

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 - CHITTAGONG

GRANTEE: BANGLADESH PETROCHEMICAL COMPANY  
LIMITED (BPCL) - BANGLADESH



## Environmental and Social Management Plan (ESMP) for Chittagong RBU, Bangladesh Petrochemical Company Ltd (BPCL)

### 1. Subproject Information

<b>Subproject Title:</b>	Formalization of Plastic Recycling Value Chain by forming a Recycling Business Unit in Chittagong in Bangladesh
<b>Estimated Cost:</b>	USD1,322,000
<b>Start/Completion Date:</b>	01 March 2024 - 31 August 2025

### 2. Site/Location Description

The “Formalization of Plastic Recycling Value Chain by Forming Recycling Business Units in Bangladesh” project, implemented by Bangladesh Petrochemical Company Limited (BPCL), is a key initiative under the PLEASE Project. This project is supported by the South Asia Co-operative Environment Programme (SACEP) and the World Bank, with implementation support from UNOPS. The primary goal of the project is to contribute to an inclusive and efficient plastic recycling system in Bangladesh. As part of this initiative, a location in Chittagong has been selected to establish a Recycling Business Unit (RBU), which will play a vital role in formalizing the plastic recycling value chain and ensuring sustainable recycling practices.

The proposed land for the Recycling Business Unit (RBU) is located at 168, Jalalabad, I/A Chittagong, Unit-2, covering a total area of 11,000 sq. ft.. Positioned at 22° 23 '16.1"N 91° 48' 31.6"E. It is accessible via a 20-foot-wide road, located 190 meters west of the main road (Bayzid Bostami road). However, the main entrance passage between two rooms has a height restriction of 12 feet, limiting access for large trucks.

The site is located in the BSCIC industrial zone, spanning approximately 25 decimals. It is surrounded by a blend of commercial zones and industries, with no residential areas. To the west, there is a garments factory, while the east is bordered by another factory. The northern side features a 20-foot-wide road. To the south, there is abandoned land owned by the same landowner.

Chittagong experiences a tropical monsoon climate, with high humidity and significant seasonal rainfall. The annual average temperature ranges from a maximum of approximately 32°C (89.6°F) to a minimum of around 16°C (60.8°F). The region receives an average annual rainfall of about 2,800 mm (110 inches), with the monsoon season bringing heavy showers from June to September. Humidity levels typically range between 70% and 85%, contributing to a warm and moist environment. These conditions make the site suitable for developing an RBU.

The selected plot is currently owned by Bangladesh Chemical Complex (pvt) Limited, which has not conducted any operational activities on the site for the past fifteen years. It previously served

as an abandoned tire recycling factory. The site consists of existing infrastructure, including two sheds (1500 sq. ft.), which can be used for machinery, office space, and a water treatment plant (WTP), as well as an open yard with RCC flooring. Additionally, there is a roofless building of 926 sq. ft., which, after necessary repairs, can be utilized as a childcare facility and changing room. However, the main entrance passage between two rooms has a height of only 12 feet, restricting the entry of large trucks into the factory premises. Electricity is currently unavailable and requires connection from the Power Development Board (PDB), with PDB pillars located at the east and north corners of the land. The site has existing drainage lines on both the north and south sides, with the north side being the preferred outlet as it connects to the main sewerage system. The existing drainage system of this industrial zone is connected to the Karnaphuli River, which is approximately 20 km away.



(Refer to [Link-1](#) for a map of the land location and [Link-2](#) for detailed information on Chittagong, 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. Clearing approximately 95% bushes except for large trees and cleaning the surface, then earth cutting and filling with sand to 480 square feet with a depth of 4 ft.
2. Repair and repurposing of existing structures, including 1,450 1,450-square-foot shed to serve as an office with a toilet and a meeting room. This will involve re-plastering, replacing unusable parts of the shed, and installing windows to develop proper ventilation.
3. Additionally, a 1,500 square-foot machine shed will be repaired, including fixing the walls, installing a ventilation system, and replacing any unusable parts to ensure a functional workspace. Repaired childcare facility and women's changing room of 260 sq ft and two separate toilets for male and female, each 37.75 sq ft, the water treatment plant, where a 400 sq ft constructed sedimentation tank.
4. Construction of a new 800 sq ft sorting shed using a steel structure in the open yard, construction of a drainage system extending 240 sq ft., and a water treatment plant with a capacity of 1.5-2 cubic meters per hour. The treatment plants include three constructed sedimentation chambers, one sand filter, one chemical dosing system, two centrifugal pumps, and two water storage tanks.
5. Installation of the required machinery, including one conveyor belt, one label remover, one PET crusher, one screw loader, one floating washer, two baling machines, and one blade sharpening machine.
6. Installation of 120KW electrical wiring to support the operation of the machines and plumbing of all necessary pipes, fittings, and fixtures.

