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 OF QUALITY TESTING LABORATORY - MALE

GRANTEE: SMALL ISLAND GEOGRAPHIC SOCIETY - MOLDIVES

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

Environmental and Social Management Plan (ESMP)
Replacing Plastics in our Coastal Environment REPLACE Project

1. Subproject Information

Subproject Title:	Development of Laboratory to Test Bioplastic Products
Estimated Cost:	Setup USD 18,107 Equipment USD 51,881
Start/Completion Date:	1-Oct-2024 to 31-Dec-2024

2. Site/Location Description

The proposed laboratory will be located on the 5th floor of M. Niyandhurumaage, Alimas Magu, Malé City. Water and electricity are supplied to the building on the floor by MWSC and STELCO respectively, through their normal supply lines. The proposed laboratory on the 5th floor will be in unused space on a floor shared with MI College. Floors 6, 7, and 8 of the building are also being utilized by MI College. This currently unused space is sufficiently spacious for setting up the laboratory and can be accessed via both stairs and a lift, and opens up into a balcony space. The GPS coordinates of the building are 73°30'23.415"E 4°10'28.225"N. The size of the space allocated for the laboratory is 18.53 m^2.

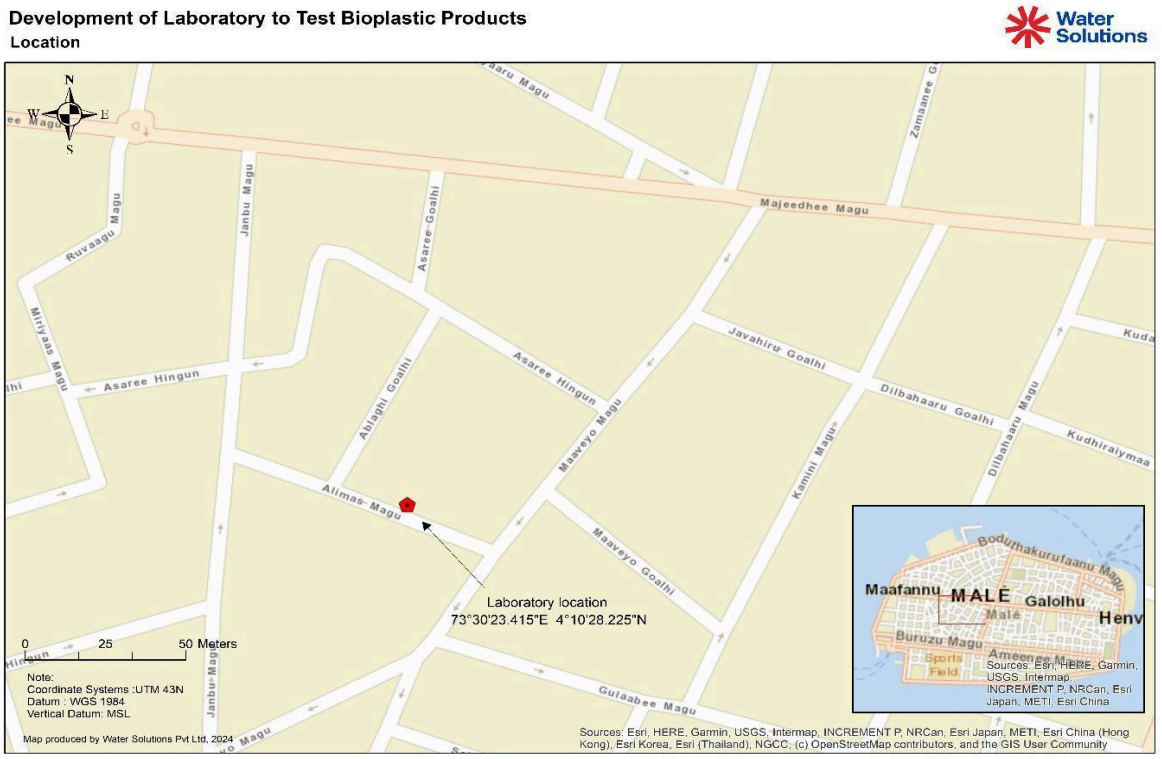

Figure 1: Location map (Source: ESRI Basemaps)

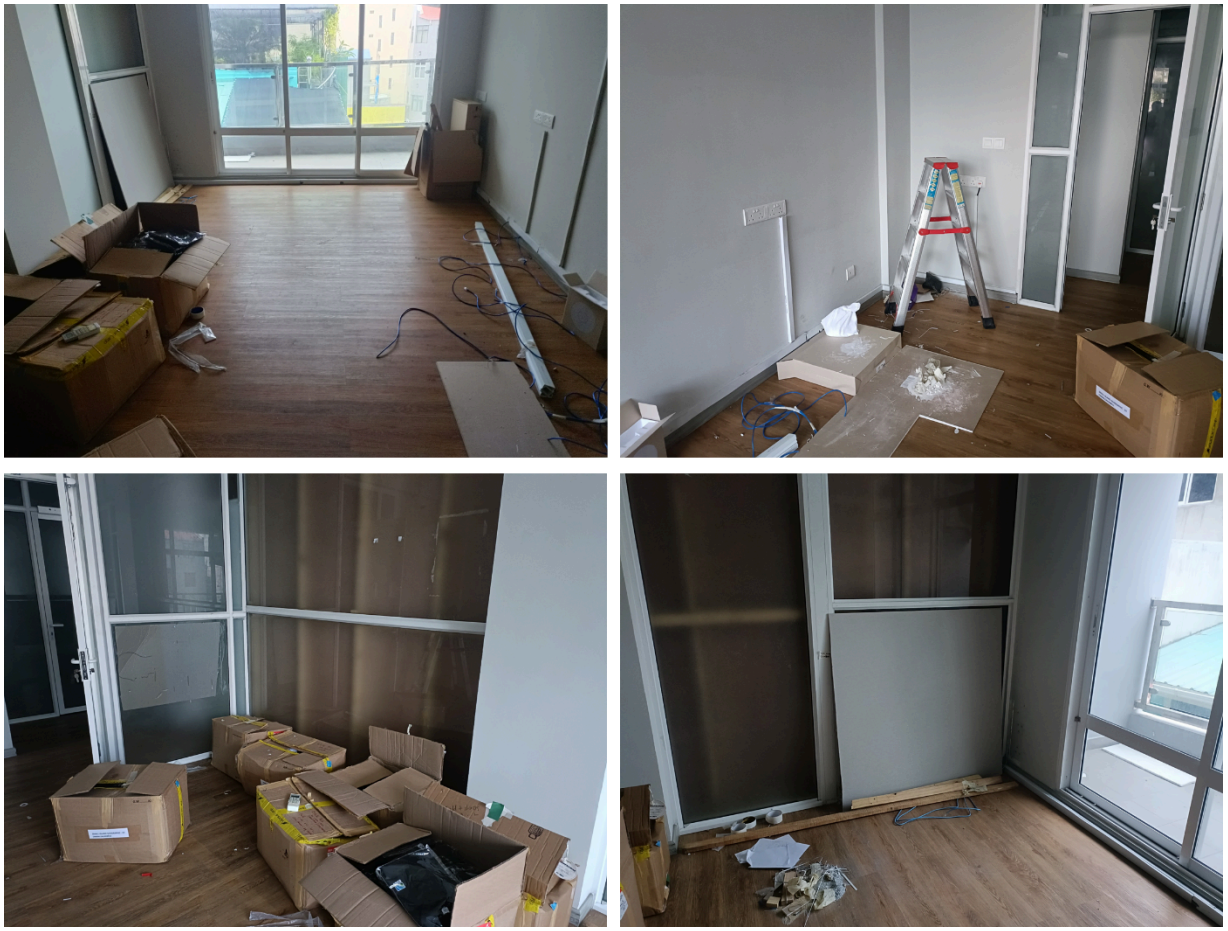

Figure 2: Photos showing current site condition as of 10/10/2024

3. Subproject Description and Activities

The Bioplastic Testing Laboratory will be located on the 5th floor of Niyadhurumaage, Male', as part of the SIGS PLEASE project. Its primary purpose is to test biodegradable plastic bags produced at the bioplastic production facility in Hanimadhoo. The laboratory will focus on assessing key mechanical, chemical, and environmental properties of bioplastics such as strength, water absorption, humidity resistance, and biodegradability. Additionally, the facility will evaluate the compatibility of locally sourced raw materials, including cassava, banana peels, and rice waste, for bioplastic production.

