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 - FENI

GRANTEE: BANGLADESH PETROCHEMICAL COMPANY LIMITED (BPCL) - BANGLADESH

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

Environmental and Social Management Plan (ESMP)
Formalizing the Plastic Recycling Value Chain to Ensure Steady Collection of Recyclable Plastic (RP) Removing Them From Environment By The Introduction of Recycling Business Unit (RBU) - (BPCL)

1. Subproject Information

Subproject Title:	Formalization of Plastic Recycling Value Chain by forming Recycling Business Units in Feni
Estimated Cost:	USD 1,322,000
Start/Completion Date:	01 April 2024 - 31 July 2024

2. Site/Location Description

The "Formalization of the Plastic Recycling Value Chain through the Establishment of Recycling Business Units in Bangladesh" project, implemented by Bangladesh Petrochemical Company Limited (BPCL), is a key initiative under the PLEASE Project. The project is supported by the South Asia Co-operative Environment Programme (SACEP) and the World Bank, with implementation assistance from UNOPS. Its primary objective is to create an inclusive and efficient plastic recycling system in Bangladesh. As part of this effort, a Recycling Business Unit (RBU) will be set up in Feni, playing a pivotal role in formalizing the plastic recycling value chain and promoting sustainable recycling practices.

The proposed Feni Recycling Business Unit (RBU) is located in the Chittagong Division, within Feni District, Dagonbhuiyan Upazila, at geographical coordinates 22°56'58"N 91°19'11"E. The site is situated 80 meters from the Feni-Noakhali four-lane highway (62 feet wide) to the south, offering convenient access for transportation and logistics. A brickfield is located 450 meters away, while agricultural land, predominantly paddy (*Oryza sativa*) fields, surrounds the site on the northern and eastern sides. A canal named Matubhuiya Khal, a branch of the Dakatia River, is located 600 meters from the RBU.

Daganbhuiyan Upazila has a monsoon climate characterized by warmth and relative equity throughout the year. Summer typically sets in from the middle of April and extends until the middle of June. During this period, the district experiences a maximum mean temperature of 34.5 °C (94.1 °F) and a minimum mean temperature of 12.4 °C (54.3 °F). The level of humidity varies, with a minimum of around 20% in January and reaching close to 100% in July. Additionally, the average annual rainfall in the district is recorded at 3,302 millimeters (130.0 in).

The highway is well-connected to a 20-foot-wide internal road that leads directly into the RBU premises, facilitating the movement of goods, including large containers essential for recycling operations. The RBU site is part of the now-abandoned Dulamia Cotton Spinning Mills, which spans an area of approximately 1,203.242 decimals marked by red dots in the map. Originally planned as the foundation for a high-rise building, the land has since been repurposed for the RBU. The site is secured

by a 6-foot-high, 5-inch-thick brick boundary wall, which restricts unauthorized access while allowing free entry for RBU beneficiaries.

Within the boundaries of the Dulamia Cotton Spinning Mills, several existing structures are present, including an abandoned factory building, staff quarters, a canteen, a mosque, a bungalow, a garden, a security quarter, open spaces, and a pond (195 feet x 150 feet) at 300 feet far from the proposed RBU. These structures are being separated from the RBU area by installing a 361-foot-long and 7-foot-high, 0.22 mm thick corrugated iron sheet fencing, ensuring a clear division of space for operational purposes.

(Refer to Link-1 for a map of the land location and Link-2 for detailed information on Daganbhuiyan, 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 78% bushes and cleaning the surface, then sand filling to 5408 square feet with a depth of 2.5 ft in the existing grade beam, ensuring proper compaction and watering.
2. Construction of a composite structure measuring 10,927 sq ft, combining brick and concrete work from the substructure to half of the superstructure. The remaining half of the superstructure will be constructed using steel, including the walls and roofing. also Construction and repair of one office room (225 sq ft), a childcare facility (150 sq ft), and sanitation facilities for both male and female employees.

3. Construction of a drainage system extending 160 ft. and a water treatment plant with a capacity of 1.5-2 cubic meters per hour.
4. Installation of the required machinery, including one conveyor bales, one label remover, one PET crusher, one screw loader, one floating washer, one dewatering unit, two baling machines, and one blade sharpening machine.
5. 12KV electrical wiring to support operation of the machines and plumbing of all necessary pipe, 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 shredded into PET flakes (12-14mm) by a crushing machine to increase surface area, making them easier to clean. The flakes are then washed with cold water and machine dried.
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 tank , where it can be either drained or reused in the washing line.

