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 (ESMP) OF RECYCLING BUSINESS UNIT -BOGURA

GRANTEE: BANGLADESH PETROCHEMICAL COMPANY LIMITED - BANGLADESH

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

Environmental and Social Management Plan (ESMP) for Bogura RBU-Bangladesh Petrochemical Company Ltd (BPCL)

1. Subproject Information

Subproject Title:	Formalization of Plastic Recycling Value Chain by forming Recycling Business Unit in Bogura
Estimated Cost:	USD1,322,000
Start/Completion Date:	01 January 2025 - 30 May 2025

2. Site/Location Description

The "Formalization of Plastic Recycling Value Chain by Forming Recycling Business Units in Bangladesh" project, led by BPCL, is a significant initiative to create an inclusive and efficient plastic recycling system. Supported by the South Asia Co-operative Environment Programme (SACEP) and the World Bank, with implementation assistance from UNOPS, this project seeks to formalize the recycling value chain while promoting sustainable practices. As part of this effort, a Recycling Business Unit (RBU) is planned for establishment in Bogura, which has been identified as a strategic location to advance plastic waste recycling efforts in Bangladesh.

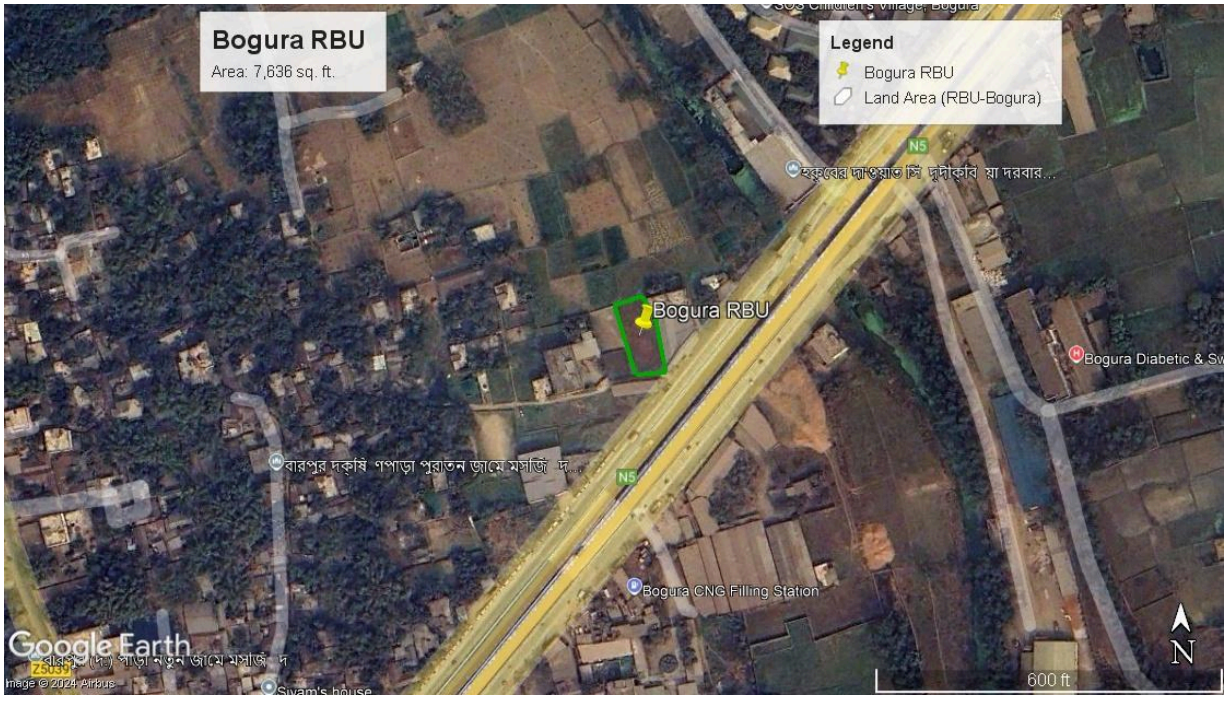
The Recycling Business Unit (RBU) site is well situated adjacent to the Dhaka-Rangpur Highway and the Bogura City Bypass at 24.883654°N, 89.355012°E, around 800 meters from Bogura, Biman More. The site is enclosed by a variety of residential, agricultural, and commercial structures; a residential building, a car maintenance workshop, and a few small stalls to the east area; agricultural cropland defines the northern boundary, reflecting the rural nature of the area; open land to the west and another car maintenance workshop on the southern side highlights the area's blend of commercial and functional land use. It is a logistically advantageous position for the RBU because of its proximity to important transportation links, which provide effective connections for the transportation of raw materials.

The land is owned by Lal Teer Seed Limited (LTSL) and has been leased to BPCL for five years. The plot spans 7,663 square feet and is situated 5 feet below the adjacent road level, necessitating land development to ensure operational readiness. The site's natural slope directs surface runoff towards the eastern drainage line, which connects to the Karatoya River, located 874.16 meters from the RBU. This drainage infrastructure provides an essential framework for managing wastewater during both the construction and operational phases.