**Operational Phase:**

1. Waste Plastic Receiving and Sorting - All types of PET and non-PET plastics, except pesticides and medical plastic waste, are received from informal waste pickers and scrap dealers. The plastics are first sorted by PET and non-PET materials, and then further sorted by color.
2. Label Removal, Crushing, and Washing- The sorted plastics are fed into a label remover to separate non-recyclable wrappers. The plastics are then processed through a crushing machine, which shreds them into PET flakes (12-14mm). The flakes are then washed with cold water and dried using a mechanical dryer..
3. 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.
4. 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.

An estimated 1.5 m<sup>3</sup> of water is required for operating the washing line per ton of PET processed. Approximately 1-5% of the total input material results in waste generation, including non-recyclable wrappers, plastics, and dirt. Non-recyclable wrappers are stored in sealed packets and sold to buyers capable of recycling single-use polyethylene. The electricity required for processing PET, including label removal, crushing, washing, and drying, is estimated at 70 kWh per ton of PET processed.

The selected plot, currently owned by Bangladesh Chemical Complex (pvt) Limited, has been leased to BPCL for a period of five years, from February 1, 2025, to January 31, 2030. The land lease agreement, trade license, and NOC from the city corporation have been finalized, and the rest of the legal documentation, such as fire license, Industry license, and DoE clearance, will be obtained after completion of the construction work.

For the construction phase, approximately 22 workers will be deployed, with no workers' camp required as they will commute daily from nearby areas. For the operational phase, 15 full-time workers will be engaged, including sorting, processing, and administrative staff, all sourced locally to minimize accommodation needs.

The construction and operation activities are not expected to have any significant impact on the nearby river. Measures such as proper wastewater management through a sedimentation pit during construction and a wastewater treatment plant (WTP) during operation will ensure that no untreated water is discharged into the river. Additionally, strict monitoring by the Hub Manager and the Technical Expert from BPCL will ensure that runoff and waste disposal practices are implemented 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. CDIP will serve as the implementing partner for social interventions. BPCL 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 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**

The ESMP Tables below reflect the E&S risks and impacts that are related to the design of the facilities and the operation, and take into account the local specificities of the respective site.

**4.1 Construction Stage:**

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
Soil erosion and disturbance due to the removal of bushes, grasses, and vegetation, earth cutting, and settlement activities.	I) Plant 50 native or fast-growing trees around the site to enhance soil stability and reduce erosion  II) Create drainage channels to manage surface runoff effectively.	A 500-meter area surrounding the RBU will be monitored for three months.	Site Engineer of BPCL and volunteers from the Center for Development Innovation and Practices (CDIP-partner)	The growth of 50 medicinal plants, along with their survival rates  Drainage Efficiency.  Physical observation of drainage, sedimentation, and water flow.	Monthly site Visit/Photo evidence  Regular Monitoring	Environmental Expert - BPCL  Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 225

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
Air pollution results from activities such as soil excavation, land preparation, shade repairs, loading and unloading of construction materials, and machine installation. Without adequate controls, these activities can significantly affect air quality, potentially posing health risks to both workers and surrounding communities.	<p>I) Control dust in the surrounding areas by spraying water as needed.</p> <p>II) Provide appropriate safety gear to workers handling waste to ensure their protection..</p> <p>III) Conduct regular maintenance of all machinery to minimize emissions and ensure efficient operation.</p> <p>IV) Install a complaint box at the site to address any community concerns, even though it is located in an abandoned factory area.</p>	<p>Periodic on-site inspections will be conducted 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.</p>	<p>Site Engineer in Charge from BPCL and Construction contractor</p>	<p>Availability and utilization of water spraying at the site to control dust.</p> <p>Percentage of workers using appropriate PPE during all tasks (target: 100%).</p> <p>Number of complaints received regarding the related concern</p>	<p>Monthly site visits will be conducted, accompanied by photo documentation as evidence.</p>	<p>Project Manager and Environmental Expert - BPCL</p> <p>Technical Expert - Environment UNOPS PLEASE project - Bangladesh</p>	USD 175

