

# Environmental Monitoring Report

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## **PUBLIC**

Project No. 51077-002  
Semi-Annual Report (November 2022- April 2023)  
August 2023

## Maldives: Greater Male Environmental Improvement and Waste Management Project

Prepared by Project management unit for Greater Male Environmental Improvement and Waste Management Project for the Asian Development Bank (ADB).



## CURRENCY EQUIVALENTS

(As of April 2023)

Currency unit	–	Equivalent
MVR 1	=	\$ 0.065
\$1.00	=	MVR. 15.42

## ABBREVIATIONS

ADB	–	Asian Development Bank
3R	–	Reduce, Reuse, Recycle
C&D	–	Construction and demolition
CSCECL	–	China State Construction Engineering Corporation Limited
DMF	–	design and monitoring framework
DRM	–	disaster risk management
ELV	–	end of life vehicle
EMP	–	environmental management plan
EPA	–	Environmental Protection Agency
FMA	–	financial management assessment
GAP	–	gender action plan
IEC	–	Information, Education and Communication
IEE	–	initial environmental examination
JFPR	–	Japan Fund for Poverty Reduction
MOFT	–	Ministry of Finance and Treasury
MOU	–	Memorandum of understanding
O&M	–	operation and maintenance
PACCB	–	Public Awareness and Community Capacity Building
PAM	–	project administration manual
PMDSC	–	Project management, design and construction supervision consultant
PMU	–	Project management unit
PPMS	–	project performance management system
SES	–	Social and Environmental safeguards
SOE	–	statement of expenditure
SPS	–	Safeguard Policy Statement 2009
SWM	–	solid waste management
TA	–	technical assistance
TOR	–	terms of reference
URA	–	Utility Regulatory Authority
WAMCO	–	Waste Management Corporation Limited



## WEIGHTS AND MEASURES

°C	degree centigrade
dB	Decibels
dia	diameter
kg	kilo gram
Kl	kiloliter
km	kilometer
kmph	kilometre per hour
ha	hectares
HP	Horse Power
LPCD	liters per capita per day
lps	liters per second
m	meter
m <sup>3</sup>	Cubic meter
mg	milligram
mm	millimeter
mcm	million cubic meters
sq.km	Square Kilometer
tpd	tons per day
µg/L	Microgram per Litre

### NOTE

In this report, "\$" refers to United States dollars.

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## I. INTRODUCTION

### A. Project Name and objectives

1. Greater Male' Environmental Improvement and Waste Management Project.
2. The Project will establish a sustainable solid waste management (SWM) system in the Greater Malé capital region and its inhabited outer islands by (i) establishing a modern waste collection, transfer, and disposal system, (ii) improving community-based outer island waste management systems, (iii) building institutional capacity for sustainable services delivery, and (iv) raising public awareness in reduce, reuse, recycle (3R) behaviors.<sup>1</sup> Physical and non-physical investments are designed to curb climate change and disaster impacts while creating a cleaner environment in one of the world's lowest-lying nations.
3. The Greater Malé capital region and its outer islands (classified as Zone 3 in the National Solid Waste Management Policy and the most populated in the country), suffer from severe environmental pollution and deteriorating liveability due to inadequate collection and improper disposal of solid waste. Open dumping and burning of garbage at the 30-year old 10-hectare dumpsite on Thilafushi Island (6 kilometers from Malé) creates a significant environmental and public health hazard. Plumes of smoke visible from the capital city Malé, the international airport, and surrounding resorts compromise air quality and pose a daily nuisance to residents and tourists, while toxic leachate contaminates soil and groundwater. Greater Malé and its inhabited outer islands lack an organized and sustainable waste management system for the 774 tons of mixed solid waste generated per day (tpd).
4. With rapid urbanization and tourism development in the region, waste generation is expected to grow to 924 tpd by 2022 according to the Feasibility Study for an Integrated Solid Waste Management System for Zone III (2017). The increasing pressure on an already-stressed waste management system poses a significant threat to tourism and fisheries, both of which rely heavily on the country's pristine environment and are cornerstones to the Maldives economy. Poor communities in outer islands suffer from accumulated garbage with limited awareness and capacity to effectively manage solid waste.
5. **Existing waste collection, transfer, and disposal system.** High population density and narrow streets present unique challenges for waste collection in Malé. Waste collection is operated by the Waste Management Corporation Limited (WAMCO), a state-owned operator created in 2015 to collect and transport waste and manage the regional waste management facilities throughout the country. WAMCO has limited professional experience in modern and efficient waste collection systems, and this lack of technical and managerial skills is a key issue affecting the sector's performance. While WAMCO is trying various initiatives to improve collection, the company received nearly 150 complaints per day (as of September 2017) on its hotline mostly related to non-collection. Collection equipment includes a fleet of aging vehicles unable to access narrow streets and there are no uniform refuse bins or formal transfer stations. Waste is transported to Thilafushi Island in open non-containerized vessels resulting in significant spillage into the ocean. Since 2008 fires have been deliberately set at the dumpsite to reduce growing mounds. On-site equipment and site logistics are severely inadequate to efficiently manage incoming waste and maximize use of limited space (ADB, 2017). Household surveys within the project area show a high demand for 3R awareness and education programs.
6. **Climate change and disaster risks.** At 1.5 meters above mean sea level, Maldives is vulnerable to sea level rise. Natural hazards such as extreme rainfall and severe storms are

projected to increase because of climate change, posing a risk to infrastructure and operations. The Indian Ocean tsunami in December 2004 deposited approximately 290,000 cubic meters of waste from open dumpsites, including municipal and hazardous wastes such as asbestos, medical, used oil etc. Therefore, the project design includes measures to protect systems from natural hazards and climate change.

7. **Policy, regulatory, and institutional framework for waste management.** The President's 2013 Manifesto called for improvement in waste management in the Greater Malé area. The National Solid Waste Management Policy outlines the principles to improve environmental quality. The Waste Management and Pollution Control Department in the Ministry of Environment and Energy (MEE) is mandated to ensure safe waste disposal on all inhabited islands in line with the Government's manifesto. The MEE works closely with development partners to develop its regional waste management systems, and selected the Asian Development Bank (ADB) to cover zone 3 because of the bank's industry experience and the project's link to ADB's technical assistance (TA) for formulating a development strategy for Greater Malé (ADB, 2017).

8. **Greater Malé development strategy.** As part of its national strategy to achieve efficient public spending on economic and social services, the government aims for 70% of its total population to live in Greater Malé in the future. The plan seeks to create spatial agglomeration and economic opportunities for faster growth and poverty reduction. Tourism accounts for 30% of gross domestic product and is expected to expand in the project area. The total population in the area is forecasted to grow on average by 5.4% annually to reach about 400,000 in 2030. Most of the population increase is expected to be absorbed in the newly developed island of Hulhumalé. Waste management systems are not currently equipped to handle future growth.

9. **Value added by ADB assistance.** Based on ADB's industry and country experience, the following lessons and value additions were incorporated in the project design: (i) use a phased approach and provide adequate support for project preparation; (ii) include technical capacity building for operation and maintenance (O&M); (iii) develop high project readiness; (iv) provide capacity building support to the project management unit (PMU) staff in procurement, contract management, and safeguards; (v) ensure strong community consultation and capacity building targeting women; and (vi) incorporate disaster risk reduction and climate change-resilient measures in project design.

10. **Project Impact and Outcome.** The project is aligned with the following impact: a healthy living environment created in the Greater Malé capital region and its outer islands. The project will have the following outcome: climate- and disaster- resilient SWM services improved (Section IX).

11. **Outputs.** The Project will have three outputs.

12. **Output 1:** Waste collection, transfer, and disposal systems improved and made climate and disaster resilient. This will include (i) an efficient waste collection strategy designed and applied in Malé and Hulhumalé in consultation with local communities targeting women; (ii) waste collection and transport equipment such as trucks, bins, and containers provided for Malé, Hulhumalé and Villimalé; (iii) transfer stations in Malé and Villimalé constructed and transfer station in Hulhumalé designed; (iv) construction and demolition (C&D) waste processing plant and end of life vehicle (ELV) dismantling workshop constructed; (v) waste vessel harbor at Thilafushi rehabilitated; (vi) three vessels for waste transport from outer islands to Thilafushi provided; (vii) heavy equipment such as bulldozers, excavators, and roll trucks provided for

controlled dumpsite management at Thilafushi; and (viii) construction of two administrative buildings for WAMCO at the Malé transfer station and Thilafushi waste vessel harbor. All facilities will include climate-change and disaster-resilient design features.

13. **Output 2:** Community-based outer island waste management systems targeting poor and women enhanced. This output will provide comprehensive support to strengthen sustainable SWM in poor outer island communities. It will include (i) at least 22 island waste management centres (IWMCs) developed or upgraded with processing equipment (balers, glass crushers, metal presses) in consultation with the community, targeting women and incorporating climate and disaster-risk measures; (ii) collection equipment for outer islands (bins, refuse collection vehicles, dump trucks) provided; (iii) capacity building of eligible island councils targeting women in waste collection, segregation, composting, recycling, and operation and maintenance (O&M) undertaken; and (iv) community awareness and behaviour change campaigns in 3R targeting women in outer islands delivered. Output 2 will follow a sector approach where each island is required to meet minimum eligibility and selection criteria, including safeguards, to receive IWMC support under the project. The criteria are intended to ensure sustainability. Output 2 will be partially funded by a Japan Fund for Poverty Reduction (JFPR) grant, which will support islands in the following areas: (i) the construction of IWMCs on at least of 11 eligible islands, (ii) the provision of skills and capacity building to women on eligible islands, and (iii) the delivery of 3R awareness campaigns on all outer islands.

14. **Japan Fund for Poverty Reduction.** The JFPR focusing on Output 2 will support: (i) new or improved IWMCs (works and equipment) designed and implemented with strong community participation targeting women in a minimum of 11 selected outer islands; (ii) skills and capacity building of outer island communities targeting women in sustainable and inclusive SWM; and (iii) public awareness of outer islands communities on sustainable SWM and 3R. The JFPR component which will be financed on a grant basis is estimated to cost \$2,000,000. The JFPR will prioritize outer islands having: (i) high or moderate climate risk vulnerability, and (ii) good governance in the island council (e.g., high representation of women).

15. **Output 3:** Institutional capacity and public awareness in sustainable waste management strengthened. This will include (i) capacity building support in waste collection and disaster risk management provided to eligible WAMCO staff (at least 50% eligible women staff); (ii) public awareness and behaviour change campaigns in 3R delivered targeting the poor and women in Greater Malé;<sup>29</sup> and (iii) project management, design, and supervision consultant support provided.

## **B. Environmental Category**

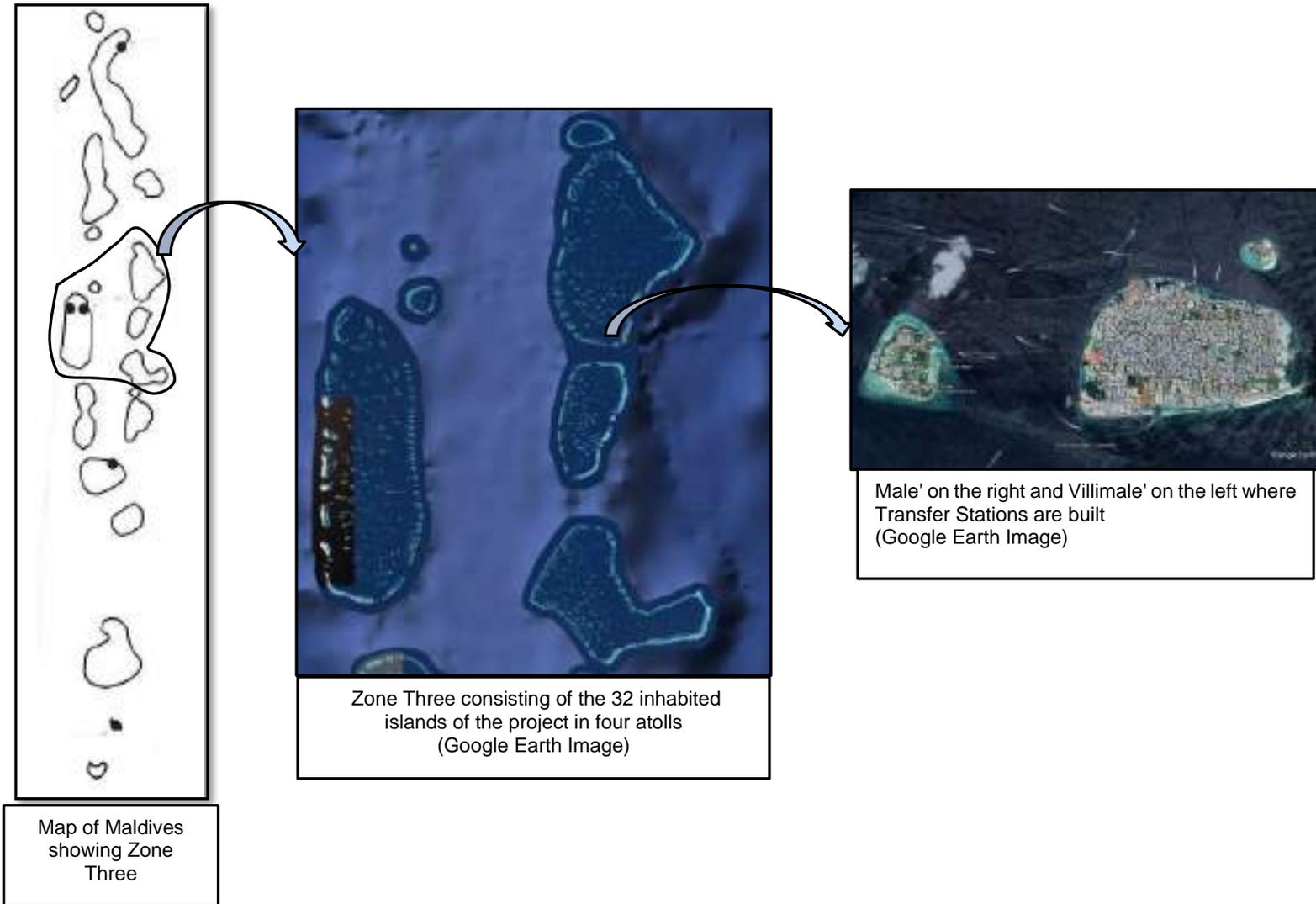
16. The project is classified as Category B according to ADB Safeguard Policy Statement (SPS), 2009 (project components judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for Category A). All subprojects in phase-I are classified as Category B, and the impacts of all subprojects are assessed through Initial Environmental Examination (IEE) as per ADB SPS, 2009.

## **C. About this Report**

17. This is the Semi-annual Environmental Monitoring Report (SEMR) prepared by PMU for the monitoring period of November/2022 to April 2023. This SEMR provides the status of project, presents preparation and implementation of environmental management, mitigation and

monitoring actions, and reports status of compliance with Environmental Management Plans (EMPs) and loan covenants.

Figure 1: Location of Project islands



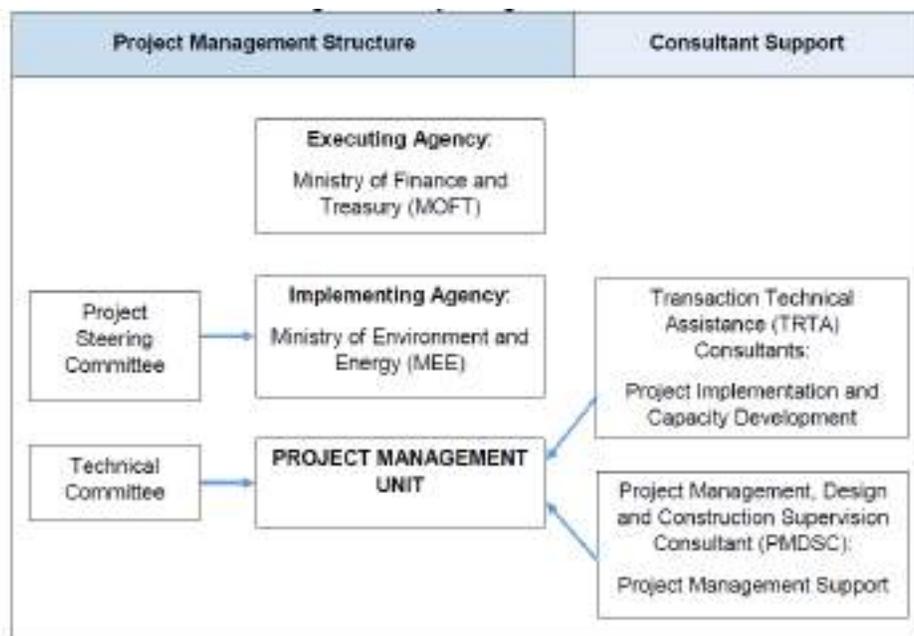
## II. PROJECT IMPLEMENTATION ARRANGEMENTS

18. The project is classified as category B for environmental safeguards per ADB SPS. Three initial environmental examination (IEE) reports with environmental management plans (EMPs) were prepared based on preliminary designs covering (i) construction of transfer stations in Malé and Villimalé, (ii) harbor improvement and construction of and wastes processing plant and ELV dismantling workshop; and (iii) construction of IWMC.

19. An environmental assessment and review framework (EARF) was prepared and agreed with ADB to (i) guide selection, screening and categorization, environmental assessment, and preparation and implementation of at least 22 outer island IWMCs to be prepared after ADB Board approval and (ii) facilitate compliance with the requirements specified in ADB SPS, 2009. The EARF ensures that all IWMCs under the project will not deteriorate or interfere with the environmental sensitivity of the area, but rather improve environmental conditions.

20. A Safeguards Officer will be engaged in PMU to ensure the implementation of environmental safeguards. He/she will be provided with the necessary consultant support, and capacity development and training. In order to ensure compliance with ADB SPS, 2009, executing and implementing agencies will ensure the safeguards requirements and procedures agreed are followed for the project. The most important compliance requirements are compliance with the exclusion and subproject selection criteria, meeting public consultation and disclosure requirements, ADB approval of IEE prior to invitation of bids: and obtaining all necessary regulatory clearances and approvals prior to award of contract.

**Figure 2: Project Implementation Arrangements**



### Safeguards Implementation Arrangements

21. Monitoring and reporting of the implementation of safeguards requirements and procedures will be prepared by the PMU. The PMU will undertake internal monitoring of safeguard covenants' compliance to be included in the quarterly project progress report and semi-annual

safeguards monitoring reports. The PMU with assistance of PMDSC will prepare quarterly progress and semi-annual environmental monitoring reports and submit semi-annual monitoring reports to ADB. PMDSC environment safeguards expert will supervise design and construction works and facilitate preparation of all safeguard documents.