In Bogura, the annual average temperature ranges from a maximum of 35.1°C (95.2°F) to a minimum of 16.4°C (61.5°F). The average annual rainfall is between 1400 mm (55.1 inches) and 1600 mm (63 inches), with a relative humidity range of 34% to 74%. However, careful measures will be implemented to prevent untreated discharge, ensuring compliance with environmental standards.

At present, the site lacks essential infrastructure, including water supply, sanitation, and electricity. While there is no existing connection to the Northern Electricity Supply Company (NESCO) Ltd. (an enterprise of the Bangladesh Power Development Board), a PDB pillar located at the southeast corner of the plot could facilitate future connectivity. Additionally, a drainage line on the site's eastern side directs wastewater to the river, providing a basic framework for waste management. However, the site is undeveloped, with no operational structures or facilities. This underscores the need for extensive development to meet the functional requirements of the RBU.

The site's size and location make it suitable for housing key recycling equipment, such as a conveyor belt, label remover, 32-inch crusher, and bottle bale press. These components are critical to the operations of a modern RBU. However, significant preparatory work is needed to ensure the site's readiness for such installations. The land level must be raised 5 feet to align with the road height, enabling easier access and construction. Once operational, this RBU will play a pivotal role in enhancing plastic recycling efforts in Bangladesh, contributing to sustainable waste management and



environmental preservation.

(Refer to Link-1 for a map of the land location and Link-2 for detailed information on Bagura, including population data, livelihoods, and institutional details.)

3. Subproject Description and Activities

The main function of the Recycling Business Unit (RBU) is to collect PET from local informal waste pickers and scrap dealers, process it on-site, and transport it to BPCL's main factory for recycling. The project activities on-site are divided into two phases:

Construction Phase:

1. After clearing the area and compacting the sand with water and a compactor, we will make a foundation, grade beam, and footing for 2935 square feet of building area.
2. Installing a 500-foot depth, 4-inch bore with a 2.2 KW powered submersible pump to provide water for construction, operational activities, and drinking purposes which will be available at the RBU site.
3. Constructing the main recycling shed (1,500 square feet), sorting shed (625 square feet), office room (225 square feet), childcare facilities setup (1800 square feet), a female changing room and three-chamber toilet (56 square feet) with a septic tank.
4. Installation of the required machinery, including one conveyor bale, one label remover, one PET crusher, one screw loader, one floating washer, one dewatering unit, two baling machines, and one blade sharpening machine.
5. Setting up a 150 KVA (120 KW) electrical system to power the machinery, along with plumbing for necessary pipes, fittings, and fixtures.

Operational Phase:

1. Waste Plastic Receiving and Sorting: PET and non-PET plastics, excluding pesticide and medical plastic waste, are received from informal waste pickers and scrap dealers. The materials are sorted into PET and non-PET categories, followed by color sorting. Non-PET plastics are further categorized, enhancing their value and sold to local buyers.
2. Label Removal and Baling: The sorted plastics are fed into a label remover to separate non-recyclable wrappers. The plastics are then shredded or hydraulically pressed into bales weighing 80-100 kg to reduce their volume.
3. Crushing, and Washing: Then plastics are processed through a crushing machine to produce PET flakes (12-14mm), increasing their surface area for easier cleaning. These flakes are then washed with cold water and machine-dried.
4. Packing and Transportation: The dried PET flakes are packed and transported to BPCL's main factory, where they are further processed into high-quality, food-grade PET resin in accordance with ISO 9001 standards,USFDA and EFSA .
5. Operation of Wastewater Treatment and Reuse- Wastewater from the process is directed to a sedimentation tank for particle settling. It then passes through a sand filtration tank to remove fine particles and is stored in a clean water tank. The clean water is then pumped to a reservoir, where it can be either drained or reused in the washing line.

Water and electricity are among the essential resources needed by the Recycling Business Unit, as they are necessary for day-to-day activities. A daily maximum of 0.5 m^3 of water is estimated to be required for various activities, including drinking, handwashing, watering plants, and sanitation. Approximately 25 kWh of electricity is used for each ton of PET processed, including label removal, baling, and security lights. Maximum 5% of the total input material is expected to generate waste, mostly comprising dirt, plastics, and non-recyclable wrappers.

The plot selected for the project, currently owned by Lal Teer Seeds Limited, represented by its Managing Director, has been leased to Bangladesh Petrochemical Company Limited (BPCL) for a five-year term, from January 1, 2025, to December 31, 2029. The land lease agreement has been finalized, and all legal documentation is in progress. During the construction phase, approximately 26 workers will be employed, with no workers' camp required as they will commute daily from nearby areas. For the operational phase, 12 full-time local workers will be engaged, including personnel for sorting, processing, and administrative tasks, thereby minimizing accommodation requirements.