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
<p>Noise and vibration from activities such as brick crushing, RCC mixing, excavation, material handling, and heavy machinery operations may create a public nuisance.</p> <p>Additional noise and vibration from repair work and the installation of structural elements, such as roofs, windows, and ceilings, could further disturb the surrounding environment.</p>	<p>I) Restrict construction activities to daytime hours to minimize disturbances to the surrounding community.</p> <p>II) Maintain noise levels at the site boundary below 75dB(A) during the day, in compliance with the Bangladesh Noise Pollution (Control) Rules 2006..</p> <p>III) Select and use low-noise equipment to reduce noise emissions.</p> <p>IV) Conduct regular on-site noise level monitoring to ensure compliance with noise control measures.</p> <p>V) Introduce a grievance redress mechanism at the site to handle complaints and concerns effectively..</p>	<p>During intermittent daytime activities throughout the three-month construction period. This includes brick crushing, RCC mixing, excavation, material handling, and heavy machinery operations, particularly during the installation of structural elements like roofs, windows, and ceilings.</p>	<p>Site Engineer in Charge from BPCL and Construction Contractor</p>	<p>Construction timing logs to ensure adherence to daytime operations.</p> <p>Noise monitoring records to ensure noise levels comply with regulatory standards.</p> <p>ToR for the procurement of low-noise equipment to reduce noise pollution.</p> <p>Availability of low-noise</p>	<p>Monthly site visits will be conducted, accompanied by photos and documentation as evidence.</p>	<p>Environmental Expert - BPCL</p> <p>Technical Expert - (Environment) UNOPS PLEASE project - Bangladesh</p>	<p>USD 150</p>

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
				equipment on-site and its operational status  Number of complaints submitted through GRM that have been addressed in time.			
Soil and water contamination, along with potential mosquito breeding, is due to the generation of wastewater during construction.	<p>I) Direct construction wastewater to a dedicated sedimentation pit to prevent soil and water contamination.</p> <p>II) Clean the sedimentation pit and surrounding areas daily to remove potential mosquito breeding sites.</p> <p>III) Maintain drainage channels to ensure proper water flow</p>	On-site, specifically around the sedimentation pit and water channels, throughout the entire construction period (3 months).	Site Engineer in Charge from BPCL	Operational status and cleaning records of the sedimentation pit  Evidence of mosquito repellent application in	Daily process inspections  Monthly site visit	Environmental Expert - BPCL  Technical Expert - (environment) UNOPS PLEASE project - Bangladesh	USD 120

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>and prevent stagnation.</p> <p>IV) Apply mosquito repellents and larvicides to stagnant water areas as needed.</p> <p>V) Maintain a proper slope in the drain to ensure free gravitational water flow.</p> <p>VI) Conduct scheduled cleaning of accumulated sludge from the drain to maintain flow and hygiene.</p>			<p>stagnant water areas.</p> <p>Records of drainage channel maintenance to ensure proper flow.</p> <p>Monthly cleaning records for accumulated sludge in the drain.</p> <p>Physical observation of sedimentation and continuous water flow in the drainage channel</p>			

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
Occupational Health and Safety (OHS) Risks for workers during construction, electrical wiring, and machinery setup.	<p>I. Equip 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.</p> <p>II. Implement strict safety protocols for all electrical wiring activities to prevent accidents and hazards.</p> <p>III. Ensure accessible first aid kits are available on-site to provide immediate response to injuries.</p> <p>IV. Provide proper sanitary facilities and access to safe drinking water to maintain hygiene and worker health.</p> <p>V. Offer adequate,</p>	On-site during construction (3 Months).	Site Engineer in charge and Contractor	<p>100% of workers wear PPE during construction activities</p> <p>Availability of First Aid box and Accident register</p> <p>Daily records of inspection and cleaning of water-accumulated areas</p>	<p>Daily inspection</p> <p>Daily records indicating the discussed and site examination records</p> <p>Photos/physical checking</p>	Project Manager and MEL manager-BPCL  Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 120

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	well-ventilated workspaces, clean eating areas, and separate sleeping areas (if necessary) to ensure workers' comfort and well-being.						
Worker health impacts are related to worker hygiene and sanitation conditions.	<p>I. Provide well-maintained sanitation facilities, including handwashing stations, to ensure cleanliness and hygiene.</p> <p>II. Ensure a continuous supply of clean drinking water for workers to support health and well-being.</p>	On-site throughout the three-month construction period.	Site Engineer in charge and Contractor	Availability of adequate sanitary facilities Access to safe drinking water	Daily monitoring, Observation during the site visit	Project Manager and MEL manager - BPCL  Technical Expert - (Environment) UNOPS PLEASE Project - Bangladesh	USD 150
Risks of Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) between Project workers, and between Project workers and local community members	<p>I) Appoint a PSEA Focal Point at the site.</p> <p>II) Provide awareness training on recognizing and preventing SEA/SH for a) Project workers, and b) affected communities</p>	<p>Training and awareness will be conducted prior to the commencement of work.</p> <p>Implementation of Gender Focal Points and signing of CoC</p>	<p>Site Engineer in charge of BPCL and Construction Contractor.</p> <p>A female volunteer from</p>	<p>Number of training sessions provided to workers.</p> <p>Number of awareness</p>	Monthly site visit	<p>Project Manager and MEL manager - BPCL</p> <p>Technical Expert - (environment)</p>	USD 120