The objective of the Bioplastic Testing Laboratory is to support the development of environmentally sustainable bioplastics by ensuring products meet international quality and environmental standards. It will perform a wide range of tests to confirm the durability and suitability of bioplastics for various applications. By focusing on locally sourced raw materials, the lab will promote the use of renewable resources, encouraging innovation in the development of cost-effective and scalable bioplastic formulations. Moreover, the laboratory aims to certify bioplastic products according to global standards, making them competitive both locally and internationally. By contributing to the circular economy, the laboratory will support the transition from petroleum-based plastics to biodegradable alternatives, reducing the environmental impact of plastic waste in the Maldives.

The justification for establishing the Bioplastic Testing Laboratory stems from the urgent need to address plastic pollution, which poses a significant threat to marine biodiversity and coastal ecosystems in the Maldives. The laboratory will play a pivotal role in advancing biodegradable plastic alternatives, and supporting national efforts to reduce plastic pollution. Through its rigorous testing and research, the facility will ensure bioplastics produced in the Maldives meet performance and environmental benchmarks, fostering confidence in their adoption across industries.

Additionally, the laboratory holds the potential to promote the use of locally available materials in bioplastic production. By testing the feasibility of agricultural waste products like banana peels and rice husks, it will help reduce reliance on imported raw materials, lower production costs, and contribute to national sustainability goals. This initiative aligns with efforts to boost local economies and create skilled jobs in bioplastic testing, research, and production. The laboratory will also serve as a knowledge hub, offering educational opportunities for students, researchers, and the broader community to learn about bioplastics and their role in driving sustainable development.

As the room for the laboratory is pre-existing as part of the 5th floor, rehabilitation works of the space will be minimal. The development will consist of building partitions for the addition of the equipment storage and chemical storage rooms and the assembly of the chairs and work benches. The room will be painted, and work to install a sink will be carried out. As such, few tools will be needed, with tools used consisting of hammers, screwdrivers, glass cutters, and other such general construction gear and tools.

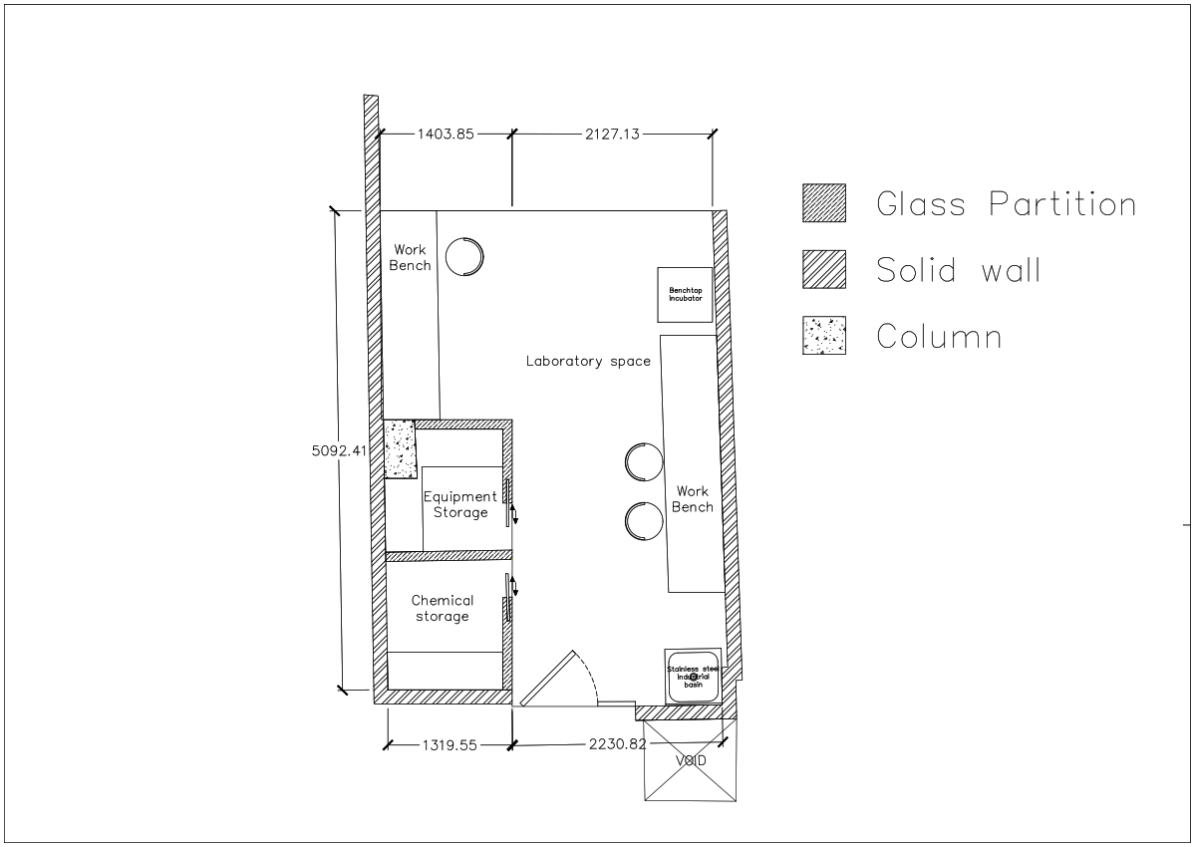

Figure 3: Floor layout of the laboratory

Activities to be carried out at the laboratory

FTIR Analysis

FTIR (Fourier-transform infrared) analysis is a critical technique used to identify and quantify materials in bioplastics by examining their infrared spectra. The procedure begins by preparing the bioplastic samples, which might involve grinding the material into powder or dissolving it in a suitable solvent, depending on the material's nature. The sample is then introduced into the FTIR spectrophotometer, which measures how the material absorbs infrared light across different wavelengths. The resulting spectrum, consisting of peaks corresponding to different functional groups, is analyzed to identify specific chemical components of the bioplastic. By comparing the spectrum with reference materials or standards, the analysis provides a comprehensive understanding of the chemical composition and quality of the bioplastic, ensuring that the material meets the desired specifications. The findings are compiled into a detailed report, which highlights the functional groups present, the overall material composition, and any impurities or inconsistencies.

Tensile Strength Testing

Tensile strength testing is essential for evaluating the mechanical properties of bioplastics, specifically their ability to withstand stretching forces. The test begins by preparing bioplastic samples, shaped according to standardized dimensions. These samples are then placed in a universal testing machine (UTM), which applies a controlled tensile force to gradually stretch the material until it breaks. As the sample elongates, the machine records the force applied and the corresponding deformation, creating a stress-strain curve that visually represents the material's behavior under tension. This curve is used to calculate key mechanical properties, including tensile strength, Young’s modulus (which measures stiffness), and elongation at break (which measures ductility). After the test, the results are analyzed and documented, ensuring that the bioplastics meet industry standards for mechanical performance.

Water Absorption Testing

Water absorption testing is performed to evaluate how bioplastics interact with moisture, an important factor in determining their durability and suitability for various applications. The test involves preparing bioplastic samples according to standardized dimensions, after which the dry samples are weighed to establish their initial mass. The samples are then immersed in distilled water for a specified duration, which could range from 24 hours to several days, depending on the testing standard. After the immersion period, the samples are removed, dried, and weighed again to measure the water absorbed by the material. This test yields two key metrics: the water absorption ratio, which quantifies the amount of water absorbed relative to the initial dry weight, and the swelling ratio, which reflects changes in the sample's dimensions due to moisture uptake. Multiple tests are carried out to ensure the reliability and consistency of the results, which help in assessing the material’s performance in humid or wet environments.

Bioplastic Humidity Absorption Testing

Humidity absorption testing is designed to understand how bioplastics respond to moisture in the atmosphere. The bioplastic samples, prepared to standardized sizes, are first weighed to record their initial dry mass. These samples are then placed inside a humidity chamber set to specific relative humidity levels, typically between 50% and 90%, and maintained at a constant temperature. Over a predefined period—ranging from several hours to weeks—the samples are exposed to humid

conditions. Once the testing period concludes, the samples are removed and weighed again to determine the amount of moisture they absorb. Additionally, changes in the material's dimensions, if any, are recorded to calculate the swelling ratio. This test helps in assessing the impact of humidity on the material's physical and mechanical properties, especially in climates or applications where high humidity is a concern.

Soil Burial Degradation Testing

Soil burial degradation testing is a method used to assess the biodegradability of bioplastics by simulating natural conditions. In this test, bioplastic samples are cut to standardized dimensions and their initial weight is recorded. The samples are then buried in a controlled soil environment, which mimics real-world conditions like moisture, temperature, and aeration. The depth at which the samples are buried is carefully chosen to ensure consistency. Over time—typically over periods of 3, 6, or 12 months—the samples are periodically excavated, cleaned, and re-weighed to assess the extent of degradation. In addition to weight loss, changes in the physical appearance and mechanical properties of the bioplastic samples are also monitored. This test provides valuable insights into the rate at which the bioplastic breaks down in the soil, as well as any potential environmental impacts associated with its degradation.