22. Figure 3 shows the project safeguard implementation arrangements.

**Figure 3: Project Environmental Safeguards Organogram**

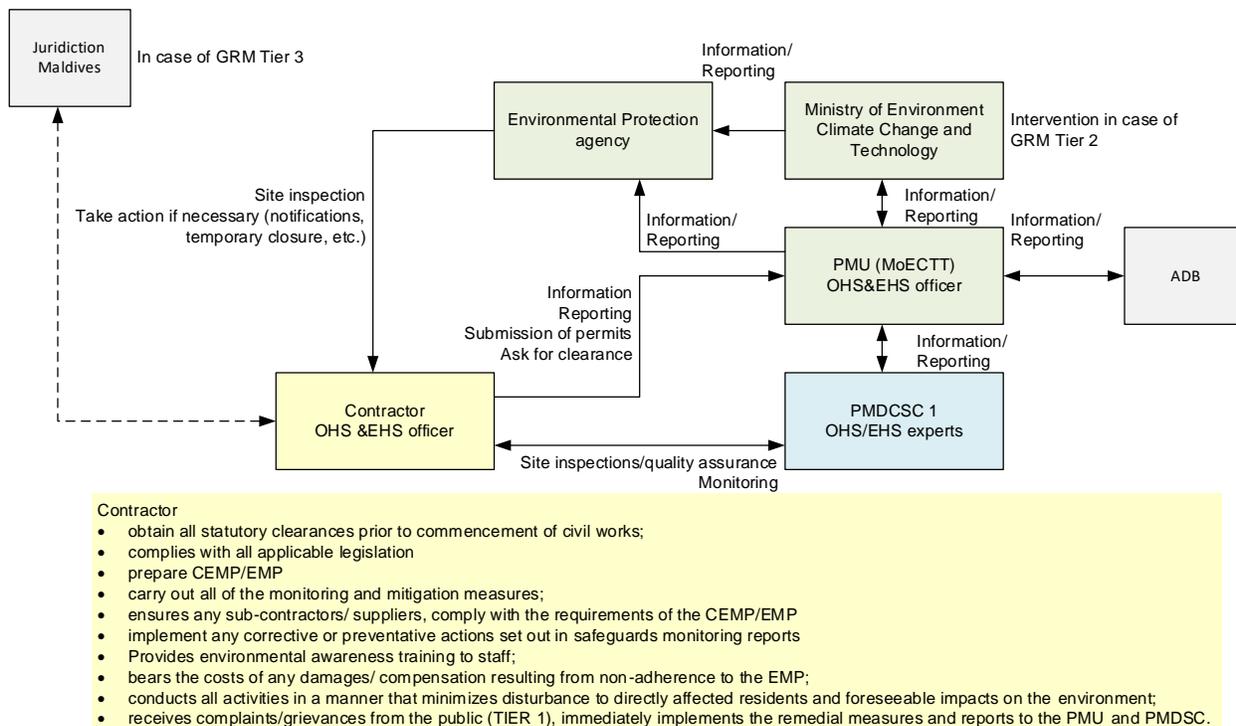


Table 1: Project Environmental Safeguards Team

S. No	Position	Office	Name	Contact number	Email / Remarks
	<b>PMU</b>				
1	Social and Environment Safeguards Specialist	PMU/GMEIWMP/MoECCT	Ibrahim Mohamed	+9603019233	<a href="mailto:ibrahim.mohamed@environment.gov.mv">ibrahim.mohamed@environment.gov.mv</a>
	<b>PMDSC</b>				
1	Environmental Safeguard Expert	PMDSC team, Water Solutions	Abdul Aleem	+9603301643	<a href="mailto:amooo@water-solutions.biz">amooo@water-solutions.biz</a>
	<b>Contractors</b>				
1	Environmental Officer	China State Construction and Engineering Corporation	Qin Haiyang	+9609796339	<a href="mailto:wts.cscec@gmail.com">wts.cscec@gmail.com</a>

### III. PROJECT IMPLEMENTATION STATUS

23. Details of all subprojects / packages, type of bid/contract and current status of implementation of packages is presented in Table 2, and detailed implementation progress of each of the awarded packages are given in Table 3.

**Table 2: Status of All Subprojects / Packages**

Package/ Subproject	Subproject / Package components	PIU	Current Status	Bid / contract type
CW/01	(i) Harbor rehabilitation (ii) Waste processing, admin building, (iii) workshop, and civil works (platform) for Construction and Demolition (C&D) plant, recycling yard, and End of Life (ELV)dismantling workshop.		All works completed and site handed over (snag list submitted to contractor, supply of one machine and small containers pending) Defect Notification period ends on 15.08.23	Civil works contract
<b>DBI/01</b>	(i) Two Transfer stations (TS) in Male', and Villimale',		Construction ongoing for both Transfer Stations	(Design Build)
CW/03	(i) Outer Island Waste Management Centers (8 lots)		One lot with three islands contracted and site hand over process on going Other 7 lots remaining and bidding process on going.	Civil Works
DBI/02	(i) C&D waste processing plant (includes equipment)		To be included in DBI/01 Direct award to TS contractor. Waiting on Tender board approval.	DBI

**Table 3: Implementation Status of Awarded Subprojects / Package**

Package	<b>Package status</b> 1. <b>Date of Award</b> 2. <b>Date of mobilization</b> 3. <b>Scheduled completion</b> 4. <b>Duration</b> 5. <b>Contractor</b>	<b>Design progress to date</b>	<b>Construction progress to date</b>	<b>Components completed to date</b>	<b>Works conducted during the reporting period</b>
CW/01	completed	The project is completed and partial handover in January 2022.	Completed	All components.  A full testing of the Site and facility was conducted on 9 <sup>th</sup> August 2022 and Contractor MTCC has rectified all defects in September 2022 (DNP ends in August, contractor rectified most of the defects but failed to provide metal scrap for ELV.	
<b>DBI/01</b>	1. 24-Jun-2021 (contract signed date) 2. 09 March 2022 (commencement date) 3. 6 July 2023 4. 485 days 5. China State Construction Engineering Corporation	Architectural Structural and Services Drawing for Male' and Villimale completed and approved by relevant authorities Male' TS Fire layout completed and approved by MNDF Villimale TS Fire layout completed, approval pending by MNDF	75% (reported Apr 23)	Concrete works of transfer deck and concrete works of 6 story admin building completed in Male TS. Villimale site concrete ongoing	<ul style="list-style-type: none"> <li>• Interior works of Male' TS on going and all construction work completed</li> <li>• Villimale concrete work ongoing</li> </ul>
CW/03	No contract has been awarded during the period	<ul style="list-style-type: none"> <li>• Detail design for 8 lots (15 islands) finished</li> <li>• Detail design of additional lot (2 islands) pending</li> </ul>	NA	NA	NA
DBI/02	1. Contractors not assigned for the package. Discussions to assign contractor of DBI/01 to the package by bringing a variation to the existing contract		NA	NA	NA

#### IV. COMPLIANCE STATUS WITH STATUTORY ENVIRONMENTAL REQUIREMENTS

##### A. Status of Clearances

24. Briefly describe the statutory clearance / approval requirements of the subprojects (refer IEEs / SEMP.) Detailed status of each clearance/permission is provided in **Table 4**. Copies of clearances/permissions attached in **Appendix 1**.

**Table 4: Status of Statutory Clearances**

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
CW/01	IEE DS	Project is completed	NA	Project is completed
DBI/01	IEE required according to EPA regulation Schedule D of projects as the project is considered a waste management project Decision Statement (DS) for both sub-projects received.	DS for Male' TS was expired and new IEE prepared and approved.	Villimale till 22 <sup>nd</sup> February 2022 and For Male' was extended till 9 <sup>th</sup> April 2023	Complied; Pre-construction site preparations have started before the DSs expired and notification to EPA has been provided.
DBI/02	NA	NA	NA	This package is under tendering stage.
CW /0 3 A and B	IEE DS required	All 15 islands DS obtained	April 2023	All islands except Thulusdhoo and Mahibadhoo, site clearance and waste legacy clean-ups carried out and informed to the EPA. AS pre-construction works have been commenced before IEE expiration date EPA has no objection for commencing construction after contracts are awarded. For Thulusdhoo and Mahibadhoo new IEE/EMP is required as no site works completed and will be completed before commencement of work.

## B. Compliance with Clearance Conditions

25. Following **Table 5** provides a summary of clearance / consent conditions specified by statutory agencies that are required to be complied with and/or monitored during implementation and/or operation, and the status of compliance.

**Table 5: Conditions of Clearances**

Package	Clearance / Permission	Conditions of Clearance / Permission	Status of Compliance
All Packages • DBI/01 • CW/03	Environmental Decision statement	<ul style="list-style-type: none"> <li>Approved IEE/EIA</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>In the event the project activity has not commenced within one (1) year from the date of issue, or if the duration of the Environmental Decision Statement has not been extended, the Environmental Decision Statement shall be considered null and void. In order to extend the duration of the Environmental Decision Statement, the Proponent shall write to the Minister for an extension according to clause 14 of the 2<sup>nd</sup> Amendment to the EIA Regulations 2012.</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>In the event the project activities have been delayed for more than one (1) year due to unforeseen circumstances, the Ministry shall have the discretion to extend the duration of the Environmental Decision Statement, or to terminate it. In such circumstances the proponent shall write to the Minister for an extension clearly stating out the reason for the delay.</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>The Minister, or his designate, may issue a cessation order requiring persons working on a Development Proposal to cease working until the order is withdrawn, if: (a) The Environmental Decision Statement has been withdrawn; or (b) There has been a breach of conditions of the Environmental Decision Statement.</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>It is the Developer's responsibility to undertake all project activities in accordance with the relevant laws and regulations of the Maldives.</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>The Developer shall submit environmental monitoring report as outlined in Paragraph viii of the Environmental Decision Statement. Failure to submit the requisite</li> </ul>	Complied

Package	Clearance / Permission	Conditions of Clearance / Permission	Status of Compliance
		monitoring report may result in the suspension or revocation of the permit under the Decision Statement.	
		<ul style="list-style-type: none"> <li>The Developer is aware that under the National Environment Protection Act (Law No. 4/93) and the EIA Regulations the Ministry reserves the right to terminate any activity without compensation if found that such an activity has caused significant, irreversible impacts on the environment.</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>All mitigation measures proposed in the EIA report for all the phases of the project shall be fully implemented.</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>The environmental monitoring program outlined in the EIA report shall be undertaken and implemented and summary environmental monitoring reports shall be submitted to the Ministry.</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>The date of expiry stated in the Environmental Decision Statement is the duration given to commence the project activities approved under the Environmental Decision Statement.</li> </ul>	Complied
		<ul style="list-style-type: none"> <li>Once the project activities have started, the Proponent must inform the EPA the date of commencement of project activities.</li> </ul>	Complied

### C. Compliance with Loan Covenants

26. Status of compliance with environmental safeguard related loan covenants is given in the below Table 6. Project is being implemented in compliance with all the covenants.

**Table 6: Status of Compliance with Loan Covenants**

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
Schedule 4 - 2 Environment	The Recipient, through MOFT and MEE, shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Recipient relating to environment, health and safety; (b) the Environmental Safeguards; (c) the EARF, and (d) all measures and requirements set forth in the IEEs, the EMPs, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.	Being complied. PMU (Project Management Unit) is continuously ensuring that all subprojects follow all laws and regulations and the Safeguards specialist of the PMU ensures that all measures and requirements set forth in the IEEs and EMP are complied.	
Schedule 4 – 4 Human and Financial Resources to Implement Safeguards Requirements	The Recipient shall make available or cause MOFT to make available necessary budgetary and human resources to fully implement the EMPs	Being complied. The MOFT has approved the post of Safeguards Specialist for the PMU so that all necessary safeguards issues are complied.	
Schedule 4 – 5 Safeguards-Related Provisions in Bidding Documents and Works Contracts	<p>A- comply with the measures relevant to the contractor set forth in the IEE and the EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report;</p> <p>B- make available a budget for all such environmental measures; and</p> <p>C- provide the Recipient with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation, or operation of the Project that were not considered in the IEE and the EMP.</p>	All bidding documents related to the project will have the IEE included and compliance will be ensured by the safeguard's specialist.	

Schedule 4 – 6 Safeguards Monitoring and Reporting	A- submit semiannual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;	Monitoring Reports are semiannually submitted to ADB for approval and disclosure. There is a delayed reporting as PMDSC contract expired and some of the inspections delayed until contract was renewed.	Resolve the contractual issue so that PMDSC can provide continuous support to PMU. PMU to ensure contract with PMDSC is renewed by the next monitoring and reporting period.
	B- If any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEEs and the EMPs, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and	Will be complied as and when arises. In such cases ADBs safeguards team and team leader will be informed immediately.	
	C- Report any actual or potential breach of compliance with the measures and requirements set forth in the EMPs promptly after becoming aware of the breach.	Will be complied. Any breach or potential breach will be reported.	
Schedule 4 – 7 Prohibited List of Investments	The Recipient, through MOFT and MEE, shall ensure that no proceeds of the Grant are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.	Being complied. ADB SPS will be thoroughly followed throughout the project duration.	
Schedule 4 – 8 Labor Standards, Health and Safety	F- Disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the Project and to members of the local communities surrounding the Project area, particularly women.	It is included in the Bidding Documents and contract. Contractor carries out induction including awareness sessions as required.	
Schedule 4 – 9	The Recipient, through MOFT and MEE, shall strictly monitor compliance with the requirements set forth in paragraph 8 of the loan agreement and provide ADB with regular reports.	Being complied.	

#### D. Preparation and Approval of Environmental Assessment Reports

27. **Subproject Category.** Briefly describe overall project category, and subprojects in category B, and category C (if any).

28. Package-wise status of preparation, submission, and approval and disclosure of IEE Reports of Category B subprojects, are presented in **Table 7 and Table 8.**

**Table 7: Status of IEEs**

Package Number	Bid type	Package Status	Draft IEE submitted to ADB	Draft IEE cleared by ADB	Updated IEE submitted to ADB	Updated IEE cleared by ADB	Remarks
CW01	Civil Works	completed	yes	yes			No major changes made to the concept design. Therefore, the currently published version is considered as the final document.
DBI/01	Design Build and install	Construction on going	yes	yes	yes	yes	-
CW/03 A and B	Civil Works	In bidding process	yes	yes	yes	yes	IEE for Thulusdoo and Mahibadhoo to be redone and informed the PMDSC consultants to initiate the process
DBI/02	Design build and installation	In bidding process	yes	yes	NA	NA	Updated IEE will be prepared based on DB Contractor's final design and submitted to ADB for review and disclosure.

**E. Status of Disclosure of Safeguard Documents**

29. Status of disclosure of safeguard documents presented in the following Table 9. All the documents have been disclosed on ADB and Project/PMU websites.

Table 8: Status of Disclosure of IEEs / DDRs

Package Number	Draft Disclosed on ADB website	Disclosed on Project website	Disclosed on ADB website
CW/01	yes	Yes <a href="http://www.environment.gov.mv/v2/en/download/7162">http://www.environment.gov.mv/v2/en/download/7162</a>	Yes <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-0">https://www.adb.org/projects/documents/mld-51077-002-iee-0</a>
DBI/01	yes	Yes <a href="http://www.environment.gov.mv/v2/en/download/7162">http://www.environment.gov.mv/v2/en/download/7162</a> (draft) <a href="http://www.environment.gov.mv/v2/en/download/16011">http://www.environment.gov.mv/v2/en/download/16011</a> (updated)	Yes <a href="https://www.adb.org/projects/documents/mld-51077-002-iee">https://www.adb.org/projects/documents/mld-51077-002-iee</a> (draft) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-16">https://www.adb.org/projects/documents/mld-51077-002-iee-16</a> (updated)
CW/03	yes	Yes <a href="http://www.environment.gov.mv/v2/en/download/15962">http://www.environment.gov.mv/v2/en/download/15962</a> (Maafushi IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15099">http://www.environment.gov.mv/v2/en/download/15099</a> (Guraidhoo IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15096">http://www.environment.gov.mv/v2/en/download/15096</a> (Thulusdhoo IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15093">http://www.environment.gov.mv/v2/en/download/15093</a> (Thoddoo IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15090">http://www.environment.gov.mv/v2/en/download/15090</a> (Thinadhoo IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15087">http://www.environment.gov.mv/v2/en/download/15087</a> (Rakeedhoo IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15084">http://www.environment.gov.mv/v2/en/download/15084</a> (Mahibadhoo IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15081">http://www.environment.gov.mv/v2/en/download/15081</a> (Keyodhoo IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15078">http://www.environment.gov.mv/v2/en/download/15078</a> (Huraa IWMC) <a href="http://www.environment.gov.mv/v2/en/download/15075">http://www.environment.gov.mv/v2/en/download/15075</a> (Himandhoo IWMC)	Yes <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-15">https://www.adb.org/projects/documents/mld-51077-002-iee-15</a> (Maafushi IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-14">https://www.adb.org/projects/documents/mld-51077-002-iee-14</a> (Guraidhoo IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-10">https://www.adb.org/projects/documents/mld-51077-002-iee-10</a> (Thulusdhoo IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-7">https://www.adb.org/projects/documents/mld-51077-002-iee-7</a> (Thoddoo IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-5">https://www.adb.org/projects/documents/mld-51077-002-iee-5</a> (Thinadhoo IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-3">https://www.adb.org/projects/documents/mld-51077-002-iee-3</a> (Rakeedhoo IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-11">https://www.adb.org/projects/documents/mld-51077-002-iee-11</a> (Mahibadhoo IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-9">https://www.adb.org/projects/documents/mld-51077-002-iee-9</a> (Keyodhoo IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-8">https://www.adb.org/projects/documents/mld-51077-002-iee-8</a> (Huraa IWMC) <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-6">https://www.adb.org/projects/documents/mld-51077-002-iee-6</a> (Himandhoo IWMC)

Package Number	Draft Disclosed on ADB website	Disclosed on Project website	Disclosed on ADB website
		<a href="http://www.environment.gov.mv/v2/en/download/15072">http://www.environment.gov.mv/v2/en/download/15072</a> (Hangnaameedhoo IWMC)  <a href="http://www.environment.gov.mv/v2/en/download/15069">http://www.environment.gov.mv/v2/en/download/15069</a> (Feridhoo IWMC)  <a href="http://www.environment.gov.mv/v2/en/download/19172">http://www.environment.gov.mv/v2/en/download/19172</a> (Himmafushi IWMC)  <a href="http://www.environment.gov.mv/v2/en/download/15065">http://www.environment.gov.mv/v2/en/download/15065</a> (Felidhoo IWMC)  <a href="http://www.environment.gov.mv/v2/en/download/19175">http://www.environment.gov.mv/v2/en/download/19175</a> (Kaashidhoo IWMC)	<a href="https://www.adb.org/projects/documents/mld-51077-002-iee-4">https://www.adb.org/projects/documents/mld-51077-002-iee-4</a> (Hangnaameedhoo IWMC)  <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-2">https://www.adb.org/projects/documents/mld-51077-002-iee-2</a> (Feridhoo IWMC)  <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-12">https://www.adb.org/projects/documents/mld-51077-002-iee-12</a> (Himmafushi IWMC)  <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-1">https://www.adb.org/projects/documents/mld-51077-002-iee-1</a> (Felidhoo IWMC)  <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-13">https://www.adb.org/projects/documents/mld-51077-002-iee-13</a> (Kaashidhoo IWMC)
DBI/02	yes	Yes <a href="http://www.environment.gov.mv/v2/en/download/7162">http://www.environment.gov.mv/v2/en/download/7162</a>	Yes <a href="https://www.adb.org/projects/documents/mld-51077-002-iee-0">https://www.adb.org/projects/documents/mld-51077-002-iee-0</a>

#### F. Safeguards in Bid Documents and Contracts

30. Safeguard provisions are duly included in the bid documents / contracts, and these are followed uniformly across all the bids and contracts. Following Table shows package-wise details.

