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 MATERIAL RECOVERY FACILITY

GRANTEE: INSEE ECOCYCLE LANKA (PRIVATE) LIMITED - SRI LANKA

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

Environmental and Social Management Plan (ESMP)
INSEE

1 Subproject Information

Subproject Title:	Material Recovery Facility at the Puttalam
Estimated Cost:	8186 USD
Start/Completion Date:	15th August 2024 - 31st March 2025

2 Site/Location Description

The proposed subproject under the PLEASE initiative involves the establishment and operation of a Women-Led Material Recovery Facility (MRF) in Kalladiya, Puttalam. The selected site is located along Cement Factory Road (B348) within the 615/A Kalladiya Grama Niladhari Division (GND) of the Puttalam Divisional Secretariat (7°59'22.4"N 79°53'36.0"E).

The site is strategically positioned with access to key transportation routes, including Kurunegala Main Road (2 km away) and Colombo Road (6 km away). It is situated approximately 6.5 km from the Puttalam Lagoon and 5 km from Mee Oya, which reduces the potential for water pollution and minimizes environmental risks associated with waste management operations.

Map to the location

Puttalam District is characterized by a tropical climate with an annual rainfall of approximately 2,400 mm. The monsoon seasons extend from March to August and from October to January, bringing heavy precipitation and thunderstorms. The mean maximum temperature is around 31°C (88°F) during the hottest months (March–April), while the minimum temperature remains around 22°C (72°F).

According to the 2022 demographic data, the Puttalam Divisional Secretariat encompasses 25,287 families, with a total population of 95,714 individuals. The specific GN division where the site is situated comprises 598 families, accounting for a total population of 1,794 individuals. The district has a mixed economy, with agriculture, aquaculture, and industry contributing significantly to local livelihoods. The region lies within Sri Lanka's coconut triangle, making it highly suitable for coconut cultivation, while large-scale cashew farming is also concentrated. Additionally, Eluwankulam, located near Wanathawilluwa, is a key source of limestone for cement production. The coastal and lagoon areas support a thriving prawn aquaculture industry, generating foreign exchange revenue.

The proposed site for the sub project is surrounded by a dry-zone vegetation assemblage, consisting of species such as *Tamarindus indica* (Siyabala), *Bauhinia racemosa* (Malitha), and ***Azadirachta indica*** (Neem/Kohomba). The MRF facility will be established on a three-acre land where the property owner has initiated coconut cultivation, thereby facilitating the development of a vegetative buffer zone. Additionally, the area supports a diverse assemblage of wildlife, including *Elephas maximus maximus* (Sri Lankan elephant), which is frequently observed in the vicinity. The presence of elephants is likely influenced by the availability of agricultural resources, particularly coconut and other cultivated crops, which serve as attractants. The MRF site has one nearby residential house, while the rest of the surrounding area consists of open land covered with abundant dry-zone tree species.

The proposed Material Recovery Facility will serve eight Grama Niladhari Divisions (GNDs) within the Puttalam Divisional Secretariat Division. The proximity to the Puttalam urban center ensures accessibility to fundamental infrastructure, including piped water, electricity, telecommunications, and sanitation facilities.

The project will repurpose and use an existing 1,000-square-foot structure, thereby negating the requirement for new construction.

3. Subproject Description and Activities

The Material Recovery Facility (MRF) will be established as a women-led initiative, serving as a key hub for the collection, segregation, sorting, and processing of plastic waste. The facility will be equipped with a crusher to shred plastic before dispatch, ensuring efficient processing after sorting.

To enhance plastic waste collection, the MRF will develop a supply network through community engagement, including networking and awareness sessions. Plastic waste will be collected from municipal sources and households. Prior to acceptance, all plastic will be

inspected, with only non-hazardous waste being permitted and accepted. Once received, the plastic will be separated into PET and HDPE categories and further sorted by color. The sorted plastic will then be shredded into flakes, with PET flakes delivered to Eco Sprindlers and HDPE Flakes sent to the Resource Recovery Center in Malwana for recycling activities.

