PLEASE Project
Plastic Free Rivers and Seas for South Asia

South Asia Co-operative Environment Programme (SACEP) Plastic free Rivers and Seas for South Asia (P171269)

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR ESTABLISHMENT OF SMALL-SCALE BOTTLE REFILLING AND RINSING STATION IN M.DIGGARU

GRANTEE: COMMUNITY EMPOWERMENT LINKAGE - MALDIVES

Implemented by: SACEP
Supported by: UNOPS
Supported by: WORLD BANK GROUP

Environmental and Social Management Plan (ESMP)

1. Subproject Information

Subproject Title:	Establishment of small-scale bottle refilling and rinsing station in M.diggaru by CEL
Estimated Cost:	$8000
Start/Completion Date:	January 2025 - May 2025

2. Site/Location Description

M. Dhiggaru is an island with a population of approximately 1,100 residents, situated about 18.8 km from M. Mulah in Maldives. The residents primarily rely on plastic water bottles as their main source of drinking water, contributing to significant plastic waste on the island. To improve community well-being, reduce reliance on plastic water bottles, and mitigate plastic pollution, CEL, in partnership with the M. Dhiggaru Council, plans to establish a small-scale bottle refilling and rinsing station under the PLEASE Project. This initiative aims to provide a sustainable alternative to single-use plastic bottles, reducing waste and protecting the island.

The project will not involve construction work, as an existing infrastructure will be utilized. M. Dhiggaru Council has agreed to provide an existing building for the installation of the bottle refilling and rinsing station. This building is located 500 feet from the harbor and 498 feet from the council office, as illustrated in Figure 1.2. The area of the proposed facility is 11ft x 17.3ft. As per local land use plan regulation, around every island, an area of 20 meters (65 feet) should be designated as an environmental protection zone. The designated building is situated 25 meters from the shore, ensuring compliance with the regulatory requirements for coastal zone development and setback regulations

Institutions within a 1 km radius of the location are shown in Figure 1.2. These include the Fenaka Building (SOE Water company), located 150 feet from the project site; Dhiggaru School, situated 500 feet away; and the public park, positioned 600 feet from the site. Additionally, the island's police station is located in the same block as the project site.

Figure: 1.1 red line shows the space allocated for the bottling setup, the council building is r

Figure 1.2 (the institutions around 1km from the project site location)
3° 6' 37.6308" N 73° 33' 58.8636" E

Institutional Arrangement and Sustainability

The operational costs and necessary arrangements for the project site will be managed by CEL during the project implementation period. The M. Dhiggaru Council will be responsible for maintaining the site, including undertaking preparatory work such as repairing the windows in the existing building. Before commencing operations, Dhiggaru council and CEL will ensure that the site complies with the local food safety guidelines set by the Maldives Food and Drug Authority (MFDA).

As part of the sustainability plan, the facility will be handed over to the M. Dhiggaru Council upon completion of the project period. The council has indicated its intention to collaborate with the Dhiggaru Co-operative Society, a non-profit organization, to ensure the continuation of operations. Additionally, the council plans to involve the Women's Development Committee in the process, as needed, to enhance community participation and long-term sustainability

The council staff will be trained on the operation and maintenance of this small-scale facility, and the council will deliver water bottles to households upon request. An advantage of M.Veyvah for this facility is due to the smaller size of the island; a population of 304 people, the operation becomes more feasible and CEL through the PLEASE project can increase the reach of the target population of the project and reduce the amount of plastics avoided through the project.

During the operational phase, 3 trained staff will be hired under the Dhiggaru council's payroll. Initial training for the 3 staff will be provided by the PLEASE project. The Staff will use the council building for administrative purposes, while restroom facilities will be located in the accommodation block, approximately 20 ft away from the project site. Details of the Project Team is included *Annex*

3. Subproject Description and Activities

For this ESMP, the project activities can be divided into two distinctive phases

1) Site Preparation and Renovation Phase
2) Operational Phase

1) **Site Preparation and Renovation Phase:**

During this stage, M. Dhiggaru Council will be responsible for setting up the site for the bottle refilling and rinsing station, they will be responsible for site maintenance, including renovation work such as repairing the windows, wall tiling, etc in the existing building. The floor plan for the bottling setup as per the Maldives Food and Drug Authority (MFDA) requirement has been developed by Dhigaaru Council. Before commencing operations, Dhiggaru council and CEL will ensure that the site complies with the local food safety guidelines set by the Maldives Food and Drug Authority (MFDA).