**Table 9: Inclusion of safeguards in bid documents and contracts**

Package Number	Type of Bid / Contract	Bid / Contract Clauses related to environment, health and safety; labour standards	IEE / EMP included in Bid / contract
CW/01	Civil Works	Yes	Yes
DBI/01	DBI	Yes	Yes
CW/03	Civil Works	Yes	Yes
DBI/02	DBI	Yes	Yes

## V. STATUS OF EMP IMPLEMENTATION

### A. Preparation of Site Environmental Management Plan

31. Preparation and submission of Site-specific Environmental Management Plan (SEMP) and Health and Safety Plan (HSP) including Health & Safety COVID-19 Plan by contractor and approval of PMU is a requirement prior to commencement of works. Details of awarded packages are presented in the following Table.

**Table 10: Status of SEMPs**

Package Number	Contractor	Current Status	Status of SEMP	Status of HSP	Remarks
CW/01	MTCC	completed	approved	approved	Project completed
DBI/01	CSCEC	Construction on going	approved	approved	Complied
CW/03	-	No contract was awarded during the period.	Will be submitted and approved before commencement of construction	Will be submitted and approved before commencement of construction	Will be complied

### B. EMP Implementation Supervision and Monitoring

32. Of the 3 packages awarded, package CW/01 has been completed. Package DB/01 is currently being implemented. Package CW/03 is under bidding stage and one Lot (Lot 1) will be awarded soon, with construction targeted to begin June 2023. Status of monitoring of packages with ongoing civil works activities is presented in the below **Table 11**, and summary of site visits conducted by safeguard staff is given in **Appendix 2**.

**Table 11: Status of EHS Staff, SEMP Preparation and Monitoring**

Package Number	Current Status	Contractor EHS Supervisor Appointed & Mobilized on Site	Monthly EMP implementation reports submitted by contractor	Site Monitoring/ Verification Conducted by PMDSC	Remarks
DBI/01	ongoing	Yes	No	Yes, but not completely complied. See remarks.	<p>PMDSC was not able to make official reports regarding site inspections on a monthly basis during the reporting period. Although site inspections were participated in by PMDSC, no report has been prepared by PMDSC in terms of environmental safeguards.</p> <p>The contractor has not submitted monthly reports on the status of EMP implementation.</p>

<b>Package Number</b>	<b>Current Status</b>	<b>Contractor EHS Supervisor Appointed &amp; Mobilized on Site</b>	<b>Monthly EMP implementation reports submitted by contractor</b>	<b>Site Monitoring/ Verification Conducted by PMDSC</b>	<b>Remarks</b>
					Only the report on the results of environmental quality monitoring for four months were submitted.

### C. Contractors Compliance with Statutory and Contractual Requirements

33. The following table shows the compliance with statutory requirements in terms of obtaining licenses, permissions, clearances, and insurance coverage etc., required to conduct construction work. The CSCEC has set up a labour camp on Boduthakurufaanu Magu in the industrial zone closer to Male transfer station site. The camp currently hosts 30 labourers from Bangladesh and the camp consists of 10 toilets and 13 shower heads. 6 Chinese staff also live on the camp and 2 toilets, and 4 shower heads are present for their use. Food, water, electricity, and other amenities are provided on the labour camp. Also medical is provided when required.

**Table 12: Status of Labor Licenses, Insurances, etc.**

Requirement	Package DBI/01	
	CSCEC	
Labour license	status	Valid
Workmen compensation policy	In place	July 2023
Contractor all risk insurance	In place	July 2023
Mining / borrow areas	No mining (sand is bought from approved suppliers)	July 2023
Pollution control certificate for Construction vehicles & equipment****	In place	July 2023

### D. Implementation of EMP Measures and Compliance Status

34. Implementation of measures as per the approved IEE & EMP / SEMP are reviewed for each package and status is presented in the following Tables. **Table 13** presents the implementation and compliance status of construction stage mitigation measures. This compliance is based on joint monitoring by PMU and PMDSC.

**Table 13: Construction Stage Mitigation Measures: Compliance Status (Package DB/01)**

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			Package DBI/01	
			Rating	Remarks
Impeding access to property or facilities, or traffic disruption	<p>Notices to the public, scheduling work that blocks roadways to periods of low traffic.</p> <p>Co-ordination with any other major construction projects taking place in the vicinity of the transfer station on Malé to agree measures such as scheduling of construction traffic to avoid peak vehicle movements occurring at the same time.</p>	DB Contractor (CSCEC)	S	
Noise pollution and vibration	<p>Providing information to the affected persons through direct liaison and via the local media about the timing and duration of the works.</p> <p>Construction activities will be limited to normal daylight working hours. A work schedule will be followed.</p> <p>All construction equipment and vehicles will be in good working order with working mufflers and noise suppression.</p>	DB Contractor (CSCEC)	S	
Waste generation from construction activities	<p>All solid waste must be disposed of at a landfill or approved disposal site.</p> <p>Importation of any materials rated as hazardous under the Globally Harmonized System of Classification and Labelling of Chemicals to be subject to approval by PMDSC, which will be conditional on stating adequate arrangements for disposal.</p>	DB Contractor (CSCEC)	S	
Handling of day to day waste during construction	Inclusion in CEMP of measures to ensure regular transfer of waste from households, markets and construction sites	DB Contractor (CSCEC)	S	
Release of silt	<p>Excavated areas to be rapidly refilled on completion of works.</p> <p>Use of silt fences around temporary piles of excavated material.</p> <p>Avoid excavation in wet weather to the extent practicable.</p>	DB Contractor (CSCEC)	S	
Water pollution	Vehicles and plant are to be maintained in sound operable condition, free of leaks. The condition of vehicles and equipment	DB Contractor (CSCEC)	S	

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			Package DBI/01	
			Rating	Remarks
	<p>will be periodically checked.</p> <p>Contractor to prepare and submit a plan for spill management, including provision of spill kits, training/briefing of workers on procedures on handling spills and allocation of responsibility within the DB Contractor's team for ensuring that spill kits are available and that workers know how to use them.</p>			
Air and dust pollution	Require vehicles and equipment to be well maintained and tuned and fitted with exhaust baffles. Apply water to suppress dust where needed and sweep to remove and clear spoil on surfaces.	DB Contractor (CSCEC)	S	
Community health and safety hazards	<p>Restriction of access to the transfer stations. For work at the periphery of the sites, provide notices to the public identifying hazards and erect safety barriers / covers for areas of open excavation.</p> <p>Contractors to adopt the WB EHS Guidelines on Community Health and Safety, particularly those that relate to construction works.</p>	DB Contractor (CSCEC)	S	
Occupational health and safety hazards	<p>Contractors to appoint health and safety officers for each site and to ensure regular briefing of construction workforce on health and safety issues. Adequate personal protective equipment to be provided to the workforce.</p> <p>Contractors to adopt the WB EHS Guidelines on OHS, particularly those that relate to construction works.</p>	DB Contractor (CSCEC)	S	

**E. Implementation of Health & Safety COVID-19 Plan**

35. **H&S COVID-19 Plan Preparation.** Status of preparation and approval of Health and Safety COVID-19 Plan is provided in the following table.

**Table 14: Status of H&S COVID-19 Plan**

H&S COVID-19 Plan	Preparation	Approval	Update	Remarks
Project level Plan	yes	December 2021		
Package/contractor plan				
- Package DBI/01	yes	December 2021		
- Package CW/03	Under bidding process	Not required as COVID emergency is now lifted		

36. **H&S COVID-19 Plan Implementation.** Since March 2022, COVID emergency is lifted in the Maldives and measures are to be taken only in case of an outbreak in the site. There have been no reports of any COVID outbreak at the site during this period.

**F. Best practices / environment improvement activities**

37. The contractor abides by all requirements specified in the EMPs and IEE.

## VI. ENVIRONMENTAL MONITORING

### A. Environmental Monitoring

38. IEE reports prepared for the respective packages require monitoring activities during construction phase and operation phase. The table below shows the monitoring plan developed for the package with required environmental quality monitoring for the reporting period, which includes the means and frequency of monitoring, and the responsible party for monitoring. Activities include monitoring of general construction impacts, compliance with EMP, solid waste management, and ambient air quality and water quality, in and around project sites to assess the quality and changes with respect to baseline conditions.

**Table 15: Construction Phase Monitoring Plan (Package DBI/01)**

Impact to be Monitored	Means of Monitoring	Construction Phase	
		Frequency	Responsible Agency
General Construction Impacts	Community Feedback	At least once during the reporting period	PMU / PMDSC
Compliance with EMP	Inspections	At least once during the reporting period	PMU / PMDSC
Occurrence of floating waste	Community Feedback	At least once during the reporting period	PMU / PMDSC
Air and water quality	On site measurements and lab analysis	Prior to construction then monthly	Contractor

### B. Status of Environmental Quality Monitoring

39. During this reporting period, package CW/01 is already completed but no operation phase activities related to this package has commenced yet. Construction activities are ongoing under package DBI/01. Status of environmental monitoring under this package is shown in the following table.

**Table 16: Status Environmental Monitoring of Awarded Packages**

Package No	Baseline Monitoring <sup>a</sup>		Periodic Monitoring in Reporting Period	
	Date/period of monitoring	Environmental parameters	Dates/period of monitoring	Environmental parameters
DBI/01	April – October 2022 November 2022 – April 2023	All parameters required in the IEE reports, except for SO <sub>x</sub> , NO <sub>x</sub> and CO.	November 2022 to April 2023	Air quality, Water Quality and Noise

<sup>a</sup> Results of first sampling activities by respective contractors during mobilization/pre-construction phase considered as baselines.

40. **Monitoring Locations.** Number of locations/sampling points considered as specified in the approved IEE and SEMP. Location of monitoring/sampling points are selected based on parameters such as representative locations, meteorological conditions (wind direction), land use, terrain, natural drainage etc.,

**Figure 4: Sampling Locations at the Male Transfer Station Site**



**Figure 5: Ambient Air Quality Sampling Location at Villimale Transfer Station Site**



41. **Monitoring (Sampling & Analysis) Methodology.** Sampling and analysis have been carried out by the contractors via the recognized / approved / accredited laboratories, which adopted acceptable and standard methods for sampling, analysis, and results. Sampling and adopted are presented in Table 17.

**Table 17: Sampling and Analysis Methods**

Parameter	Sampling and testing method
Ambient air	Air quality was measured in real time using an automatic sampler placed on site. Parameters to be measured PM10, PM2.5, Sox, NOx and CO
Ambient noise	Noise level was measured in real time using an automatic sampler placed on site
Ground water	Samples collected from a monitoring well on location and samples send to a local laboratory on a monthly frequency. The parameters Temperature, pH, Salinity/Conductivity, faecal coliform, total coliform, Total Hydrocarbon (THC), ammonium, nitrate, nitrite, phosphate, sulphate

### C. Monitoring Results

42. **Ambient air quality.** Ambient air quality monitoring results are presented in the following table. Laboratory reports are attached in **Appendix 3**.

**Table 18: Air Monitoring Results**

Package / Monitoring Site	Monthly monitoring	Type	Humidity %RH	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> <sup>a</sup>	NO <sub>2</sub> <sup>a</sup>	CO <sup>a</sup>
<b>AAQ Standard (24 hours)</b>								
<b>IFC/WHO Guideline</b>				24hour average 50	24hour average 50	24hour average 20	1 hour 200	
<b>1 Package 1 DBI/01</b>		<b>DBI</b>						
Male' City Transfer Facility site	Baseline <sup>b</sup>			0-3	2-6			
	Nov. 2022		79.86	8.70	2.43	Not reported	Not reported	Not reported
	Dec. 2022		79.53	9.69	2.00	Not reported	Not reported	Not reported
	Jan. 2023		82.60	9.96	2.19	Not reported	Not reported	Not reported
	Feb. 2023		71.33	7.85	4.59	Not reported	Not reported	Not reported
Villimale Transfer Facility Site	Baseline <sup>c</sup>							
	Jan. 2023		79.34	7.30	1.65	Not reported	Not reported	Not reported
	Feb. 2023		73.68	6.71	1.87	Not reported	Not reported	Not reported

<sup>a</sup> Not analyzed because contractor lacks the equipment capable of analyzing these parameters.

<sup>b</sup> Taken from first set of sampling activities during the April - October 2022 SEMR. This is regarded as baseline for site at Male City Transfer Station.

<sup>c</sup> Sampling for this reporting period is the first sampling for the site, and will be considered as the baseline for upcoming reporting periods.

43. **Ambient noise quality.** Ambient noise quality monitoring results are presented in the following table. Laboratory reports are presented in **Appendix 3**.

**Table 19: Noise Monitoring Results**

Package / Town / Monitoring Location	Type	Month	Land use	Noise Level LA <sub>eq</sub> (dB(A))
				Day time/ Monthly Average
<b>National Ambient Noise Standard follows WHO</b>	<b>DBI/01</b>		Industrial Commercial	70 WHO standard
			Residential Sensitive area	55 WHO standard
Transfer Facility site in Male City (Industrial Area in Industrial Zone of Male' City)		Nov. 2022	Industrial Commercial	44.96
		Dec. 2022	Industrial Commercial	54.09
		Jan. 2023	Industrial Commercial	52.74
		Feb. 2023	Industrial Commercial	44.09
Transfer Facility site in Male City (Villimale Site)		Jan. 2023	Industrial Commercial	40.02
		Feb. 2023	Industrial Commercial	40.01

44. **Groundwater quality.** Groundwater quality monitoring conducted as required by the EMP during reporting period. Monitoring reports are included in **Appendix 3**, and the results and inferences are discussed in the below in comparison with baseline values or standards as applicable.

**Table 20:Groundwater Monitoring Results**

Package /	DBI/01										Permissible levels for drinking Water WHO 2011/National standard	Inferences on water quality results in comparison with baseline / applicable standards
	Monitoring Dates											
Parameters	Nov.22		Dec.22		Jan.23		Feb. 23		Mar.23			
	Mal	Vil	Mal	Vil	Mal	Vil	Mal	Vil	Mal	Vil		
BOD mg/L	1	Work not started	3	5	5	4	8	7			NA	
TSS mg/L LoQ 5mg/L	6	Work not started	5	5	6	7	7	8			5-750	
TPH Hydrocarbon mg/L	0.055	Work not started	0,049	0,052	0.47	0.37	0.59	0.44			0	
Faecal coliform CFU	1	Work not started	ND	2	2310	2330	2420	2420			0	
Copper mg/L (LOQ 0.1mg/L)	0.2	Work not started	0.1	0.1	<0.1	<0.1	<0.1	<0.1			<2	

Package /	DBI/01										Permissible levels for drinking Water WHO 2011/National standard	Inferences on water quality results in comparison with baseline / applicable standards
	Monitoring Dates											
Chromium mg/L	0.011	Work not started	0.012	0.01	0.01	0.013	0.01	0.015			<0.05	
Mercury mg/L	0.002	Work not started	0.003	0.003	0.002	0.002	0.003	0.003			<0.0001	
Lead mg/L	0.022	Work not started	0.005	0.005	0.004	0.004	0.005	0.005			<0.01	

#### D. Interpretation of monitoring results

45. The results indicate air quality and noise levels are within permissible ranges for the parameters analyzed. However, water quality parameters show ground water is not suitable for any potable purpose. As a national standard for ground water is not available, ground water quality is determined based on the use. As ground water in Male and Villingili is not used for potable purposes it is not applicable to drinking water standards. However, the high levels of faecal coliform indicate a direct contamination of sewage and could be possible due to leaching from waste transfer stations nearby the site.

### VII. TRAINING AND CAPACITY BUILDING ACTIVITES

46. Trainings related to environmental safeguards, implementation of EMPs, health and safety etc., were conducted at the contractor level only through a toolbox talk setup. For the period, a total of 14 training through toolbox talks were conducted by the contractor to its workers and employees. A total of 293 individuals (including repeat attendees) attended these toolbox training courses. Summary is presented in the table below. All photo documentation and list of participants are included in **Appendix 4**.

47. Training and Capacity-building activities for the community under the project have not been conducted because the PACCB Consultant has not been hired yet.

**Table 21: Training / Capacity Building Activities Conducted**

Package No.	Date	Training activity	Venue & duration	Trainer	Target Group	Number of participants
DBI/01	4 <sup>th</sup> November 2022	HSE trainings	On site	HSE Manager	workers	12
	5 <sup>th</sup> November 2022	HSE trainings	On site	HSE Manager	Senior supervisors	5
	7 <sup>th</sup> December 2022	HSE trainings	On site	HSE Manager	workers	12
	20 <sup>th</sup> December 2022	HSE trainings	On site	HSE Manager	Senior supervisors	7
	22 <sup>nd</sup> December 2022	HSE trainings	On site	HSE Manager	Workers	12
	3 <sup>rd</sup> February 2023	HSE trainings	On site	HSE Manager	Senior supervisors	7
	5 <sup>th</sup> February 2023	HSE trainings	On site	HSE Manager	Senior supervisors	5
	7 <sup>th</sup> February 2023	HSE trainings	On site	HSE Manager	Senior managers	12
	18 <sup>th</sup> February 2023	HSE trainings	On site	HSE Manager	Senior Staff	4

<b>Package No.</b>	<b>Date</b>	<b>Training activity</b>	<b>Venue &amp; duration</b>	<b>Trainer</b>	<b>Target Group</b>	<b>Number of participants</b>
	19 <sup>th</sup> February 2023	HSE trainings	On site	HSE Manager	Senior staff	4
	5 <sup>th</sup> March 2023	HSE trainings	On site	HSE Manager	Senior staff	6
	6 <sup>th</sup> March 2023	HSE trainings	On site	HSE Manager		
	17 <sup>th</sup> March 2023	HSE trainings	On site	HSE Manager	supervisors	10
	28 <sup>th</sup> March 2023	HSE trainings	On site	HSE Manager	Senior Managers and architects	8

## VIII. PUBLIC CONSULTATION

48. Public consultation activities will begin from the next reporting period. The following consultants are now in the hiring process. The expected date of commencement of work is June 2023.