The construction and operational activities are not expected to significantly impact the nearby river. Proper wastewater management measures will be implemented to mitigate any potential risks, during construction, a sedimentation pit will be utilized to manage wastewater, while during the operational phase of construction, a wastewater treatment plant (WTP) with a capacity of 1 m^3 per hour will be employed. The amount of water treated daily will depend on the collection of raw materials and the operational use of machinery. Importantly, the treated water will be reused within the facility, minimizing water wastage and ensuring no untreated water is discharged into the river. Additionally, stringent monitoring of runoff and waste disposal practices will be in place to prevent contamination.

The project is funded through the PLEASE Project, supported by the World Bank, with the South Asia Co-operative Environment Programme (SACEP) acting as the regional implementing agency. BPCL leads the implementation of the Recycling Business Unit (RBU), with technical support from UNOPS to ensure compliance with environmental and social standards. Centre for Development Innovation and Practices (CDIP) which is a downstream partner of BPCL will implement social interventions. BPCL has obtained the trade license and the No Objection Certificate (NoC) from the municipality. Followed by NoCs from the Department of Fire Service and Civil Defence and the Department of Inspection for Factories and Establishments, the Department of Environment (DoE) will provide the final environmental site clearance. During the operational phase, various stakeholders, including informal waste pickers, scrap dealers, and factory workers, will actively contribute to the recycling value chain.

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

4.1 Construction Stage:

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Soil erosion and disturbance due to earth excavation, compaction, and surface runoff from construction work	I) Implement brick barriers around the perimeter of the land to mitigate soil displacement II)Employ compaction techniques for rapid stabilization of disturbed areas. III)Construct drainage channels to effectively manage surface runoff and prevent erosional processes IV)Plant fifty fast-growing, native tree species to enhance soil stability and minimize erosion within the site.	The 500-meter area around the RBU will be monitored throughout the ground preparation work at the construction site.	Site Engineer in Charge and contractor	Brick barrier integrity and sediment accumulation rate Physical Observation on the sign of erosions The growth of the 50 planted native trees, along with their survival rate. Physical observation of drainage system effectiveness (sediment accumulation and water flow)	Monthly site Visit/Photo evidence Regular Monitoring	Environmental Expert- BPCL Technical Expert (Environment) UNOPS PLEASE Project Bangladesh	USD 80

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Air pollution results from dust emissions caused by land clearing, earthworks, excavation, material handling, and vehicle movement on unpaved surfaces. Without adequate controls, these activities can significantly degrade air quality, potentially posing respiratory health risks to workers and nearby communities.	I) Water spraying will be used as needed to manage dust in the surrounding areas. II) Cover building materials including sand and soil to minimize wind erosion II) Appropriate safety gear (PPE), dust masks will be provided to protect workers involved in construction work. III) Regular maintenance of all machinery will be conducted to minimize emissions and ensure efficient operation. IV) Stockpiled loose materials will be covered to prevent wind dispersal	Throughout land clearing, earthworks such as filling and compaction, as well as during fabrication and transportation, with inspections occurring every two weeks during the construction phase.	Site Engineer in Charge and contractor	Percentage of workers using appropriate PPE during all tasks (target: 100%). Availability of stockpile coverage records. Availability of machine maintenance record Availability of Dust Levels and Water Sprinkling logs	Monthly site visits will be conducted, accompanied by photo documentation as evidence.	Project Manager and Environmental Expert - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 80

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Noise and vibration pollution arise from heavy machinery operation and construction activities. Prolonged exposure without mitigation can cause discomfort, stress, or hearing issues for workers and disturb nearby residents.	I) Construction activities will be restricted to daytime hours (e.g, 8.00 AM to 6.00 PM) to minimize disturbances to the surrounding community. II) Noise levels at the site boundary will be maintained below 60dB(A) during the day, by the Bangladesh Noise Pollution (Control) Rules 2006. III) Use low-noise machinery and equipment that meet noise emission standards and appropriate safety gear especially noise cancellation headset will be provided to protect workers to protect the harmfulness of hearing capability. IV) Regular noise level	During the two-month construction period, activities will include brick crushing, RCC mixing, excavation, material handling, and heavy machinery operations, especially for installing structural elements like roofs, windows, and ceilings.	Site Engineer in Charge from BPCL and Construction contractor	Logbook recording the schedule of construction activities is accessible. Noise monitoring records to ensure noise levels comply with regulatory standards. Availability of low-noise equipment at the site and its procurement ToR Number of complaints on Noise level submitted through GRM that have been addressed in time	Monthly site visits will be conducted, accompanied by photo documentation as evidence.	Environmental Expert - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	monitoring will be conducted on-site to ensure compliance with noise control measures. V)Provide grievance redress mechanism at site.						
Soil and water contamination arises from improper wastewater management during construction activities, leading to environmental degradation and creating favorable conditions for mosquito breeding, which can pose health risks to workers and nearby communities.	I) Construction wastewater will be directed to a dedicated sedimentation pit to prevent soil and water contamination. II) The sedimentation pit and surrounding areas will be cleaned daily to remove potential mosquito breeding sites. III) Drainage channels will be maintained to ensure proper water flow and prevent stagnation. IV) Mosquito repellents and larvicides will be applied to stagnant water areas as needed.	On-site, specifically around the sedimentation pit and water channels, throughout the entire construction period (2 months).	Site Engineer in Charge from BPCL and Construction contractor	Sedimentation tank operational status and cleaning records. Evidence for the application of Mosquito repellent in stagnant water areas Drainage channel maintenance records to ensure proper water flow. Monthly cleaning records for accumulated sludge in the drain	Daily process inspections Monthly site visit	Environmental Expert - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 500