Evaluation of Compatibility of Locally Sourced Raw Materials

A key activity in the laboratory will be evaluating the compatibility of locally sourced raw materials, such as rice waste, cassava, and banana peels, for use in bioplastic production. This process involves testing these raw materials to determine their suitability for producing high-quality bioplastics that meet the necessary performance and environmental standards. The evaluation includes examining the physical, chemical, and mechanical properties of the bioplastics produced from these local inputs, as well as assessing their biodegradability and environmental impact. By optimizing bioplastic formulations to incorporate locally available resources, the laboratory supports sustainable production practices while reducing reliance on imported materials. This approach not only lowers production costs but also contributes to the development of a more sustainable and self-sufficient bioplastic industry in the Maldives.

Chemicals Used in Laboratory Operations

In the Bioplastic Testing Laboratory, several chemicals will be used to conduct various tests and processes essential for assessing the properties and performance of bioplastics. Proper handling, storage, and disposal of these chemicals are critical to ensure the safety of laboratory personnel and compliance with environmental regulations. Below is a list of the chemicals used in the laboratory, along with their general applications:

- Polyvinyl Alcohol (PVA): A water-soluble polymer used in the preparation of bioplastic films and as a binder in various formulations. PVA is essential for studying the film-forming properties and performance of bioplastics.
- Chitosan: A biopolymer derived from chitin, used for its biodegradability and antimicrobial properties. Chitosan is utilized in bioplastic formulations to enhance their environmental compatibility and performance.

- Glycerol: A polyol compound used as a plasticizer in bioplastic formulations. Glycerol improves the flexibility and workability of bioplastics, making them more suitable for various applications.
- Sorbitol: Another polyol used as a plasticizer to enhance the physical properties of bioplastics. Sorbitol helps in achieving desired mechanical characteristics and improving the processing of bioplastics.
- Hydrochloric Acid (HCl): A strong acid used for pH adjustments and chemical reactions in the laboratory. Hydrochloric acid is important for preparing solutions and performing specific tests that require acidic conditions.
- Sodium Hydroxide (NaOH): A strong base used for pH adjustments, saponification processes, and as a cleaning agent. Sodium hydroxide is crucial for preparing alkaline solutions and ensuring accurate test results.
- Plasticizers: Various plasticizers may be used to modify the properties of bioplastics, including flexibility, durability, and processing ease. The specific types of plasticizers used will depend on the formulations being tested.
- Sodium Metabisulfite: A reducing agent used for preserving and stabilizing samples, as well as in some chemical reactions. Sodium metabisulfite helps prevent oxidation and maintain the quality of bioplastic samples.

During the operation phase of the project 5 full time staff will be hired and trained to run the Laboratory. The details of these staff are included in the table below. The positions will be open to everyone and special consideration will be given for women to work in the field.

#	**Position**	**Qty**	**Type**	**Gender**	**Training**
1	Lab Manager	1	Full-Time	TBA	Capacity building training will be provided, including training on how to use the facility equipment and health and safety measures
2	Administrator	1	Full-Time	TBA	
3	Research Scientist	1	Full-Time	TBA	
4	Laboratory Technologist	1	Full-Time	TBA	
5	Laboratory Technician	1	Full-Time	TBA	

This project will finance the setup and the equipment of the laboratory, but not the operational phase.

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.

4.1 Rehabilitation Phase

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	
During Construction							
Dust generation during interior works	- Use of dust control methods during cutting and sanding - Regular cleaning of work areas - Provision of face masks for workers	Work area during construction activities	Contractor / site supervisor	Level of dust during construction	Visual inspection / Weekly	Project management team (SIGS) Technical Expert from UNOPS Country Team	Practical measure that does not need additional cost
Noise pollution from rehabilitation activities	- Maintain low noise level - Work limited to day hours - Use noise dampening methods - Avoid using multiple noise generating equipment at the same time - Provide earmuffs to the workers - Keep working hours between 8am to 4pm to minimize disturbance to neighbors on the floor, who start classes at 4pm.	During construction activities	Contractor / site supervisor	Noise level during construction	Using noise meter / Weekly	Project management team (SIGS) Technical Expert from UNOPS Country Team	500 USD for the PPE Noise meter hire 100 USD

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	
Waste generation	- Implement measures to reduce waste - Segregate waste into recyclables and non-recyclables - Arrange for proper and regular disposal adhering to local regulations - Follow regulatory guidelines for disposal of chemicals	Work area during construction activities	Contractor / site supervisor	Amount of waste disposed	Visual inspection / Weekly	Project management team (SIGS) Technical Expert from UNOPS Country Team	50 USD per bin for separate bins
Wastewater generation	- Monitor water meter to ensure water isn't wastefully used - Turn off taps and other water sources when not in use - Ensure proper disposal of wastewater into the sewerage system according to regulatory guidelines	Work area during construction activities	Contractor / site supervisor	Water used from meter readings	Water meter/ Weekly	Project management team (SIGS) Technical Expert from UNOPS Country Team	Practical measure that does not need additional cost
Chemical spills or leaks from paints and adhesives	- Store in designated secure areas - Provide spill kits - Provide PPE to workers - Label any hazardous chemicals or paint	Throughout the project duration	Contractor / site supervisor	Inspection of storage areas	Weekly inspection of storage areas	Project management team (SIGS) Technical Expert from UNOPS Country Team	500 USD for the PPE 1500 USD for spill containment materials

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	
Risk of injury to workers from the equipment and risk of injury to workers during the installation of cabinets, tables, etc.	- Provide PPE to workers - Conduct safety awareness training before the start of the construction works	During the construction activities	Contractor / site supervisor	Number of safety incidents and near misses	Incident reporting / Weekly	Project management team (SIGS) Technical Expert from UNOPS Country Team	500 USD for the PPE
Dust and Noise Pollution: During the development of the laboratory, dust, and noise may impact nearby communities and the local environment.	Maintain the construction equipment in good working condition.	Ongoing during construction	Site Supervisor	Dust levels	Visual inspection / Weekly	SIGS EHS Officer, Technical Expert from UNOPS Country Team	Practical measure that does not need additional cost
	Service equipment regularly to minimize emissions and maintain record	On-site. Every 6 months or as per manufacturer's recommendations	Site supervisor, Equipment Maintenance Team	Maintenance logs. - Frequency of equipment servicing.	- Inspect equipment condition - On-site.	Contractor to keep the logs and SIGS EHS Officer to check the logs, reviewed by a Technical Expert from the UNOPS Country Team	Practical measure that does not need additional cost
Lack of Occupation Health and Safety	- Provide PPE to workers	Ongoing during construction	Site Supervisor	Number of safety incidents	Incident reporting / Weekly	Project management team (SIGS)	500 USD for the PPE

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	
	- Conduct safety awareness training before the start of the construction works - Conduct daily toolbox talks before the start of the workday					Technical Expert from UNOPS Country Team	
Risks of Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) between Project workers; and between Project workers and local community members	- Appoint a PSEA Focal Point at the site. - Provide awareness training on -recognizing, and preventing SEA/SH for a) Project workers, and b) affected communities - Provide training on the GRM, including for SEA/SH-related grievances to a) Project workers, and b) affected communities - Request all Project workers to sign a Code of Conduct (CoC) including instructions for SEA/SH prevention - Provide specific SEA/SH response mechanism as part of the Project GRM (see Annex 7.3)	Training and awareness will be conducted prior to the commencement of work Implementation of Focal Points and singing of CoC at the site during the construction period	Site Supervisor	Number of training sessions provided to workers Number of awareness sessions provided to communities Number of SEA/SH Focal Points appointed Complaint box Actions taken in response to complaints	Monthly site visit	Project management team (SIGS) Technical Expert from UNOPS Country Team	100 USD Training costs

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	
Noncompliance with the local regulatory requirements and workers' dissatisfaction due to extensive work requirements	- Wages will be paid in accordance with the LMP of the project (See Annex 7.5) - Prevent all forms of forced labour and child labour - Keep records of the age of all workers - Provide workers' GRM (see Annex 7.5)	Throughout implementation of works	Site Supervisor Contractor HR	Availability of workers' GRM Availability of records of workers	Monthly site visit	Project management team (SIGS) Technical Expert from UNOPS Country Team	n/a
Lack of responsiveness of GRM	Create awareness of Project GRM (see Annex 7.3) among local community	Throughout implementation of works	Site Supervisor	Number of awareness sessions held	Monthly site visit	SIGS EHS Officer, Technical Expert from UNOPS Country Team	Costs of awareness sessions included in other awareness sessions above