- 1- Community Mobilization, Outreach and Gender Expert
- 2- 3R Motivator
- 3- Web, Graphics, Short Video production and social media specialist
- 4- SWM trainer

## IX. GRIEVANCE REDRESS

### A. Grievance Redress Mechanism

49. A Project-specific grievance redress mechanism (GRM) is established in to provide a time bound and transparent mechanism to voice and resolve social and environmental concerns linked with the project. GRM is notified by EA/IA/PMU by an Officer Order / Notification issued on 12<sup>th</sup> January 2021. Description of the GRM is provided through the following link to the Ministry website. This publication or announcement over the Ministry website also serves as notification of the GRM.

<https://www.environment.gov.mv/v2/en/download/10842>

50. Project GRM is presented in the following Figure. Accordingly, responsibilities are allocated to project agencies, consultants and contractors, and grievance redress committee(s) established at subproject/town level or project level. Status of establishment of GRCs are presented in **Table 22**.

51. A GRC has been formed with a member of Male' City Council, Member from Women's Development Committee, an NGO representative a government representative outside the Ministry of Environment, Project Director, Project Manager and PMU safeguards Specialist. This Committee will respond to any grievances or concerns raised by the public and in the PMU, Project Director, Project Manager and PMU safeguards Specialist will address any unresolved matters from First Tier. The aggrieved party will be then allowed to involve the judicature in the next level.

Figure 6: Project GRM

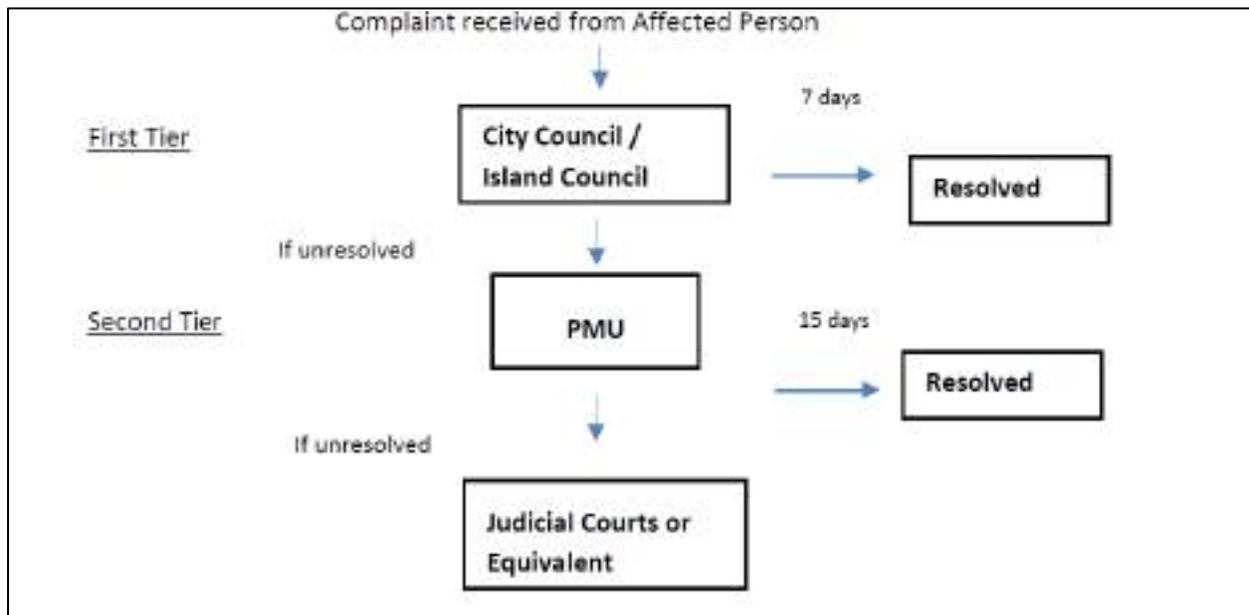


Table 22: GRM Operationalization

Package No.	Subproject level GRM Notified	GRM responsibilities assigned	GRM Operational to receive, register & redress complaints	Date of GRC Formation	Public informed of GRM	Members of GRC outside PMU
DBI/01	Yes	Yes	Yes	December 2021	Yes	<p>Deputy Mayor of Male' City Council: Ahmed Nareesh Email: <a href="mailto:ahmed.nareesh@malecity.gov.mv">ahmed.nareesh@malecity.gov.mv</a></p> <p>Deputy of Women's Development Committee of Male' City Council Ms. Viraashaa Mohamed Email: <a href="mailto:viraamohamed86@gmail.com">viraamohamed86@gmail.com</a></p> <p>Senior Curriculum Development Analyst of Ministry of Education Ms. Gulfishan Shafeeu. Email: <a href="mailto:gulfishan@nie.edu.mv">gulfishan@nie.edu.mv</a></p> <p>Executive Secretary of Maldivian Red Crescent Aminath Shahuba Shaheed Email: <a href="mailto:aminath.shahuba@redcrescent.org.mv">aminath.shahuba@redcrescent.org.mv</a></p>

**B. Complaints Received during Reporting Period**

52. No complaints received and reported during this period.

**C. GRC Meetings**

53. GRC meetings conducted as necessary to resolve the complaints, and details are presented in the following Table. No meetings were conducted in this reporting period. However, for the projects in Male' and Villimamle, a new committee is now established. The Committee now includes two members from Male' City Council's Women's Development Committee and a member from the Ministry of Education, Members were informed of their roles and responsibility in formal written communications.

**Table 23: GRC Meetings**

S. No	Package No.	No, of meeting in Reporting Period	Cumulative meetings till date
DBI/01	DBI/01	0	1

## X. FINDINGS, KEY ISSUES & REMEDIAL MEASURES

### A. Findings

54. This Semi-annual Environmental Monitoring Report (SEMR) for the period of November 2022-April 2023 is prepared as per the ADB SPS requirements. This SEMR describes progress with the implementation of the subproject-wise EMPs, and compliance status. This is the 9th SEMR prepared for this project. Project includes four subprojects/contract packages, which consist of two civil works and two design-build-install (DBI) packages. One package (CW/01) package is now completed. One package (DBI/01) has been awarded, and construction is ongoing. Two packages (CW/03 and DBI/02) are under bidding process. Findings of this SEMR are presented in the following table along with key issues and remedial measures.

**Table 24: Findings and Key Issues**

Monitoring aspect	Findings & Key issues	Remedial measures/Further actions
Availability safeguards personnel (PMU, PIU, Consultants and contractors)	Complied partially.  The PMU is functioning. However, no full consultant support has been received during the period. There has been an issue on the continuing engagement of PMDSC during the period.	Continue and/or extend engagement of PMDSC. PMU will ensure it monitors the EMP implementation of contractors through its own resources (i.e. PMU environmental safeguard person and other PMU staff)
Compliance with statutory requirements (clearance / permissions etc.,)	Complied. All permits and other statutory/contractual requirements are valid.	
Compliance with ADB loan covenants	Complied.	
Compliance with preparation, approval, disclosure of draft IEEs	Complied.	
Compliance with preparation, approval, disclosure of updated/final IEEs	Complied.	
Contractor compliance with preconstruction requirements	Complied.	
EMP implementation, monitoring, reporting	Complied partially.  Monitoring of the EMP implementation has been conducted and results reported in this SEMR. However, environmental quality monitoring was not complete in terms of the required parameters for ambient air quality and water quality.	Discuss EMP/CEMP implementation monitoring and reporting requirements with Contractor/s.

Monitoring aspect	Findings & Key issues	Remedial measures/Further actions
	<p>PMU and PMDSC conduct monthly site visits/inspections, however, no site inspection reports are prepared on the status of contractor's EMP/CEMP implementation on site. Only environmental quality monitoring reports are submitted by the Contractor. CEMP implementation report is lacking.</p>	<p>Monitor all the EMP/CEMP-required environmental quality parameters in succeeding monitoring and reporting periods.</p> <p>Instruct contractors to prepare and submit complete EMP/CEMP implementation reports.</p> <p>Prepare and submit complete periodic EMP/CEMP implementation reports to PMU.</p> <p>Prepare periodic PMU/PMDSC site inspection reports.</p>
Implementation of COVID19 health and safety measures	Complied.	-
Training and capacity building activities	<p>Only contractor-level training activities have been conducted through the toolbox training method.</p> <p>Safeguards orientation for IWMC contractors not yet conducted by the PMU/PMDSC .</p>	<p>Conduct safeguards orientation/training to contractors prior to mobilization (transfer stations, IWMCs);</p>
Public consultation	<p>Consultation was not conducted during the reporting period. as the project is in the process of hiring consultants. Consultants will begin their work from June 2023.</p>	<p>Conduct public awareness and community consultations activities immediately (transfer stations and IWMC sites)</p>

Monitoring aspect	Findings & Key issues	Remedial measures/Further actions
GRM establishment, operationalization, and complaint resolution	GRM committee members were informed of their roles and responsibilities through formal written communications and was informed that meetings will be held to address any reported grievances from the public or any other stakeholders.	No complaints received

## B. Corrective Action Plan

55. The following action plan is developed to address the issues of concerns raised in this report.

**Table 25: Corrective Action Plan**

Proposed Remedial Measure	Responsibility of implementation	Target date	Remarks
Continue and/or extend engagement of PMDSC. This will ensure continuing support of PMDSC to PMU particularly with regard to monitoring and reporting of EMP implementation by the contractors. While PMDSC is not yet hired or contracted, PMU will ensure it monitors the EMP implementation of contractors through its own resources (i.e. PMU environmental safeguard person and other PMU staff)	PMU	As soon as possible.  Monitoring and reporting period for May – October 2023.	Issues with the Contract of the PMDSC will be resolved
<p>Discuss EMP/CEMP implementation monitoring and reporting requirements with Contractor/s.</p> <p>Monitor all the EMP/CEMP-required environmental quality parameters in succeeding monitoring and reporting periods.</p> <p>Instruct contractors to prepare and submit complete EMP/CEMP implementation reports.</p> <p>Prepare and submit complete periodic EMP/CEMP implementation reports to PMU.</p> <p>Prepare periodic PMU/PMDSC site inspection reports.</p>	<p>PMU</p> <p>Contractor</p> <p>PMU</p> <p>Contractor</p> <p>PMU/PMDSC</p>	Monitoring and reporting period for May – October 2023.	

Proposed Remedial Measure	Responsibility of implementation	Target date	Remarks
Conduct safeguards orientation/training to contractors prior to mobilization (transfer stations, IWMCs);	PMU/PMDSC	Monitoring and reporting period for May – October 2023.	
Engage or hire the PACCB. Once engaged, PACCB to start public awareness and community consultations activities immediately (transfer stations and IWMC sites)	PMU	Monitoring and reporting period for May – October 2023.	The hiring of PACCB consultants is ongoing and will be hired within the next reporting period. Consultants are now being hired and sent to ADB for no objection. Progress of PACCB consultants will be reported in the next SEMR

**C. Status of Corrective Actions from Previous Monitoring Report**

56. PACCB consultants are still not hired and hence community awareness/consultations and training components are delayed. Expected commencement for PACCB consultants is June 2023.















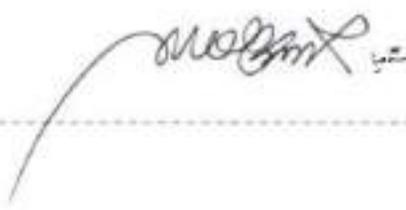






k. Once the project activities have started, the Proponent must inform the Environmental Protection Agency, the date of commencement of project activities.

ك. بعد ان تبدأ أنشطة المشروع، يجب على المبرهن إعلام وكالة حماية البيئة، تاريخ بدء أنشطة المشروع.

Date of issue: 16th July 2017	تاريخ الإصدار: 16 تموز 2017
Date of expiry: 16th July 2018	تاريخ انتهاء الصلاحية: 16 تموز 2018
Name: Ibrahim Naeem	الاسم: إبراهيم نعيم
Designation: Director General	المنصب: مدير عام
Signature:	







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

2- من ثمة قرارات بيئية صادرة من الوزارة على أساس ما يلي:

i. In the event the project activity has not commenced within one (1) year from the date of issue, or if the duration of this Environmental Decision Statement has not been extended, this Environmental Decision Statement shall be considered null and void. In order to extend the duration of this Environmental Decision Statement, the Proponent shall write to the Minister for an extension according to clause 14 of the Environmental Impact Assessment Regulation 2012.

أ) من ثمة قرارات بيئية صادرة من الوزارة على أساس ما يلي:  
1- (أشهر) سنة من تاريخ إصدارها، أو إذا لم يتم تمديد مدتها، فإنها تعتبر باطلة. من أجل تمديد مدتها، يجب على المتقدم كتابة رسالة إلى الوزير وفقاً للفقرة 14 من لائحة تقييم الأثر البيئي لعام 2012.

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

ب) 1- في حالة تأخر أنشطة المشروع لأكثر من سنة (1) سنة بسبب ظروف غير متوقعة، فإن الوزارة ستحتفظ بالسلطة لتعديل مدة القرار البيئي، أو إلغائه. في مثل هذه الظروف، يجب على المتقدم كتابة رسالة إلى الوزير.





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

قانون رقم 4/93 و لوائح تقييم الأثر البيئي، تحتفظ الوزارة بحق إنهاء أي نشاط دون تعويض إذا تبين أن هذا النشاط قد تسبب في آثار بيئية خطيرة لا يمكن عكسها.

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

vii. جميع تدابير التخفيف المقترحة في تقرير تقييم الأثر البيئي لجميع مراحل المشروع يجب تنفيذها بالكامل.

viii. The environmental monitoring program outlined in the Environmental Impact Assessment Report shall be undertaken and implemented and summary environmental monitoring reports shall be submitted to the Ministry.

viii. البرنامج البيئي الموضح في تقرير تقييم الأثر البيئي يجب تنفيذه وتنفيذ التقارير الموجزة عن المراقبة البيئية وتقديمها للوزارة.

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

ix. التاريخ المحدد لانتهاء هذا البيان البيئي هو المدة الممنوحة لبدء أنشطة المشروع المعتمدة بموجب هذا البيان البيئي.



**Appendix 2: Details of Site Visits conducted by PMDSC, & PMU Safeguard Staff in the Reporting Period**

<b>Package</b>	<b>Visit date</b>	<b>Expert visited*</b>	<b>Sites visited</b>
DBI/01	3 <sup>rd</sup> November 2022	PMU engineer and SES specialist and PMDSC engineer and HSE consultant	Transfer Station Male' Site
DBI/01	17 <sup>th</sup> November 2022	PMU engineer and SES specialist and PMDSC engineer and HSE consultant	Transfer station
DBI/01	28 <sup>th</sup> November 2022	PMU engineer and PMDSC engineer and HSE consultant	Villingilli Site
DBI/01	10 <sup>th</sup> January 2023	PMU engineer and PMDSC engineer and HSE consultant	Transfer Station Male' Site
DBI/01	7 <sup>th</sup> February 2023	PMU engineer and SES specialist and PMDSC engineer and HSE consultant	Transfer Station Male' Site
DBI/01	7 <sup>th</sup> February 2023	PMU engineer and SES specialist and PMDSC engineer and HSE consultant	Transfer Station Male' Site
DBI/01	8 <sup>th</sup> March 2023	PMU engineer and PMDSC engineer and HSE consultant	Transfer Station Male' Site

**\*Indicate position and organization (PMU, PMDSC etc.,)**

## Appendix 3: Results of Environmental Quality Monitoring Conducted by Contractors



# CEMP MONITORING REPORT

January to February 2023

Transfer stations in Malé and Vilimalé (incl. 6 story admin Malé) with equipment for transfer and transport of waste

Prepared by:  
China State Construction Engineering Corporation Limited

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## 1. PROJECT INFORMATION

### 1.1. Project Location Map



### 1.2. Project Background

The Transfer stations in Malé and Vilimalé (incl. 6 story admin Malé) with equipment for transfer and transport of waste (the Project) will establish a sustainable regional solid waste management (SWM) system in Greater Malé by (i) improving collection, transfer, disposal, treatment, recycling, and dumpsite rehabilitation; (ii) strengthening institutional capacities for solid waste services delivery and environmental monitoring; and (iii) improving public awareness and behaviors in reduce-reuse-recycle (3R).<sup>1</sup> The Project will be designed to reduce disaster risk and improve climate change resilience while creating a cleaner environment and reducing greenhouse gas emissions.

### 1.3. Purpose of CEMP

The purpose of this monitoring report is to ensure that the environmental thresholds, as specified, in the regulations are not surpassed during the project. This will ascertain that the mitigation measures recommended in the EMP are effective and whether necessary actions need to be taken to further improve the mitigation measures.

## 2. METHODS

### 2.1. Noise level

Noise levels were measured at the Malé and Vilimalé sites according to the actual construction progress. Measurements were taken during the daytime at 8 am, 2 pm, and 5 pm.

### 2.2. Ground Water Quality

Groundwater samples were taken in 2500ml glass bottles and specimen collection bag from Malé and Vilimalé sites to be tested monthly at the MWSC laboratory and National Health Laboratory.

### 2.3. Air Quality

Air quality parameters were measured in situ by the Contractor's monitoring equipment, the tested parameters included PM10 and PM2.5. Measurements were taken during the daytime at 8 am, 2 pm, and 5 pm.

