

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

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN OF RECYCLING PLANT - MILLANIYA

GRANTEE: NEGOMBO RECYCLING CLUB PVT LTD - SRI LANKA



Environmental and Social Management Plan (ESMP) Building a Blue Lanka by Uplifting Communities - BLUECAP

1. Subproject Information

Subproject Title:	Material Recycling Facility - Millaniya, Kalutara District
Estimated Cost:	825,127 USD
Start/Completion Date:	15.03.2024 - 31.01.2025

2. Site/Location Description

The proposed land block is located in the Kalutara District of the Western Province, within the wet zone of Sri Lanka. It is situated 150 meters from the main road and accessible via a 20-foot-wide road, which allows for the transportation of a 40-foot HQ container. Additionally, the proposed new expressway exit is located 3.5 kilometers from the land block. A 3-phase power line is available for the Granite Manufacturing factory of Lanka Zhongyuan Mining Co. - Pvt Ltd, which is located 100 meters from the proposed land block.

The site spans 114 perches, and its surroundings feature a mixed residential and commercial land use pattern. The project site is laid in almost flat terrain with a mild slope towards its southern border; existing vegetation is predominantly rubber plantations with non-perennial reeds. On the southern border of the land, there is a strip of native vegetation consisting of trees such as Dawata (*Carallia brachiata*), Alstonia, Domba (*Calophyllum inophyllum*), Watakeyya (*Pandunus* Sp.), and Daul Kurundu (*Neolitsea cassia*).

There is a strip of abandoned paddy fields adjacent to the proposed land. Keppu Ela and Kalu Ganga (river) are located 3.7km from the land.

(The map showing the land location, the Land Lease Agreement, and Environmental Recommendations issued by the Central Environmental Authority and BOQ for the construction are included in the annex.) Population data -<u>https://www.citypopulation.de/en/srilanka/admin/kalutara/1318 millaniya/</u>



<u>L. Land on the Map</u>

3. Subproject Description and Activities

The main function of the Material Recycling Facility is to manufacture recycled plastic pellets, Wood plastic composite (WPC) compounds, and WPC Composite products, catering to the local and global demand for recycled products and raw materials. The construction, Masonry, Electrical, and plumbing will be outsourced.

This project activity on-site includes:

Construction phase

Whole constructions will be outsourced to the reputed service providers.

- 1. Clearing of land (approx.114 perch) includes clearing site vegetation(95 rubber trees), removal of topsoil (average depth 150mm)
- 2. Construction of a building (8576 sq ft)and a utility building (1150 sq ft) for accommodating recycling activities and a wastewater treatment plant with a capacity of 12 cubic meters per week.
- 3. Electric wiring/plumbing and sanitaryware fitting/finishing/ Painting and coloring
- 4. Gardening and tree planting
- 5. Transport and Installation of required machinery (Washing line, Pelletizer, WPC machine, Injection molding machines, and ancillaries)

Operational phase

- 1. Baled plastic receiving and storage- The facility will receive baled plastic from MRFs and store it until usage.
- Crushing, washing, and cleaning of plastic- Plastic will be unballed and fed to the crushing machine and shredded into smaller pieces or flakes to increase the surface area and make it easier to clean, followed by washing and drying.
- 3. Pelletization of plastic dried plastic flakes are melted and formed into pellets. These pellets are to be used as raw material for producing new plastic products (WPC)
- 4. Wood Plastic Composite (WPC) production- This process combines wood fibers with plastic to create a material that's durable and versatile.
- 5. WPC product manufacturing- For certain products, the material is shaped using molds with injection molding processes.
- 6. Operation of Wastewater treatment This includes Sedimentation, oil and grease removal, Aeration and FBBR (Fixed Bed Biofilm Reactor), Clarifier, sand filter, and sludge tank, which is efficient enough to achieve the discharge limits specified in the ER granted by the CEA. The effluent discharge standard is attached. Environmental recommendation: Effluent discharge standard
- 7. Products and offcuts handling and storage- Product offcuts generated from the finishing section will be recycled, and the product will be stored until delivery.

The water requirement for the facility would be approximately. 3 Cubic meters per day, and the electricity requirement is approx.50000 kWh/month. The expected processing capacity of the facility is approximately. 225 Mt of plastic per month. Solid waste generation, including sludge, would be approximately 1 Mt per month.