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	V) A proper slope will be maintained in the drain to make sure a free gravitational water flow in the drain VI) Monthly cleaning of accumulated sludge from the drain						
Occupational Health and Safety (OHS) Risks for workers during construction, electrical wiring, and machinery setup	I. Provide all workers with necessary personal protective equipment (PPE), including helmets, gloves, safety boots, goggles, and high-visibility vests to reduce the risk of physical injuries. II. Implement strict safety protocols for all electrical wiring activities. III. Ensure accessible first aid kits are available on-site.	On site during construction (2 Months).	Site Engineer in charge and Contractor	100% workers wearing PPE during construction activities. Availability of First Aid box, Accident register. Daily inspection and cleaning records for water-accumulated areas.	Daily inspection of workers' activities. Daily check of first aid kits and safety facilities. Monthly Site visit by country team and photo evidence. Photos/ physical checking	Project Manager and MEL manager - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 250

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	IV. Offer adequate, well-ventilated workspaces, clean eating areas, and separate sleeping areas (if necessary) for workers' comfort and well-being.						
Lack of understanding of EHS risks and impacts and of mitigation measures leads to accidents and health impacts.	I. Assess the capacity of the construction company on OHS II. Training workers on OHS through toolbox talks	On site during construction period	Site Engineer in Charge and Construction Contractor	Percentage of construction companies whose capacity has been assessed Number of toolbox talks conducted	Monthly monitoring	Project Manager and MEL manager - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 75
Spread of communicable disease and overall health deterioration among workers is caused by inadequate hygiene and sanitation facilities	I. Provide well-maintained sanitation facilities, including hand washing stations, separate male and female toilets to ensure cleanliness and hygiene. II. Ensure a continuous supply of clean drinking water for workers.	On-site throughout the two-month construction period.	Site Engineer in charge and Contractor	Availability of adequate sanitary facilities. Access to safe drinking water Availability of health-related incident maintenance logs.	Daily monitoring and observation during the site visit	Project Manager and MEL manager - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 75

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Risks of Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) between Project workers; and between Project workers and local community members	I) Appoint a PSEA Focal Point at the site. II) Provide awareness training on recognizing, and preventing SEA/SH for a) Project workers, and b) affected communities III) Provide training on the GRM, including for SEA/SH-related grievances to a) Project workers, and b) affected communities IV) Request all Project workers to sign a Code of Conduct (CoC) including instructions of SEA/SH prevention V) Provide specific SEA/SH response mechanism as part of the Project GRM, including referral to SEA/SH services	Training and awareness will be conducted before the commencement of work Implementation of Gender Focal Points and singing of CoC at site during construction period	Site Engineer in charge from BPCL and Construction Contractor. A female volunteer from CDIP will act as BPCL's Gender and PSEA focal point on site. Gender and PSEA focal Point of BPCL	Number of training sessions provided to workers. Number of awareness sessions provided to communities. Number of training sessions on GRM provided to communities. Percentage of workers that have signed the CoC Number of SEA/SH Focal Points appointed. Complaint box Actions taken in response to complaints	Monthly site visit	Project Manager and MEL manager - BPCL Technical Expert - environment) UNOPS PLEASE project - Bangladesh	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Potential health issues arise from the influx of 26 labor, which can increase the risk of spreading communicable diseases and place additional pressure on local health resources.	I) Conduct awareness sessions on communicable diseases for all workers. II) Set up on-site first aid stations and ensure access to medical assistance for workers.	On-site throughout the three-month construction period.	Site Engineer in charge and Contractor	Meetings and awareness records First aid kit maintenance log availability	Monthly site visit	Project Manager and MEL manager - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 100
The risk of worker dissatisfaction and unresolved conflicts during construction is caused by the lack of a Grievance Redress Mechanism (GRM), leading to disruptions in workflow, decreased productivity, and potential escalation of conflicts.	I. Create awareness of the Project GRM and its reporting channels, implemented by the SACEP PIU II. A complaint box and the contact number of both construction contractors and the BPCL site engineer will be visibly displayed on-site. Workers will have the option to raise concerns anonymously, either by phone or through the complaint box.	Sub-Project Location/Throughout the operational period SEA/SH referral service mapping to be conducted before the commencement of works Linkages to Project GRM established before the works	Project Manager of BPCL and Construction Contractor	Number of awareness sessions held Number of complaint boxes installed Number of SEA/SH Focal Points appointed Number of SEA/SH cases reported that receive referral services	Monthly monitoring report	Project Manager and MEL manager - BPCL Technical Expert - Environment UNOPS PLEASE project - BangladeshBPCL	USD 100