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>III) Provide training on the GRM, including for SEA/SH-related grievances to a) Project workers, and b) affected communities</p> <p>IV) Request all Project workers to sign a Code of Conduct (CoC), including instructions on SEA/SH prevention</p> <p>V) Provide a specific SEA/SH response mechanism as part of the Project GRM, including referral to SEA/SH services</p>	at the site during the construction period.	<p>CDIP will act as BPCL's Gender and PSEA focal point on site.</p> <p>Gender and PSEA Focal Point of BPCL</p>	<p>sessions provided to communities.</p> <p>Number of training sessions on GRM provided to communities.</p> <p>Percentage of workers who have signed the CoC.</p> <p>Number of SEA/SH Focal Points appointed.</p> <p>Availability of the complaint box and actions taken in</p>		<p>UNOPS PLEASE project - Bangladesh</p>	

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
				response to complaints.			
Potential health issues arise from the influx of 25 laborers, which can increase the risk of spreading communicable diseases and place additional pressure on local health resources, potentially affecting both workers and community members.	I. Conduct awareness sessions on communicable diseases for all workers and surrounding communities	On-site throughout the three-month construction period.	Site Engineer in charge and Contractor	Meetings and awareness records	Monthly site visit	Project Manager and MEL manager - BPCL  Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 140
Lack of understanding of EHS risks and impacts, and mitigation measures, leads to accidents and health impacts	I) Assess the capacity of the construction company on OHS  II) Train workers on OHS through toolbox talks	On site during construction period	Site Engineer in charge and Contractor	Percentage of construction companies whose capacity has been assessed.  Number of toolbox talks conducted	Monthly monitoring	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			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
<p>The absence of a Grievance Redress Mechanism can lead to unresolved worker concerns and dissatisfaction during construction, potentially causing workflow disruptions, reduced productivity, and escalation of conflicts.</p>	<p>I) Create awareness of the Project GRM and its reporting channels, implemented by the PIU</p> <p>II) Display a complaint box and contact numbers of both the construction contractor and BPCL site engineer visibly on-site to allow workers to raise concerns anonymously via phone or the complaint box.</p> <p>III) Ensure that the contact details of the SEA/SH Focal Point are placed on notice boards in the project location</p> <p>IV) Register and investigate grievances promptly, and communicate resolutions transparently to all relevant parties.</p>	<p>Sub-Project Location/Throughout the construction period</p> <p>SEA/SH referral service mapping to be conducted before the commencement of works</p> <p>Linkages to Project GRM are established before works begin</p>	<p>Site Engineer in charge from BPCL and Construction Contractor, Gender and PSEA focal Point of BPCL</p>	<p>Number of awareness sessions held</p> <p>Number of complaint boxes installed</p> <p>Number of SEA/SH Focal Points appointed</p> <p>Number of SEA/SH cases reported that receive referral services</p> <p>Map of local SEA/SH service providers available</p>	<p>Monthly monitoring</p>	<p>Project Manager and MEL Manager- BPCL</p> <p>Technical Expert - Environment UNOPS PLEASE project - Bangladesh</p>	<p>USD 180</p>

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>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.</p> <p>VI) Establish a map of local SEA/SH service providers and ensure every case reported is provided with referrals, if the survivor wishes that.</p>						
Lack of compliance with labor laws and labor management procedures	<p>I) Train construction laborers and raise awareness on the Grievance Redress Mechanism.</p> <p>II) Prominently display a complaint box and the contact numbers of both the construction contractors and the BPCL site engineer on-site</p>	On-site throughout the project period	Site Engineer in charge from BPCL and Construction Contractor, Gender and PSEA focal Point of BPCL	<p>Number of workers' grievances filed</p> <p>Availability and implementation of the code of conduct</p> <p>Payroll records management</p>	Monthly Monitoring	<p>MEL manager - BPCL</p> <p>Technical Expert - Environment UNOPS PLEASE project - Bangladesh</p>	USD 170