ESMP Matrix: Risk and Impacts, Mitigation, Monitoring

4.1 Construction stage

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/ Mitigatic	on Monitoring		Mitigation & Monitoring
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodolog y, including Location & Frequency	Responsibili ty ^{*1}	cost USD.
01. Disturbing the soil and vegetation, including the removal of 90 rubber trees, during land clearance, can lead to soil erosion	 The building structure and the landscape will be developed to prevent soil erosion and sedimentation. To offset the loss of rubber trees, 100 Kumbuk trees and 50 Mango trees will be planted at the site /MRF facilities. The plant strip with the native plant at the edge of the land will be kept intact. Adequate buffer zones will be kept as per the ER. 	All 16 sites (15 MRFs and Millaniya site) within 06 Months	NRC and MRF Owners	Developed landscape planted trees Undisturbed plant strip Maintenance of the Buffer zone	Monthly site visit/ Photo evidence Regular Monitoring	Technical Expert(Envt) Country team ES Officer, NRC	500
02 Land pollution due to the discharge of wastewater generated during the construction	 Construction wastewater will be directed to a pit 	Construction site during concreting and cement works (01 Month)	Contractor and the Environmental and Social Officer	Availability of the pit	Monthly site visit/ Photo evidence Regular Monitoring	Technical Expert (Envt) Country team ES Officer, NRC	

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/ Mitigatio	on Monitoring		Mitigation & Monitoring
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodolog y, including Location & Frequency	Responsibili ty ^{*1}	cost USD.
03. Public nuisance due to Noise and vibration during Land clearing and site preparation, Excavation and earthworks, fabrication and installation of roofs, windows, and ceilings, construction, and machine installation	 The activities will be carried out during the time with minimal disturbance to the neighbors. Noise levels at the boundary of the Land will be maintained below 75dB(A) as per the site recommendations issued by the CEA. A Public Complaint Box will be maintained. Selection of less Noisy Equipment (At least D4 type machines will be used to minimize the noise. 	During Land clearing and Earthwork - Earth filling compaction, and fabrication (intermittently, one to two months during construction and machine installation)	Contractor and the Environmental and Social office	Noise monitoring records Availability of a complaint box. Actions taken in response to complaints	Monthly site visit/ Photo evidence Regular Monitoring	Technical Expert (Envt) Country team ES Officer, NRC	
04. Soil and water contamination due to Solid waste accumulation during the construction, and Public nuisance due to creating vector breeding grounds	 Segregation of solid waste into hazardous, non-hazardous, and reusable waste Disposal of hazardous waste according to the authorized method Non-recyclable Construction waste will be disposed of with the Local authority as per the ER Vector breeding grounds will be prevented 	At the site during the construction period (02 months)	Contractor	Availability of the waste management plan and its implementation Daily checking of records	Daily process inspections Monthly site visit	ES Officer, NRC Technical Expert (Envt) Country team	100

Anticipated E&S Risks & Impacts	Risk Mitigatio Measures	on & Management	Impact Mitigation		Impact/ Mitigatio	n Monitoring		Mitigation & Monitoring
			Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodolog y, including Location & Frequency	Responsibili ty* ¹	cost USD.
05. Hazardous chemicals and chemical containers lead to health implications and damage to the environment	chemi 2) Conta will be service 3) Provis	nated area for ical storage minated containers e taken back by the re provider sion of suitable PPEs andling and disposing ste	At the site/ Painting and coloring, and application of anti-termite and pest control	Contractor and the Environmental and Social Officer	Storage practice of chemicals Use of PPEs	Site visits and daily process observations Monthly visit	ES Officer, NRC Technical Expert (Envt) Country team	100
06. Air pollution due to dust from site preparations, Loading, and unloading of construction materials, vehicle movement, Excavations and earthworks, fabrication and installation of the roof. and ceiling construction and machine installation can cause public nuisance and health implications for workers	 The lo truck v covere minim Dust in areas throug when the loa of con Use pr N95 m protect worke Machi mainta condit emissi This si non-re howev 	baded material in the will be properly ed with a tarpaulin to nize dust blowing n the surrounding will be controlled gh water sprinkling necessary, including natruction materials roper safety gear like nasks for the ction of the waste ers ines will be mained in optimal tion to minimize	At the site. Intermittently, During Land clearing and Earthwork - Earth filling and compaction, fabrication, transportation (intermittently, one to two weeks during construction	Contractor and E&S Officer	Wearing PPE during work Availability of the complaint box and actions taken in response to complaints	Regular Monitoring Monthly site visits and photo evidence	ES Officer, NRC Technical Expert (Envt) Country team	200

