSC are then fed back to the EPC Contractor through the DBO Contractor and the whole process starts over again. Final updated documents, when ready, are sent to the PMU for review and approval.

#### **2.2.4 Commenced activities**

During the time of the site visit piling had not yet commenced, however, IEM understand that this activity has started but with some further delays. Piling activities are not anticipated to result in significant impacts at the site due to the absence of any sensitive receptors. However, close attention to health and safety of workers is required.

### **2.3 SUMMARY OF KEY ISSUES**

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The following section provides a summary of the key issues identified during site visits:

1. Works on-site are limited to camp establishment, securing the site and piling works.
2. DBO Contractor has established an effective monitoring system and has a knowledgeable team of experts. The monitoring system should be shared amongst all parties to ensure that up to date information is available as and when needed.
3. WAMCO dump site represents a safety risk and needs further assessment.
4. Consideration of WAMCO site issues should be noted by ADB, and if necessary, corrective actions applied.
5. CEMP review process should avoid delays.
6. Updates to CEMP and its associated plans should be continuously updated.

### 3.0 DOCUMENT STATUS

On completion of the site visit PMU provided the following CEMP plans to the IEM for review.

1. **Spill Control and Containment Plan** – This plan serves as a high-level document outlining broad measures to take. It does note that specific procedures will be developed for certain worksites. The document should be updated to list the liquids currently used at site, and then provide the specific procedures for each liquid. As part of a monthly review of his plans the Contractor should update the list of liquids stored and used at the site and then provide the specific procedures as annexes to this plan. These specific procedures need to show a clear link between the types of liquids, their hazardous properties, the location of use and the risk of a spill occurring, as well as the measures to manage and clean up the spill if they differ from those already presented in the Plan. Notwithstanding the above, the plan should be approved by PMU, with the condition that the specific procedures are prepared and this document updated periodically. Finally, it is important that a section on training is included.
2. **Construction Camp Development and Management Plan** – Generally a well put together document with two specific comments; 1) where the report mentions ‘best practice standards’ such as IFC, or ILO, it should list out what they are, otherwise it’s not possible to monitor them, 2) the workers GRM is quite weak and could be improved. IEM will provide some samples for consideration.
3. **Grievance Redress Mechanism (GRM)** – The document needs some significant improvements:
  - The GRM does not mirror the content of the EIA – there are only three tiers in the EIA, and 4 in the GRM document.
  - It is unclear why the grievance goes from EPC to DBO?
  - There should be an informal tier at the start of the GRM where affected people can communicate directly with the DBO Contractor to resolve issues immediately. For example: if the Contractor is dumping garbage into the neighbor’s land, does the neighbour have to wait ten days for the issue to be resolved?
  - The flow chart needs to be updated as the ‘not resolved’ cell does not flow anywhere.
  - The receipt at acknowledgement timeframes needs to be consistent.

- Apparently, there is a GRM officer, but it is not clear who he works for – DBO Contractor, PMU?
  - The grievance committee is missing.
4. The GRM is a low-risk item as there are so few people to be affected, but more thought needs to go into this document to make it consistent with the GRMs prepared for other Category A projects.
5. **Waste Management Procedure and Plan** – Three points to resolve on this plan:
- Will there be discharge of sewage to the sea?
  - There should be better measures for the storage of hazardous waste. Now it's not clear how and where it will be stored.
  - It is not clear how waste is recorded and if there is a system of waste transfer notes when sending waste to WAMCO.
6. **Marine and Beach Areas Plan** – The EIA requires that a Marine and Beach Area Construction Work Plan is prepared for the Project, however, the EIA does not specifically say what the purpose of the plan is and what should be included within the plan. Accordingly, it is difficult to determine if this plan meets the requirements of the EIA. Section 4.1 of the plan discusses construction impacts but does not specifically state what relevance these activities have on the 'beach and marine' environment. There is a discussion on material excavation which does not seem to belong in this plan. This is followed by a discussion on 'dewatering' but again it's unclear what relevance any of the proposed control measures will have on dewatering. The discussion on piling works has nothing to do with beach and marine environment and only discussed health and safety issues. Subsequent sections on marine impacts are short and generic and not specific. The mitigation section seems to repeat the mitigation directly from the EIA and does not specify how, where or when mitigation will be applied, and who will do it and monitor it. Examples are:
- Silt curtains and/or other industry good practice management controls will be used to restrict the spread of sediment released during the construction of the combined Jetty/Materials Offloading Facility earthen causeway, particularly when working in mangroves, or adjacent to the reef and seagrass areas.
  - The selection of dredging equipment (cutter, suction/hopper, etc.) by the contractor will be appropriate to the depths and material types to be dredged and to minimize the creation of plumes.