Below are the details of the main renovation sub activities during this phase;

The renovation works in the existing building include;

a) Wall tiling,
b) repairing windows
c) cleaning the facility building.

2) **Operational phase:**

The operational costs and necessary arrangements for the project site will be managed by CEL during the project. The equipment needed for the bottling setup will be procured by CEL and the equipment installation will be handled by the Council. The council staff will be trained on the operation and maintenance of this small-scale facility and the council will deliver water bottles to households upon request.

2.1 Installation of Bottling Setup:

This phase will also include setting up/ installation of a bottle refilling station. This system will consist of two small-scale Reverse Osmosis units connected in series, with a combined capacity to refill 60 bottles per day. Each rinsing cycle will utilize approximately 750 ml of water to rinse six bottles simultaneously. Approximately 750ml of water will be used for rinsing the bottles per round, rinsing 6 bottles at a time.

Key features of the bottling setup will include:

1)The station will have access to desalinated water and rainwater, ensuring a reliable and sustainable water supply for its operations.
2)The rejected water (wastewater) generated from the system will be collected in a separate 500-litre tank. It will then be reused for area maintenance and gardening. The water will also be tested to ensure it is free from contamination.
3)Rainwater will be collected from the Facility roof and will be stored in a 2500 liters HDPE tank. Rainwater is used as a contingency in case of equipment failure and also to reduce the energy footprint of the operations. The process flow of rainwater usage is shown in the concept drawing. The required machinery will be installed as per the process floor plan here;
Floor Plan.pdf
Equipment setup will include the following machine components :

- Bottle rinser
- Bottle heater for sterilizing (bacterial removal)
- End-cap machine
- Three purification machines with a seven-stage filtration process
- 2500 litre water storage tank

2.1 Operational Workflow of the Bottling Setup

The bottling process begins with the manual inspection of each bottle to ensure it is free from any contamination. Only bottles in good condition will be processed further. Once inspected, the bottles will be rinsed using a bottle washing machine with the capacity to rinse six bottles per cycle. Following the rinsing process, the bottles will be transferred to a sterilizing machine, which removes bacteria and odors. This sterilizing machine can sterilize up to 50 bottles per cycle. Once sterilized, the bottles will proceed to the refilling machine, where they will be filled with purified water. The filled bottles will then be sealed using a cap machine and prepared for dispatch.

M. Dhiggaru Council has maintained an established desalinated water supply system on the island since 2018, which further supports the feasibility of setting up the bottling station in Dhiggaru. The station will have access to both desalinated water and rainwater, ensuring a reliable and sustainable water supply for its operations.

4. ESMP Matrix: Risk and Impacts, Mitigation, Monitoring

Find a table below detailing the anticipated environmental and social risks and impacts as a result of the project, as well as their mitigation and monitoring measures.

Table 1 : ESMP for the site preparation and Renovation of existing site for the Refill and rinsing station

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation Monitoring cost (USD)
		Location/Timing/Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
1.Lack of Occupation Health and Safety 1. Risk of injury to workers from the equipment, and risk of injury to workers during the installation of the equipment and wall tiling 2. Risk of Fire during renovation works	1.1 Provide PPE to workers (PPE should be selected based on the activity undertaken, which can include, hard hats, gloves, safety shoes, safety harnesses, chemical protective gloves, protective goggles, electric protective gloves, etc) 1.2 Conduct safety awareness training before the start of the renovation 2.1 A fire extinguisher is in place during the works	Project site during operation/ weekly	site supervisor	1. Number of safety incidents 2. Incident log records 3 Maintain records of the license of operators of all vehicles/vessels, the	Incident reporting / PPE checklists and training schedules	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	1) 65 2) 100 Fire extinguishers and training 3) 50