4.2 Operational Phase

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
Chemical spills during testing procedures	- Using spill containment systems in the laboratory - Conduct training on proper handling of chemicals in the laboratory - Conduct regular training on spill response for the staff - Proper labelling and storage of chemicals - Use of PPE when handling chemicals, including chemical-resistant rubber gloves, eye protection in the form of chemical splash goggles or a face shield, and lab coats - Access to chemical resistant sink, so harm from chemical	Continuous during operation of the laboratory	Laboratory manager	Number of spills. Spill response time. PPE usage compliance.	Incident reporting	Laboratory manager	1500 USD for spill containment materials 500 USD for the PPE Cost of sink included in construction

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
	exposure to hands and face can be minimized by rinsing hands and face and flushing eyes - Ensure proper ventilation						
Exposure to hazardous substances causing health issues to the staff (OHS)	- Use PPE such as lab coats, gloves, masks and goggles - Conduct training on proper handling of chemicals in the laboratory - Ensure proper ventilation in the lab - Regular monitoring of the air quality - Access to chemical resistant sink, so harm from chemical exposure to hands and face can be minimized by rinsing hands and face, and flushing eyes	Continuous during operation of the laboratory	Laboratory manager	PPE usage compliance. Air quality levels.	Routine check of PPE compliance Air quality logs	Safety office Technical Expert from UNOPS Country Team	500 USD for the PPE 150 USD per air quality survey Cost of sink included in construction
OHS risks for laboratory workers	-						
Waste generation (e.g. used samples, packaging, etc)	- Segregation of hazardous and non-hazardous waste	Continuous during operation of	Laboratory manager	Quantity and type of waste generated.	Annual inspection of waste	Laboratory manager	50 USD per bin for separate bins

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
	- Implement waste management protocols in adherence to local regulations - Provide separate bins for recyclables, hazardous and other	the laboratory		Disposal logs.	segregation and storage	Technical Expert from UNOPS Country Team	
Wastewater generation	- Monitor water meter to ensure water isn't wastefully used - Turn off taps and other water sources when not in use - Ensure proper disposal of wastewater into the sewerage system according to regulatory guidelines	Work area during construction activities	Contractor / site supervisor	Water used from meter readings	Water meter/ Monthly	Project management team (SIGS)	Practical measure that does not need additional cost
Noise from equipment operation	- Maintain a low noise level - Work limited to day hours - Use noise-dampening methods - Avoid using multiple noise-generating equipment at the same time - Provide earmuffs to the workers - Regular maintenance of equipment to reduce noise	Continuous during operation of the laboratory	Laboratory manager	Noise levels	Random noise level checks using a noise meter	Laboratory manager Technical Expert from UNOPS Country Team	Practical measure that does not need additional cost Noise meter hire 100 USD 500 USD for the PPE

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Indicator to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
	- Keep working hours between 8 am to 4 pm to minimize disturbance to neighbors on the floor, who start classes at 4 pm.						
Energy consumption	- Turn off unused equipment - Use energy-efficient lighting - Monitor monthly energy consumption levels	Continuous during the operation of the laboratory	Laboratory manager	Energy consumption levels	Annual monitoring using an energy meter	Laboratory manager	Practical measure that does not need additional cost
Lack of appropriate labor and working conditions among laboratory workers	Adopt and implement LMP (see Annex 7.5) - Provide workers' GRM (see Annex 7.5)	Throughout operational phase	Laboratory manager	Availability of workers' GRM	Bi-weekly	Laboratory manager	Included in HR and OHS measures
Risk of SEA/SH incidents among workers	-Prepare CoC with references to zero tolerance of SEA/SH Ensure all workers sign the CoC - Create awareness of CoC among workers	Throughout operational phase	Laboratory manager	Availability of CoC Percentage of workers that have signed CoC Number of awareness sessions	Bi-monthly	Laboratory manager	Included in HR costs

5. Capacity Development & Training

To ensure implementation of the ESMP for the bioplastic testing laboratory, capacity building and training for the rehabilitation workers and for the laboratory workers that will be deployed during the operational phase is important. Capacity development and training identify the necessary measures to enhance OHS and other safety issues during the rehabilitation phase and the laboratory's capabilities and ensure compliance with relevant standards and protocols in both phases. Training and capacity building will take place prior to the commencement of work.

Rehabilitation workers

Training programs will be organized for rehabilitation workers and they will include toolbox talks on relevant OHS issues, SEA/SH prevention, Codes of Conduct, labor and working conditions, and the workers' GRM.

Laboratory workers

Laboratory personnel will receive training and awareness on OHS issues relevant to their work, SE/SH prevention, Codes of Conduct, labor and working conditions, and workers GRM.

Furthermore, laboratory workers will enhance their skills in conducting specialized tests such as FTIR analysis, tensile strength testing and biodegradability assessments. These programs will be conducted in collaboration with experienced professionals and training institutions. Workshops will be held to disseminate knowledge on best practices for testing and evaluating bioplastic materials, focusing on the latest methodologies and innovations in the field.

Training will be provided on laboratory procedures, including the operation of testing equipment, sample preparation and data analysis. This will ensure that staff are proficient in conducting tests and interpreting results accurately.

New Staffing Requirements

Depending on the scale of operations, additional technicians may be required to manage specific testing equipment and procedures. These roles will be filled based on the technical requirements of the laboratory. Lab Manager will oversee and ensure compliance with safety measures throughout the implementation and monitoring phase. Administrative and support staff will be recruited to handle logistical tasks, maintain records and ensure smooth laboratory operations.

Continuous Improvement

Regular refresher courses and updates on new technologies and methods will be integrated into the training schedule to keep the staff abreast of advancements in bioplastic testing.

Collaboration with external experts and institutions will be encouraged to provide periodic assessments and recommendations for improving laboratory practices.

6. Implementation Schedule and Cost Estimates

Project Schedule

The project schedule for establishing the Bioplastic Testing Laboratory is organized into four key phases: Planning Stage, Development Stage, Commissioning, and Operational Phase.

The Planning Stage involves the initial necessary for setting up the laboratory. This phase has been defining the laboratory's requirements and objectives. Following this, the design and planning phase includes developing architectural plans, selecting appropriate equipment, and finalizing procurement strategies. Obtaining the necessary permits from relevant authorities is crucial at this stage.

The Development Stage focuses on the setup of the laboratory. It starts with preparation including renovations to create the laboratory space. Infrastructure development includes the installation of electrical, plumbing, and cooling systems. Laboratory setup includes the installation of equipment, workstations, and safety features. During this stage, initial testing is conducted to ensure that systems and equipment are functioning correctly and meeting required specifications.

Commissioning is the phase where the laboratory is prepared for operational use. Staff training is conducted to ensure that personnel are proficient in operating the equipment, following safety protocols, and adhering to testing procedures. Equipment calibration is performed to guarantee precision and accuracy in test results. Quality assurance tests are carried out to validate the laboratory's processes and ensure compliance with standards.

The operational Phase marks the beginning of routine laboratory activities. This phase includes the commencement of bioplastic testing, with ongoing monitoring to ensure the laboratory operates efficiently and effectively. Regular performance evaluations are conducted to maintain standards and make necessary improvements. This phase also involves continued compliance with environmental and safety regulations and the implementation of continuous improvement practices based on operational feedback.

The following is a breakdown of the cost estimate for implementing the mitigation and capacity development measures. Contracting of workers will be included in the contractors BOQ.

The schedule of the construction phase is as follows:

	Weeks											
	1	2	3	4	5	6	7	8	9	10	11	12
Planning												
Development												
Commissioning												
Operation												

Below are the cost estimates required for the implementation of this ESMP.

Item	**Estimated Cost (USD)**	**Responsibility**
PPE for lab workers, Spill kits and containment materials	$ 1,500	SIGS, Laboratory Management
PPE (initial procurement) for rehabilitation workers	$ 800	SIGS
Equipment hire (Noise Meter, water testing and air quality monitoring equipment,)	$ 1,000	SIGS
SIGS EHS Officer (per year)	$ 11,700	SIGS
training materials, venue, refreshments, etc.	$ 500	SIGS
GRM costs	$450	SIGS
Community awareness/ stakeholder engagement initiatives	$200	SIGS
TOTAL	$16, 150	

7. Attachments

7.1 MOU Clearance

Memorandum of Understanding

between

MI College

and

Small Island Geographic Society

Small Islands Geographic Society
CR/14/2018

This Memorandum of Understanding (MoU) is made on the 1st September 2024 between

(1) MI College, having its principal office located at M. Niyandhurumaage, 7th Floor, Alimas Magu, Male', Maldives ("MI College") and

(2) Small Island Geographic Society, a Non-Government Organisation (NGO) focused on environmental awareness and advocacy in the Maldives, whose address is M. Niyandhurumaage, 4th Floor, Alimas Magu, Male' Maldives ("SIGS") and

WHEREAS the Parties seek to collaborate on reducing the usage of single-use plastics in the Maldives.