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>to facilitate easy reporting of concerns.</p> <p>III) Provide workers with the option to raise concerns anonymously, either by phone or through the complaint box.</p> <p>III) Development and implementation of a code of conduct in line with national labor laws and ESF of the PLEASE Project</p> <p>IV) Pay wages following national laws</p>			Site visits and review of received complaints			
The risk of child labor arises from inadequate recruitment processes and a lack of oversight, leading to legal violations, reputational damage, and exploitation of vulnerable	I) Comply with the minimum age requirements of the project (following national laws and ESS2) and document the age of workers upon hiring.	At the site, throughout construction	Site Engineer in charge from BPCL and Construction Contractor	Number of workers' grievances filed  Number of track record searches conducted	Monthly monitoring	Project Manager and MEL manager-BPCL  Technical Expert	USD 150  -

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
children.	<p>II) Verify the age of workers with local communities, where necessary.</p> <p>III) Conduct a background check on contractors during the bidding process (including records of health and safety violations, fines, and consultation of public documents related to workers' rights violations, GBV/SEA/SH issues, etc.)</p>					Environment UNOPS PLEASE project - Bangladesh	
The risk of forced labor arises from inadequate monitoring of labor practices and a lack of worker protections, leading to legal violations, reputational harm, and exploitation of workers.	<p>I) Establish a confidential and accessible Grievance Redress Mechanism (GRM) for workers to report issues.</p> <p>II) Raise awareness in local communities</p>	On-site throughout the construction period	Site Engineer in charge and Contractor	Number of grievances filed in workers' GRM	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			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
Lack of stakeholder engagement	<p>I) Establish a site-specific stakeholder map that includes vulnerable groups, project-affected parties, and other interested parties (based on the Project Stakeholder Engagement Plan - SEP)</p> <p>II) Define information dissemination channels for the identified stakeholders and provide sub-project-related information</p> <p>III) Define consultation channels of the mapped stakeholders and conduct consultations of all stakeholders, including on environmental and social risks and mitigation measures</p>	Prior to the commencement of Construction works	Site Engineer in charge from BPCL and Construction Contractor	<p>Availability of stakeholder mapping</p> <p>Number of project information dissemination events</p> <p>Number of consultations with identified stakeholders</p> <p>Number of consultations with identified members of vulnerable groups</p>	Monthly monitoring	<p>Project Manager and MEL manager- BPCL</p> <p>Technical Expert - Environment UNOPS PLEASE project - Bangladesh</p>	USD 175

## 4.2 Operational Phase

Anticipated Risks and Impacts	E&S	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
			Location/Timing/Frequency	Responsibility	Indicators 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 microplastics and labels, may adversely impact the canal's ecosystem, potentially harming aquatic life and degrading water quality.		<p>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, thus preventing pollution of the canal.</p> <p>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.</p> <p>III. Capture microplastics</p>	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	<p>WTP operational records</p> <p>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).</p> <p>Physical observation record of no blockage and free flow of water</p>	<p>Analytical reports of treated water once in 3 months</p>	<p>Environmental Expert - BPCL</p> <p>Project Manager UNOPS PLEASE Project - Bangladesh</p>	USD 1200

Anticipated Risks and Impacts	E&S Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>during the treatment process and securely store them in sealed containers to prevent any release into the environment.</p> <p>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.</p> <p>V. Regularly inspect and maintain drainage systems and containment structures to prevent accidental spillage or overflow into</p>						
Mismanagement of solid waste can lead to soil and water contamination.	I. Segregation of solid waste into decomposable, recyclable, and non-recyclable waste daily	At the facility through out the operations	Hub Manager, BPCL	Records of Waste Segregation	Monthly Site visit	Environmental Expert - BPCL Project Manager	No cost involved

Anticipated Risks and Impacts	E&S Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>II. Sell recyclable waste to authorized waste collectors</p> <p>III. Dispose of non-recyclable waste through local authorities.</p> <p>IV Prohibit open burning.</p> <p>V. Maintain disposal records for monitoring.</p>			<p>Documentation of Recyclable Waste Sales</p> <p>Records of Waste Disposal</p>		UNOPS PLEASE Project - Bangladesh	
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 reduce the need for groundwater extraction significantly.	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 Project Manager UNOPS PLEASE Project - Bangladesh	USD 200
Public disturbance and potential health risks to workers due to noise and vibration	I. Specify low-noise emission standards as a requirement in the procurement and bidding process for machinery to limit noise generation at the	On-site during facility operations and throughout the machinery procurement	Hub Manager	Number of reports and complaints registered  Number of	Examination of Documents/reports/complaints  Noise	Project Manager and MEL manager - BPCL  Project Manager	USD 150

