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 - SHIDDHIRGANJ

GRANTEE: BANGLADESH PETROCHEMICAL COMPANY LIMITED - BANGLADESH

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

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

1. Subproject Information

Subproject Title:	Formalization of Plastic Recycling Value Chain by forming a Recycling Business Unit in Shiddhirganj
Estimated Cost:	USD1,322,000
Start/Completion Date:	01 September 2023 - 31 December 2024

2. Site/Location Description

The "Formalization of the Plastic Recycling Value Chain" project, implemented by Bangladesh Petrochemical Company Limited (BPCL), is a key initiative under the PLEASE Project. It is supported by the South Asia Co-operative Environment Programme (SACEP), the World Bank, and implemented with assistance from UNOPS. The project aims to develop an efficient and inclusive plastic recycling system in Bangladesh by addressing gaps in the recycling process and promoting sustainable practices. A significant component of the project is the establishment of a Recycling Business Unit (RBU) in Shiddhirganj, which will serve as a model for formalizing the plastic recycling value chain, creating economic opportunities, reducing environmental pollution, and enhancing the overall recycling capacity in Bangladesh.

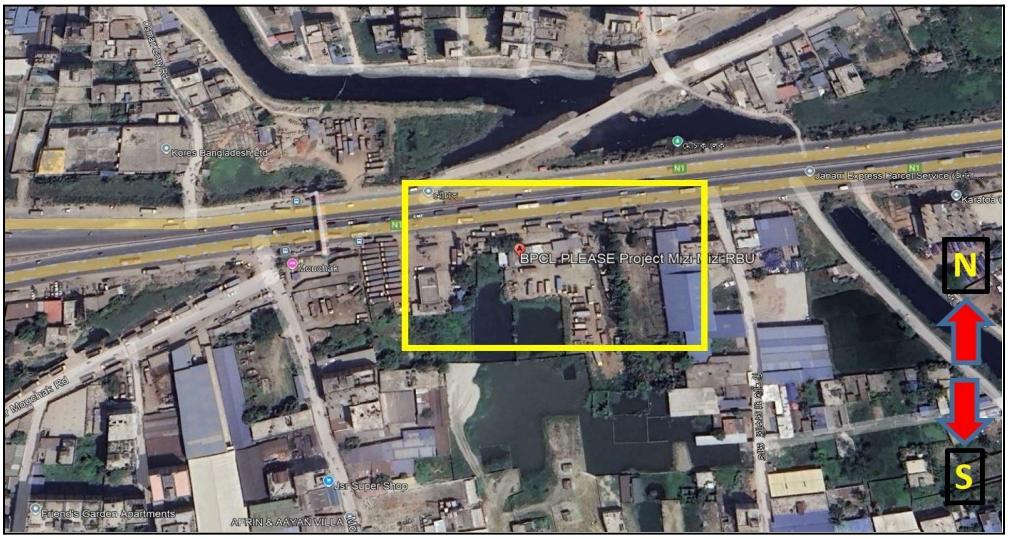
The proposed site for the Recycling Business Unit (RBU) is situated in the Khodder Ghosh Para area of Mizimizi, Shiddhirganj Upazila, Narayanganj District, at geographic coordinates 23°41'43"N 90°29'47"E. The site is just beside a 14.6-meter-wide road, including four lanes of the Dhaka-Chattagram National Highway, providing good access to the RBU. Additionally, the main factory of Bangladesh Petrochemical Company Ltd. is located just 17 kilometers north of the site.

The proposed site spans approximately 957 square meters and is surrounded by a mix of residential and commercial areas. The Shitalokkha River, a significant waterway, flows 2.6 kilometers east of the site, with numerous sub-river canals within 150 meters of the RBU to the north and east. A lowland water body is located just behind the proposed site to the south. A petrol pump is situated to the west, and a truck fabrication workshop is adjacent to the RBU to the east. No agricultural land was found in the vicinity. Several households are within a 500-meter radius of the proposed RBU.

Narayanganj experiences a tropical climate, with an annual average temperature of approximately 28.65°C (83.57°F). The area receives around 846 mm (33.3 inches) of precipitation annually, with May being the wettest month and an average monthly rainfall of 70.51 mm (2.78 inches). Humidity averages 67% annually, peaking at 81.74% during July and August. The region enjoys an average of 10.86 hours of sunshine per day, with May offering the most sunlight.