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	III. Ensure that the contact details of the SEA/SH Focal Point are placed on notice boards in the project location IV. Ensure that complaints received through the complaint boxes at the site are handled appropriately or transferred to the Project GRM V. Ensure that complaints received through additional complaint boxes or the SEA/SH Focal Point in relation to SEA/SH are handled with strict confidentiality and in a survivor-centered manner. VI. Establish a map of local SEA/SH service providers and ensure every case reported is provided with referrals, if the			Map of local SEA/SH service providers available			

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	survivor wishes that.						
Lack of compliance with labor laws and labor management procedures	I) Construction laborers will be trained and made aware of the (GRM). A complaint box and the contact number of both construction contractors and the BPCL site engineer will be visibly displayed on-site. II) Workers will have the option to raise concerns anonymously either by phone or through the complaint box. III) Development and implementation of code of conduct in line with national labor laws and ESF of the PLEASE Project. III) Wages will be paid in aligned with Labor	On site throughout the construction	Site Engineer in charge and Construction Contractor	Number of workers' grievances filed Availability and implementation of code of conduct Availability of payrolls records Site visit and reviewing received complaints	Monthly Monitoring	Project Manager and MEL manager - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 75

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	Management Procedures (LMP) and Bangladesh standards						
Risk of child labor	I. Comply with minimum age requirements of the Project (in compliance with national laws and ESS2) and document age of workers upon hiring II. Verify age of workers with communities where required III. Conduct a track record search of the contractors at the bidding process (record of health and safety violations, fines, consult public documents related to workers' rights violations, GBV/SEA/SH issues etc.)	At the site, throughout construction	Site Engineer in charge and Contractor	Number of workers' grievances filed Number of track record searches conducted	Monthly Monitoring	Project Manager and MEL manager - BPCL Technical Expert - environment) UNOPS PLEASE project - Bangladesh	USD 75

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Risk of forced labor	I) Establish a confidential and accessible Grievance Redress Mechanism (GRM) for workers to report issues. II) Raise awareness in communities and workers.	Throughout construction period	Site Engineer in charge and Contractor	Number of grievances filed in workers' GRM Number of awareness programmes conducted in the community	Monthly Monitoring	Project Manager and MEL manager - BPCL Technical Expert - environment) UNOPS PLEASE project - Bangladesh	USD 150
Lack of stakeholder engagement	I. Identify all relevant stakeholders and establish a site-specific stakeholder map that includes vulnerable groups, local government, nearby residents, project-affected parties and other interested parties (based on the Project Stakeholder Engagement Plan - SEP) II) Define information dissemination channels for the identified stakeholders	Before commencement of works Conducts community surveys every month for ongoing perceptions and concerns	Site Engineer in charge and Construction Contractor	Availability of stakeholder mapping Number of project information dissemination events Number of consultations with identified stakeholders Number of consultations with identified members of vulnerable groups	Monthly Monitoring	Project Manager and MEL manager - BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 75

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	and provide sub-project-related information III) Define consultation channels of the mapped stakeholders and conduct consultations of all stakeholders including on environmental and social risks and mitigation measures						

4.2 Operational Phase

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Potential water and soil pollution due to wastewater generated from plastic cleaning and washing processes, with risks of contaminating the adjacent canal. Discharge of untreated wastewater, including labels, may adversely impact the canal's ecosystem, potentially harming aquatic life and degrading water quality.	I) Install and operate an on-site wastewater treatment plant (WTP) to ensure that all wastewater from the plastic washing line is treated to meet the discharge standards outlined in the Environmental Conservation Rules (ECR) 2023). II. Routinely monitor and test treated wastewater before discharge to confirm it complies with environmental standards, with additional precautions taken during rainy seasons to avoid accidental runoff into the canal. IV. Collect labels and other non-recyclable materials separately and store them in sealed containers for safe, controlled disposal, minimizing any chance of leakage or exposure to the canal.	These measures will be implemented on-site with continuous monitoring and testing of treated wastewater throughout the operation phase to ensure compliance with environmental standards (ECR-2023) and protection of the canal ecosystem.	Hub Manager, BPCL	WTP operational records Water quality testing report for the following parameters: pH, DO (Dissolved Oxygen), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), and TDS (Total Dissolved Solids). Visual inspection records of unobstructed water flow in the drainage	Analytical reports of treated water once in 3 month	Environmental Expert- BPCL Technical Expert - environment) UNOPS PLEASE project - Bangladesh	USD 1500