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation Monitoring cost (USD)
		Location/Timing/Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
3. Risk of Accidents during Transport of Machinery to the preparation site	2.2 Renovation workforce given training on fire safety 3.1 Use well-maintained and suitable transport vessels to ensure safe delivery. 3.2 Ensure trained personnel handle loading and unloading procedures safely. 3.3 Transfer the machinery in off-peak hours to avoid traffic congestion 3.4 All transport vehicles should be operated by licensed personnel and should have valid registration			roadworthiness certificate for all vehicles, and the valid registration for all vessels/vehicles			

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation Monitoring cost (USD)
		Location/Timing/Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
2.Dust generation during interior works	1. Use of dust control methods during cutting and sanding 2. Regular cleaning of work areas 3. Provision of face masks for workers	e during site paration works	site supervisor	Dust level	Conduct inspections daily to ensure that workers wear proper PPE	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	part of 65 mentioned above under 1.1
3. Noise during wall tiling	1. Maintain a low noise level 2. Work limited to day hours 3. Use the noise-dampening method 4. Avoid using multiple noise-generating equipment at the same time 5. Provide earmuffs to the workers	During site preparation works	site supervisor	Noise level (No local standards, WB/IFC standard is applied which is 45 dBA[1] for industrial/commercial areas)	Use a Noise meter hire or use of the mobile app to record the noise level	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	50
4. Risks of Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) between Project workers; and between	1. Assign a PSEA Focal Point at the site. 2. Provide awareness training on 3. recognizing and preventing SEA/SH for a)	Training and awareness will be conducted prior to the	site supervisor	Number of training sessions provided to workers	Log Records	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	100

[1] https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-noise-en.pdf

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation Monitoring cost (USD)
		Location/Timing/Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
Project workers and local community members	Project workers, and b) affected communities 4. Provide training on the GRM, including for SEA/SH-related grievances to Project workers, and affected communities 5 . Request all Project workers to sign a Code of Conduct (CoC) including instructions for SEA/SH prevention	commencement of work Implementation of Focal Points and singing of CoC at the site during the site preparation works		Number of awareness sessions provided to communities Number of SEA/SH Focal Points appointed			
5. Lack of responsiveness of GRM	1. Create awareness of Project GRM (see Annex) among the renovation workers and the local community 2. Establish the Grievance Redress Mechanism (GRM) Information displaying contact details of the focal points (Tier 1 and Tier 2) should be displayed on the project board. QR codes for downloading the forms and	Throughout the implementation of the works	Site Supervisor	Number of awareness sessions held	Log records of GRM	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	50

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation Monitoring cost (USD)
		Location/Timing/Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
	information on GRM should be given in each of the media used.						
6. Lack of compliance with labor laws and labor management procedures	Wages will be paid in accordance with the Maldives Employment Act Prevent all forms of forced labour and child labour -Keep records of the age of all workers Provide workers' GRM	Throughout the implementation of the works	Site Supervisor/ Council HR	Availability of workers' GRM Availability of records of workers	Log records of any incidents	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	50
7. Wastewater generation	1. Monitor water meter to ensure water isn't wastefully used 2. Turn off taps and other water sources when not in use 3. Ensure proper disposal of wastewater into the sewerage system according to regulatory guidelines	Work area during site preparation activities	site supervisor	Water used from meter readings	Water meter/ Weekly	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	100

Table 2: ESMP for the installation and operations of the Refill and rinsing station

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost (USD)
		Location/Timing /Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
Lack of Occupation Health and Safety 1 OSH risks during operations 2 OSH risks during sanitization of water bottles 3 Fire Safety Risk in Plastic Bottle Refilling and Rinsing Facility	1.1 Provide PPE to workers including hygiene and food safety PPEs (disposal gloves, hairnets, and beard covers), safe and protective PPEs (waterproof footwear, safety goggles, rubber gloves), and chemical resistant aprons 2.1 Conduct safety awareness training before the start of the operational works (PPE should include chemical protective gloves and masks where chemicals are handled) 2.2 Prepare facility operations SOPs 2.3 Provide training to facility staff on the SOP and safety requirements 2.4 provision of first aid kit and emergency health insurance	Project site during operation/ weekly	Dhiggaru Co-operative Society	1. Number of safety incidents and near misses 2. Incident log records	Incident reporting / Weekly	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	1) 400 2) no separate cost but part of 400 given to training