THEREFORE, the parties mutually agree as follows:

1. Background

1.1. SIGS is implementing the "REmoving PLAstic from our Coastal Environment (REPLACE)" project, funded by a grant from the South Asia Cooperative Environment Program (SACEP) under a World Bank and Parley for the Oceans initiative. The REPLACE project aims to replace single-use plastic bags with plant-based alternatives that do not require changes in consumer behavior, are suitable for garbage collection, increase public awareness to boost the availability of alternatives in the market, and produce a reality TV show to engage children and the community in developing creative solutions to plastic pollution.

1.2. As part of the REPLACE project, a Quality Testing Laboratory would be established, and a Kids innovation TV reality show will be produced.

2.Scope of Work

2.1. MI College and SIGS will collaborate to establish the Quality Testing Laboratory and produce the Kids Innovation TV show, as further detailed in Section 4.

3.Commencement and Duration of MoU

3.1. This MoU shall commence on 1st September 2024.

3.2. The duration of this MoU is twelve (12) months, concluding on 31st August 2025.

4.Responsibilities of MI College

1.1. Provide physical space for the bioplastic testing laboratory at MI College Male' Campus at 5th Floor at M. Niyadhurumaage, Alimas Magu, Male'

1.2. Provide multimedia studio established at MI College Male' Campus in Male' at 5th Floor at M. Niyadhurumaage, for SIGS on agreed terms and schedules.

1.3. Offer faculty support and student involvement in bioplastic research and multimedia production.

1.4. Ensure the security of the facilities and equipment related to the laboratory and multimedia studio.

1.5. Collaborate with SIGS in events and activities to raise awareness among college staff and students about replacing single-use plastics with biodegradable alternatives.

1.6. Utilize MI College's social media platforms to promote the project outputs and knowledge products.

1.7. The security deposit as specified in clause 2.6 shall be refundable upon the expiry or termination of this MOU, whichever occurs first. The security deposit shall be refunded within 5 days after deducting any unpaid monthly financial support as specified in clause 2.5, as well as any costs for damages to the premises or items listed in the inventory attached to this MOU.

Small Islands Geographic Society CR/14/2018

2.Responsibilities of SIGS

2.1. Setup of the bioplastic testing laboratory.

2.2. Provide multimedia content created as part of the REPLACE project for MI College's educational and promotional use.

2.3. Collaborate with MI College on research activities, student training and community outreach programs related to bioplastics and multimedia.

2.4. Ensure that activities conducted within the facilities adhere to agreed safety, operational and ethical standards.

2.5. SIGS shall pay a rent of USD 1,500 (Fifteen Hundred) per month for the use of the multimedia studio and the space allocated for the bioplastic testing laboratory. The payment shall be paid in advance on or before the 7th (seventh) day of each month to a MI College bank account (account name: Mianz Pvt Ltd, Account Number: 7730000113109) at Bank of Maldives

2.6. A security deposit of MVR 30,000 shall be paid on the day of signing this MOU as a security deposit for the use of the multimedia studio and the space allocated for the setup of the bioplastic testing laboratory to the MI College bank account (account name: Mianz Pvt Ltd, Account Number: 7730000113110) at Bank of Maldives.

3. Confidentiality

3.1. Any information related to either Party's business that the other Party is exposed to as a result of this MoU shall be considered "Confidential Information." Neither Party shall disclose any Confidential Information to any third party, except as required by law, without the express written consent of the affected Party.

4. Completion

4.1. This MoU will be deemed completed once both Parties have fulfilled all required tasks outlined in the Scope of Work in accordance with standards and practices.

5.Termination And Consequences of Termination

5.1. Either party shall be entitled to terminate this MoU by written notice if;

i. the other party becomes insolvent or initiates or becomes subject to any formal insolvency procedure or

ii. The other Party materially breaches this MoU, such as by failing to fulfil its responsibilities as outlined. In the event of a material breach, the breaching Party will be given written notice to rectify the breach within a reasonable timeframe. If the breach is not rectified, the MoU may be terminated.

6.Indemnification

6.1. In performing services under this MoU, Parties agree not to design, develop or provide to either Party any items that infringe one or more patents, copyrights, trademarks or other intellectual property rights (including trade secrets), privacy or other rights of any person or entity. If a Party becomes aware of any such possible infringement in the course of performing any work hereunder, Parties shall immediately so notify in writing.

6.2. Parties agree to indemnify, defend and hold the other Party, its officers, directors, members, employees, representatives, agents and the like harmless for any such alleged or actual infringement and for any liability, debt, or other obligation arising out of or as a result of or relating to the MoU. This indemnification shall include attorney's fees and expenses.

Small Islands Geographic Society CRI/4/2018

7.Dispute Resolution

In the event of any dispute arising from this MOU, both parties shall attempt to resolve the issue through mutual negotiation. If the dispute cannot be resolved amicably, the matter shall be referred to a Maldivian court for adjudication.

IN WITNESS WHEREOF, duly authorised representatives of each of the Parties have executed this MoU as of the Effective Date.

MI College

Signed:

Name: Lamya Abdul hadhee

Title: Rector

Date: 28/09/2024

Witness:

Signed:

Name: Jazluan

Title: Head of Marketing

Date: 28/09/2024

Small Island Geographic Society

Signed:

Name: Ahmed Jameel

Title: Vice President

Date:

Witness:

Signed:

Name: Dr. Mizna Mohamed

Title: Director, Science & Innovation

Date:

7.2 Screening Decision

Environmental Protection Agency
އިންވަޔަރަންމަންޓަލް ޕްރޮޓެކްޝަން އެޖެންސީ

ނަންބަރު:203-ECA/PRIV/2024/728

ސްކްރީނިން ކުރުމަށްފަހު ނިންމުން

Screening Decision

މިއީ މާލެ ސިޓީގައި ބަޔޯޕްލާސްޓިކް ޕްރޮޑަކްޓްތައް ޓެސްޓްކުރުމަށް ލެބޯޓަރީއެއް ޤާއިމް ކުރުމުގެ މަޝްރޫޢުގެ ވަނަވަރުގެ ސްކްރީނިން ކުރުމަށްފަހު ނިންމި ނިންމުން އެންގުމަށްޓަކައި ސްމޯލް އައިލެންޑް ޖިއޮގްރަފިކް ސޮސައިޓީ (ސިގްސް) އަށް ދޫކުރި ރަސްމީ ލިޔުމެވެ.

This is an official document issued **to Small Island Geographic Society (SIGS)** for communicating the decision made after screening of the project: **Development of a Laboratory to test Bioplastic Products in Male, Maldives.**

މި މަޝްރޫޢުގެ ސަބަބުން ތިމާވެއްޓަށް ނޭދެވޭ ބޮޑު އަސަރުތައް ކޯރާނެ ކަމަށް ފެނެއެވެ. ވީމާ، ތިމާވެއްޓަށް އަސަރު ފޯރާ މިންވަރު ބެލުމުގެ ދިރާސާ ހުށަހަޅުއްވާށެވެ. This project is likely to cause significant negative environmental impacts. Hence, please submit an EIA report.	☐
މި މަޝްރޫޢުގެ ވަށައިގެންވާ ތިމާވެށީގެ ފުރަތަމަ ދިރާސާއެއް ހުށަހަޅުއްވާށެވެ. Submit an Initial Environmental Examination for this project.	☐
މި މަޝްރޫޢުގެ ވަށައިގެންވާ ތިމާވެށީގެ މެނޭޖްމަންޓް ޕްލޭނެއް ހުށަހަޅުއްވާށެވެ. Submit an Environmental Management Plan for this project.	☑
މި މަޝްރޫޢުގެ ސަބަބުން ތިމާވެއްޓަށް ނޭދެވޭ ބޮޑު އަސަރުތައް ކޯރާނެ ކަމަށް ނުފެނެއެވެ. ވީމާ، މި މަޝްރޫޢުގެ މަސައްކަތްތައް ކުރިއަށް ގެންދިއުމަށް ހުއްދަ ދެވޭނެއެވެ. This project is unlikely to have a significant negative impact on the environment. Hence, you may proceed with the project.	☐
މި މަޝްރޫޢުގެ ސަބަބުން ކޯރާނެ ނޭދެވޭ އަސަރުތައް ކުޑަކުރުމަށް މި އެޖެންސީއިން އަންގާ ފިޔަވަޅުތައް މަޝްރޫޢުގެ ކަންތައްތަކުގައި ޢަމަލުކުރަންވާނެއެވެ. The measures stipulated by this agency shall be used to mitigate the negative impacts of the project.	☐

މިއީ ތިމާވެށީގެ ގޮތުން ކުރެވިފައިވާ ސްކްރީނިންގެ ނިންމުމެކެވެ. ވީމާ، މި މަޝްރޫޢުގެ މަސައްކަތްތައް ފެށުމުގެ ކުރިން އެހެން ސަރުކާރު އިދާރާތަކުން ހޯދަންޖެހޭ ހުއްދަތައް ހޯދަންވާނެއެވެ. މި ސްކްރީނިން ކުރުމަށްފަހު ނިންމުމުގައި ބަޔާންކޮށްފައިވާ މުއްދަތަކީ މި އެޖެންސީއިން ނިންމި ނިންމުން ތަންފީޛުކުރުމަށް ދެވިފައިވާ މުއްދަތެވެ.