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/ Mitigatio	on Monitoring		Mitigation & Monitoring
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodolog y, including Location & Frequency	Responsibili ty ^{*1}	cost USD.
07. Physical and Psychosocial Risks associated with the Health and safety of the workers during construction.	 Provision of PPE, Training on safety and proper use of personal protective equipment (PPE), and Daily safety briefing will be conducted Safe work procedures and maintenance of equipment will be introduced. Maintaining the Accident register Barricade tape will be in place to prevent workers from entering risk areas without attention. Safety kits, Emergency Health services, First Aid Kits, Emergency exit doors, and fire extinguishers will be provided Provision of workers with adequate and well-ventilated working areas, clean eating areas, and separate sleeping (if necessary) areas Separate quarters for male and female workers (Priority in recruitment will 	At the site during the construction period (02 months)	Contractor and the Environmental and Social Officer	Training records Wearing PPE during construction activities Availability of First Aid box, Accident registry, Fire extinguishers, Daily checking of water accumulation places and cleaning	Daily inspection Monthly Site visit by the country team and photo evidence Daily records indicating the topics discussed and site examination records Photos/ physical checking	ES Officer, NRC Technical Expert (Envt) Country team	500

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/ Mitigatio	n Monitoring		Mitigation & Monitoring cost USD.
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodolog y, including Location & Frequency	Responsibili ty ^{*1}	
	be given to workers from the local area.)						
8. Social and health impacts related to worker hygiene conditions	 Provision of clean sanitation facilities and access to safe drinking water The workers' grievance box will be maintained Development and implementation of a Standard Operating Procedure (SoP) for Protection from Sexual Exploitation and Abuse (PSEA), which includes Code of Conduct (CoC), Terms of Reference (ToR) for PSEA focal points, and visibility materials for reporting lines Modifications for the workers' accommodation including a partitioned rest area and a kitchen 	At the site during the construction period (02 months)	Contractor and the Environmental and Social office	Availability of adequate sanitary facilities and access to safe drinking water Availability Workers Grievance Box Availability of a partitioned rest area and a Kitchen	Daily Monitoring Observation s during the site visit,	ES Officer, NRC Technical Expert (Envt) Country team	350
9. Emotional, Physical, and Social risk due to Sexual exploitation and abuse (SEA) and sexual harassment (SH)	 A Complaint Box and a Grievance Addressing Methodology will be in place Appointing a point of contact for PSEA. 	At the site during the construction period	Contractor and the Environmental and Social office, Gender Officer	Complaint box Actions taken in response to complaints Availability of the	Monthly site visit	ES Officer, NRC / Technical Expert (Envt) Country team	100

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/ Mitigatio	n Monitoring		Mitigation & Monitoring cost USD.
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodolog y, including Location & Frequency	Responsibili ty ^{*1}	
	 Provide training on recognizing, preventing, and responding to SEA and SH for contractors and communities. 			management plan Appointed contact point and records			
10. Potential for social issues related to labor influx	 Worker grievance meetings will be held regularly awareness of communicable diseases, and awareness of Gender-based violence will be conducted Ensure that the contact details of the PSEA focal point are placed on notice boards in the project location 	At the site during the construction period	Contractor and the Environmental and Social Officer	Availability of meeting and awareness records	Monthly site visits and record reviewing	ES Officer, NRC /Technical Expert (Envt) Country team	
11. Non-compliance with the local regulatory requirement and workers' dissatisfaction due to extensive work requirements	 Development and implementation of a code of conduct in line with national labor laws and ESF of the PLEASE Project Wages will be paid in accordance with the ESF of the project 	At site	Facility Manager and HR Officer	Availability and implementation of the code of conduct Payrolls Site visit and reviewing the	Regular Monitoring	Technical Expert (Envt) Country team and NRC	N/A

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/ Mitigatio	Mitigation & Monitoring		
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodolog y, including Location & Frequency	Responsibili ty ^{*1}	cost USD.
	 Prevents the use of all forms of forced labour and child labour 			received complaints			
12. Limited support of the Government and other stakeholders	 Identify Stakeholders and communities Conduct awareness programmes/consultations as appropriate. 	Project locations		Participation of stakeholders		Technical Expert (Envt) Country team and NRC	1750

* Overall Monitoring and supervision of the implementation of ESMP will be done by the PIU and UNOPS team.