An estimated 1.5 m^3 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. The electricity required for processing PET, including label removal, crushing, washing, and drying, is estimated at 70 kWh per ton of PET processed.

During the construction phase, approximately 28 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.

Both the construction and operational activities are not expected to significantly impact the nearby river. Proper wastewater management measures will be implemented, including a sedimentation pit during construction and a wastewater treatment plant (WTP) during operation, ensuring that 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. CDIP will serve as the implementing partner for social interventions. The Municipality will issue the initial No Objection Certificate (NoC) for construction, followed by NoCs from the Department of Fire Service and Civil Defence and the Department of Inspection for Factories and Establishments. The final environmental clearance will be

provided by the Department of Environment (DoE). During the operational phase, various stakeholders, including informal waste pickers, scrap dealers, and factory workers, will actively contribute to the recycling value chain.

The plot selected for the project, currently owned by Dulamia Cotton Spinning Mills Limited, has been leased to Bangladesh Petrochemical Company Limited (BPCL) for a three-year term, from January 1, 2024, to December 31, 2026. The land lease agreement has been finalized, and all legal documentation is complete (Annex 01).

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

The below ESMP Tables 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 & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
Bushes and vegetation removed during the sand filling and settlement process disturb the vegetative soil, cause soil erosion, and increase surface runoff.	I. Revegetation of 50 medicinal plants through replanting near the hub II. The building and landscape design will include proper grading, drainage channels, sediment traps, and retaining walls to manage runoff and prevent soil erosion.	500-meter area surrounding the RBU will be monitored for a period of three months	Site Engineer of BPCL and volunteers from Center for Centre for Development Innovation and Practices (CDIP)	The growth of 50 medicinal plants along with their survival rates Physical observation of sediment levels in traps and drainage system (The drain is free of sedimentation, ensuring unobstructed water flow)	Monthly site Visit/Photo evidence Regular Monitoring	Environmental Expert - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 75
Air pollution results from activities such as soil	I. All machinery will be regularly maintained to	Periodic on-site inspections will	Site Engineer in Charge from	Machinery maintenance log	Monthly site visits will be	Project Manager and	USD 75

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
excavation, land preparation, machinery installation, and the loading and unloading of construction materials. Without proper controls, these activities may have an impact on air quality, posing potential health risks to both workers and nearby communities.	reduce emissions and ensure optimal performance. II. Dust in the surrounding areas will be controlled through water spraying as needed, especially during the loading and unloading of construction materials. III. Proper safety gear will be provided to ensure the protection of workers handling waste. IV. The site is located in an abandoned factory area; however, a complaint box will be available to receive any concerns from the community and workers.	be carried out during land clearing, earthworks (including filling and compaction), as well as throughout the fabrication and construction phases.	BPCL and Construction contractor	Water spray available on-site and used for dust control Availability of dust level and water sprinkling logs 100% of workers use appropriate PPE during all tasks. Complaint box available on-site with record of actions taken	conducted, accompanied by photo documentation and document review as evidence.	Environmental Expert - BPCL Technical Expert - Environment UNOPS PLEASE Project - Bangladesh	
Public nuisance due to Noise and vibration during Brick crushing,	I. Construction activities will be carried out during daytime hours, ensuring minimal	During brick crushing, RCC mixing,	Site Engineer in Charge from BPCL and	Work schedule and time records for the	Monthly site visits will be conducted,	Environmental Expert - BPCL	USD 125

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
RCC mixing, Excavation, Material handling, and heavy machinery operations. Noise and vibration also generated from the installation of structural elements such as roofs, windows, and ceilings, may cause disturbances to the surrounding environment. Noise and vibration can also have a negative effect on employee health.	disturbance to the surrounding community. II. Noise levels at the site boundary will be maintained below 75dB(A) during the day as per the Bangladesh Noise Pollution (Control) Rules 2006 and ESMF guidelines. III. Low-noise equipment will be selected and used to minimize noise emissions and will be properly maintained. IV. Regular monitoring of noise levels will be conducted at the site V. Appropriate PPE will be provided for the workers. VI. Provide a grievance redress mechanism at the site.	excavation, material handling, and heavy machinery operations. Activities will occur intermittently during the daytime throughout the construction period (3 months), specifically during the installation of structural elements such as roofs, windows, and ceilings.	Construction Contractor	construction activity Availability and functionality of noise measuring device Noise monitoring records ToR for procuring low noise equipment Availability of low-noise equipment on site Number of complaints received through GRM on noise and vibration-related issues.	accompanied by photo and Video documents as evidence.	Technical Expert - environment) UNOPS PLEASE project - Bangladesh	
Soil and water contamination and	I. Construction site wastewater will be directed to	On Site, specifically	Site Engineer in Charge from	Physical observation of the sedimentation pit's	Daily process inspections	Environmental Expert - BPCL	USD 500