This is an environmental screening. Hence, obtain all necessary approvals/permits from other relevant government authorities before commencement of the project activities. The date of expiry stated in this Environmental Screening Decision Statement is the duration given to implement the decision made by this agency.

Screening Institution: **Environmental Protection Agency of Maldives**

ސްކްރީނިންގ ކުރި އިދާރާ: އެންވަޔަރަމަންޓަލް ޕްރޮޓެކްޝަން އޭޖެންސީ

Date of issue: **02nd September 2024**
Date of Expiry: **02nd September 2025**

ދޫކުރި ތާރީޚު:02 ސެޕްޓެމްބަރ 2024
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Name: **Mr. Ibrahim Naeem**
Designation: **Director General**

ނަން : އަލްފާޟިލް އިބްރާހީމް ނައީމް
މަޤާމު: ޑިރެކްޓަރ ޖެނެރަލް

Signature: ސޮއި:

7.3 Grievance Redress Mechanism

In compliance with the Project SEP and GRM, and with ESS10, SIGS proposes to implement a GRM at the Project site.

The GRM will allow individuals or groups from the project-affected communities to raise concerns about the project's social and environmental performance. The mechanism has three tiers, and every effort will be made to resolve grievances amicably before escalating to higher tiers. The following steps will be implemented by SIGS to facilitate the GRM:

● An information board will be installed at the project site, providing contact details.
● A register of grievances will be maintained at SIGS.

First Tier

- An individual or an interest group can contact SIGS for grievances.
- An Information Board at the project site will list a phone number and an email address for the submission of a grievance. The phone number will be manned by a designated SIGS staff throughout working hours. The email address will be checked at least once a day by the same designated staff.
- The staff will receive the grievance and register it in the designated grievance register for the site. The staff will acknowledge the receipt of the grievance. He or she will then assess whether the grievance is related to the project and will undertake investigations if necessary.
- If the grievance cannot be resolved at this level, the complainant can submit a formal complaint via
  email to info@sigsmaldives.org or by calling (960) 3341643.
- SIGS will aim to resolve the complaint within 15 days and provide a written response to the aggrieved party. If more time is needed, SIGS will notify the complainant in writing, request an extension of up to 15 additional days, and obtain the complainant's consent for the extension.

Second Tier

- If the grievance cannot be resolved through Tier 1, an aggrieved party must submit a complaint on the
- Tier 2 to Hanimadhoo Island Council.
- The aggrieved party can contact the Hanimadhoo Island Council at (960) 4002052 or by email at info@hanimaadhoo.gov.mv.
- The island council will screen the complaint to determine if it is related to the project.
- If not related, the complainant will be informed in writing, along with recommendations for appropriate government bodies to contact.
- If related, the island council will arrange a meeting with SIGS to address the grievance.
- The island council will issue a written response within 15 working days if a resolution is reached.
- The complainant must acknowledge the decision within 10 days. If no acknowledgment is received, the decision is considered accepted.
- If unsatisfied, the complainant may inform the island council in writing of their intention to escalate to Tier III.

Third Tier
An individual or an interest group has the option of going to the established judiciary system of the Maldives.

SEA/SH: SEA/SH cases are substantively different from other complaints that are typically handled through the grievance redress mechanisms, their information will be handled in a special way within the GRM to ensure that the information is confidential.

Cases of SEA/SH can be reported through the site-specific GRM. However, additional channels for reporting SEA/SH complaints will be identified and integrated into the GRM. The survivor has the freedom and right to report an incident to anyone: a community member; project staff; or a nearby GBV service provider. All relevant staff of SIGS will receive training on handling SEA/SH complaints and referral systems, ideally during the project initiation phase. GRM-relevant staff will be trained on key protocols including referral, reporting, and informed consent protocols to receive those cases in an appropriate manner and immediately forward them to the SEA/SH referral system. The Officer responsible for the GRM will ensure appropriate response by: (i) providing a safe caring environment and respecting the confidentiality and wishes of the survivor; (ii) if the survivor agrees, obtain informed consent and make referrals; and (iii) providing reliable and comprehensive information on the available services and support to GBV survivors.

Beneficiaries and communities will generally be encouraged to report all SEA/SH cases through the dedicated SEA/SH referral system and complaints resolution mechanism. This will be made explicit in all community awareness sessions, as well as be part of the publicly disclosed information. The SEA/SH referral system will guarantee that survivors have access to necessary services they may need, including medical, legal, counselling, and that cases are reported to the police should the survivor choose to do so or if the case requires mandatory reporting.

See below the LMP in 7.5 for the workers' GRM.

7.4 Gender-based Violence and Sexual Harassment Policy

SIGS has a GBV and Sexual Harassment Policy in place, which is applied for all staff. The policy is as follows:

Policy Statement

Small Island Geographic Society (SIGS) is dedicated to ensuring a secure workplace for its employees, free from discrimination of all forms including Sexual Exploitation, Abuse, and Sexual Harassment (SEA-SH) and Gender-Based Violence (GBV). SEA-SH-GBV often leads to lasting psychological and physical impacts, making it critical to prevent such incidences and addressing them effectively.

This policy will be in line with the Employment Act (Law No. 2/2008) the Law on Prevention of Sexual Harassment (Law No. 16/2014) and the Regulation on Prevention of Sexual Harassment (No: 2014/R-377). Any allegation of SEA-SH-GBV will be treated seriously and will be

investigated. Disciplinary action will be taken against any individual found to be a perpetrator of SEA-SH-GBV. Any complaints submitted will be treated with confidence and respect. All employees of SIGS, as well as contractors and consultants are obligated to follow this Policy.

Definitions

Sexual Exploitation is actual or attempted abuse of a position of vulnerability, power, or trust, for sexual purposes. Sexual Abuse is actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions. SH is an unwelcome sexual advance, request for sexual favours or other unwelcome conduct of a sexual nature which makes a person feel offended, humiliated and/or intimidated. It includes situations where a person is coerced to engage in sexual activity to advance that person's employment, and create a hostile, intimidating or humiliating work environment. SEA-SH also occurs in many forms, including physical (unwelcome physical contact, sexual assault) verbal (sexual jokes, flirting) and non verbal conduct (display of sexually suggestive material, whistling), but are not limited to these.

Child Sexual Abuse is the perpetration of any form of SEA-SH to a child – defined as any individual under the age of 18. This includes various forms of sexual violence with explicit force or coercion. A child **cannot consent** to any form of sexual activity.

GBV is violence targeted towards someone for belonging to a particular gender, and being subject to violence that disproportionately affects those of that gender. GBV may occur in the form of physical (beating, pushing), sexual (SH, suggestive comments), psychological (emotional blackmail) violence, but are not limited to these.

Consent is making an informed choice to participate in something willingly and freely. Consent is **not** obtained if:

- Threats, force, coercion, abduction, fraud, manipulation, deception or manipulation was used.
- A benefit that the person is already entitled to is threatened to be withheld.
- A benefit is provided as a promise.

SIGS recognizes that any individual can be a target of SEA-SH-GBV, regardless of gender, and is committed to ensure that anyone who submits such a complaint will be treated with equal respect and dignity. SEA-SH-GBV may occur in unequal power relationships (supervisor and mentor), which will be taken very seriously if it occurs. All forms of GBV and SH are prohibited, not only in the SIGS office premises, but also at public events, field trips, training sessions and online forums.

Complaints Procedure

Any individual who experienced SEA-SH-GBV is encouraged to inform the perpetrator that their conduct is unwanted and unwelcome.