## 3. MONITORING LOCATIONS



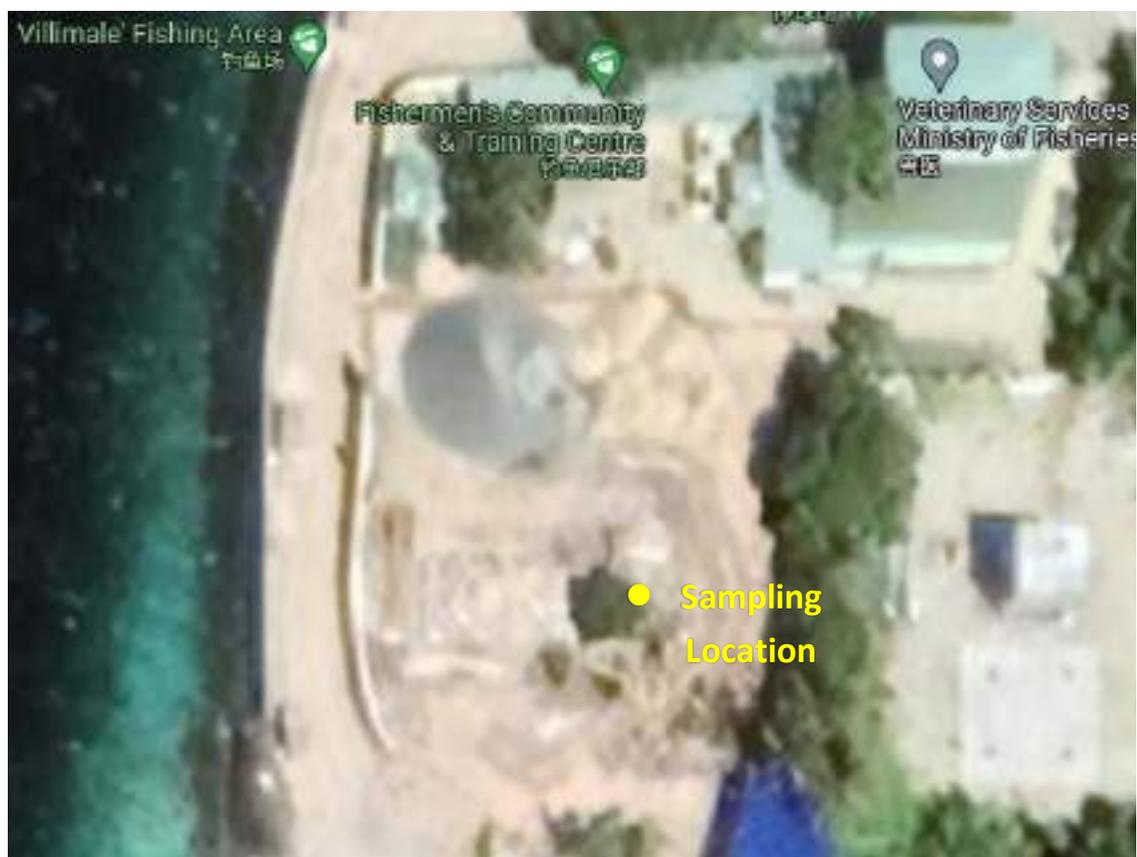
**Malé Noise  
Sampling  
Location**



**Malé**  
**Ground**  
**Water**  
**Sampling**  
**Location**



**Malé Air Sampling Location**



**Vilimalé Sampling Location**

## 4. ANALYSIS AND RESULTS

### 1. Noise Levels & Air Quality

Noise levels and air quality were measured in the Malé and Vilimalé sites according to the actual construction progress and recorded in Environmental Monitoring Log every day. Measurements were taken during the daytime at 8:00 am, 11:00 am, and 6:00 pm. The Environmental Monitoring Log below shows the measured noise levels and air quality.

WHO Air Quality Guidelines 2022 Recommended:

$PM_{2.5} \leq 5 \mu g/m^3$  ,  $PM_{10} \leq 15 \mu g/m^3$  ; WHO Noise Quality

Guidelines 2022 Recommended:  $\leq 70$ db.

 <b>Environmental Monitoring Log-Male</b>								
Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
1-Jan-23	Cloudy	8:00	28°C	74	0	6	48.7	
		14:00	31°C	62	1	9	48.6	
		18:00	29°C	66	5	9	44.9	
2-Jan-23	Cloudy	8:00	28°C	70	9	16	44.6	
		14:00	31°C	62	1	7	47.7	
		18:00	29°C	70	3	11	51.3	
3-Jan-23	Sunny	8:00	28°C	74	0	6	40.6	
		14:00	31°C	59	1	8	39.1	
		18:00	28°C	70	0	5	44.5	
4-Jan-23	Cloudy	8:00	28°C	74	10	21	47.2	
		14:00	31°C	62	2	6	38.5	
		18:00	28°C	79	1	11	41.3	
5-Jan-23	Sunny	8:00	28°C	70	3	13	41.6	
		14:00	31°C	62	0	6	47.4	
		18:00	29°C	70	4	12	47.4	
6-Jan-23	Sunny	8:00	29°C	70	1	5	39.6	
		14:00	31°C	75	0	11	48.5	
		18:00	29°C	70	2	10	48.6	
7-Jan-23	Cloudy	8:00	29°C	74	5	10	42.5	
		14:00	30°C	79	4	8	60.3	
		18:00	28°C	84	5	9	54.1	
8-Jan-23	Rainy	8:00	29°C	79	1	9	57.4	
		14:00	31°C	66	0	10	64	
		18:00	28°C	79	5	9	64	
9-Jan-23	Sunny	8:00	29°C	74	4	12	60	
		14:00	31°C	66	0	10	64	
		18:00	28°C	79	2	11	49.1	
10-Jan-23	Cloudy	8:00	28°C	84	0	10	65	
		14:00	30°C	75	1	10	64	
		18:00	28°C	79	0	11	66	
11-Jan-23	Cloudy	8:00	28°C	74	0	10	64.1	
		14:00	31°C	66	0	10	64	
		18:00	28°C	74	6	9	64	
12-Jan-23	Cloudy	8:00	28°C	74	1	10	64.2	
		14:00	31°C	52	1	11	40.3	
		18:00	28°C	70	0	9	47.3	
13-Jan-23	Cloudy	8:00	28°C	666	2	7	64	
		14:00	30°C	55	2	12	64.3	
		18:00	28°C	58	2	10	61	
14-Jan-23	Cloudy	8:00	28°C	66	3	13	41.3	
		14:00	31°C	62	4	11	43	
		18:00	28°C	70	4	10	45	
15-Jan-23	Cloudy	8:00	28°C	74	0	10	62	
		14:00	31°C	62	2	12	40	
		18:00	29°C	70	3	6	64.3	
16-Jan-23	Sunny	8:00	29°C	70	1	10	58	
		14:00	31°C	66	1	12	61	
		18:00	29°C	70	1	11	59	



## Environmental Monitoring Log

Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
17-Jan-23	Cloudy	8:00	29°C	74	20	27	60	
		14:00	31°C	66	18	24	53	
		18:00	28°C	84	18	23	63	
18-Jan-23	Sunny	8:00	29°C	79	17	32	65	
		14:00	31°C	70	3	14	65	
		18:00	29°C	79	7	14	63	
19-Jan-23	Cloudy	8:00	29°C	79	5	10	62	
		14:00	31°C	70	1	10	64	
		18:00	29°C	74	1	5	64	
20-Jan-23	Cloudy	8:00	28°C	66	20	27	64	
		14:00	31°C	55	2	15	41	
		18:00	28°C	58	19	25	45	
21-Jan-23	Rainy	8:00	28°C	70	11	25	60	
		14:00	29°C	70	0	10	64	
		18:00	28°C	70	16	21	64.2	
22-Jan-23	Cloudy	8:00	28°C	74	1	5	61	
		14:00	31°C	62	15	21	64.2	
		18:00	29°C	74	15	21	64.2	
23-Jan-23	Cloudy	8:00	29°C	74	4	10	64	
		14:00	31°C	71	1	5	63	
		18:00	28°C	84	1	10	64	
24-Jan-23	Rainy	8:00	26°C	94	5	11	59	
		14:00	25°C	94	0	10	64.3	
		18:00	25°C	94	21	37	64.2	
25-Jan-23	Cloudy	8:00	26°C	89	0	4	61	
		14:00	26°C	94	0	10	64	
		18:00	27°C	84	10	17	64	
26-Jan-23	Cloudy	8:00	28°C	84	1	5	59.6	
		14:00	31°C	66	3	7	58.4	
		18:00	28°C	79	5	9	53.6	
27-Jan-23	Cloudy	8:00	28°C	79	4	10	54.7	
		14:00	31°C	70	6	14	51.5	
		18:00	29°C	74	12	21	59.6	
28-Jan-23	Cloudy	8:00	28°C	79	1	5	57.6	
		14:00	31°C	66	1	10	49.8	
		18:00	28°C	79	4	13	48.5	
29-Jan-23	Rainy	8:00	28°C	79	1	6	43.1	
		14:00	28°C	84	2	7	40.6	
		18:00	26°C	89	3	9	58.7	
30-Jan-23	Cloudy	8:00	29°C	74	1	10	47.6	
		14:00	31°C	62	1	7	52.6	
		18:00	28°C	79	1	5	50.9	
31-Jan-23	Cloudy	8:00	28°C	79	5	10	47.9	
		14:00	30°C	75	4	17	42.3	
		18:00	29°C	74	11	21	45.6	

 <b>Environmental Monitoring Log-Male</b>								
Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
1-Feb-2023	Cloudy	8:00	28°C	84	3	11	43	
		14:00	30°C	75	7	19	44	
		18:00	28°C	79	4	12	42	
2-Feb-2023	Cloudy	8:00	28°C	74	4	20	42	
		14:00	30°C	66	5	18	48	
		18:00	28°C	79	9	12	49	
3-Feb-2023	Cloudy	8:00	28°C	74	6	15	46	
		14:00	31°C	66	6	18	43	
		18:00	28°C	70	0	15	42	
4-Feb-2023	Cloudy	8:00	28°C	79	7	13	37	
		14:00	31°C	70	0	15	52	
		18:00	29°C	74	7	12	44	
5-Feb-2023	Cloudy	8:00	28°C	79	6	14	43	
		14:00	31°C	70	0	20	50	
		18:00	29°C	74	4	14	42	
6-Feb-2023	Cloudy	8:00	29°C	74	8	12	35	
		14:00	31°C	70	0	11	52	
		18:00	29°C	74	3	19	38	
7-Feb-2023	Cloudy	8:00	28°C	84	6	18	45	
		14:00	31°C	70	8	20	46	
		18:00	29°C	79	3	20	42	
8-Feb-2023	Cloudy	8:00	29°C	74	3	19	46	
		14:00	32°C	67	9	12	39	
		18:00	29°C	74	1	18	50	
9-Feb-2023	Cloudy	8:00	28°C	84	4	13	45	
		14:00	31°C	70	4	14	49	
		18:00	29°C	79	10	16	40	
10-Feb-2023	Cloudy	8:00	29°C	74	3	17	39	
		14:00	31°C	70	7	13	51	
		18:00	29°C	74	0	20	49	
11-Feb-2023	Sunny	8:00	29°C	74	0	12	48	
		14:00	31°C	66	2	16	38	
		18:00	30°C	66	1	15	39	
12-Feb-2023	Cloudy	8:00	28°C	70	4	18	40	
		14:00	31°C	66	9	13	42	
		18:00	29°C	70	9	15	48	
13-Feb-2023	Sunny	8:00	28°C	70	1	12	50	
		14:00	30°C	62	4	19	48	
		18:00	28°C	70	0	19	40	
14-Feb-2023	Cloudy	8:00	29°C	74	9	14	37	
		14:00	31°C	66	1	17	49	
		18:00	28°C	79	10	14	42	
15-Feb-2023	Cloudy	8:00	29°C	70	2	12	48	
		14:00	31°C	62	3	15	36	
		18:00	29°C	62	10	17	37	
16-Feb-2023	Sunny	8:00	28°C	66	7	12	45	
		14:00	31°C	55	5	16	40	
		18:00	29°C	62	7	16	48	



 <b>Environmental Monitoring Log -Vilimale</b>								
Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
1-Jan-2023	Cloudy	8:00	28°C	74	0	5	36	
		14:00	31°C	62	1	9	38	
		18:00	29°C	66	0	9	46	
2-Jan-2023	Cloudy	8:00	28°C	70	0	6	47	
		14:00	31°C	62	0	7	34	
		18:00	29°C	70	1	7	43	
3-Jan-2023	Sunny	8:00	28°C	74	3	6	45	
		14:00	31°C	59	2	8	46	
		18:00	28°C	70	4	5	34	
4-Jan-2023	Cloudy	8:00	28°C	74	1	7	30	
		14:00	31°C	62	0	6	43	
		18:00	28°C	79	1	5	44	
5-Jan-2023	Sunny	8:00	28°C	70	3	5	40	
		14:00	31°C	62	0	6	48	
		18:00	29°C	70	4	10	41	
6-Jan-2023	Sunny	8:00	29°C	70	1	5	45	
		14:00	31°C	75	0	5	42	
		18:00	29°C	70	2	10	45	
7-Jan-2023	Cloudy	8:00	29°C	74	3	10	41	
		14:00	30°C	79	4	8	37	
		18:00	28°C	84	1	9	50	
8-Jan-2023	Rainy	8:00	29°C	79	1	9	38	
		14:00	31°C	66	0	10	39	
		18:00	28°C	79	4	9	35	
9-Jan-2023	Sunny	8:00	29°C	74	4	9	35	
		14:00	31°C	66	0	10	37	
		18:00	28°C	79	2	11	50	
10-Jan-2023	Cloudy	8:00	28°C	84	0	10	42	
		14:00	30°C	75	1	10	41	
		18:00	28°C	79	0	11	37	
11-Jan-2023	Cloudy	8:00	28°C	74	0	10	32	
		14:00	31°C	66	0	10	37	
		18:00	28°C	74	3	9	40	
12-Jan-2023	Cloudy	8:00	28°C	74	1	10	49	
		14:00	31°C	52	1	11	31	
		18:00	28°C	70	0	9	49	
13-Jan-2023	Cloudy	8:00	28°C	66	2	7	38	
		14:00	30°C	55	2	6	50	
		18:00	28°C	58	2	10	33	
14-Jan-2023	Cloudy	8:00	28°C	66	3	5	37	
		14:00	31°C	62	4	11	36	
		18:00	28°C	70	4	10	35	
15-Jan-2023	Cloudy	8:00	28°C	74	0	10	43	
		14:00	31°C	62	2	5	32	
		18:00	29°C	70	3	6	33	
16-Jan-2023	Sunny	8:00	29°C	70	1	10	36	
		14:00	31°C	66	1	12	47	
		18:00	29°C	70	1	11	49	



## Environmental Monitoring Log

Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
17-Jan-2023	Cloudy	8:00	29°C	74	1	6	41	
		14:00	31°C	66	0	10	49	
		18:00	28°C	84	3	5	43	
18-Jan-2023	Sunny	8:00	29°C	79	2	5	42	
		14:00	31°C	70	4	6	34	
		18:00	29°C	79	3	9	35	
19-Jan-2023	Cloudy	8:00	29°C	79	1	5	37	
		14:00	31°C	70	1	6	49	
		18:00	29°C	74	1	5	32	
20-Jan-2023	Cloudy	8:00	28°C	66	2	7	31	
		14:00	31°C	55	2	5	44	
		18:00	28°C	58	0	5	40	
21-Jan-2023	Rainy	8:00	28°C	70	1	5	44	
		14:00	29°C	70	0	8	36	
		18:00	28°C	70	3	6	41	
22-Jan-2023	Cloudy	8:00	28°C	74	1	5	43	
		14:00	31°C	62	4	5	32	
		18:00	29°C	74	1	4	44	
23-Jan-2023	Cloudy	8:00	29°C	74	4	7	42	
		14:00	31°C	71	1	5	38	
		18:00	28°C	84	1	5	49	
24-Jan-2023	Rainy	8:00	26°C	94	0	5	46	
		14:00	25°C	94	0	5	43	
		18:00	25°C	94	2	6	32	
25-Jan-2023	Cloudy	8:00	26°C	89	0	4	43	
		14:00	26°C	94	0	5	37	
		18:00	27°C	84	1	5	47	
26-Jan-2023	Cloudy	8:00	28°C	84	1	5	35	
		14:00	31°C	66	3	5	46	
		18:00	28°C	79	5	9	35	
27-Jan-2023	Cloudy	8:00	28°C	79	4	10	38	
		14:00	31°C	70	3	7	34	
		18:00	29°C	74	1	5	39	
28-Jan-2023	Cloudy	8:00	28°C	79	1	5	33	
		14:00	31°C	66	1	10	50	
		18:00	28°C	79	4	13	41	
29-Jan-2023	Rainy	8:00	28°C	79	1	6	40	
		14:00	28°C	84	2	7	47	
		18:00	26°C	89	3	7	38	
30-Jan-2023	Cloudy	8:00	29°C	74	1	6	45	
		14:00	31°C	62	1	5	45	
		18:00	28°C	79	1	4	48	
31-Jan-2023	Cloudy	8:00	28°C	79	5	6	41	
		14:00	30°C	75	4	10	40	
		18:00	29°C	74	0	6	46	

 <b>Environmental Monitoring Log-Vilimale</b>								
Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
1-Feb-2023	Cloudy	8:00	28°C	84	4	6	48	
		14:00	30°C	75	3	6	38	
		18:00	28°C	79	2	9	43	
2-Feb-2023	Cloudy	8:00	28°C	74	2	9	37	
		14:00	30°C	66	4	6	35	
		18:00	28°C	79	2	10	36	
3-Feb-2023	Cloudy	8:00	28°C	74	0	5	48	
		14:00	31°C	66	2	8	44	
		18:00	28°C	70	3	8	42	
4-Feb-2023	Cloudy	8:00	28°C	79	1	7	34	
		14:00	31°C	70	0	8	39	
		18:00	29°C	74	3	8	43	
5-Feb-2023	Cloudy	8:00	28°C	79	4	10	34	
		14:00	31°C	70	1	5	31	
		18:00	29°C	74	3	9	38	
6-Feb-2023	Cloudy	8:00	29°C	74	1	7	48	
		14:00	31°C	70	2	8	50	
		18:00	29°C	74	2	10	41	
7-Feb-2023	Cloudy	8:00	28°C	84	4	6	35	
		14:00	31°C	70	1	9	42	
		18:00	29°C	79	2	8	34	
8-Feb-2023	Cloudy	8:00	29°C	74	1	5	31	
		14:00	32°C	67	1	8	34	
		18:00	29°C	74	2	8	45	
9-Feb-2023	Cloudy	8:00	28°C	84	4	5	30	
		14:00	31°C	70	3	6	39	
		18:00	29°C	79	4	7	50	
10-Feb-2023	Cloudy	8:00	29°C	74	4	6	45	
		14:00	31°C	70	3	6	34	
		18:00	29°C	74	4	8	38	
11-Feb-2023	Sunny	8:00	29°C	74	0	7	34	
		14:00	31°C	66	1	10	37	
		18:00	30°C	66	4	8	37	
12-Feb-2023	Cloudy	8:00	28°C	70	1	5	35	
		14:00	31°C	66	1	6	41	
		18:00	29°C	70	4	9	34	
13-Feb-2023	Sunny	8:00	28°C	70	3	8	34	
		14:00	30°C	62	1	7	36	
		18:00	28°C	70	2	6	30	
14-Feb-2023	Cloudy	8:00	29°C	74	2	9	33	
		14:00	31°C	66	1	9	45	
		18:00	28°C	79	4	9	35	
15-Feb-2023	Cloudy	8:00	29°C	70	2	5	30	
		14:00	31°C	62	3	7	37	
		18:00	29°C	62	3	8	48	
16-Feb-2023	Sunny	8:00	28°C	66	2	9	34	
		14:00	31°C	55	2	9	50	
		18:00	29°C	62	0	5	47	



## 2. Ground Water Quality

Location	Parameters	Sample Date	Analysis Results	
			Malé	ViliMalé
G1/G2	BOD	Jan 18, 2023	5	4
		Feb 16, 2023	8	7
G1/G2	TSS	Jan 18, 2023	6	4
		Feb 16, 2023	7	8
G1/G2	TPH	Jan 18, 2023	0.47	0.37
		Feb 16, 2023	0.59	0.44
G1/G2	Faecal Coliform	Jan 18, 2023	2310	2330
		Feb 16, 2023	2420	2420
G1/G2	Cu	Jan 18, 2023	<0.1(LoQ 0.1 mg/L)	<0.1(LoQ 0.1 mg/L)
		Feb 16, 2023	<0.1(LoQ 0.1 mg/L)	<0.1(LoQ 0.1 mg/L)
G1/G2	Cr	Jan 18, 2023	0.01	0.013
		Feb 16, 2023	0.01	0.015
G1/G2	Mercury	Jan 18, 2023	<0.002mg/L	<0.002mg/L
		Feb 16, 2023	<0.003mg/L	<0.003mg/L
G1/G2	Lead	Jan 18, 2023	<0.004mg/L	<0.004mg/L
		Feb 16, 2023	<0.005mg/L	<0.005mg/L

## 3. Conclusion

Based on the above results, the current Noise Level, Ground Water Quality, and Air Quality meet the requirements, and no complaint received.