4.2 Operational Stage

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigatio		Mitigation &Monitoring	
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	cost /USD
1. Water and soil pollution due to the quality of wastewater generated from the cleaning and washing of plastic	 Treating the Wastewater generated from the cleaning process to the standards stipulated in the environmental recommendations and reusing it for industrial activities. A water Audit will be conducted after the commencement of the facility. All effluent arising from domestic activities shall be discharged into a properly constructed soakage pit and will be removed periodically through a gully browser service. 	At the site / Wastewater will be continually treated and tested as per the requirement specified in the Environmental recommendation issued (4.1) by the CEA.	NRC- Facility Manager	Parameters specified in the Environmental recommendati on	Analytical reports of treated water are once in 3 months	Technical Expert (Envt) Country team ES Officer, NRC	6645
2. Public nuisance due to the Noise and vibration generated during the machine operations of	 Engineering measures (installation at the enclosed chamber with the appropriate muffler 	At the site/during the operation of machines, and bidding on the machine purchasing	NRC- Facility Manager	Reports, public complaints	Examination of Documents/Re ports/Complain ts	Technical Expert (Envt) Country team	250

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigatio	on Monitoring		Mitigation &Monitoring
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	cost /USD
the facility, and health implications	 system) will be taken in mounting the crusher machine to minimize vibration 2. specifying low noise emissions as a requirement for machinery in the bidding process 3. Activities are limited to daytime and maintaining a 55dB (A) level of Noise at the boundary 4. Providing Necessary PPE for the workers 	At the site/during the operation of the facility		Noise level at the factory and the boundary Use of PPE	Noise measurement Reports	ES Officer, NRC	
3. Soil and water contamination and bad odor due to the Solid waste Accumulation from the process and daily activities	 Segregation of solid waste into decomposable, recyclable materials and non-recyclable waste; Non-recyclable Waste generated will be disposed of with the 	At the Facility, daily Local Authority , Millaniya P S At INSEE Cement Kiln Puttalam	Facility Manager	In-house Waste Management Plan Disposal records	Monthly Site visits Regular monitoring	Technical Expert (Envt) Country team ES Officer, NRC	250

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigatio	on Monitoring		Mitigation &Monitoring cost /USD
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	
	 Local Authority (segregated degradable waste will be composted), and open burning will be prevented Sludge generated from the Wastewater treatment plant is to be disposed of at INSEE (Licensed Co-processing facility) Off-cuts for the product manufacturing are to be directed to the recycling process Vector breeding grounds will be prevented Chemical and hazardous chemical contaminated plastic cans and plastic materials will not be 			Destruction certificate issued by INSEE Process records			
4. Physical, Psychosocial, and Hygienic Risks	accepted in the facility. 1. Providing required PPE, Preparation of	At the Recycling Facility, daily	Facility Manager	Workers wearing PPE	Monthly site visits include	Technical Expert (Envt)	500

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigati	Mitigation &Monitoring		
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	cost /USD
associated with the Health, safety, and hygiene of the workers during operations.	 Guidelines on safety, and Daily safety briefing to the workers 2. Chemical and hazardous chemical contaminated plastic cans and plastic materials will not be accepted in the facility. 3. Conducting frequent medical checkups for employees 4. Training on Safeguard 5. Accident reporting mechanism 6. Training on First aid and necessary First aid materials are readily available to ensure prompt response to any medical needs. 7. Training on combating fire and installation of appropriate fire 			during operational activities and sign boards Training records Accident registry Availability of First Aid box and training records Availability of training records and the Fire extinguishers within their validity period, Emergency	physical inspections, record keeping, and discussions with employees	Country team Regular Monitoring by E&S Officer NRC	
	extinguishers and a Fire Hydrant			Preparedness plan and training records			

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigati	Mitigation &Monitoring		
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	cost /USD
	 8. Emergency Preparedness plan and Training will be prepared, and fire certification will be obtained before starting industrial activities. 9. Providing sanitary facilities; Separate washing facilities shall be provided for male and female workers, and access to safe drinking water. 10. Cleaning and good housekeeping practices will be followed 11. Display Instruction boards 			Availability of adequate sanitary facilities and safe drinking water, House keeping and cleaning checklists, the Instruction boards			
5. Social Issues individual/ community) Due to Sexual exploitation and abuse (SEA) and sexual harassment (SH)	 A worker grievance redress methodology, incorporating focal points for both genders and an effective referral mechanism, will be adopted 	At site	Facility Manager and the Environmental and Social Officer	Availability of complaint box, and Availability of grievance management plan	Monthly site visit	Regular monitoring by the Safeguard Officer - NRC	150