A designated point person will be assigned, who will receive any SEA/SH-GBV complaints. This is a person sensitized on privacy issues, accessible communication on resources on seeking help on GBV whether it happens at workplace or home. When a complaint is received by the

point person, they must do the following:

- Immediately record the dates, times and facts of the incident(s).
- Ascertain the views of the victim as to what outcome he/she wants.
- Ensure that the victim understands SIGS procedures for dealing with the complaint.
- Keep a confidential record of all discussions.
- Respect the choice of the victim.
- Ensure that the victim knows that they can lodge the complaint outside of the SIGS.

For more serious issues, a Task Force consisting of 3 members will be designated to investigate the matter. This Task Force will be selected for a case when needed and will be adjourned when the case is closed.

The Task Force and the designated point person who receives SEA-SH-GBV complaints will be guided by the following principles for their deliberations and recommendations:

- Be people centered: Ensure that the incidence is evaluated through a survivor-centered lens and prioritize the survivor's safety and wellbeing.
- Emphasize prevention: Educate all employees on preventing SEA-SH-GBV incidences and use risk-based approaches.
- Be evidence-based: Use research and best practices for informing recommendations.
- Focus on organizational culture and individual behavior change.
- Use accountability wisely: Find a balance between well-defined accountabilities and shared solutions to avoid creating a culture of risk aversion.

Sanctions and Disciplinary Procedures

An individual found to be a perpetrator of SEA-SH-GBV are liable to the following:

- Verbal or written warning
- Adverse performance evaluation
- Reduction in wages
- Demotion
- Suspension
- Dismissal

The nature of the disciplinary action taken will depend on the gravity of the conduct carried out.

Implementation of the Policy

SIGS will ensure that all employees are made aware of this policy by taking the appropriate measures. A session will be held for all employees on SEA-SH-GBV to prevent such incidents and to help employees understand the steps to be taken if such an incident occurs. Further, any new employees joining SIGS will be briefed on the policy during orientation.

Monitoring and Evaluation

SIGS is committed to monitoring this SEA-SH-GBV policy and will collect data on how it's used

and its effectiveness. Those responsible for dealing with SEA-SH-GBV cases, including the designated point person and Task Force members will be required to report on compliance with this policy. These individuals will report on the number of incidences, how they were dealt with, and the actions that were taken. SIGS will also collect feedback from victims to understand if appropriate measures were taken regarding the incident. This information will be used to evaluate the effectiveness of this policy and make any changes needed.

Annexure: World Bank Recommendation

SIGS will follow the Recommendations of World Bank Investment Projects[i] in handling SEA SH-GBV incidences.

[i] Working Together to Prevent Sexual Exploitations and Abuse: Recommendations for World Bank Investment Projects. (2017). World Bank Group.

7.5 Labour Management Procedure

This annex presents the sections of the Labour Management Procedure (LMP) that was developed for the Replacing Plastics in our Coastal Environment (REPLACE) Project that are relevant to this site-specific sub-project. For an overview of the labor legislation, see the REPLACE LMP.

Assessment of key potential labour risks for Contracted Workers

General risks

- Discrimination based on gender, marital status, age, or any other physical or mental attribute.
- SEA/SH
- Physical and verbal harassment and workplace bullying.
- Discrimination in relation to opportunity/access for training and self-development.
- Discrimination on pay based on nationality, gender or any other aspect not related to experience or education.
- Employing a staff without a valid work permit. This is particularly an issue in the construction industry not within the government.

Worksite risks

- Damage to lungs and health from emissions from construction equipment.
- Prolonged exposure to loud noise from equipment could lead to hearing damage.
- Injury to workers due to an accident involving tools and equipment.
- Exposure to harmful chemicals.
- Dehydration and over-exhaustion lead to serious health complications.
- Risk of falling, and risk from falling objects while working at height.
- Poor waste disposal can lead to disease and harm to workers.

Policies and procedures

This section covers the key policies which will be implemented to minimize and address the risks identified

Contracted workers

General Provisions

- A list of workers to be utilized in relation to the project, with proof of employment will be required to be submitted to PMU by all investors/contractors.
- Construction work can only commence once the following conditions are met: Toolbox training completed by all staff employed by the contractor
- All the required Personal Protective Equipment are acquired by the contractor for all workers
- Any newly employed party by the contractor will be required to complete the toolbox prior to commencing any physical work.
- An internal transparent and accountable system will be established within the company to tackle issues of sexual harassment, physical and psychological harassment, and workplace bullying.
- Details of this system will be shared with PMU prior to signing any contracts or agreements.
- All contracted staff will be made aware of the grievance redress mechanism available for the staff specified under this LMP.
- The leave policy of the company will be shared and confirmed that it is in line with national laws and regulations.
- All foreign parties employed by all contractors/investors will have valid work permits. The work permit details will be shared with PMU.
- All vehicles used by any contractor/investor for the purpose of the project will have valid registration, insurance, and roadworthiness.

At work site

All provisions that are required under the Health and Safety Regulation for the Construction Industry (2019/R-156) will be strictly adhered to.

- All workers will be provided with Personal Protective Equipment (PPE) by the contractor/Investor.

In this regard, the following will be observed:

- Hard hats should be used by all workers when undertaking construction and when undertaking inspections at height.
- Enclosed safety shoes should be worn by all construction workers.
- Safety harnesses should be used by all workers when climbing heights at project sites.
- Electrical Protective gloves should be provided to workers when dealing with electrical components.
- Chemical protective gloves should be provided to all workers when dealing with any chemicals.
- Construction safety goggles should be worn by all construction workers.
- Ear plugs should be worn by all construction workers working in environments with high noise (working above 75 decibels).
- Masks should be worn when dealing with chemicals and when working in dusty environments.
- All chemicals should be labelled and stored separately.
- Drinking water will be made available at the construction site.
- Safety signs will be installed at the site, and lights will be installed to ensure clear visibility at all hours.
- Waste will be stored and separated based on waste type and transported to the islands' waste facility regularly.
- Any vehicles or equipment used in this project will be used by trained personnel.

Workers' GRM for contractor and SIGS workers

Tiers of Grievance Mechanism	Contacts, Communication and Other Facilitation by Project	Timeframe to address grievance
First Tier: Contractor	As per the established system of the contractor.	As per established norms of the contractor (not exceeding 30 days).
Second Tier: Labour Relations Authority	If the aggrieved party is not happy with the response from the Contractor/Investor, the party may upgrade the grievance to second tier (i.e. Labour Relations Authority). The aggrieved person may submit the complaint through: https://lra.gov.mv/submit-acomplaint-form/	As per the established norms of the Authority
Third tier: Judiciary	An individual or an interest group has the option of going to established judiciary system of the Maldives. • The legal system is accessible to all. • SIGS will provide assistance to vulnerable persons, as defined by this GRM. • In cases where vulnerable persons cannot access the legal system, the Attorney General's Office will provide legal support. • The verdict of the courts will be final. • For the purposes of this project, a vulnerable person is defined as someone who is poor, physically or mentally disabled, destitute, disadvantaged due to ethnicity or social reasons, an orphan, a widow, a person over 65 years old, or a female head of household.	As per established judicial procedures in Maldives

7.6 National Environmental Clearance

بسم الله الرحمن الرحيم

Environmental Protection Agency
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EPA
ENVIRONMENTAL PROTECTION AGENCY

DECISION STATEMENT
ތިމާވެށީގެ މެނޭޖްމަންޓް ޕްލޭން ގަބޫލުކުރުން
APPROVAL OF THE ENVIRONMENTAL MANAGEMENT PLAN

Number: 203-ECA/PRIV/2024/1008 **:ނަންބަރު**

ތިމާވެށީގެ ގޮތުން ނިންމި ގޮތުގެ މިބަޔާން ދޫކުރީ މާލެ ސިޓީގައި ބަޔޮޕްލާސްޓިކް ޕްރޮޑަކްޓްސް ޓެސްޓް ކުރުމަށް ލެބޯރެޓަރީއެއް ތަރައްޤީކުރުމުގެ މަޝްރޫޢުގެ މަސައްކަތްކުރުމަށްޓަކައި ދޭ ގޮތުން ސްމޯލް އައިލެންޑް ޖިއޮގްރަފިކް ސޮސައިޓީގެ ފަރާތުން 29 ސެޕްޓެންބަރު 2024 ގައި މުރާޖަޢާކުރުމަށް ހުށަހަޅުއްވާ 10 އޮކްޓޫބަރު 2024 އަދި 12 ނޮވެންބަރު 2024 ގައި އިތުރު މައުލޫމާތު ހުށަހަޅުއްވާފައިވާ ތިމާވެށީގެ މެނޭޖްމަންޓް ޕްލޭން ބެހޭ ގޮތުން ނިންމިގޮތް އަންގުމަށެވެ. މި މަޝްރޫޢުގެ ތިމާވެށީގެ ކޮންސަލްޓަންޓަކީ އަލްފާޟިލް އިބްރާހިމް ފާއިޒް (EIA-P(A)05/2017) އެވެ.