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	V. Regularly inspect and maintain drainage systems and containment structures to prevent accidental spillage or overflow into						
Depletion of groundwater resources due to water use in the operation of the washing line, wastewater treatment plant (WTP), and sanitation facilities.	I. Implement a water reuse system that recycles treated wastewater from the WTP back into the washing line to significantly reduce the need for groundwater extraction.	On-site, with continuous reuse of treated wastewater in the washing line throughout the operation phase.	Hub Manager, BPCL	Amount of water reused	Report of total water consumption vs reused water	Environmental Expert- BPCL Technical Expert - environment) UNOPS PLEASE project - Bangladesh	USD 1200
Waste generation arises from non-recyclable plastics, such as labels and wrappers, which, if not properly managed, can result in environmental pollution and health risks to nearby communities.	I. Safely store non-recyclable waste in sealed packets to prevent environmental contamination. II. Implement proper waste storage and disposal practices to reduce environmental impacts. III. Transfer stored waste to authorized recyclers for responsible processing.	Conduct bi-weekly inspections of storage conditions at RBU	Hub Manager	Amount of waste stored Disposal receipts from recyclers	Monthly visit, physical observation and report checking	Project Manager and MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 100

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Noise pollution results from machine operations during label removal and baling, causing discomfort, stress and hearing problems for workers and disturbance to nearby communities.	I. Specify low-noise emission standards as a requirement in the procurement and bidding process for machinery to limit noise generation at the source. II. Regular monitoring of Noise Level to ensure compliance with noise control measures. III. Maintain noise levels at the site boundary below 75dB(A) during daytime hours, by the Bangladesh Noise Pollution (Control) Rules 2006. IV. Provide personal protective equipment (PPE), including earplugs and noise-canceling earmuffs, for workers exposed to elevated noise levels. V. Create awareness of Project GRM and its reporting channels	On-site during facility operations and throughout the machinery procurement process Ongoing measures applied during machine operations.	Hub Manager, BPCL	Number of reports and complaints registered Number of equipment specifications verified for compliance with low-noise emission standards. Number of proper PPE usage by workers Number of noise related complaints addressed through Grievance Redress Mechanism (GRM)	Examination of Documents/reports/complaints Noise measurement report	Environmental Expert- BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 500

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Health risks arise from indoor air pollution and odor during plastic processing activities, such as label removing, and baling, potentially causing respiratory issues and discomfort for workers.	I. Assess the adequacy of the existing natural ventilation system to ensure sufficient air circulation during processing activities. II. If natural ventilation is insufficient, install additional mechanical ventilation systems as needed to maintain air quality. III. Provide workers with appropriate personal protective equipment (PPE), such as masks and respirators, to reduce exposure to airborne pollutants. IV. Provide a workers' grievance redress mechanism	On-site, continuously during facility operation.	Hub Manager, BPCL	Number of exhausted fans are operational Percentage of workers wearing PPE Number of air quality complaints received and resolved through the Grievance Redress Mechanism (GRM).	Examination of Documents/reports/complaints Health report in focus of respiratory issues Monthly on-site visits and observation	Project Manager and MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 175
Physical, mental, and hygienic risks arise from inadequate occupational health, safety (OHS), and hygiene measures during operations,	I. Provide essential PPE and prepare safety guidelines, accompanied by daily safety briefings for all workers. II. Conduct regular medical check-ups for employees to monitor and maintain their health.	At the Recycling Business Unit, daily	Hub Manager, Gender Focal point from BPCL and Project Manager of CDIP	Number of workers wearing appropriate PPE Monitoring health statutes through Health card	Monthly site visits including physical inspection and record checking as well as	Project Manager and MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE	USD 250

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
including sorting, baling, loading and unloading, potentially leading to injuries, stress, and poor worker well-being.	III. Offer first aid training and ensure first aid kits are easily accessible on-site. IV. Conduct fire safety training, and install appropriate fire extinguishers, fire hydrants, and clear instruction charts. V. Deliver safety and safeguard protocol training to all employees. VI. Implement an accident reporting mechanism to ensure prompt response and management of incidents. VII. Maintain clean and sanitary facilities, including separate washing areas for male and female workers, along with continuous access to safe drinking water.			Number of workers received training on fire safety, safeguard protocol Availability of signboard of emergency phone numbers and precaution messages are hung in workplace Availability of accident register book in the RBU Availability of separate sanitation facility for male and female workers including hand washing facility Availability of first aid	consultation with workers	Project - Bangladesh	