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigatio	Mitigation &Monitoring		
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	cost /USD
	 Provision of an anonymous reporting and complaining system, along with protection measures for individuals who report Provide training on recognizing, preventing, and responding to SEA and SH for workers and communities Establishment of a code of conduct 			Training records Actions taken in response to complaints			
6. Potential for social issues related to labor influx	 Worker grievance redress meetings and awareness of communicable diseases, Awareness of gender-based violence Priority will be given to recruiting workers from the local community 	At site	Facility Manager and the Environmental and Social Officer	Availability of meeting and training records Records on Gender Awareness Selection criteria for recruitment	Monthly Site visits and review of the documents	Gender Specialist - NRC	150

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigati	Mitigation &Monitoring		
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	cost /USD
7. Gender discrimination in job opportunities and wages	 Preparation of non-discriminatory guidelines for the recruitment process and operations affecting all levels of workers Equal wages for male and female workers/employees Complain Box/issue box installation 	At site	Facility Manager and HR Officer	Availability of HR Policy Grievance Redress Mechanism	Regular Monitoring	Gender N/Aspecialist of the PLEASE project Gender Specialist NRC	N/A
8. Noncompliance with the local regulatory requirement and workers' dissatisfaction due to extensive work requirements	 Development and implementation of a code of conduct in line with national labor laws and the EMSF of the PLEASE Project Wages will be paid in accordance with the ESF of the project Prevents the use of all forms of forced labour and child labour 	At site	Facility Manager and HR Officer	Availability and implementation of the code of conduct Payrolls Site visit and reviewing the received complaints	Regular Monitoring	Technical Expert (Envt) Country team and NRC	N/A

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigati	Mitigation &Monitoring		
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	cost /USD
9. Complaints Due to the Project	 Establish the approved Project's Grievance Redress Mechanism (GRM) and actions for the GRM Ensure that the contact details of the PSEA focal point are placed on notice boards in the project location. 	Location/Throughout the operational period	Facility Manager	Number of community complaints	Monitoring method: Grievance Redress Mechanism, Complaint log, and implementation Monitoring period: Monthly	Technical Expert (Envt) Country team and NRC	300
10. Limited support of the Government and other stakeholders	 Identify Stakeholders and communities Conduct awareness programmes/consultation s as appropriate. 		Janathakshan	Participation of stakeholders	Reviewing records	Technical Expert (Envt) Country team and NRC	1250

* Overall Monitoring and supervision of the implementation of ESMP will be done by the PIU and UNOPS team.

5. Capacity Development & Training

Requirements of capacity building, training, or new staffing that may be necessary for effective implementation.

- 01. Training on Safeguard, First Aid, Emergency Preparedness, and Fire Drills for workers
- 02. Provide training on recognizing, preventing, and responding to SEA and SH for both the Community and workers.
- 03. Periodic consultation and awareness on gender based violence, both the Community and workers
- 04. Training on Machine Operations and Operational Procedures of Process Steps(Plastic receiving feeding to washing line, Pelatising, WP Compounding, product manufacturing), quality controls, housekeeping, environmental protection and monitoring, waste management, and Operations of the wastewater treatment Plant)

6. Implementation Schedule and Cost Estimates

	Timeline 2024 2025											
	07	08	09	10	11	12	01	02	03	04	05	Cost - USD
Mitigation measures - During the												
construction stage (Noise testing, PPE,												
First aid facilities, Social and sanitary												
facilities, Tree planting, etc proposed												
to mitigate the impacts of the												
activities.												1600
Machine installation (PPE, Noise												
Measurements)												100
Facility operation and management(
Noise and Vibration controls and												
measurements, Solid Waste												
Management and disposal cost, first												
aid, emergency controls, addressing												
social and gender base activities, PPE												1000
Preparation and display of instruction												
boards												300
Wastewater Treatment and Analysis												6645
Fire controls and extinguishers												300
Capacity development and training												300
Stakeholder awareness and												
consultation												3000
Social and health impacts related to												
worker hygiene conditions												350

7. Attachments

- 1. Land on the Map
- 2. Land Lease Agreement
- 3. Environmental Recommendation CEA
- <u>4. Survey Plan Millaniya</u>
- 5. Recycling Hub Millaniya Fire Clearance
- 6. Labour Department recommendations
- 7. UDA approval
- 8. BOQ for the facility
- 9. Environmental and Social Screening Report

IV. Review & Approval