Anticipated Risks and Impacts	E&S Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
from facility machinery operations.	<p>source.</p> <p>II. Regular monitoring of Noise Level to ensure compliance with noise control measures.</p> <p>III. Install noise absorbers or enclose the machine in a soundproof chamber if noise levels exceed the permissible limit</p> <p>IV. Maintain noise levels at the site boundary below 60dB(A) during daytime hours, following the Bangladesh Noise Pollution (Control) Rules 2006.</p> <p>V. Provide personal protective equipment (PPE), including earplugs and noise-canceling earmuffs, for workers</p>	<p>process,</p> <p>Ongoing measures are applied during machine operations.</p>		<p>machinery specifications verified for low-noise emission standards</p> <p>Number of noise-related complaints addressed through the Grievance Redress Mechanism (GRM)</p> <p>Percentage of workers using PPE</p>	<p>measurement report</p>	<p>UNOPS PLEASE Project - Bangladesh</p>	

Anticipated Risks and Impacts	E&S Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>exposed to elevated noise levels.</p> <p>VI. Create awareness of the Project GRM and its reporting channels.</p>						
Health risks from indoor air pollution during plastic processing activities, including sorting, crushing, and baling.	<p>I. Assess the adequacy of the existing natural ventilation system to ensure sufficient air circulation during processing activities.</p> <p>II. If natural ventilation is insufficient, install additional mechanical ventilation systems as needed to maintain air quality.</p> <p>III. Provide workers with appropriate personal protective equipment (PPE), such as masks and respirators, to reduce exposure to airborne</p>	On-site, continuously during facility operation.	Hub Manager, BPCL	<p>Number of regular air quality checks conducted in processing areas</p> <p>Number of operational exhausted fans</p> <p>Percentage of workers wearing PPE</p> <p>Number of air quality complaints tracked and resolved via the GRM</p>	<p>Examination of Documents/reports/complaints</p> <p>The health report in focused on respiratory issues</p> <p>Monthly on-site visit and observation</p>	<p>Project Manager and MEL manager - BPCL</p> <p>Project Manager UNOPS PLEASE - Bangladesh</p>	USD 175

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	pollutants.  IV. Provide a workers' grievance redress mechanism						
OHS risks for facility workers throughout operations, including loading, unloading, sorting, crushing, baling, treating, and unloading activities.	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.  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.	At the Recycling Business Unit, throughout operational activities.	Hub Manager, Gender Focal point from BPCL and Project Manager of CDIP	Number of workers who wear appropriate PPE  Monitoring health status through the Health Card  First aid kits are available with proper inventory  The number of workers who received training on Fire Safety, the safeguarding protocol	Monthly site visit including physical inspection and record checking, as well as consultation with workers.	Project Manager and MEL manager - BPCL  Project Manager UNOPS PLEASE - Bangladesh	USD 200

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>V. Deliver safety and safeguard protocol training to all employees.</p> <p>VI. Implement an accident reporting mechanism to ensure prompt response and management of incidents.</p> <p>VII. Maintain clean and sanitary facilities, including separate washing areas for male and female workers, along with continuous access to safe drinking water.</p>			<p>Signboards with emergency phone numbers and precautionary messages are hung in the workplace.</p> <p>The accident register is available in RBU.</p> <p>Separate sanitation facilities for male and female workers, including a hand-washing facility.</p>			
Reduced workforce participation, increased absenteeism, and stress among	I. Establish a safe, hygienic childcare center within the business unit to provide dedicated support for workers with young children.	At the Recycling Business Unit (RBU), in a designated area separate from the	Hub Manager, Child care attendant, CDIP	The existence of a safe and hygienic childcare center  Number of	Report checking and site visit	Project Manager and MEL manager - BPCL  Project Manager	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
women workers with children due to a lack of adequate childcare support	<p>II. Employ trained and certified childcare professionals to manage and supervise the facility.</p> <p>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.</p>	processing unit		<p>employed and trained childcare professionals</p> <p>Availability of safe drinking water and educational materials in the center</p>		UNOPS PLEASE Project - Bangladesh	
Potential health issues arise from the influx of 15 laborers, which can increase the risk of spreading communicable diseases and place additional pressure on local health resources, potentially affecting	<p>I. Organize regular worker meetings and awareness sessions focused on communicable disease prevention and health practices.</p> <p>II. Provide education and training on preventing and responding to gender-based violence (GBV).</p>	At the Recycling Business Unit (RBU), throughout the operational period.	Hub Manager, Gender focal point and Project manager of CDIP	<p>Availability of meeting and training records,</p> <p>Records on gender awareness training</p> <p>Selection criteria for recruitment</p>	Monthly visit and review the documents	<p>Project Manager and MEL manager - BPCL</p> <p>Project Manager UNOPS PLEASE Project - Bangladesh</p>	USD 200