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

**WATER CHEMISTRY ANALYTICAL RESULTS**  
**REPORT NUMBER: NHL/WC-2023/TR0007**

•NAME AND ADDRESS OF CLIENT: CHINA STATE CONSTRUCTION E.P.L  
 MALE'  
 TEL: (+960)9132854

TIME TESTED: -  
 •COLLECTED BY: Qin

•PURPOSE OF TESTING: Construction

•LOCATION OF SAMPLE	CHINA STATE CONSTRUCTION E.P.L		TEST METHOD
	MALE'	VILLIMALE'	
Requisition Form No:	NHL/WC-2023/RQ0017		
•Date sampled	18/01/2023	18/01/2023	
•Time Sampled	08:40	09:00	
•Type of water	Ground water	Ground water	
Date tested	22/01/2023 – 24/01/2023		
Sample ID	160223WC017	160223WC018	
PARAMETER TESTED			
Lead	<0.004 mg/L	<0.004 mg/L	Method 8317 (Adapted from DR4000™/5000™ Spectrophotometer procedure manual)
Mercury	<0.002 mg/L	<0.002 mg/L	Manufactures method mileston-DMA-80 Direct Hg Analyzer

COMMENT: Suspended Solids were observed in the sample 160223WC017 & 160223WC018.

Authorized by



*Mariyam Nisha*  
 Technical Manager  
 Mariyam Nisha

Date: 24<sup>th</sup> January 2023

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

**Male' Water & Sewerage Company Pvt Ltd****Water Quality Assurance Laboratory**

Quality Assurance Building, 1st Floor, Male' Hingun, Vilimale', Male' City, Maldives Tel:  
+9603323209, Fax: +9603324306, Email: wqa@mwsc.com.mv

**LB-TEST-090****WATER QUALITY TEST REPORT**

Report No: 500194977

**Customer Information:**

China State Construction Engrg corp  
Platinum Residence A2-214

Hulhumale', Maldives -

Report date: 27/01/2023

Test Requisition Form No: 900196452

Sample(s) Recieved Date: 18/01/2023

Date of Analysis: 18/01/2023 - 27/01/2023

Sample Description ~	Male and vilimale waste transfer station project - Male		
Sample Type ~	Ground Water		
Sample No	83236477		
Sampled Date ~	18/01/2023 08:30		
PARAMETER	ANALYSIS RESULT	TEST METHOD	UNIT
Physical Appearance	Clear with particles		
Total Suspended Solids	6	HACH Method 8006	mg/L
Chromium	0.01	HACH Method 8023	mg/L
Copper *	<0.1 (LoQ 0.1 mg/L )	HACH Method 8506	mg/L
Biological Oxygen Demand (BOD)	5	HACH Method 8043	mg/L
Total Petroleum Hydrocarbon (TPH)	0.47	UV Fluorescence	mg/L
Faecal Coliforms	>2310	Colilert®-18/Quanti-Tray®2000	MPN/100ml

Keys: mg/L : Milligram Per Liter, MPN/100ml : Most Probable Number

Checked by

Aminath Sofa  
Senior Laboratory Executive

Approved by

Nihaz A. Zahir  
Assistant Quality Manager

**Notes:**

Sampling Authority: Sampling was not done by MWSC Laboratory.

This report shall not be reproduced except in full, without written approval of MWSC. This test report is ONLY FOR THE SAMPLES TESTED.

~ Information provided by the customer. This information may affect the validity of the test results.

\*Parameters accredited by EIAC under ISO/IEC 17025:2017

\*\*\*\*\* END OF REPORT \*\*\*\*\*

**Male' Water & Sewerage Company Pvt Ltd****Water Quality Assurance Laboratory**

Quality Assurance Building, 1st Floor, Male' Hingun, Vilimale', Male' City, Maldives Tel: +9603323209, Fax: +9603324306, Email: wqa@mwsc.com.mv

**LB-TEST-090****WATER QUALITY TEST REPORT**

Report No: 500194978

**Customer Information:**

China State Construction Engrg corp  
Platinum Residence A2-214

Hulhumale', Maldives -

Report date: 27/01/2023

Test Requisition Form No: 900196452

Sample(s) Recieved Date: 18/01/2023

Date of Analysis: 18/01/2023 - 27/01/2023

Sample Description ~	Vilimale			
Sample Type ~	Ground Water			
Sample No	83236478			
Sampled Date ~	18/01/2023 09:00			
PARAMETER	ANALYSIS RESULT		TEST METHOD	UNIT
Physical Appearance	Clear with particles			
Total Suspended Solids	4		HACH Method 8006	mg/L
Chromium	0.013		HACH Method 8023	mg/L
Copper *	<0.1 (LoQ 0.1 mg/L )		HACH Method 8506	mg/L
Total Petroleum Hydrocarbon (TPH)	0.37		UV Fluorescence	mg/L
Faecal Coliforms	>2330		Colilert®-18/Quanti-Tray®2000	MPN/100ml

Keys: mg/L : Milligram Per Liter, MPN/100ml : Most Probable Number

Checked by

Aminath Sofa  
Senior Laboratory Executive

Approved by

Nihaz A. Zahir  
Assistant Quality Manager

**Notes:**

Sampling Authority: Sampling was not done by MWSC Laboratory.

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\*Parameters accredited by EIAC under ISO/IEC 17025:2017

\*\*\*\*\* END OF REPORT \*\*\*\*\*



National Health Laboratory  
 Maldives Food and Drug Authority,  
 Sosun Magu, Male' 20184, Republic of Maldives  
 Telephone #3014346 / 3014347, Email: nhl@health.gov.mv  
**WATER CHEMISTRY ANALYTICAL RESULTS**  
**REPORT NUMBER: NHL/WC-2023/TR0035**

NAME AND ADDRESS OF CLIENT: CHINA STATE CONSTRUCTION E.P.L  
 MALE'  
 TEL: (+960)9132654

TIME TESTED: -  
 COLLECTED BY: Qir

PURPOSE OF TESTING: Construction

LOCATION OF SAMPLE	CHINA STATE CONSTRUCTION E.P.L		TEST METHOD
	MALE'	WILL/MALE'	
Requisition Form No:	NHL/WC-2023/RQ0032		
Date sampled	16/02/2023	16/02/2023	
Time Sampled	08:33	09:00	
Type of water	Ground water	Ground water	
Date tested	20/02/2023 - 22/02/2023		
Sample ID	160223WC028		
PARAMETER TESTED			
Lead	<0.005 mg/L	<0.005 mg/L	Method 8317 (Adapted from DR4000 *10000" Spectrophotometer procedure manual)
Mercury	<0.003 mg/L	<0.003 mg/L	Mercury method detection (MMS 80 Direct-kg Analyzer)

COMMENT: Suspended Solids were observed in the sample 160223WC028 & 160223WC029.



Authorized by

*Mariyam Nisha*  
 Technical Manager  
 Mariyam Nisha

Date: 22<sup>nd</sup> February 2023

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

**Male' Water & Sewerage Company Pvt Ltd****Water Quality Assurance Laboratory**

Quality Assurance Building, 1st Floor, Male' Hingun, Vilimale', Male' City, Maldives Tel:  
+9603323209, Fax: +9603324306, Email: wqa@mwsc.com.mv

**LB-TEST-090****WATER QUALITY TEST REPORT**

Report No: 500195055

**Customer Information:**

China State Construction Engrg corp  
Platinum Residence A2-214

Hulhumale', Maldives -

Report date: **21/02/2023**Test Requisition Form No: **900196856**Sample(s) Recieved Date: **16/02/2023**Date of Analysis: **16/02/2023 - 21/02/2023**

Sample Description ~	Male and vilimale waste transfer station project - Male			
Sample Type ~	Ground Water			
Sample No	83236508			
Sampled Date ~	16/02/2023 08:30			
PARAMETER	ANALYSIS RESULT	TEST METHOD	UNIT	
Physical Appearance	Clear with particles			
Total Suspended Solids	7	HACH Method 8006	mg/L	
Chromium	0.01	HACH Method 8023	mg/L	
Copper *	<0.1 (LoQ 0.1 mg/L )	HACH Method 8506	mg/L	
Biological Oxygen Demand (BOD)	8	HACH Method 8043	mg/L	
Total Petroleum Hydrocarbon (TPH)	0.59	UV Fluorescence	mg/L	
Faecal Coliforms	>2420 (16/02/2023 15:00)	Colilert®-18/Quanti-Tray®2000	MPN/100ml	

Keys: **mg/L** : Milligram Per Liter, **MPN/100ml** : Most Probable Number

Checked by

Aminath Sofa  
Senior Laboratory Executive

Approved by

Nihaz A. Zahir  
Assistant Quality Manager

**Notes:**

Sampling Authority: Sampling was not done by MWSC Laboratory.

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\*Parameters accredited by EIAC under ISO/IEC 17025:2017

\*\*\*\*\* END OF REPORT \*\*\*\*\*

**Male' Water & Sewerage Company Pvt Ltd****Water Quality Assurance Laboratory**

Quality Assurance Building, 1st Floor, Male' Hingun, Vilimale', Male' City, Maldives Tel:  
+9603323209, Fax: +9603324306, Email: wqa@mwsc.com.mv

**LB-TEST-090****WATER QUALITY TEST REPORT**

Report No: 500195056

**Customer Information:**

China State Construction Engrg corp  
Platinum Residence A2-214

Hulhumale', Maldives -

Report date: **21/02/2023**Test Requisition Form No: **900196856**Sample(s) Recieved Date: **16/02/2023**Date of Analysis: **16/02/2023 - 19/02/2023**

Sample Description ~	Vilimale			
Sample Type ~	Ground Water			
Sample No	83236509			
Sampled Date ~	16/02/2023 09:00			
PARAMETER	ANALYSIS RESULT	TEST METHOD		UNIT
Physical Appearance	Clear with particles			
Total Suspended Solids	8	HACH Method 8006		mg/L
Chromium	0.015	HACH Method 8023		mg/L
Copper *	<0.1 (LoQ 0.1 mg/L )	HACH Method 8506		mg/L
Total Petroleum Hydrocarbon (TPH)	0.44	UV Fluorescence		mg/L
Faecal Coliforms	>2420 (16/02/2023 15:00)	Colilert®-18/Quanti-Tray®2000		MPN/100ml

**Keys:** mg/L : Milligram Per Liter, **MPN/100ml** : Most Probable Number

Checked by

Aminath Sofa  
Senior Laboratory Executive

Approved by

Nihaz A. Zahir  
Assistant Quality Manager

**Notes:**

Sampling Authority: Sampling was not done by MWSC Laboratory.

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\*\*\*\*\* END OF REPORT \*\*\*\*\*



# CEMP MONITORING REPORT

November to December 2022

Transfer stations in Malé and Vilimalé (incl. 6 story admin Malé) with  
equipment for transfer and transport of waste

Prepared by:  
China State Construction Engineering Corporation Limited

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# 1. Project Information

## 1.1. Project Location Map



## 1.2. Project Background

The Transfer stations in Malé and Vilimalé (incl. 6 story admin Malé) with equipment for transfer and transport of waste (the Project) will establish a sustainable regional solid waste management (SWM) system in Greater Male by (i) improving collection, transfer, disposal, treatment, recycling, and dumpsite rehabilitation; (ii) strengthening institutional capacities for solid waste services delivery and environmental monitoring; and (iii) improving public awareness and behaviors in reduce-reuse-recycle (3R).<sup>1</sup> The Project will be designed to reduce disaster risk and improve climate change resilience while creating a cleaner environment and reducing greenhouse gas emissions.

## 1.3. Purpose of CEMP

The purpose of this monitoring report is to ensure that the environmental thresholds, as specified, in the regulations are not surpassed during the project. This will ascertain that the mitigation measures recommended in the EMP are effective and whether necessary actions need to be taken to further improve the mitigation measures.

# 2. Methods

## 2.1. Noise level

Noise levels were measured at the Male site according to the actual construction progress. Measurements were taken during daytime from 4:00pm to 5:00pm.

## 2.2. Ground Water Quality

Ground water samples were taken in 2500ml glass bottles from Male site to be tested at MWSC Laboratory and National Health Laboratory.

### 2.3. Air Quality

Air quality parameters were measured in situ by Contractor's monitoring equipment, the tested parameters included PM10, PM2.5.

## 3. Monitoring Locations



Noise sampling location



Ground sampling location



Air sampling  
location

## 4. Analysis and Results

### 4. Noise Levels & Air Quality

Noise levels and air quality were measured in the Male site according to the actual construction progress and recorded in Environmental Monitoring Log every day. Measurements were taken during the daytime at 8:00 am, 11:00 am, and 6:00 pm. The Environmental Monitoring Log below shows the measured noise levels and air quality.

WHO Air Quality Guidelines 2022 Recommended:

$PM_{2.5} \leq 5 \mu g/m^3$  ,  $PM_{10} \leq 15 \mu g/m^3$  ;WHO Noise Quality

Guidelines 2022 Recommended:  $\leq 70 db$ .

 <b>Environmental Monitoring Log</b>								
Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
1-Nov-2022	Cloudy	8:00	28°C	81	0	5	48.6	
		14:00	29°C	84	1	10	43.6	
		18:00	27°C	79	5	10	45.9	
2-Nov-2022	Sunny	8:00	28°C	80	10	15	47.6	
		14:00	29°C	79	1	6	48.7	
		18:00	28°C	76	2	10	50.3	
3-Nov-2022	Rainy	8:00	30°C	82	0	5	41.6	
		14:00	29°C	70	1	6	39.1	
		18:00	28°C	79	0	5	44.5	
4-Nov-2022	Cloudy	8:00	29°C	79	10	20	47.2	
		14:00	32°C	67	2	5	38.5	
		18:00	28°C	84	1	10	42.3	
5-Nov-2022	Rainy	8:00	27°C	89	3	10	41.6	
		14:00	29°C	79	0	5	47.4	
		18:00	28°C	84	4	13	46.4	
6-Nov-2022	Cloudy	8:00	26°C	89	1	5	39.6	
		14:00	27°C	84	0	10	44.5	
		18:00	27°C	89	2	10	48.6	
7-Nov-2022	Cloudy	8:00	29°C	79	1	6	39.4	
		14:00	30°C	75	5	10	48.9	
		18:00	29°C	74	10	16	50.2	
8-Nov-2022	Cloudy	8:00	29°C	74	8	15	44.8	
		14:00	30°C	75	1	7	46.8	
		18:00	29°C	79	0	10	41.8	
9-Nov-2022	Rainy	8:00	29°C	79	0	5	43.9	
		14:00	30°C	75	1	6	50.9	
		18:00	27°C	84	3	10	47.5	
10-Nov-2022	Cloudy	8:00	27°C	89	4	11	39.9	
		14:00	27°C	84	3	10	44.2	
		18:00	27°C	84	0	10	43.8	
11-Nov-2022	Cloudy	8:00	29°C	74	1	5	47.6	
		14:00	30°C	75	0	5	42.5	
		18:00	28°C	79	1	6	50.9	
12-Nov-2022	Cloudy	8:00	27°C	84	5	10	39.6	
		14:00	30°C	75	3	10	40.8	
		18:00	28°C	84	1	5	49.3	
13-Nov-2022	Rainy	8:00	29°C	79	0	5	44.6	
		14:00	31°C	75	1	10	45.7	
		18:00	28°C	84	1	7	35.6	
14-Nov-2022	Rainy	8:00	26°C	94	5	10	39.4	
		14:00	28°C	84	3	7	46.8	
		18:00	28°C	74	1	5	43.2	
15-Nov-2022	Cloudy	8:00	28°C	84	5	12	46.1	
		14:00	30°C	75	4	10	47.9	
		18:00	29°C	74	1	5	38.9	
16-Nov-2022	Rainy	8:00	28°C	84	1	5	45.5	
		14:00	28°C	84	1	10	47.6	
		18:00	25°C	87	0	5	49.5	