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
				box and it inventory			
Reduced workforce participation arises from the lack of adequate childcare support, causing increased absenteeism and stress among women workers with children, ultimately affecting productivity and well-being.	I. Establish a safe, hygienic childcare center within the business unit to provide dedicated support for workers with young children. II. Employ trained and certified childcare professionals to manage and supervise the facility. III. Equip the childcare center with essential resources, including safe drinking water and educational materials, to promote the well-being and development of the children.	At the Recycling Business Unit (RBU), in a designated area separate from the processing unit, with daily operation and support for workers.	Hub Manager, Child care attendant, CDIP	Child care log book Number of employed and trained childcare professionals Availability of safe drinking water and educational materials in the center	Physical observation once in three months and report checking	MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
Possibility of social challenges arises from an influx of 13 labor, potentially leading to increased pressure on local resources, community tensions, and cultural conflicts.	I. Organize regular worker meetings and awareness sessions focused on communicable disease prevention and health practices. II. Provide education and training on preventing and responding to gender-based violence (GBV). III. Develop a gender action plan and appoint a safeguarding focal point to address and prevent sexual exploitation (SE) and gender-based violence. IV. Prioritize hiring from the local community to reduce social disruption and foster local engagement.	At the Recycling Business Unit (RBU), with ongoing implementation throughout the operational period.	Hub Manager, Gender focal point, CDIP	Availability of meeting and training records, Records on gender awareness sessions Availability of selection criteria for recruitment	Monthly visit and review the documents	MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 250
Gender discrimination arises from unequal employment opportunities and wage disparities, leading to	I. Develop and enforce non-discriminatory guidelines for recruitment processes and operational practices, ensuring equal treatment across all worker levels.	At the Recycling Business Unit (RBU), with ongoing application	Hub Manager, Gender focal point and CDIP	Availability of safeguarding policy and its implementation	Regular monitoring	MEL Manager - BPCL Technical Expert - Environment	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
reduced workplace equity, dissatisfaction, and lower morale among affected workers.	II. Implement policies for equal pay, ensuring that male and female employees receive the same wages for equivalent roles and responsibilities. III. Establish a confidential complaint box to enable workers to report gender-related concerns safely and anonymously.	throughout all employment practices and operations.		No of workers received non-discriminatory orientation Wages disbursement report of RBU workers Availability of a complaint box in the RBU		UNOPS PLEASE Project - Bangladesh	
Risks of Sexual exploitation and abuse (SEA) and sexual harassment (SH) among workers and between workers and community members at the facility	I. Provide a workers' grievance redress mechanism (Workers' GRM), incorporating SEA/SH Focal Points for both genders and an effective referral mechanism II. Provide an anonymous reporting system along with protection measures for individuals who report III. Provide referrals to SEA/SH service providers as required	Throughout the operation period	Hub Manager, Gender focal point and project manager of CDIP	Availability of workers' GRM and SEA/SH Focal Points. Availability of reporting system. Availability of list of GBV service providers Number of SEA/SH awareness sessions for a) workers, and b)	Monthly monitoring	Project Manager and MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	IV. Provide training on recognizing, preventing, and responding to SEA/SH for workers and communities V. Prepare a Code of Conduct for workers at the facility that includes reference to SEA/SH VI. Ensure workers at the facility sign a Code of Conduct (CoC)			surrounding communities. Availability of CoC. Percentage of workers that have signed the CoC			
Lack of compliance with labor laws	I. Workers will be made aware of the GRM II. A complaint box and the contact number of both construction contractors and the BPCL site engineer will be visibly displayed on-site. Workers will have the option to raise concerns anonymously, either by phone or through the complaint box III. Grievances will be registered and investigated promptly, with resolutions to communicate transparently	On site	Hub Manager, MEL Manager of BPCL, and Project Manager of CDIP, Gender and PSEA focal Point of BPCL	The number of workers' grievances filed. Availability and implementation of code of conduct. Payrolls records management Site visit and reviewing received complaints.	Monthly monitoring	Project Manager and MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 75

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation and Monitoring cost
		Location/Timing/Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location and Frequency	Responsibility	
	IV. Development and implementation of code of conduct in line with national labor laws V. Pay wages following national laws						
Risk of child labor at facility	I. Comply with minimum age requirements of national laws and document the age of workers upon hiring II. Verifying the age of workers with communities where required.	At the site, Monthly	Hub Manager, MEL Manager of BPCL and Project Manager of CDIP	Number of workers' grievances filed	Monthly monitoring	Project Manager and MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 75
Risk of forced labor	I. Provide workers' GRM and access to Project GRM II. Raise awareness in communities	On Site throughout operation	Hub Manager, MEL manager and project manager of CDIP	Number of grievances filed in workers' GRM	Monthly monitoring	Project Manager and MEL Manager - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	USD 150

5. Capacity Development & Training

To ensure the successful implementation of the Boguraj Recycling Business Unit (RBU) by Bangladesh Petrochemical Company Ltd (BPCL), comprehensive capacity-building and training programs are necessary. These programs will focus on skill enhancement, health and safety, gender equality, and environmental sustainability.