Institutional Arrangement

INSEE Ecocycle serves as the lead implementing organization for this subproject under the PLEASE project and has entered into an agreement with the MRF owner. Currently, three women are employed at the MRF. INSEE Ecocycle also contributes technical support to the project, with three staff members providing expertise in key roles:

- **Project Coordinator**
- **Environmental and Social Expert**
- **Project Assistant**

These professionals offer guidance and oversight to ensure the efficient operation of the facility and adherence to environmental and social standards.

The MRF will cover waste collection in the following DN divisions during the project:

GND	Number of Villages	Number of people	Number of families	Number of houses
607/A Attawilluwa	2	935	292	293
607/D Pottuwilluwa,	3	7,567	1864	1987
607/B Central and North Attawilluwa	5	2,098	566	627
615/B Thammannagama	2	1,170 ,	378	390
615/C Nelum Wawa,	3	1,325	388	407

615/A Sinhapura	5	1,794	557	587
607/C Bodhirajapura	1	1,135	297,	302

(http://puttalam.ds.gov.lk/index.php/en/statistical-information.html#samurdhi-beneficiaries-detail)

4. Risks & impact, mitigation, and monitoring during the operational phase

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 *	
1. Exposure to dust levels may have bad health implications for the workers during the loading, unloading, sorting, and shredding process	1. Providing required PPE, 2. Preparation of Guidelines on safety in SOPs and providing training on SOPs 3. Daily safety briefing to the workers 4. Conducting frequent medical check-ups for employees	At the MRF, during transportation activities and site operations	MRF Owner / Project Assistant	Use of PPE Availability of SOP Records of medical check-ups	Monthly site visit throughout the project period	E & S officer INSEE, Tech Ex (Envt) Technical Expert-UNOPS Sri Lanka Country team	PPE - 300 SOP development and related training - 50 Medical check-ups - 200
2. Exposure to hazardous waste and chemical containers can cause a health risk to the workers	1. Inspection at the collection point, and accepting only non-hazardous waste for the processing 2. Sorting plastic waste into hazardous and non-hazardous waste	At the MRF, during waste collection, sorting, and processing	MRF Owner	Use of PPEs Waste processing records Training records	Monthly site visit throughout the project period	E & S officer INSEE, Tech Ex (Envt) Technical Expert-UNOPS	PPE - 300 - (Repetitive cost from 1.1.) Training -300

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 *	
	before further processing to prevent contamination and ensure safe handling. 3. Provide proper personal protective equipment (PPE). 4. Ensure proper labeling and storage of hazardous waste and chemical containers if received any. 5. Implement safe handling procedures and train workers on hazard awareness. 6. Ensure adequate ventilation in storage and handling areas. 7. Conduct regular health and safety training for workers. 8. Provision of First Aid kits			Hazardous waste/chemical container disposal records Records of medical check-ups Availability of First Aid kits		Sri Lanka Country team	First Aid Kits - 100

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 *	
3. Noise generation during the machine's operations may cause public nuisance and health implications to workers	1. Install the crusher in a separately enclosed area 2. Limit machinery operations to daytime hours to reduce noise disturbances 3. Maintaining noise level at the boundary limit as per the National Standards 4. Providing appropriate PPEs for the workers 5. Selection of machines with less noise 6. Timely maintenance of machinery	At the MRF, during operations During the procurement	MRF Owner	Noise records Use of PPEs Machine maintenance records	Monthly site visit throughout the project period	E & S officer INSEE, Tech Ex (Envt) Technical Expert-UNOPs Sri Lanka Country team	Installation of crusher - 250 200 - Noise Measurements PPE - 300 - (Repetitive cost from 1.1.) 800
4. Public nuisance and potential disease outbreaks due to mosquito breeding sites	1. Daily cleaning measures 2. Ensure scheduled waste disposal. 3. Conduct periodic fumigation and	At the MRF, during operations	MRF Owner Project Assistant	Cleaning checklist Record of fumigations /	Monthly site visit throughout the project period	E & S officer INSEE, Tech Ex (Envt)	50 - fumigation if needed