This Environmental Decision Statement is issued for the purpose of communicating the decision regarding the ***Environmental Management Plan for the Proposed development of a laboratory to test bioplastic products,*** *which was submitted for evaluation on* ***29th September 2024*** *and submitted additional information on* ***10th October 2024 and 12th November 2024*** *by* ***Small Island Geographic Society.*** *The environmental consultant of this project is* ***Mr. Ibrahim Faiz (EIA-P(A)05/2017).***

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

.1 ތިމާވެށްޓަށް އަސަރު ފޯރާނެ މިންވަރު ބަލާނުކުރާ ރިޕޯޓު ހެދުމާއިބެހޭ ގަވާއިދު 2012 ގެ ދަށުން (މި ލިޔުމުގައި މިގެ ފަހުން މިނިސްޓްރީ ކަމަށް ބަޔާން ކޮށްފައިވާ) މިޔަވާއިދުގެ ތަންފީޒީ އިދާރާ، އެންވަޔަރަންމަންޓް ޕްރޮޓެކްޝަން އެޖެންސީގެ ފަރާތުން މި ތިމާވެށީގެގޮތުން ނިންމިގޮތުގެ ލިޔުން ދޫކުރެވުނީ މަތިގައި ބަޔާންކޮށްފައިވާ މަޝްރޫޢު ތިމާވެށީގެ މެނޭޖްމަންޓް ޕްލޭންގައި ބަޔާންކޮށްފައިވާ ގޮތަށް ކުރިއަށް ގެންދިއުމުގެ ހުއްދަ ދިނީމެވެ.

މާލެ ސިޓީގައި ބަޔޮޕްލާސްޓިކް ޕްރޮޑަކްޓްސް ޓެސްޓް ކުރުމަށް ލެބޯރެޓަރީއެއް ތަރައްޤީކުރުމުގެ މަޝްރޫޢު

Proposed development of a laboratory to test bioplastic products

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

.2 މި ހުއްދަ މިނިސްޓްރީން ދީފައިވަނީ ތިރީގައި މިވާ ޝަރުތުތަކާގެ މަތިންނެވެ:

   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.

   .i ތިމާވެށީގެ ބޭނުން ނިންމުމުގެ ލިޔުން ދޫކުރި ތާރީޚުން ފެށިގެން **1** (އެކެއް) އަހަރު ދުވަހުގެ ތެރޭގައި މަޝްރޫއުގެ އަމަލީ މަސައްކަތް ނުފެށިއްޖެ ނަމަ ނުވަތަ ތިމާވެށީގެ ބޭނުން ނިންމުމުގެ ލިޔުމުގެ މުއްދަތު އިތުރުކޮށްފައިނުވަނަމަ، މި ތިމާވެށީގެ ބޭނުން ނިންމުމުގެ ލިޔުމާއި އަދި މި ލިޔުމުގެ 1 ވަނަ ނަންބަރުގައި ދީފައިވާ ހުއްދަ ބާތިލުވާނެއެވެ.

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

   .ii 1 ވަނަ ނަންބަރުގައިވާ ހުއްދައިގެ ދަށުން މަޝްރޫއުގެ އަމަލީ މަސައްކަތް ނުފެށި 1 (އެކެއް) އަހަރަށްވުރެ ފަސްވީ ކުރިއަށް ލަފާކުރަން ނުކެރޭ ކަހަލަ ކަމެއް ދިމާވެގެން ކަމަށްވާނަމަ، މުއްދަތު އިތުރުކުރުމުގެ އިޚްތިޔާރު ނުވަތަ ހުއްޓުވާލުމުގެ އިޚްތިޔާރު މިނިސްޓްރީއަށް ލިބިގެންވެއެވެ. މިފަދަ ޙާލަތްތަކުގައި މުއްދަތު ހަމަވުމުގެ ކުރިން ސަބަބު ސާފުކޮށް ބަޔާންކޮށް އިދާރާ ގެ ފަރާތުން މިނިސްޓަރަށް ލިޔަންވާނެއެވެ.

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

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

	a) This Environmental Decision Statement has been withdrawn or;	ހ) މި ތިމާވެށީގެ ގޮތުން ނިންމިގޮތުގެ ލިޔުން ބާޠިލުކުރުން ނުވަތަ	
	b) There has been a breach of the conditions of this Environmental Decision Statement.	ށ) މި ތިމާވެށީގެ ގޮތުން ނިންމިގޮތުގެ ލިޔުމުގެ ޝަރުޠުތަކާއި ޚިލާފުވުން	
iv.	It is the Developer's responsibility to undertake all project activities in accordance with the relevant laws and regulations of the Maldives.	މަސްއޫލު ހިންގުމާއި ގުޅުންހުރި، ޕްރޮޖެކްޓުގައި އަމަލުކުރަމުންދާ ޤާނޫނުތަކާއި ގަވާއިދުތަކާއި އެއްގޮތަށް މަސައްކަތް ކުރަމުން ގެންދިއުމަކީ ޑިވެލޮޕަރގެ ޒިންމާއެކެވެ.	iv.
v.	The Developer is aware that under the National Environment Protection Act (Law no. 4/93) and the Environmental Impact Assessment Regulations the Ministry reserves the right to terminate any activity without compensation if found that such an activity has caused significant, irreversible impacts on the environment.	ދިވެހިރާއްޖޭގެ ތިމާވެށި ހިމާޔަތްކުރުމާއި ބެލެހެއްޓުމުގެ ޤާނޫނު (ނަންބަރު 4/93) އާއި ތިމާވެށްޓަށް އަސަރު ފޯރާނެ މިންވަރު ބަޔާންކުރާ ރިޕޯޓު ހެދުމާބެހޭ ގަވާއިދު 2012 ގެ ދަށުން ވުޒާރާއަށް ތިމާވެށްޓަށް އަނބުރާ އިޞްލާހު ނުކުރެވޭ ފަދަ ބަދަލެއް އަތުވެދާނެ ކަމަށް ކަންތައް ހާލަތްތަކުގައި ކުރިއަށްދާ މަސައްކަތްތަކުގެ ބަދަލެއް ދިނުމަކާ ނުލައި މަސައްކަތް ހުއްޓުވުމާއި މަސްއޫލު ކުރިއަށް ގެންދިއުމަށް ދޫކޮށްފައިވާ ހުއްދަ ބާޠިލުކުރުމުގެ އިޚްތިޔާރު އޮންނާނެއެވެ.	v.
vi.	All mitigation measures proposed in the EMP report for all the phases of the project shall be fully implemented.	ތިމާވެށީގެ މެނޭޖްމަންޓް ޕްލޭން ރިޕޯޓުގައި މަޝްރޫޢުގެ ހުރިހާ މަރުޙަލާއެއްގައި ތިމާވެށްޓަށް ކުރާނެ އަސަރުތައް ކުޑަކުރުމަށް އަޅަންޖެހޭ ހުރިހާ ފިޔަވަޅެއް ރިޕޯޓުގައި ބަޔާންކޮށްފައިވާ ގޮތަށް އަޅަންވާނެއެވެ.	vi.
vii.	The date of expiry stated in this Environmental Decision Statement is the duration given to commence the project activities approved under this Environmental Decision Statement.	މިތިމާވެށީގެ ނިންމިގޮތުގެ ލިޔުމުގައި މުއްދަތު ހަމަވާ ތާރީޚް ކަމަށް ބަޔާންކުރެވިފައިވާ މުއްދަތަކީ ހުއްދަދެވިފައިވާ މަސައްކަތް ފެށުމަށް ދޭ މުއްދަތެވެ.	vii.

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

viii. ފަށާފައިވާ ފަހަރު، ތަންފީ ކުރާ ފަރާތުން ތަންފީ ކުރުމުގެ ތެރޭގައި ކުރިއަށް ގެންދާ ކަންތައްތަކުގެ ފެށުނު ތާރީޚު ފާހަގަ ކުރުމަށް ފަރުވާ ކުރަންވާނެ.

Date of initial Issue: 19th November 2024	**ފުރަތަމަ ދީފައި ހުންނަ ތާރީޚު: 19 ނޮވެމްބަރ 2024**
Date of expiry: 19th November 2025	**ހަމަވާ ދުވަސް ހުންނަ ތާރީޚު: 19 ނޮވެމްބަރ 2025**
Name: Mr. Ibrahim Naeem	**ނަން:** ޢިބްރާހިމް ޙާއިމް
Designation: Director General	**ޑިޒިގ:** ޖެނެރަލް ޑިރެކްޓަ
Signature:	**ސޮއި:**

Review & Approval

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