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
both workers and community members.	<p>III. Develop a gender action plan and appoint a safeguarding focal point to address and prevent sexual exploitation (SE) and gender-based violence.</p> <p>IV. Prioritize hiring from the local community to reduce social disruption and foster local engagement.</p>						
Gender discrimination in employment opportunities and wages.	<p>I. Develop and enforce non-discriminatory guidelines for recruitment processes and operational practices, ensuring equal treatment across all worker levels.</p> <p>II. Implement policies for equal pay, ensuring that male and female employees receive the same wages for equivalent roles and responsibilities.</p>	At the Recycling Business Unit (RBU), throughout all employment practices and operations.	Hub manager, Gender focal point, and project manager of CDIP	<p>Availability of the safeguarding policy and its implementation</p> <p>The number of workers received a non-discriminatory orientation</p> <p>Wages disbursement report of RBU</p>	Regular monitoring	MEL manager - BPCL  Project Manager UNOPS PLEASE Project - Bangladesh	USD 200

Anticipated Risks and Impacts	E&S Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	III. Establish a confidential complaint box to enable workers to report gender-related concerns safely and anonymously.			workers  Availability of a complaint box in the RBU			
Risks of Sexual exploitation and abuse (SEA) and sexual harassment (SH) among workers and between workers and community members at the facility	<p>I. Provide a workers' grievance redress mechanism (Workers' GRM), incorporating SEA/SH Focal Points for both genders and an effective referral mechanism</p> <p>II. Provide an anonymous reporting system along with protection measures for individuals who report</p> <p>III. Provide referrals to SEA/SH service providers as required</p> <p>IV. Provide training on recognizing, preventing, and responding to SEA/SH for workers and communities</p>	Throughout operation	Hub Manager, Project Manager of CDIP, Gender and PSEA focal Point of BPCL	<p>Availability of GRM and SEA/SH Focal Points</p> <p>Availability of the reporting system</p> <p>Number of SEA/SH awareness sessions for a) workers, and b) the surrounding communities</p> <p>Availability of CoC</p>	Monthly visit and review the documents	MEL manager - BPCL  Project Manager UNOPS PLEASE Project - Bangladesh	USD 100

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>V. Prepare a Code of Conduct for workers at the facility that includes reference to SEA/SH</p> <p>VI. Ensure workers at the facility sign a Code of Conduct (CoC)</p>			Percentage of workers who have signed the CoC			
Lack of compliance with labor laws	<p>I. Development and implementation of a code of conduct in line with national labor laws</p> <p>II . Pay wages following national laws</p> <p>III. Inform workers about the Grievance Redress Mechanism (GRM) to ensure they understand the process for raising concerns.</p> <p>IV. Display a complaint box and the contact numbers of both the construction contractors and the BPCL site engineer visibly on-site to</p>	On site throughout the operation	Hub Manager, MEL manager of BPCL and project manager of CDIP, Gender and PSEA focal Point of BPCL	<p>Number of workers' grievances filed</p> <p>Availability and implementation of the code of conduct</p> <p>Payroll records</p>	Monthly visit and review the documents	<p>Project Manager and MEL manager - BPCL</p> <p>Project Manager UNOPS PLEASE Project - Bangladesh</p>	USD 175

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	<p>enable easy access to the grievance mechanism.</p> <p>V Provide anonymous channels for workers to report concerns, including by phone and through the complaint box.</p> <p>VI. Register and investigate grievances promptly, and communicate resolutions transparently to maintain trust and accountability</p>						
Risk of child labor at the facility	<p>I. Comply with the minimum age requirements of national laws and document the age of workers upon hiring</p> <p>II. Verify the age of workers with communities where required</p>	At the site, monthly	Hub Manager, MEL manager, and project manager of CDIP	Number of workers' grievances filed	Monthly monitoring	Project Manager and MEL Manager - BPCL  Project Manager UNOPS PLEASE Project - Bangladesh	USD 175
Risk of forced labor	I. Establish a confidential and accessible Grievance Redress Mechanism (GRM) for workers to report issues.	On-site throughout the operation	Hub Manager, MEL manager, and project manager of	Number of grievances filed in workers' GRM	Monthly monitoring	Project Manager and MEL Manager - BPCL	USD 175