	3.1 Fire extinguisher is in place during the works, along with emergency and response training, and provision of emergency drills and exits						3) 50
Drinking Water Contamination During the Bottling Process	1. Testing of the bottled water quality, Monthly 2. Regular changing and maintenance of the water filter as per manufacturer's specifications 3. Regular servicing of the sterilization machine as per manufacturer's specifications 4. Getting the required certification from the Maldives Food and Drug Authority 5. Cleaning of rainwater collection roof monthly	Throughout the operational phase	Dhiggaru Co-operative Society	TDS (<1000 mg/l) Turbidity (< 5 NTU) Total Coliform (0/100ml) Feacal Coliform (0/100ml) Based on WHO drinking water quality standards	Monthly records maintained	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	1500

Improper Waste Disposal	1. Segregation of hazardous and non-hazardous waste 2 . Implement waste management protocols in adherence to local regulations 3. Provide separate bins for recyclables, hazardous, and other	continuous during the operations of the facility	Dhiggaru Co-operative Society	Quantity and type of waste generated. Disposal logs.	Monthly inspection of waste segregation and storage	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	50
Risk of Improper Wastewater Disposal and Soil Contamination	1. Monitor the water meter to prevent excessive water usage. 2. Turn off taps and other water sources when not in use. 3. Ensure proper wastewater disposal into the sewerage system. 4. Ensure that reject water is not contaminated and is utilized for gardening	Project site during operations / Weekly	Dhiggaru Co-operative Society	Water used from meter readings	Water meter/ Monthly	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	50
Noise pollution from high-pressure pumps or automated bottling systems	1. Maintain a low noise level 2. Work limited to day hours 3. Avoid using multiple noise-generating equipment at the same time 4. Provide earmuffs to the workers	during the operations of the facility/ weekly	Dhiggaru Co-operative Society	Noise levels (No local standards, WB/IFC standard is applied which is 45 dBA[2] for	Random noise level checks using a noise meter	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	50

[2] https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-noise-en.pdf

				industrial/commercial areas)			
Risks of Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) between Project workers; and between Project workers and local community members	1. Assign a PSEA Focal Point and prepare the Code of conduct 2. Provide awareness training on 3. recognizing, and preventing SEA/SH for a) Project workers, and b) affected communities 4. Provide training on the GRM, including for SEA/SH-related grievances to Project workers, and affected communities 5. Request all Project workers to sign a Code of Conduct (CoC) including instructions for SEA/SH prevention	the operations of the facility/ Monthly	Facility manager	Availability of CoC Percentage of workers that have signed CoC Number of awareness sessions	Log Records	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	100
Lack of responsiveness of GRM	1. Create awareness of Project GRM (see Annex) among facility workers and the local community 2. Establish the Grievance Redress Mechanism (GRM) Information displaying contact details of the focal points (Tier 1 and Tier 2) should be displayed on the project	during operations of the facility/ Monthly	facility manager	Number of awareness sessions held	Log records of GRM	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	150

	board. QR code for downloading the forms and information on GRM should be given in each of the media used.						
Lack of compliance with labor laws and labor management procedures	Wages will be paid to facility workers in accordance with the Maldives Employment Act Prevent all forms of forced labour and child labour -Keep records of the age of all workers Provide workers' GRM	during the operations of the facility/ Monthly	facility manager	Availability of workers' GRM Availability of records of workers	Log records of any incidents	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	Cost covered under GRM
Risk of accidents during transport of bottled water to customers	Hire vehicles with valid registration Hire vehicles with drivers with a valid license Transfer the bottles in off-peak hours to avoid traffic congestion Facility staff to always accompany the driver during delivery	Continuous during the operation phase	Facility Manager	Number of incidents	Incident log records Maintain records of the license of operators of all vehicles, the roadworthiness certificate for all vehicles, and valid registration for all vehicles	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	No additional cost involved.