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
mosquito breeding due to construction wastewater	a dedicated sedimentation pit to prevent soil and water contamination. II. Routine cleaning of the sedimentation pit and surrounding areas will be conducted daily to eliminate potential mosquito breeding sites. III. Mosquito repellents and larvicides will be applied to stagnant water areas if necessary. IV. Drainage channels will be maintained to ensure proper flow and prevent water stagnation. V. A proper slope will be maintained in the drain to ensure free gravitational	around the sedimentation pit and water channels during the whole construction period (3 months)	BPCL and Construction Contractor	operation and effectiveness in capturing construction wastewater Records of sedimentation pit cleaning Evidence of mosquito repellent application Evidence of maintenance of drainage channels Monthly drain cleaning records Physical observation of drainage observation and water flow	Monthly site visit	Technical Expert - environment) UNOPS PLEASE project - Bangladesh	

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	water flow VI. Monthly cleaning of accumulated sludge from the drain.						
Risks of OHS arise from working at heights, wet surfaces, and improper handling of electrical wiring or machinery, leading to injuries, electrocution, or long-term health issues for workers.	I. Ensure that all workers are equipped with appropriate PPE such as helmets, gloves, safety boots, goggles, and high-visibility vests to minimize physical injuries. II. Implement strict safety protocols for electrical wiring activities. III. Provide accessible first aid kits on-site IV. Provision of proper sanitary facilities and safe drinking water V. Provision of workers with	On-site during construction (3 Months).	Site Engineer in Charge and Construction Contractor	Availability of PPE used by workers during construction activities Availability of a first aid box and accident register. Availability of daily records for checking and cleaning water-accumulated areas.	Daily records documenting discussions and site examination activities Monthly health reports	Project Manager and MEL Manager-BPCL Technical Expert - environment) UNOPS PLEASE project - Bangladesh	USD 250

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	adequate and well-ventilated working area, clean eating areas, and separate sleeping (if necessary)						
Health impacts related to worker hygiene and sanitation conditions	I. Provision of sanitation facilities with proper maintenance of cleanliness, including hand washing stations. II. Ensure a continuous supply of clean drinking water.	On site during construction period (3 months)	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 75
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, preventing SEA/SH for a) Project workers, and b) affected communities	Training and awareness conducted prior to commencement of work. Implementation	Construction Contractor and MEL Manager from BPCL	Number of training sessions provided to workers Number of awareness sessions provided to communities	Monthly site visit Monitoring report, and pictures as evidence	Project Manager and MEL Manager-BPCL Technical Expert - Environment	USD 150

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	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 for SEA/SH prevention V. Provide specific SEA/SH response mechanism as part of the Project GRM, including referral to SEA/SH services	of Focal Points and signing of CoC at the site during the construction period		Number of training sessions on GRM provided to communities Percentage of workers who have signed the CoC Number of SEA/SH Focal Points appointed Availability of a complaint box on-site and actions taken in response to complaints		UNOPS PLEASE project - Bangladesh	
Potential health issues arise from the influx of 28 laborers, which can increase the risk of spreading communicable diseases and place additional pressure on local health resources, potentially affecting both workers and community	I. Conduct awareness sessions on communicable diseases for all workers and surrounding communities	On site during construction period (3 months)	Site Engineer in charge and Contractor	Meetings and awareness records	Monthly site visit Records on sessions Monitoring report, and pictures as evidence	Project Manager and MEL Manager- BPCL Technical Expert - Environment UNOPS PLEASE project -	USD 100