Construction Phase:

1. Training on safeguard measures, first aid, and emergency preparedness, including regular fire drills and response protocols will be provided by the gender focal point and MEL manager of BPCL.
2. Orientation on safe handling and use of personal protective equipment (PPE) will be provided by the project manager of CDIP.
3. Sessions on recognizing, preventing, and responding to sexual exploitation, abuse (SEA), and sexual harassment (SH) will be provided by the gender focal point of BPCL.
4. Awareness programs focused on preventing gender-based violence (GBV) and implementing response measures will be provided by the gender focal point of BPCL.
5. On-the-job training of fire safety, construction safety, environmental compliances, and waste management systems by an engineer in charge of BPCL
6. Orientation on the importance of sustainable waste management, pollution control, and maintenance of natural resources will be provided by technical experts from BPCL.
7. Capacity development training on occupational health and safety (OHS) by an engineer in charge of BPCL and contractor.

Operational Phase:

1. Training on machine operations and procedures, covering the handling of plastic materials, including receiving, sorting, and baling will be provided by technical experts from BPCL.
2. Guidance on water reuse mechanisms, quality control processes, housekeeping practices, and environmental protection standards will be provided by the Factory Manager of BPCL.
3. Training on safeguard measures, first aid, and emergency preparedness, including regular fire drills and response protocols will be provided by the gender focal point and MEL manager of BPCL.
4. Sessions on recognizing, preventing, and responding to sexual exploitation, abuse (SEA), and sexual harassment (SH) will be provided by the gender focal point of BPCL.
5. Awareness programs focused on preventing gender-based violence (GBV) and implementing response measures will be provided by the gender focal point of BPCL.
6. Training on record keeping, logbook maintenance, and the management of complaint systems, including the maintenance of the complaint box will be provided by the MEL manager of BPCL and the project manager of CDIP.
7. Capacity development training on occupational health and safety (OHS) by the project manager of CDIP.

6. Implementation Schedule and Cost Estimates

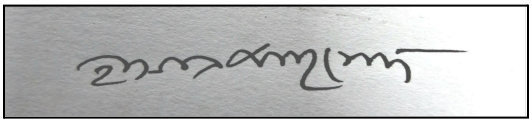
Construction Phase		
Mitigation Measure	**Implementation Timeline**	**Estimated Cost (USD)**
1. Mitigation Measures *(Construction Stage)*: Includes noise testing, PPE provision, first aid kit facilities, social and sanitation facilities, and tree planting to mitigate construction impacts.	January 2025 - February 2025	USD 500
2. Machine Installation: During the setup phase, PPE and noise measurement will be provided.	February 2025	USD 400
3. Grievance Redress Mechanism, Stakeholder engagement, technical expert, all kinds of monitoring activities, and site visit expenses	January 2025 - March 2025	USD 250
4. Construction wastewater management, sedimentation tank, and drainage channel maintenance, Mosquito repellent.	January 2025 - March 2025	USD 500
5. Community consultation, awareness sessions,and Health Camp	Up to the end of December 2024	USD 250
Mitigation Measure	**Implementation Timeline**	**Estimated Cost (USD)**
1. Wastewater Treatment and Analysis: Ongoing treatment and quality analysis of wastewater generated from operations	March 2025	USD 1500
1. Facility Operation and Management: Controls for noise and vibration, Water reuse systems, Ventilation systems, waste management and disposal, fire extinguishers, first aid kits, emergency control	January, 2024	USD 1200

measures, sign boards, social and gender-related initiatives, and PPE.		
2. Maintenance and support for childcare facilities.	February, 2025	USD 700
3. Regular M&E to monitor GRM	April 2025 - May, 2025	USD 500
4. Community consultation, and awareness sessions addressing the misconception about Recycling Business unit	January 2025 - May, 2025	USD 600
5. Capacity Development and Training: Completion of training sessions and programs for employees covering all operational, health, safety, gender discrimination and environmental standards.	Up to end of May 2025	USD 350

7. Attachments

- **Bagura Land Lease Agreement**
- **Bagura RBU Trade Licence**
- **No Objection Certificates from Bagura Municipality**
- **Stakeholder Consultation Report on Bagura RBU**
- **Initial Site Survey Report**
- **GRM for Bagura RBU**
- **LMP for Bagura RBU**
- **Integrity and Safety assessment report on Bagura RBU**
- **Bagura Soil Test Report**
- **Vetted Architectural Drawing**
- **Vetted Structural Drawing**
- **Vetted BOQ of Bagura RBU**
- **WTP for Bagura RBU**

IV. Review & Approval

Shared By: Taufir Seam **Name:** Taufir Ahmed Seam **Position:** Project Coordinator, Bangladesh Petrochemical Company Ltd (BPCL) **Date: 04/02/2025**	
 **Reviewed By**: **Name:** Hasan Ahmed **Position:** Technical Expert-Environment **Date: 08/02/2025**	**Approved By**: (Signature) Kapila Mahesh Rajapaksha, Position: Environment and Social Development Specialist. SACEP **Date: 12/02/2025**