High Energy Consumption and Operational Inefficiency	Turn off unused equipment Use energy-efficient lighting Monitor monthly energy consumption levels	Continuous during the operations of the facility	Facility Manager	Energy consumption levels	Annual monitoring using an energy meter	Council staff, Env & Technical officer, CEL Technical Expert from UNOPS Country Team	No additional cost involved

5. Capacity Development & Training

This section covers the comprehensive training plan by CEL during the renovation, installation and operational phases in close collaboration with M. Dhiggaru to strengthen the capacity of the construction workers during the site preparation and renovation phase, workers at the refilling stations and community (during operational stage) to minimize environmental and social risks, promote occupational health and safety (OHS), and foster social inclusion in the operationalization of bottle refilling and rinsing station that aims at reducing reliance on plastic water bottle, overall mitigating plastic pollution and improve community well being. All new staff will undergo environmental and social safeguards training mentioned below and will be oriented to raise their grievances through an established GRM process.

Site Preparation Phase

Before operations commence, all site workers will undergo training on essential environmental, health, and safety measures, including:

- Workplace safety protocols and hazard prevention (OSH training and use of PPEs)
- Workers' rights and labor conditions
- Code of Conduct compliance
- Grievance Redress Mechanism (GRM) for staff and contracted workers
- Prevention of Sexual Exploitation and Abuse (SEA) / Sexual Harassment (SH) and response mechanisms
- Waste disposal and waste management protocols and briefing

Operational Phase

During the operational phase, a structured training program will be implemented to ensure the efficient and safe functioning of the facility. The training will cover the following key areas:

- Provide training to relevant staff on workplace safety and OSH, including use of PPEs
- Conduct training on Grievance Redress Mechanism (GRM) for the facility staff, and the surrounding communities.
- Conduct training on recognizing, preventing, and responding to Sexual Exploitation and Abuse (SEA) / Sexual Harassment (SH) for both workers and communities, along with training to mitigate the risk of SEA/SH to ensure a safe environment for the workforce. This will include training in identifying the signs of and reporting SEA/SH.

- Organize capacity-building workshops regarding lab protocols and water testing
- Conduct training on equipment operations by the supplier
- Conduct training to ensure the safety and hygiene of the place
- Guidance on operational efficiency, hygiene maintenance, and adherence to sustainability principles.

6. Implementation Schedule and Cost Estimates

Following is a breakdown of the cost estimate for implementing the mitigation and capacity development measures. The overall schedule of the site preparation and operation phase is as follows:

Below are the implementation schedule and cost estimates for both phases

Mitigation Measure	Implementation Schedule	Estimated Cost (USD)
Provision of PPEs, Fire extinguishers and related training	Site preparation and operation phase Jan to May 2025	565 (65 in renovation and 500 in operations)
Training Cost (SEA, GRM, Labour laws, safety training)	Site preparation and operation phase Jan to March 2025	500 (250 in renovation and 250 in operations)
Wastewater, chemical spills , and water generation Monitoring	Site preparation and operation phase Jan to March 2025	200 (100 in renovation and 100 in operations)
Water filtration, testing, and cleaning service and part of 120 water bottle costs	Site preparation and operation phase March 2025	1600
Equipment hire (Noise Meter and water testing equipment,)	Site preparation and operation phase Jan- March 2025	100 (50 in renovation and 50 in operations)

Other monitoring cost (vehicles safety, checklists, logs, operational efficiency	Throughout the operation phase and the entire project duration Feb-Mar 2025	50
Fire safety equipment	Throughout the operation phase and the entire project duration March May 2025	100 (50 in site preparation and 50 in operations)
Total cost		3115 USD

Project schedule

7. Attachments

Annex 1 Environmental and Social Screening Report
Annex 2 Photos of the locationl
Annex 3 Employment act . English translation
Annex 4 Project team CEL water refilling station
Annex 5 Equipment details from CEL
Annex 6 Supporting letter from the council
Annex 7 PSEA policy