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
members.						Bangladesh	
Lack of understanding of EHS risks and impacts and mitigation measures leads to accidents and health impacts	I. Assess the construction company's capacity in OHS II. Train workers on OHS through toolbox talks	On site during construction period	Site Engineer in Charge and Construction Contractor	Percentage of construction companies whose OHS capacity has been assessed Number of toolbox talks conducted	Monthly Monitoring	MEL Manager-BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 75
Lack of a Grievance Redress Mechanism (GRM)	I. Create awareness of the Project GRM and its reporting channels, implemented by the PIU II. Provide an additional reporting channel through complaint boxes installed at the sub-project site. III. Ensure that the contact details of the SEA/SH Focal	Sub-Project Location/Through out the operational period SEA/SH referral service mapping to be conducted prior to the commencement of works Linkages to Project GRM	Project Manager of BPCL and 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 Map of local SEA/SH service providers	Monthly monitoring report	Project Manager and MEL Manager-BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 100

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	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 survivor wishes that.	established prior to works		available			

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
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 implement of code of conduct in line with national labor laws and ESF of the PLEASE Project	On site during construction period	Site Engineer in charge from BPCL, Construction Contractor, and Gender and PSEA Focal Point from BPCL	Number of workers' grievances filed. Availability and implementation of the Code of Conduct. Availability of payrolls. Site visits and review of received complaints	Monthly Monitoring	MEL Manager-BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 75

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	IV) Wages will be paid in accordance with Labor Management Procedures (LMP)						
Risk of child labor	I. Comply with minimum age requirements of the Project (in compliance with national laws and ESS2 of the Worldbank) and document the age of workers upon hiring with necessary evidence document II. Verify the age of workers with communities where required III. Conduct a track record search of the contractors during the bidding process (including records of health and safety violations, fines, consult public documents related to workers' rights violations, GBV/SEA/SH issues, etc.)	On site, throughout the construction period	Site Engineer in Charge and Construction 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 & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & 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	On site throughout the construction period	Site Engineer in charge from BPCL 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
Lack of stakeholder engagement	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) II. Define information dissemination channels for the identified stakeholders and provide sub-project-related information	Before the commencement of Construction works	Site Engineer in charge from BPCL and Construction Contractor	Availability of 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 & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	III. Define consultation channels of the mapped stakeholders and conduct consultations with all stakeholders including on environmental and social risks and mitigation measures						

4.2 Operational Phase

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
Water and soil pollution due to the quality of wastewater generated from the cleaning, washing of plastic, and disposal of non-recyclable plastics such as microplastics and labels.	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	These measures will be implemented on-site with continuous monitoring and testing of treated wastewater throughout the operation phase	Hub Manager, BPCL	WTP operational records Water quality testing report for the following parameters: pH, DO (Dissolved Oxygen), BOD	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 & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	Conservation Rules (ECR) 2023, thus preventing pollution of the canal. 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. III. Capture microplastics during the treatment process and securely store them in sealed containers to prevent	to ensure compliance with environmental standards (ECR-2023) and protection of the canal ecosystem.		(Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), and TDS (Total Dissolved Solids). Amount of nonrecyclable plastics from WTP are collected and securely sealed in containers Physical observation record of no blockage and free flow of water			

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	any release into the environment. 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. V. Regularly inspect and maintain drainage systems and containment structures to prevent accidental spillage or overflow into						

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
Depletion of groundwater for the operation of the washing line, wastewater treatment plant (WTP), and sanitation facilities.	I. Implement a water reuse system for treated wastewater in the washing line to minimize groundwater extraction.	On-site, treated wastewater will be continuously reused in the washing line.	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
Public disturbance caused by noise and vibration from facility machine operations, potentially impacting worker health	I. Specify low-noise emission standards as a requirement in the machinery procurement and bidding process. II. Regularly monitor noise levels to ensure compliance with noise control measures. III. Ensure noise levels at the site boundary are maintained below 75dB(A) during the	On-site, during the operation of machines and bidding on the machine purchasing On-site/during the operation of the facility	Hub Manager, BPCL	Reports and Complaints Register. Machinery specifications meeting low-noise emission standards. Number of noise-related complaints addressed through the	Monthly Examination of Documents/reports/complaints/Pictures Review Noise measurement report Use of PPES by workers	Project Manager and Environmental Expert - BPCL Technical Expert - environment) UNOPS PLEASE project - Bangladesh	USD 500