## Environmental Monitoring Log

Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
17-Nov-2022	Rainy	8:00	27°C	89	1	6	45.7	
		14:00	27°C	89	1	5	47.6	
		18:00	27°C	84	0	5	42.6	
18-Nov-2022	Rainy	8:00	26°C	89	4	10	41.6	
		14:00	28°C	79	3	7	39.4	
		18:00	27°C	89	0	14	38.9	
19-Nov-2022	Sunny	8:00	29°C	79	1	13	41.8	
		14:00	30°C	75	1	5	50.1	
		18:00	27°C	84	5	7	42.8	
20-Nov-2022	Rainy	8:00	28°C	84	3	13	47.1	
		14:00	25°C	89	4	8	46.3	
		18:00	26°C	84	1	14	42.1	
21-Nov-2022	Cloudy	8:00	29°C	79	8	8	39.1	
		14:00	30°C	70	0	16	45.6	
		18:00	29°C	74	0	7	47.6	
22-Nov-2022	Sunny	8:00	28°C	79	1	11	44.6	
		14:00	31°C	66	3	10	46.9	
		18:00	28°C	79	1	10	48.6	
23-Nov-2022	Rainy	8:00	29°C	79	1	2	49.7	
		14:00	30°C	75	5	2	51.3	
		18:00	29°C	74	3	5	40.6	
24-Nov-2022	Rainy	8:00	28°C	84	1	3	38.1	
		14:00	29°C	79	5	3	43.5	
		18:00	28°C	84	0	1	46.2	
25-Nov-2022	Cloudy	8:00	29°C	84	1	4	37.5	
		14:00	30°C	72	1	2	40.3	
		18:00	29°C	79	5	7	41.6	
26-Nov-2022	Cloudy	8:00	27°C	80	3	10	48.6	
		14:00	29°C	74	0	6	39.4	
		18:00	28°C	78	3	5	48.9	
27-Nov-2022	Cloudy	8:00	27°C	79	1	5	50.2	
		14:00	31°C	71	4	10	44.8	
		18:00	28°C	77	3	5	46.8	
28-Nov-2022	Cloudy	8:00	26°C	84	0	15	41.8	
		14:00	31°C	73	2	7	43.9	
		18:00	27°C	76	8	10	50.9	
29-Nov-2022	Cloudy	8:00	27°C	82	1	6	47.5	
		14:00	31°C	74	7	5	39.9	
		18:00	28°C	79	3	10	44.2	
30-Nov-2022	Rainy	8:00	26°C	83	0	7	43.8	
		14:00	31°C	72	3	5	47.6	
		18:00	28°C	78	4	12	42.5	

		<b>Environmental Monitoring Log</b>						
Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
1-Dec-2022	Cloudy	8:00	28°C	81	0	5	48.6	
		14:00	29°C	84	1	10	43.6	
		18:00	27°C	79	5	10	45.9	
2-Dec-2022	Sunny	8:00	28°C	80	10	15	47.6	
		14:00	29°C	79	1	6	48.7	
		18:00	28°C	76	2	10	50.3	
3-Dec-2022	Rainy	8:00	30°C	82	0	5	41.6	
		14:00	29°C	70	1	6	39.1	
		18:00	28°C	79	0	5	44.5	
4-Dec-2022	Cloudy	8:00	29°C	79	10	20	47.2	
		14:00	32°C	67	2	5	38.5	
		18:00	28°C	84	1	10	42.3	
5-Dec-2022	Rainy	8:00	27°C	89	3	10	41.6	
		14:00	29°C	79	0	5	47.4	
		18:00	28°C	84	4	13	46.4	
6-Dec-2022	Cloudy	8:00	26°C	89	1	5	39.6	
		14:00	27°C	84	0	10	44.5	
		18:00	27°C	89	2	10	48.6	
7-Dec-2022	Cloudy	8:00	24.8°C	81	5	10	64.1	
		14:00	26°C	80	4	7	60.3	
		18:00	25°C	82	5	9	63.2	
8-Dec-2022	Sunny	8:00	26.3°C	77.1	1	10	64.6	
		14:00	25°C	80	0	10	64.0	
		18:00	24°C	85	5	10	64.0	
9-Dec-2022	Rainy	8:00	25.6°C	81	4	13	64.3	
		14:00	25.2°C	81.8	0	10	64.0	
		18:00	25°C	79	0	10	64.3	
10-Dec-2022	Cloudy	8:00	25°C	83	0	10	65.0	
		14:00	26.3°C	80	0	10	64.0	
		18:00	24.5°C	81	0	10	66.0	
11-Dec-2022	Rainy	8:00	25.6	80.6	0	10	64.1	
		14:00	25.5°C	80.9	0	10	64.0	
		18:00	23.9°C	83.9	6	9	64.0	
12-Dec-2022	Cloudy	8:00	26.6°C	75.7	0	10	64.2	
		14:00	25.4°C	77.5	0	10	41.3	
		18:00	25°C	77	0	9	47.3	
13-Dec-2022	Cloudy	8:00	25.6°C	72.1	2	6	64.0	
		14:00	26.6°C	75	2	12	64.3	
		18:00	25°C	77	2	11	63.0	
14-Dec-2022	Rainy	8:00	25.6°C	77.2	3	13	41.3	
		14:00	26°C	79	4	15	43.0	
		18:00	25°C	78	4	12	45.0	
15-Dec-2022	Cloudy	8:00	24.5°C	80	0	10	64.6	
		14:00	28°C	70	2	12	40.0	
		18:00	25.2°C	76.6	3	6	64.3	
16-Dec-2022	Cloudy	8:00	25.6°C	78	1	11	64.0	
		14:00	26°C	77	0	10	60.0	
		18:00	24°C	77	0	10	64.0	



## Environmental Monitoring Log

Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
17-Dec-2022	Cloudy	8:00	26°C	74	21	27	64.0	
		14:00	27°C	72	18	24	63.0	
		18:00	26.3°C	75	18	23	63.0	
18-Dec-2022	Cloudy	8:00	25°C	75	17	22	65.0	
		14:00	26°C	74	29	45	65.0	
		18:00	25°C	75	24	33	64.0	
19-Dec-2022	Sunny	8:00	24°C	77	30	52	62.0	
		14:00	25.4°C	78	37	56	64.0	
		18:00	25°C	77	32	47	64.0	
20-Dec-2022	Rainy	8:00	23.7°C	75.5	20	27	64.0	
		14:00	26.3°C	73.6	23	28	41.0	
		18:00	25.8°C	72	19	25	45.0	
21-Dec-2022	Cloudy	8:00	22.9°C	84.2	18	25	64.9	
		14:00	25.8°C	73.4	0	10	64.0	
		18:00	25.4°C	73.2	16	22	64.2	
22-Dec-2022	Cloudy	8:00	25.9°C	78.6	26	33	64.6	
		14:00	26.3°C	72.6	15	21	64.2	
		18:00	25.7°C	77.5	22	28	64.0	
23-Dec-2022	Cloudy	8:00	24°C	75	28	44	64	
		14:00	25.3°C	71	26	37	63	
		18:00	24°C	73	26	33	64	
24-Dec-2022	Cloudy	8:00	25.1°C	77.2	32	48	64	
		14:00	26.2°C	74.2	28	38	64.3	
		18:00	25.3°C	75.1	28	37	64.2	
25-Dec-2022	Sunny	8:00	25.9°C	74.8	31	48	64.2	
		14:00	26.7°C	73.8	33	50	64	
		18:00	25.2°C	73	31	47	64.3	
26-Dec-2022	Cloudy	8:00	25.6°C	77.8	29	39	64.1	
		14:00	26.3°C	77	31	43	64.1	
		18:00	25.3°C	76.4	29	38	64.1	
27-Dec-2022	Sunny	8:00	25.8°C	76	31	43	63	
		14:00	26.3°C	71	26	38	64	
		18:00	24.5°C	80	12	21	64.1	
28-Dec-2022	Sunny	8:00	26.3°C	71	19	26	47	
		14:00	28°C	67	15	21	44	
		18:00	24°C	78	13	19	64	
29-Dec-2022	Sunny	8:00	27.1°C	68.3	16	21	43.1	
		14:00	29.6°C	64.8	11	16	40.6	
		18:00	24.5°C	82.1	17	21	64.2	
30-Dec-2022	Sunny	8:00	26°C	70	19	26	64	
		14:00	27.1°C	69	21	25	63	
		18:00	26.3°C	71	23	32	40.9	
31-Dec-2022	Sunny	8:00	26.6°C	69.7	18	27	64.2	
		14:00	28°C	66.6	20	27	40.7	
		18:00	26.3°C	71.3	21	32	40.9	

## 5. Ground Water Quality

Location	Parameters	Sample Date	Analysis Results	
			Male	Vilimale
G1/G2	BOD	Nov 18, 2022	1	Not Construction
		Dec 18, 2022	3	5
G1/G2	TSS	Nov 18, 2022	<6(LoQ 5 mg/L)	Not Construction
		Dec 18, 2022	<5(LoQ 5 mg/L)	<5(LoQ 5 mg/L)
G1/G2	TPH	Nov 18, 2022	0.055	Not Construction
		Dec 18, 2022	0.049	0.052
G1/G2	Faecal Coliform	Nov 18, 2022	1	Not Construction
		Dec 18, 2022	Not Detected	2
G1/G2	Cu	Nov 18, 2022	<0.2(LoQ 0.2 mg/L)	Not Construction
		Dec 18, 2022	<0.1(LoQ 0.1 mg/L)	<0.1(LoQ 0.1 mg/L)
G1/G2	Cr	Nov 18, 2022	0.011	Not Construction
		Dec 18, 2022	0.012	<0.01(LoQ 0.1 mg/L)
G1/G2	Mercury	Nov 18, 2022	<0.002mg/L	Not Construction
		Dec 18, 2022	<0.003mg/L	<0.003mg/L
G1/G2	Lead	Nov 18, 2022	<0.022mg/L	Not Construction
		Dec 18, 2022	<0.005mg/L	<0.005mg/L

## 6. Conclusion

Based on the above results, the current Noise Level, Ground Water Quality, and Air Quality meet the requirements, and no complaints received.

**Male' Water & Sewerage Company Pvt Ltd**  
**Water Quality Assessment Laboratory**  
 Quality Assurance Building, 1st Floor, Male' Hergun, Yethaari, Male' City, Maldives  
 Tel: +96111222222, Fax: +9611144444, Email: wqa@mwsc.com.mv



**eia-ci**  
 Environmental Impact Assessment  
 Environmental Impact Assessment



**LB-TEST-090**

**WATER QUALITY TEST REPORT**  
 Report No: 00419371

**Customer Information:**  
 China State Construction Engineering  
 Platinum Residence A2-210

Report date: 26/10/2022  
 Test Regulation Form No: 900195674  
 Sample(s) Received Date: 18/10/2022  
 Date of Analysis: 18/10/2022 - 19/10/2022

Hulhumale', Maldives -

Sample Description -	Male' Wastage Transfer Station Project Q1			
Sample Type -	Ground Water			
Sample No	0022891			
Sampled Date -	18/10/2022 09:00			
PARAMETER	ANALYSIS RESULT	TEST METHOD		UNIT
Physical Appearance	Clear with particles			
Total Suspended Solids	<8 (LoD 8 mg/L)	HACH Method 8000		mg/L
Chlorine	0.01	HACH Method 8201		mg/L
Copper <sup>2+</sup>	<0.2 (LoD 0.2 mg/L)	HACH Method 8300		mg/L
Biological Oxygen Demand (BOD)	1	HACH Method 8181		mg/L
Total Petroleum Hydrocarbon (TPH)	0.055	UV Fluorescence		mg/L
Faecal Coliforms	1 (18/10/2022 18:00)	Coliform-18/Quart-7mg/0200		MPN/100ml

Keys: mg/L - Milligram Per Liter, MPN/100ml - Most Probable Number

Checked by

Mohamed A. Zahir  
 Assistant Quality Manager

Approved by

Mohamed Eymen  
 Assistant General Manager, Quality

**Notes:**

Sampling Authority: Sampling was not done by MWSC Laboratory.  
 This report shall not be reproduced except in full, without written approval of MWSC.  
 This test report is ONLY FOR THE SAMPLES TESTED.  
 - Information provided by the customer: This information may affect the validity of the test results.  
 \*Parameters accredited by EIAC under ISO/IEC 17025:2017

\*\*\*\*\* END OF REPORT \*\*\*\*\*



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

WATER CHEMISTRY ANALYTICAL RESULTS  
 REPORT NUMBER: NHL/WC-2022/TR0146

NAME AND ADDRESS OF CLIENT: CHINA STATE CONSTRUCTION E.P.L  
 MALE'  
 TEL: (+960)9132654

TIME TESTED: -  
 COLLECTED BY: Qin

PURPOSE OF TESTING: Construction

•LOCATION OF SAMPLE	CHINA STATE CONSTRUCTION E.P.L MALE' WASTAGE TRANSFER STATION PROJECT	TEST METHOD
Requisition Form No:	RD 0236	
•Date sampled	18/11/2022	
•Time Sampled	11:00	
•Type of water	Ground	
Date tested	18/11/2022	
Sample ID	181122WC008	
PARAMETER TESTED		
Lead	0.022 mg/L	Method 5111 (Adapted from EPA800.4-002-01) (spectrophotometric procedure-revised)
Mercury	<0.002 mg/L	Manufacturer's method-revision (DMA-SC Directly by Analyzer)

COMMENT: -

Authorized by



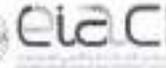
*Mariyam Nisha*  
 Technical Manager  
 Mariyam Nisha

Date: 20<sup>th</sup> November 2022

NOTE: Information supplied by the client.

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

**Males' Water & Sewerage Company Pte Ltd**  
**Water Quality Assurance Laboratory**  
 1000 North Bridge Road, #10-01, Singapore 069572  
 Tel: +65 6336 2000, Fax: +65 6336 4000, E-mail: waqa@mwsc.com.sg



**LB-TEST-090**

**WATER QUALITY TEST REPORT**  
 Report No. WB19021

Customer Information:  
 Civil State Construction Engineers  
 Malvern Residence A2-2/4

Report date: 27/12/22  
 Test Registration Form No: WB190214  
 Sample Received Date: 18/12/22  
 Date of Analysis: 28/12/22 10:00:00

Reference: Malvern -

Sample Description -	Male and Female Waste Transfer station Project - Male	Male and Female Waste Transfer station Project - Female	TEST METHOD	UNIT
Sample Type -	Ground Water	Ground Water		
Sample No -	6224624	6224623		
Sample Date -	18/12/2022 08:00	18/12/2022 08:00		
PARAMETER	ANALYSIS RESULT			
Physical Appearance	Clear with particles	Clear with particles		
Total Suspended Solids	<0.5 (LOD 0.5 mg/L)	<0.5 (LOD 0.5 mg/L)	AWQ 04000009	mg/L
Chloride	8.92	<0.01 (LOD 0.01 mg/L)	AWQ 04000020	mg/L
Copper *	<0.1 (LOD 0.1 mg/L)	<0.1 (LOD 0.1 mg/L)	AWQ 04000030	mg/L
Nitrate *	37.0	16.0	AWQ 04000011	mg/L
Biological Oxygen Demand (BOD)	0	0	AWQ 04000040	mg/L
Fluoride	Not Detected (LOD 0.002 10.00)	2.1 (LOD 0.002 10.00)	AWQ 04000010	mg/L (L)

Key: (mg/L) - Milligram Per Liter; (MPE) (MPE) - Milligram Per Liter

Checked by

Andrew Kola  
 Laboratory Executive

Approved by

Wong A. Zhen  
 Assistant Quality Manager

**Notes:**  
 Sampling Authority: Sampling was not done by MWSC Laboratory.  
 This report shall not be reproduced except in full, without written approval of MWSC.  
 This test report is ONLY FOR THE SAMPLES TESTED.  
 \* Information provided by the customer. This information may affect the validity of the test results.  
 \* Parameters controlled by SMC under SMCQC 1000-2017

-----END OF REPORT-----



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

WATER CHEMISTRY ANALYTICAL RESULTS  
 REPORT NUMBER: NHL/WC-2022/TR0163

NAME AND ADDRESS OF CLIENT: CHINA STATE CONSTRUCTION P.L.  
 MALE'  
 TEL: (+960)9132854

TIME TESTED: -  
 COLLECTED BY: Qiz

PURPOSE OF TESTING: Construction

LOCATION OF SAMPLE	CHINA STATE CONSTRUCTION P.L.		TEST METHOD
	MALE'	VILL/MALE'	
Requestion Form No:	NHL/WC-2022/RQ0163		
• Date sampled	18/12/2022	18/12/2022	
• Time Sampled	08:00	08:30	
• Type of water	Ground water	Ground water	
Date tested	19/12/2022 - 20/12/2022		
Sample ID	181222WC018	181222WC018	
PARAMETER TESTED			
Lead	<0.005 mg/L	<0.005 mg/L	Amercon® (Model No. DR-4000) (1000)™ Spectrophotometer (precision manual)
Mercury	<0.003 mg/L	<0.003 mg/L	Manufacturer: merck millipore (DMA-80) Directly Analyze

COMMENT: -

Authorized by



*Thooran Adam*  
 Head of NHL  
 Thooran Adam

Date: 21<sup>st</sup> December 2022

NOTE: Information supplied to us is based on the sample as received. National Health Laboratory does not involve in the sampling process and does not take responsibility for errors that could arise from sampling and transport of sample. This report is not for duplicate or advertisement without prior approval from National Health Laboratory

## Appendix 4: HSE Training Records (Toolbox Training)

HSE Training records are as follows\_

### 4<sup>th</sup> November and 5<sup>th</sup> November 2022:

4<sup>th</sup> of November 32 person participated HSE training conducted by Mr. Yang- Site manager.

5<sup>th</sup> of November 31 person participated HSE training conducted by Mr. Xue - Site manager.





26-10-2022 — 10-11-2022 24

(43)

Name	Work ID	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	
SAFIK	ED-83	P	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P	
ALAMQIR	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
HARAN	19	P	(A)	P	P	P	P	P	X	P	P	P	P	P	P	P	P	
A. ROUF	20	P	(A)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
DULAL	24	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
OHID	28	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
SAIDUR	27	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
KHALIL	30	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
ASHIK	33	P	P	P	P	X	P	P	P	P	P	P	P	P	P	P	P	
SHAMIM-2	34	P	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P	
JAHID	36	P	(A)	X	P	P	P	P	P	P	X	P	P	P	P	P	P	
LOTIF	37	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P	P	
SHAMIM-D	38	P	P	P	X	X	P	P	P	P	P	P	P	P	P	P	P	
HASAN	39	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
BABUL	41	P	P	P	P	P	P	X	P	P	P	P	P	P	P	P	P	
JAMAL	44	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
ZIYA	46	P	P	P	P	P	P	X	P	P	P	P	P	P	P	P	P	
AZIZ	49	P	P	P	X	P	P	P	P	P	P	P	X	P	P	P	P	
SWAPON	53	P	P	P	P	P	P	X	P	P	P	P	P	P	P	P	P	
SANOWAR	55	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
MONSUR	57	P	P	P	P	P	P	P	P	P	X	P	P	P	P	P	X	
M. KAMAL	63	P	P	X	P	P	X	P	P	X	P	P	P	P	P	P	P	
MD. JAMAL	64	P	P	X	P	P	P	P	P	P	P	P	P	P	X	P	P	
ABUL HOSSAIN	67	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
SANAL	69	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
SIRAJ	70	P	P	P	X	P	P	P	P	P	X	P	P	P	P	P	P	
MAMUN	71	P	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P	
MANIK	72	P	(A)	P	P	P	P	P	P	X	P	P	P	P	P	P	P	
AL HOSSAIN	74	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
TAYOUB	75	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
SUMON	76	P	(A)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
MIZAN	77	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
HARIM	78	P	P	X	P	P	P	P	P	P	X	P	P	P	P	P	P	
KADER	BJ-03	P	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P	
NAHID	09	P	P	P	P	P	P	X	P	P	P	P	P	P	P	P	P	
ARIFUL-2	02	P	P	P	P	X	P	P	P	P	X	P	P	P	P	P	P	
ASLAM	04	P	P	P	P	P	X	X	X	X	X	X	P	P	P	P	P	
HAJUL	05	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P	P	
ARIFUL-1	06	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
SHAMIM	07	P	P	P	X	P	P	P	P	P	P	P	P	P	P	P	P	
EUSUF	13	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
ALAUDDIN 2	ED-07											P	P	P	P	P	P	P
MD. BABUL	ED-79											P	P	P	P	P	P	P

**07 December 2022:**

7<sup>th</sup> of December 20 person participated HSE training conducted by Mr. Liang- Site manager.