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 *	
	mosquito control measures			other control measures		Technical Expert-UNOPs Sri Lanka Country team	
5. Operations OHR risks for workers during the operation	1. Providing sanitary facilities, access to safe drinking water, and a clean dining area 2. Training on safety and proper use of personal protective equipment (PPE), and a Daily safety briefing 3. Provision of a First aid box and relevant training 4. Installation of fire extinguisher 5. Emergency Preparedness plan and awareness on responding. 6. Maintaining accident registry	At the MRF site daily	MRF Coordinator Project Assistant	Availability of adequate sanitary facilities, The practice of wearing PPE during operational activities Daily checking records Availability of the First Aid box, Availability of valid Fire extinguishers,	Monthly site visit throughout the project period	E & S officer INSEE, Tech Ex (Envt) Technical Expert-UNOPs Sri Lanka Country team	Training - 300 (Repeating cost 2.5) First Aid box (repetitive cost from 2.8) - 100 Fire extinguishers 500 Medical checkups- 200 (repeating

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 *	
	7. Perform medical check-ups for workers 8. Displaying Instruction Boards			Emergency Preparedness plan, Training record Accident records and follow-up actions Medical check-up records Availability of instruction boards			cost 1.4)
6. soil contamination from residual liquids in received plastic containers	1. Provide designated areas with a paved floor for waste sorting to prevent soil contamination 2. Install spill kits at sorting locations and train workers on proper spill response.	At the MRF, during operations Daily	MRF coordinator	Availability of a designated area for the sorting process Availability of spill kits	Monthly site visit throughout the project period	E & S officer INSEE, Tech Ex (Envt) Technical Expert-UNOPs Sri Lanka Country team	Spill Kits - 100 Training 300 (Repeating cost 2.5)

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 *	
	3. Collect liquid waste separately and divert it for co-processing	diverting for coprocessing Monthly		Liquid waste coprocessing records			
7. Scattering of waste during transportation can lead to contamination and create a public nuisance	1. Use covered and enclosed transport vehicles 2. Ensure proper loading and unloading, securing of waste to avoid displacement 3. Train transport personnel 4. Provide community GRM	on the route during transportation	Drivers Site coordinator	visual observations Number of complaints reported through GRM Training records	Monthly site visit throughout the project period	E & S officer INSEE, Tech Ex (Envt) Technical Expert-UNOPs Sri Lanka Country team	100 GRM
8. Oil spillage from transport vehicles may lead to soil contamination and environmental damage	1. Ensure transport vehicles are regularly inspected and maintained to prevent leaks or spills 2. Use spill containment measures such as absorbent mats or trays during transport to capture any potential leaks	At the MRF, during operations	Drivers Site coordinator	Vehicle maintenance records Availability of spill kits	Monthly site visit throughout the project period	E & S officer INSEE, Tech Ex (Envt) Technical Expert-UNOPs Sri Lanka Country team	100 mobile Spill kit

5. Capacity Development & Training

Capacity-building and training programs will focus on enhancing the knowledge and skills of MRF staff and the surrounding community in key areas:

- Plastic Identification and Recycling Processes: Training for MRF staff on plastic classification, recycling techniques, and operational procedures.
- Waste Management and Environmental Awareness: Educating MRF staff and the community on waste regulations, the environmental impact of plastic waste, and the benefits of recycling.
- Occupational Health and Safety: Training on workplace safety practices, the proper use of PPE, emergency response protocols, machine safety, and first aid training for MRF staff.
- Hygiene and Sanitation Practices: Training on promoting personal hygiene, sanitation, and the prevention of communicable and non-communicable diseases among MRF staff and the community.
- Protection from Sexual Exploitation and Abuse (PSEA): Training on ensuring a safe and respectful workplace by training staff on identifying, preventing, and responding to such issues.
- Entrepreneurship and Leadership Development: Equipping MRF staff with skills in business management, leadership, and financial literacy to enhance sustainability.
- Driver Safety and Emergency Preparedness: Providing training on safe driving practices, emergency response procedures, and defensive driving techniques.

6. Implementation Schedule and Cost Estimates

Item	Timeline								Cost in USD
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Solid waste management									300
Training and awareness									300
PPEs and other, Noise, vibration, and dust control measures									750
Fire Extinguisher									500
Cost for GRM									200

Medical check-ups									200
First Aid kids									100
Machine maintenance									800
Elephant fence									3500
Installation of spill kits and									200
Other OHS cost									200
Total									7050

7. Annexure

Environmental and Social screening report

Photographs of the surroundings

Environmental Protection License

Lease Agreement