These measures are moot without a specific plan to implement the mitigation. In summary the plan is poorly thought out and has no specific measures. This is mainly due to a lack of clarity on the EIA regarding its purpose and content. ADB should advise the DBO Contractor further on the requirements of this plan before it is updated otherwise there will be little value in this document.

7. **Public Health, Safety and Security Plan** – No specific reference is made to a ‘community’ plan in the EIA, but a ‘health and safety plan’ is required which includes community and occupational health and safety aspects. Accordingly, this plan should be reviewed by PMU. The plan itself is confusing and seems to have a lot of overlap with OHS requirements. The plan should focus entirely on community health and safety and should clearly address the items raised in the EIA, including:

- avoid or minimize the exacerbation of impacts caused by natural hazards, such as landslides or floods, that could result from land use changes due to project activities;
- inform affected communities of significant potential hazards in a culturally appropriate manner;
- be prepared to respond to accidental and emergency situations. This preparation will include response planning document(s) that addresses the training, resources, responsibilities, communications, procedures, and other aspects required to respond effectively to emergencies associated with project hazards. Appropriate information about emergency preparedness and response activities, resources, and responsibilities will be disclosed to affected communities;
- engage qualified and experienced experts, separate from those responsible for project design and construction, to conduct a review as early as possible in project development and throughout project design, construction, and commissioning. This will ensure that structural elements or components situated in high-risk locations will not fail or malfunction and threaten the safety of communities;
- implement risk management strategies to protect the community from physical, chemical, or other hazards associated with sites under construction and decommissioning;
- restricting access to the site, through a combination of institutional and administrative controls, with a focus on high risk structures or areas depending on site-specific situations, including fencing, signage, and communication of risks to the local community;

- removing hazardous conditions on construction sites that cannot be controlled affectively with site access restrictions, such as covering openings to small confined spaces, ensuring means of escape for larger openings such as trenches or excavations, or locked storage of hazardous materials; and
- implement measure to prevent proliferation of vectors of diseases at work sites;
- adequate space and lighting, temporary fences, shining barriers and signage at active work sites;
- contractor's preparedness in emergency response;
- adequate dissemination of GRM and contractor's observance and implementation of GRM; and
- upon availability, local people should be given an opportunity for work in the project activities.

Instead, the plan seems to address a range of other issues that are irrelevant to the project and are not needed in a public safety plan for Thilafushi, e.g.:

- Increased number of occupants per room, mixing of occupants (children/ elderly/adults) with different vulnerabilities)
- Diminished quality of health care and treatment for local communities as existing limited capacities are overwhelmed
- Facilitating the movement of high-risk groups into rural settings (e.g., truck drivers)
- Men with money mixing with vulnerable women
- Implement health service planning and strengthening to ensure adequate health service capacity for HIV/ AIDS diagnosis and management in the Project Area
- Changes in diet of local workforce.

The risks to public health and safety on the island from the project are low and as such this plan should be re-written to address the issues identified in the EIA and not the generic issues currently in the plan. Lastly, little discussion is provided either in the EIA, or this plan about marine public safety. The use of boats to transport staff and material to the site may represent a safety risk to other boats and therefore this topic should be given consideration in the plan.

8. **Risk Assessment Procedure** – There is no reference to this document in the EIA. Accordingly, it will not need review and approval from PMU, rather it should be an internal document for DBO Contractor.

9. **Security Management Plan** – As above, no reference to this document in the EIA. No approval from PMU required.
10. **COVID 19 Management Plan** – As above, no reference to this document in the EIA. No approval from PMU required.
11. **QEMR (October to December 2022) March 2023** – The QEMR is comprehensive and provides the level of detail expected of a QEMR. Some specific comments on the QEMR for its further improvement:
- The following requirement “*The CEMP shall consider ISO 14001 when detailing the environmental management system in place*” is mentioned in the QEMR and the EIA with no specific context. This requirement should be removed as there is no EMS in place.
  - Table 10 – all mitigation measures should have a compliance status. The table should be split into more rows so compliance with each mitigation measure can be seen. Currently it is unclear.
  - Table 10 - Who is responsible for CVRA? This should have been completed by now.
  - Table 10 - Unclear about the WAMCO waste dump safety issue mitigation.
  - Table 10 - CEMP plan status, this should clearly show the status of all plans required.
  - Table 10 – Indicate what permits are currently needed and their status or provide a reference to the table in the QEMR showing permit status.
  - Table 12 – Noise monitoring. The EIA states there are no residential areas (but also says that over 2,000 people are living on Thilafushi). The EIA noted “*Similar to the sources of air pollution, noise and vibrations generated in the construction site also caused by the operation of machinery, equipment and vehicles. As there are few residents living in Thilafushi and they do not live in close proximity to the project site, the impacts on human life is minimal. Furthermore, the residents in this environment are engaged in industrial activity. The impacts of air pollution, noise and vibrations although negative, will be temporary and **not significant** during construction.*” Given that impacts are not significant it is not clear what value instrumental noise monitoring (and air quality monitoring) during construction provides. IEM recommends that this requirement is reconsidered.
12. **QEMR (April – June 2023) August 2023** – Specific comments on the QEMR have been provided to the PMU, they include the following:

- The status of all CEMP plans should be included in the report, specifically in section 2 of the report.
- A table of permits and their status shall be provided in the report.
- QEMR compliance tables should be clear on the compliance status of each mitigation measure, not only compliance against parameters and indicators.
- A status update on the shipwrecks should be provided and further information on berthing areas should be provided, especially given that construction activities will soon become more intensive.
- Status of CEMP and H&S Plan implementation should include a summary of 'red flags' identified in the monthly monitoring reports.
- Ensure all remedial / corrective actions are included in section XII.A.

13. **Updated EIA** – The IEM is not required to review the most recent update of the EIA. However, the IEM has looked through the main changes in the report to ensure he is aware of any major changes. The following provides some brief observations:

- Storage Tanks – there is a reference to petrol day storage tanks of 50-100 liters. Is this realistic? This is smaller than an oil drum (200l).
- Noise Monitoring – if noise monitoring is to be done then compliance with standards should be at the receptor, not at the site boundary for the construction phase.
- O&M Manual - IEM considers that the O&M manual approach based on the requirements of the EMP should be supplemented by a facility environmental and social management system (ESMS). In line with the IFC Performance Standards, an ESMS would incorporate the following elements: (i) policy; (ii) identification of risks and impacts; (iii) management programs; (iv) organizational capacity and competency; (v) emergency preparedness and response; (vi) stakeholder engagement; and (vii) monitoring and review. Such a system would clearly organise all the operational requirements of the Project into a structured management system and align the WTE with international best practice.

## 4.0 CONCLUSIONS AND NEXT STEPS

### 4.1 CONCLUSIONS

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The following key points are noted:

1. IEM needs to be provided with regular updates on the Project status, including monthly reports.
2. DBO Contractor has established an effective E&S tracker system and has a knowledgeable team of experts.
3. WAMCO dump site represents a safety risk to the WTE and needs further assessment.
4. It is uncertain how much space is available for storage of waste bales at the WAMCO site and if space will run out before the WTE becomes operational. Further it is possible that a small percentage of hazardous waste may make its way into the baled waste and it is unclear how this would affect the WTE and its emissions. The DBO Contractor will need to take this issue into account during detailed design and ensure that the composition of baled waste is analyzed prior to use.
5. Storage of hazardous waste at the WAMCO site is potentially contaminating soil and groundwater and delivery of waste materials to the WAMCO site by boat is causing pollution within the sea adjacent to the WTE and WAMCO site.
6. CEMP plan preparation is slow and complicated by a lengthy internal review procedure.
7. It is unclear what the purpose of the marine and beach area management plan is. Further, the Public Health and Safety Plan needs to reconsider its objectives as it does not follow the requirements of the EIA. Several other plans have been prepared and submitted to PMU, but they are not required by the EIA.
8. The O&M manual alone may not be sufficient to manage the environmental and social risks associated with the operational phase of the project.

### 4.2 NEXT STEPS

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The following recommendations are made:

1. PMU to send monthly reports to IEM for information.
2. DBO Contractor to add a dashboard to the tracker summarising progress and provide access to the tracker to PMU, PMDCSC and IEM.

3. PMU to discuss with WAMCO on how to further reduce the dumpsite slope to avoid any potential collapse of the dumpsite affecting the WTE.
4. PMU to discuss with WAMCO the strategy for waste bales when space becomes an issue and the general progress of the rehabilitation of the WAMCO site funded by IDB.
5. DBO Contractor to assess, during detailed design, the potential for hazardous waste to be present within the waste bales and how this could affect the performance and emissions to air from the WTE during the operational phase.
6. PMU to discuss with WAMCO the possibility of corrective actions for the management of hazardous waste (specifically hazardous liquids) and management of waste at the waste offloading areas to avoid marine pollution.
7. PMU to discuss with both PMDSC and DBO Contractor to ensure that there are no delays in the preparation of CEMP plans.
8. DBO Contractor (with the help of PMU/PMDSC) to provide awareness training to all its subcontractors (including subcontractors of subcontractors) to ensure compliance with the EIA, EMP and CEMP.
9. ADB to clarify with DBO contractor the requirements of the marine and beach area management plan.
10. CEMP and its associated plans should be continuously updated. Several recommendations to update plans are made in this report, including the Public Health and Safety Plan and the GRM. IEM will discuss with PMU/PMDSC and DBO Contractor on the revision of these plans based on the comments in this report
11. An ESMS for the WTE is recommended to complement the O&M Manual.

IEM's next mission will be at the end of October 2023.