**20<sup>th</sup> and 22<sup>nd</sup> December 2022:**

20<sup>th</sup> of December 19 person participated HSE training conducted by Mr. Xue- Site manager.  
22<sup>nd</sup> of December 19 person participated HSE training conducted by Mr. Linkai- Site manager.









**3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> February 2023:**

3<sup>rd</sup> of February 11 person participated HSE training conducted by Mr. Xue- Site manager.

5<sup>th</sup> of February 14 person participated HSE training conducted by Mr. Zong Sheng-  
Technical manager.

7<sup>th</sup> of February 14 person participated HSE training conducted by Mr. ZhaoBin- Site manager.





Feb 12, 2023 2029

No	Name	Roll No	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12
1	A. ROUF	EQ-20	P	X	X												
2	DULAL	24	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3	SHAMIM-2	34	P	P	P	P	P	X	P	P	P	P	P	P	P	P	P
4	JAHID	36	R	X	P	P	P	P	P	P	X	P	P	P	P	P	X
5	LOTIF	37	P	P	P	X	P	P	P	P	P	P	P	P	P	P	P
6	SHAMIM - D	38	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	JAMAL	44	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	MD. BABUL	89	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	MOMIR	86	P	P	P	P	P	X	X	X	X	X	X	X	X	X	X
10	Robel	87	P	P	P	P	P	X	X	X	X	X	X	X	X	X	X
11	ARI FUE -2	DJ-02	X	X		P	P	P	P	X	P	P	P	P	P	P	P
12	ASLAM	04	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
13	HAZUL	05	P	P	P	P	X	P	P	P	P	P	P	P	P	P	P
14	EUSUF	-13	P	P	P	P	P	X	X	P	P	P	P	P	P	P	P
15	AZIM	08	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	MD. JAMAL	64	P	X		P	X	P	P								
17	HARON	19	P	X		P	X	P	P								
18	SORIF	83	X	X	P												
19	JOYNAL	84	X	X	P			X									
20	Abul Hasan	67				P	P	P	P	P	P	P	P	P	P	P	P
21	MOMIR									P	P	P	P	P	P	P	P
22	VOROT Vobu	83								P	P	P	P	P	P	P	P
23	Jasniq	84										P	P	P	P	P	P
24	Tomuier Kobul	85											P	P	P	P	P

**18<sup>th</sup> and 19<sup>th</sup> February 2023:**

18<sup>th</sup> of February 19 person participated HSE training conducted by Mr. Yang- Site manager.

19<sup>th</sup> of February 21 person participated HSE training conducted by Mr. ZhaoBin- Site manager.





Feb 25, 2023

F ↓ ↓ ↓

Mark ID	12	13	14	15	16	17	18	19	20	21	22	23	24	25
DUAL ED-20	X	P	P	P	P	P	P	P	P	P	P	P	P	P
SHAMIM-2 -34	P	P	P	X	P	P	P	P	P	P	P	P	P	P
JAHID 56	X	P	P	P	P	X	X	P	P	P	P	P	P	P
LOTIF 37	P	P	P	P	P	P	P	P	P	P	P	P	P	P
SHAMIM-D -28	P	P	P	P	P	P	P	P	P	P	P	P	P	P
JAMAL -44	P	P	P	P	P	P	P	P	P	P	P	P	P	P
M. BABUL 79	P	P	P	P	P	P	P	P	P	P	P	X	P	P
ARIFUL-Z BJ-2	P	P	P	P	P	P	P	P	P	P	P	P	P	P
ASLAM 04	P	P	P	P	P	P	P	P	P	P	P	P	P	P
HAJUL 05	P	P	P	P	P	P	P	X	P	P	P	P	P	P
EUSUF 13	P	P	P	P	P	P	P	P	P	P	P	P	P	P
AZIM 08	P	P	P	P	P	P	P	P	P	P	P	P	P	P
ABUL HOSSAIN-67	P	P	P	P	P	P	P	P	P	P	P	P	P	P
MONIR -20	P	P	P	P	P	P	P	P	P	P	P	P	P	P
MOR MOBI -83	P	P	P	P	P	P	P	P	P	P	P	P	P	P
JAMUR -84	P	P	P	P	P	P	P	P	P	P	P	P	P	P
<del>85</del>														
JAHONIA 86	P	P	P	P	P	P	P	P	P	P	P	P	P	P
<del>87</del>	P	P	X											
<del>88</del>														
<del>89</del>														
Abdu Mokmin-88	P	P	P	P	P	P	X	P	X				X	
SWA NORV 53	P	P	P	P	P	P	P	P	X					
KOBIR	X	X	X	P	P	P	P	P	P				P	P
SHAMOYAR 89							P	P	P	X			X	
ARSAD 90							P	P	P	P			X	
MAHID							P	X	X					

**5<sup>th</sup> and 6<sup>th</sup> March 2023:**

5<sup>th</sup> of March 25 person participated HSE training conducted by Mr. Yang- Site manager.

6<sup>th</sup> of March 26 person participated HSE training conducted by Mr. HaiYang- Safety Engineer.





March 10, 2023

Name	Mark ID	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10
DULAL	ED-24	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
<del>JAHID</del>	36	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LOTIE	37	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
SHAMIM-D	38	X	P	P	P	P	P	P	P	X	P	P	P	P	P	P
JAMAL	44	P	P	X	P	P	P	P	P	P	P	P	P	P	P	P
MD. BABUL	79	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
ABUL HOSSAIN	67	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
JAMIR	84	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
TAIZUL	91	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
AHSAN	92	P	P	X	P	P	X	P	X	P	P	P	P	P	P	P
MASUM	93	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
HARAN	19	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
ZIYA	46	P	P	P	P	X	P	P	P	X	P	P	P	P	P	P
LABLO	82	P	P	P	P	P	P	P	X	P	P	P	P	P	P	P
MD JAMAL	64	P	P	P	P	P	X	P	P	X	P	P	P	P	X	P
SWAPON	53	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
ABDUL ROHMAN	58	P	P	X	P	P	P	P	P	X	P	P	P	P	P	P
SAIDUR	27	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
ZAKIR	ED-94	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
AL AMIN	95	P	P	P	P	P	P	P	P	P	X	P	P	P	P	P
KHOKON	96	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
ARIFUL-2	BT-02	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
ASLAM	BT-03	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
HAJUL	05	P	P	X	P	P	P	P	P	P	P	P	P	P	P	P
EUSUF	13	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
AZIM	08	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
ARIFUL-1	06	P	P	X	P	P	P	P	P	P	P	P	P	P	P	P
NAHID	BT-09	P	P	P	P	P	P	P	P	X	X	P	P	P	P	P

**17<sup>th</sup> March 2023:**

17<sup>th</sup> of March 20 person participated HSE training conducted by Mr. Zong Sheng- Technical manager.



March, 2023



		12	13	14	15	16	17	18	19	20	21	22	23	24	25
	DOLAL	ED-20	X	P	P	P	P	P	P	P	P			P	P
	SHAMIM-2	-34	P	P	P	X	P	P	P	P	P			P	P
	JAHID	36	X	P	P	P	P	X	X	P	P			P	P
	LOTIF	37	P	P	P	P	P	P	P	P	P			P	P
	SHAMIM-D	-38	P	P	P	P	P	P	P	P	P			P	P
	JAMAL	-44	P	P	P	P	P	P	P	P	P			P	P
	MR. BABUL	79	P	P	P	P	P	P	P	P	P	X		P	P
X	ARIFUL-Z	BJ-2	P	P	P	P	P	P	P	P	P			P	P
X	ASLAM	04	P	P	P	P	P	P	P	P	P			P	P
X	HAJUL	06	P	P	P	P	P	P	P	X	P			P	P
X	EUSUF	13	P	P	P	P	P	P	P	P	P			P	P
X	AZIM	08	P	P	P	P	P	P	P	P	P			P	P
	ABUL HOSSAIN-67		P	P	P	P	P	P	P	P	P			P	P
	MONIR	-20	P	P	P	P	P	P	P	P	P			P	P
	NOR MOBI	-83	P	P	P	P	P	P	P	P	P			P	P
	JAMIR	-84	P	P	P	P	P	P	P	P	P			P	P
	<del>KOBIR</del>	<del>85</del>													
	JAHIDIA	86	P	P	P	P	P	P	P	P	P			P	P
	<del>KOBIR</del>	87	P	P	X										
	<del>KOBIR</del>														
	<del>KOBIR</del>														
	ABU HOJAJAN-88		P	P	P	P	P	P	X	P	X			X	
	SWA POW 53			P	P	P	P	P	P	P	X				
	KOBIR		X	X	X	P	P	P	P	P	P			P	P
	SHAMOYAR	89							P	P	P	X		X	
	ARSAD	90							P	P	P	P		X	
	NAHID									P	X	X		P	

**28<sup>th</sup> March 2023:**

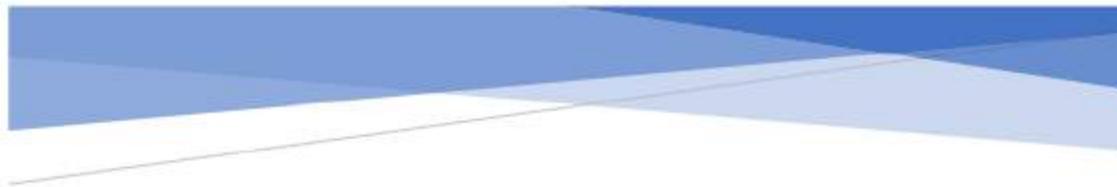
28<sup>th</sup> of March 22 person participated HSE training conducted by Mr. Xue- Site manager.



Feb X      March 10 2023      April 10

NAME	Roll No	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10
DULAL	ED-24	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
JAHID	36	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LOTIF	37	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
SHAMIM-D	38	X	P	P	P	P	P	P	P	X	P	P	P	P	P	P
JAMAL	44	P	P	X	P	P	P	P	P	P	P	P	P	P	P	P
MD. BABUL	79	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
ABUL HOSSAIN	87	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
JAMIR	84	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
TAIRUL	91	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
AHSAN	92	P	P	X	P	P	X	P	X	P	P	P	P	P	P	P
MASUM	93	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
HARAN	19	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
ZIYA	46	P	P	P	P	X	P	P	P	X	P	P	P	P	P	P
LABLO	82	P	P	P	P	P	P	X	P	P	P	P	P	P	P	P
MD JAMAL	64	P	P	P	P	P	X	P	P	X	P	P	P	P	X	P
SWADOM	53	P	P	P	P	P	P	P	P	X	P	P	P	P	P	P
Abdul ROHMAN	88	P	P	X	P	P	P	P	P	X	P	P	P	P	P	P
SAIDUR	27	P	P	P	P	P	P	P	X	P	P	P	P	P	P	P
ZAKIR	ED-94	P	P	P	P	P	P	P	X	P	P	P	P	P	P	P
AL AMIN	45	P	P	P	P	P	P	P	P	P	P	X	P	P	P	P
KHOKON	96	P	P	P	P	P	P	P	X	P	P	P	P	P	P	P
ARIFUL-2	BJ-02	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
ASLAM -	BJ-03	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
HASUL	05	P	P	X	P	P	P	P	P	P	P	P	P	P	P	P
EUSUF	13	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
AZIM	08	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
ARIFUL-1	06	P	P	X	P	P	P	P	P	P	P	P	P	P	P	P
NAHID	BJ-09	P	P	P	P	P	P	P	X	X	P	P	P	P	P	P

**Appendix 5: Contractor's Monthly Progress Report (sample pages)**



# MONTHLY PROGRESS REPORT

April 2023

Transfer stations in Malé and Vilimalé (incl. 6 story admin Malé) with  
equipment for transfer and transport of waste

Prepared by CSCEC

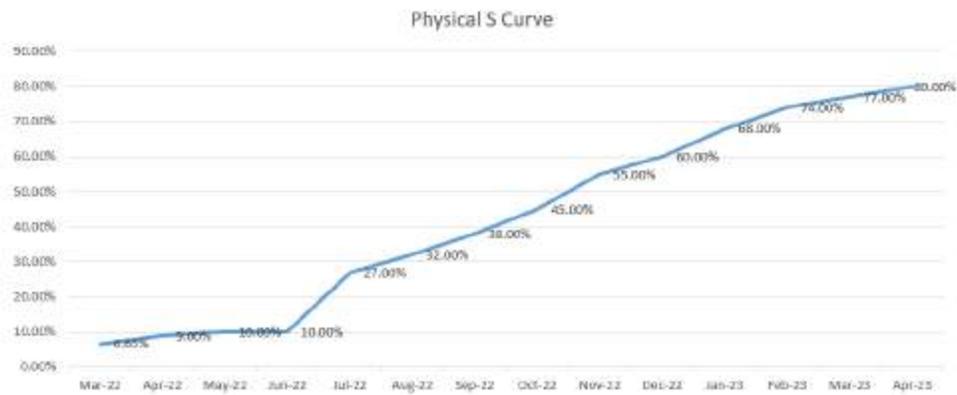
### 3. Project Progress

#### 3.1. Project update schedule

#	Description	Qty	Unit	Total	Previous Progress	Progress of Reporting Period	% of Reporting Period	Achieved Progress %	Balance Progress %
1	Geo-Survey	1	Set	1	1	0	0%	100%	0%
2	Preliminary Design (Male and Vilimale)	1	Set	1	1	0	0%	100%	0%
3	Detailed Drawing (Male and Vilimale)	1	Set	1	1	0	0%	100%	0%
4	Site Clearance	7677.8	m <sup>2</sup>	7677.8	7677.8	0	0%	100%	0%
5	Site Office	233.28	m <sup>2</sup>	233.28	233.28	0	0%	100%	0%
6	Site Facility	287.28	m <sup>3</sup>	287.28	287.28	0	0%	100%	0%
7	Management Camp	220.00	m <sup>2</sup>	220.00	220.00	0	0%	100%	0%
8	Labour Camp	699.8	m <sup>2</sup>	699.8	699.8	0	0%	100%	0%
9	Male Admin	0.8	Set	1	0.7	0.1	10%	80%	20%
10	Male Guard Room	0.2	Set	1	0	0.2	0%	20%	80%
11	Male Transfer Platform	0.85	Set	1	0.7	0.15	15%	85%	15%
12	Fire water pump room and equipment	0.5	Set	1	0.5	0	0%	50%	50%

13	Diesel generator room equipment	0.6	Set	1	0.6	0	0%	60%	40%
14	Weight bridge and office	0.2	Set	1	0	0.2	20%	20%	80%
15	Wamco shop	0.2	Set	1	0	0.2	20%	20%	80%
16	Male Workshop	0.5	Set	1	0.2	0.3	30%	50%	50%
17	Vili Admin	0.7	Set	1	0.6	0.1	10%	70%	30%
18	Vili Transfer Platform	0.7	Set	1	0.6	0.1	10%	70%	30%
19	Vili Storage	0.2	Set	1	0.1	0.1	10%	20%	80%
19	Vili Guard	0.7	Set	1	0.6	0.1	10%	70%	30%

**3.2. Physical S-Curve**



**Key Issues**

Geo-survey is completed and approved.

Mobilization is completed and inspection is approved.

Site Office is completed and inspection is approved.

Site Clearance is completed and inspection is approved.

Detailed Drawing for Male is approved by client, already sent to Male City Council.

Detailed Drawing for Vilimale is approved by client, already sent to Male City Council.

Management Camp is completed and inspection is approved.

Site facility is completed.

Big Camp is completed.

Excavation for admin building is completion.

Lean concrete for admin building is completion.

Raft foundation for admin building is completion.

Backfill for admin building is completion.

Foundations for Transfer Station is completion.

Concrete Main Structure for Male' Admin Building is completion.

Concrete Main Structure for Transfer Station is completion

Vilimale Site Organization is completion.

Foundations for Vilimale Transfer Station is completion.

Concrete Main Structure for Vilimale' Admin Building is completion.

Male Site Exterior Wall Brick Work is completion

Villimale Site Exterior Wall Brick Work is completion

### 3.4. Progress Map and Pictures



Picture 1 Transfer Station Platform Site of Male



Picture 2 Admin Building Site of Male

## 5. Environment data

Date	Weather	Time	Temperature	Humidity %RH	PM2.5 ug/m <sup>3</sup>	PM10 ug/m <sup>3</sup>	Noise db	Accident
1-Apr-2023	Cloudy	8:00	25°C	100	5	20	44	
		14:00	31°C	75	2	12	39	
		18:00	30°C	75	1	14	46	
2-Apr-2023	Cloudy	8:00	30°C	70	3	14	46	
		14:00	32°C	67	9	17	48	
		18:00	30°C	75	2	14	42	
3-Apr-2023	Cloudy	8:00	30°C	70	0	18	39	
		14:00	32°C	67	8	12	42	
		18:00	30°C	75	3	20	39	
4-Apr-2023	Cloudy	8:00	30°C	75	5	17	44	
		14:00	32°C	67	5	13	45	
		18:00	31°C	66	1	14	52	
5-Apr-2023	Cloudy	8:00	30°C	75	2	19	51	
		14:00	32°C	67	3	15	41	
		18:00	30°C	75	0	19	48	
6-Apr-2023	Cloudy	8:00	29°C	84	1	13	43	
		14:00	31°C	79	8	20	40	
		18:00	31°C	75	3	16	38	
7-Apr-2023	Cloudy	8:00	31°C	70	9	14	43	