Anticipated E&S Risks and Impacts	Risk Mitigation and Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Monitoring Cost
		Location/Timing/Frequency	Responsibility	Indicators to be monitored	Methodology, including Location and Frequency	Responsibility	
	II. Raise awareness in communities		CDIP, Gender and PSEA focal Point of BPCL			Project Manager UNOPS PLEASE Project - Bangladesh	
Gender discrimination in job opportunities and wages	<p>I. Preparation of non-discriminating guidelines for the recruitment process and operations affecting all levels of workers</p> <p>II. Equal wages to male and female workers/employees</p> <p>III Complain Box/Issue Box Installation</p>	Throughout the operations	Hub Manager, Gender Focal Point of BPCL, and project manager of CDIP	<p>Availability of HR Policy</p> <p>Availability of Grievance Redress Mechanism</p>	Monthly	<p>Project Manager and MEL Manager - BPCL</p> <p>Project Manager UNOPS PLEASE Project - Bangladesh</p>	USD 175

## 5. Capacity Development & Training

To ensure the successful implementation of the Chittagong 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), grievance redressal mechanisms (GRM), Labor Management procedures (LMP), and implementing response measures will be provided by the gender focal point of BPCL.
5. On-the-job training in fire safety, construction safety, environmental compliance, and waste management system by the engineer in charge from BPCL
6. Technical experts from BPCL will provide orientation on the importance of sustainable waste management, pollution control, and the maintenance of natural resources.
7. Capacity development training on occupational health and safety (OHS) by the engineer in charge of BPCL and the contractor

### **Operational Phase:**

1. Training on machine operations and procedures, covering the handling of plastic materials, including receiving, sorting, baling, feeding into the washing line, and operating the wastewater treatment plant (WTP), will be provided by technical experts from BPCL.
2. The 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), grievance redressal mechanisms (GRM), Labor Management procedures (LMP), and implementing response measures will be provided by the gender focal point of BPCL.

6. Training on record keeping, log book maintenance, and the management of complaint systems, including the maintenance of the complaint box, will be provided by 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 ( <i>Construction Stage</i> ): Include noise testing, PPE provisions, first aid kit facilities, social and sanitation facilities, and tree planting to mitigate construction impacts.	March- April 2025	USD 590
2. Machine Installation: Provision of PPE and noise measurement during the setup phase.	April, 2025	USD 420
3. Grievance Redress Mechanism, Stakeholder engagement, technical expert, all kinds of monitoring activities, and site visit expenses	March - April 2025	USD 425
4. Construction wastewater management, sedimentation tank and drainage channel maintenance, and Mosquito repellent.	March - April 2025	USD 420
5. Community consultation, awareness session, GRM, LMP, and Health Camp	Up to the end of April 2025	USD 320
	<b>TOTAL</b>	<b>2175</b>

<b>Operational Phase</b>		
<b>Mitigation Measure</b>	<b>Implementation timeline</b>	<b>Estimated Cost (USD)</b>
Wastewater Treatment and Analysis: Ongoing treatment and quality analysis of wastewater generated from operations	March - April 2025	USD 1200
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 measures, sign boards, social and gender-related initiatives, and PPE.	March 2025	USD 550
Maintenance and support for child care facilities.	August 2025	USD 200
Regular M&E to monitor GRM and LMP	March - August 2025	USD 575
Community consultation, and awareness sessions addressing the misconception about Recycling Business unit	March -August, 2025	USD 200
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 August 2025	USD 550
	<b>TOTAL</b>	<b>3275</b>
Overall Cost (Construction Phase and Operational Phase)	<b>Total</b>	<b>5450</b>

## 7. Attachments

- [Pictures and Videos of BPCL Chittagong RBU](#)
- [NOC from Chittagong City Corporation](#)
- [Initial Site Report for Chittagong RBU](#)
- [Land Lease Agreement](#)
- [Trade licence](#)
- [Architectural Drawing](#)
- [Structural Drawing of BPCL RBU](#)
- [BOQ of Chittagong RBU](#)
- [WTP report on Chittagong RBU](#)
- [Soil Test Report](#)
- [Integrity and Safety Assessment Report](#)
- [Stakeholder Consultation on Chittagong RBU](#)
- [GRM on Chittagong RBU](#)
- [LMP on Chittagong RBU](#)

**IV. Review & Approval**

**Prepared By:**

*Taufir Seam*

**Name:** Taufir Ahmed Seam

**Position:** Project Coordinator, Bangladesh Petrochemical Company Ltd (BPCL)

**Date:**

**Reviewed By:**

*Hasan Ahmed*

**Name:** Hasan Ahmed

**Position:** Technical Expert-Environment

**Date:**

**Approved By:**

*S W Lakshman*

**Name:** S W Lakshman

**Position:** Senior Financial Management  
Specialist/Officiating Project Director

**Date:** 23/09/2025