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	day, in accordance with the Bangladesh Noise Pollution (Control) Rules 2006 and ESMF guidelines IV. Provide necessary PPE, such as earplugs and noise-canceling earmuffs, for workers exposed to high noise levels.			Grievance Redress Mechanism (GRM). Percentage of workers using appropriate PPE			
Health risks from indoor air pollution during plastic processing activities, including sorting and crushing	I. Install a proper ventilation system with industrial blowers to maintain adequate air circulation. II. Ensure workers wear appropriate PPE, such as masks and respirators, to minimize exposure to air pollutants.	On-site, continuously during facility operation.	Hub Manager, BPCL	Regular air quality checks in processing areas. Operational status of exhaust fans. Percentage of workers wearing appropriate	Examination of Documents/reports/complaints Health report in focus on respiratory issues Monthly on-site visit and observation	Project Manager and MEL Manager-BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 250

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	III. Provide a worker's grievance redress mechanism			PPE. Number of air quality complaints tracked and resolved via the GRM			
OHS risks for facility workers through operations, including sorting, crushing, baling, treatment, loading, and unloading activities.	I. Provide necessary PPE and prepare safety guidelines; conduct daily safety briefings for workers. II. Carry out regular medical check-ups for employees. III. Provide training on first aid, ensuring first aid kits are readily available. IV. Conduct fire safety	At the Recycling Business Unit, daily.	Hub Manager, Gender Focal point from BPCL and Project Manager of CDIP	Use of appropriate PPE Monitoring health statutes through Health card First aid kits are available with proper inventory Number of workers trained on fire safety	Monthly site visit including physical inspection and record checking as well as consultation with workers	Project Manager and MEL Manager-BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 250

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	training and install appropriate fire extinguishers and fire hydrants and instruction charts. V. Conduct training sessions on safety and safeguard protocols. VI. Implement an accident reporting mechanism for prompt response. VII. Ensure the provision of clean sanitary facilities, including separate washing areas for male and female workers, and maintain access to safe drinking water.			and safeguard protocols. Signage displaying emergency phone numbers and precaution messages in the workplace Availability of accident register in RBU Availability of separate sanitation facilities for male and female workers, including hand washing facilities			

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
				Availability of first aid box and its inventory			
Reduced workforce participation, increased absenteeism, and stress among women workers with children due to lack of adequate childcare support	I. Establish a safe and hygienic childcare center within the business unit II. Hire trained and certified childcare professionals to manage the facility III. Ensure that the facility is equipped with adequate resources like safe drinking water, and educational materials to support the well-being and development of the children.	At RBU separate area from the processing unit, daily	Hub Manager, Child care attendant, CDIP	Childcare logbook Number of employed and trained childcare professionals Availability of safe drinking water and educational materials in the center	Physical observations conducted once every three months	Project Manager and MEL Manager-BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 150
Potential health issues	I. Conduct regular	At the Recycling	Hub Manager,	Availability of	Monthly visit and	Project Manager	USD 250

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
arise from the influx of 12 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	worker meetings and provide awareness sessions on communicable diseases. II. Offer education and training on gender-based violence prevention and response. III. Prepare a gender action plan and appoint a safeguarding focal point to address sexual exploitation (SE) and gender-based violence (GBV) IV. Prioritize hiring workers from the local community to minimize social	Business Unit (RBU), with ongoing implementation throughout the operational period.	Gender focal point of BPCL and project manager of CDIP	meeting and training records. Availability of records on gender awareness. Existence of selection criteria for recruitment.	review the documents	and MEL Manager-BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	disruptions and promote local engagement.						
Gender discrimination in employment opportunities and wages	I. Develop non-discriminatory guidelines for the recruitment process and operational practices that apply to all levels of workers. II. Ensure equal pay for male and female employees for equivalent roles and responsibilities. III. Establish a complaint box for confidential reporting of gender-related concerns.	At the Recycling Business Unit (RBU), with ongoing implementation throughout the operational period.	Hub Manager, Gender focal point of BPCL and project manager of CDIP	Availability and implementation of safeguarding policy. Number of workers receiving nondiscriminatory orientation. Wages disbursement report for RBU workers. Availability of complaint box in the RBU	Regular monitoring	MEL Manager- BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 150
Risks of Sexual exploitation and abuse	I. Provide a workers' grievance redress mechanism (Workers'	Throughout the operation period	Hub manager, gender focal	Availability of workers' GRM	Monthly monitoring	Project Manager and MEL Manager-	USD 150

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
(SEA) and sexual harassment (SH) among workers and between workers and community members at the facility	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 Provide referrals to SEA/SH service providers as required III. Provide training on recognizing, preventing, and responding to SEA/SH for workers and communities IV. Prepare a Code of Conduct for workers at		point, and project manager of CDIP	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) surrounding communities Availability of CoC Percentage of workers that have signed the CoC		BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	the facility that includes reference to SEA/SH V. Ensure workers at the facility sign a Code of Conduct (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	On site throughout operation	Hub Manager, MEL manager of BPCL and project manager of CDIP	Number of workers' grievances filed. Availability and implementation of the code of conduct. Availability of payroll records. Site visit records and review of received complaints	Monthly monitoring	Project Manager and MEL Manager- BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 75

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & Frequency	Responsibility	
	investigated promptly, with resolutions to communicate transparently IV. Development and implementation of code of conduct in line with national labor laws V. Pay wages in accordance with national laws						
Risk of child labor at facility	I. Compliance with minimum age requirements of national laws and documentation of workers' ages upon hiring II. Verify age of workers with communities where required	On site throughout operation	Hub Manage, MEL manager 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

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/Timing/ Frequency	Responsibility	Indicators to be monitored	Methodology, including Location & 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	On Site throughout operation	Hub Manager, MEL Manager of BPCL, 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
Gender discrimination in job opportunity and wage	I. Preparation of Non discriminating guidelines for recruitment process and operations affecting all levels of workers II. Equal wages for male and female workers	Throughout operations	Hub Manage, Gender Focal point of BPCL and project manager of CDIP	Availability of HR policy. Availability of Grievance Redress Mechanism (GRM)	Monthly monitoring	MEL Manager- BPCL Technical Expert - Environment UNOPS PLEASE project - Bangladesh	USD 150

5. Capacity Development & Training

To ensure the successful implementation of the Feni 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 gender focal point of BPCL.
4. Awareness programs focused on preventing gender-based violence (GBV), Grievance redress mechanism (GRM), Labor Management procedures (LMP), 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:

8. 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.
9. Guidance on water reuse mechanisms, quality control processes, housekeeping practices, and environmental protection standards will be provided by the Factory Manager of BPCL.
10. 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.
11. 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.
12. Awareness programs focused on preventing gender-based violence (GBV), Grievance redress mechanism (GRM), Labor Management procedures (LMP) and implementing response measures will be provided by the gender focal point of BPCL.

13. 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 project manager of CDIP.
14. Capacity development training on occupational health and safety (OHS) by 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.	April - July 2024	USD 500
2. Machine Installation: Provision of PPE and noise measurement during the setup phase.	July, 2024	USD 400
3. Grievance Redress Mechanism, Stakeholder engagement, technical expert, all kinds of monitoring activities, and site visit expenses	April 2024 - July 2024	USD 250
4. Construction wastewater management, sedimentation tank, and drainage channel maintenance, Mosquito repellent.	April 2024 - July 2024	USD 500
5. Community consultation, awareness session, GRM, LMP and Health Camp	Up to the end of July 2024	USD 250

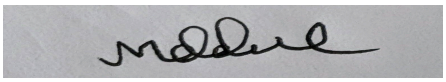
Operational Phase		
Mitigation Measure	**Implementation Timeline**	**Estimated Cost (USD)**
1. Wastewater Treatment and Analysis: Ongoing treatment and quality analysis of wastewater generated from operations	July-September 2024	USD 1500

2. 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.	August, 2024	USD 1200
3. Maintenance and support for child care facilities.	September, 2024	USD 700
4. Regular M&E to monitor GRM and LMP	July 2024 - May 2025	USD 500
5. Community consultation, and awareness sessions addressing the misconception about Recycling Business unit	October 2024 - May, 2025	USD 600
6. 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

- **Land Agreement**
- **Trade Licence**
- **NOC from Local Govt**
- **Initial Land Survey Report**
- **Vetted Soil Test Report**
- **Vetted Structural Drawing**
- **Vetted Architectural Drawing**
- **Vetted BOQ Feni RBU**
- **BPCL Feni RBU GRM**
- **BPCL Feni RBU LMP**
- **WTP report on Feni RBU**
- **Stakeholder Consultation Report on Feni RBU**
- **Bangladesh Environmental Conservation Rules 2023**

IV. Review & Approval

Shared By:  Engr. Aminul Islam Sohan Position: Project Manager, Bangladesh Petrochemical Company Ltd (BPCL) Date: 30/11/2024	
 **Reviewed By**: Md. Obidul Islam Position: Project Manager Date: 02/12/2024	 **Approved By**: Position: Environment and Social Development Specialist -PIU-SACEP Date: 21.01.2025