The site has been filled with sand, with no existing infrastructure or electricity connection, as it was previously used for truck storage purposes. Vegetation near the proposed RBU includes Morning Glory

(*Ipomoea carnea*) and Napier grass (*Pennisetum purpureum*). These plants are not under any special conservation status, and no unique habitats or ecologically significant species are present on the site.



(Refer to Link for detailed information on Narayanganj, 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 the area and compacting sand using water and a compactor, followed by earth cutting to a depth of 3 feet for the foundation and grade beam, covering an area of 7,889 square feet.
2. Installing a submersible pump to provide water for construction, operational activities, and drinking purposes.
3. Constructing the main recycling shed (1250 square feet), an office and childcare setup (192 square feet), and a two-chamber toilet (42 square feet) with a septic tank.
4. Installing the required machinery, including a conveyor bales system, a label remover, and two baling machines.
5. Setting up a 500KVA-400KW electrical system to power the machinery, along with plumbing for necessary pipes, fittings, and fixtures.

Operational Phase:

1. Waste Plastic Receiving and Sorting: PET and non-PET plastics, excluding pesticide and medical plastic waste, are received from informal waste pickers and scrap dealers. The materials are

initially sorted into PET and non-PET categories, followed by color sorting. Non-PET plastics are further categorized, enhancing their value and sold to local buyers.

2. Label Removal and Baling: The sorted plastics are fed into a label remover to separate non-recyclable wrappers. The plastics are then shredded or hydraulically pressed into bales weighing 80-100 kg to reduce their volume.
3. Packing and Transportation: The PET flakes or compressed bales are packed and loaded onto transport vehicles and sent to BPCL's main factory for final processing into high-quality, food-grade PET resin in compliance with ISO 9001 standards, USFDA and EFSA.
4. Management of Removed Wrappers: Non-recyclable wrappers are stored in sealed packets and sold to buyers capable of recycling single-use polyethylene.

The resource requirements for the Recycling Business Unit include water and electricity, which are essential for its daily operations. An estimated maximum of 0.5 m^3 of water is required each day for various activities such as sanitation, drinking, handwashing, and watering plants. Electricity consumption for processing PET plastics, including label removal, baling, and security lighting, is approximately 25 kWh per ton of PET processed. Waste generation is expected to be around 1-5% of the total input material, consisting primarily of non-recyclable wrappers, plastics, and dirt.

The plot selected for the project, currently owned by Mr. tabith Awal, has been leased to Bangladesh Petrochemical Company Limited (BPCL) for a five-year term, from July 1, 2024, to June 3, 2029. The land lease agreement has been finalized, and all legal documentation is complete.

During the construction phase, approximately 30 workers will be employed, with no workers' camp required as they will commute daily from nearby areas. For the operational phase, 15 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.

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

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	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
Soil erosion and disturbance due to earth excavation, compaction, and surface runoff from construction work	I) Implement silt fences or erosion control barriers around the site to prevent soil displacement. II) Stabilize disturbed areas promptly using compaction or temporary coverings. III) Create drainage channels to manage surface runoff effectively and prevent soil washing. IV) Plant native or fast-growing trees around the site to enhance soil stability and reduce erosion	At the site throughout the construction period for 3 months.	Engineer in charge from BPCL and implementing partner- Centre for Development Innovation and Practices (CDIP)	Silt fence condition with sedimentation accumulation rate. Drainage Efficiency. The growth of the 50 planted native trees, along with their survival rate. 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 80

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
Air pollution results from dust emissions caused by land clearing, earthworks, excavation, material handling, and vehicle movement on unpaved surfaces. Without adequate controls, these activities can significantly degrade air quality, potentially posing respiratory health risks to workers and nearby communities.	I) Dust in surrounding areas will be controlled by water spraying as needed. II) Appropriate safety gear (PPE) will be provided to protect workers involved in construction work. III) Regular maintenance of all machinery will be conducted to minimize emissions and ensure efficient operation. IV) Loose materials in stockpiles will be covered to prevent them from being carried away by wind.	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.	Site Engineer in Charge and contractor	Availability of Dust Levels and Water Sprinkling logs PPE compliance records for workers across all activities. Machinery maintenance logs, emission reduction records, efficiency reports, and downtime logs. Stockpile coverage records and frequency. Availability of complaint box and actions taken in response to complaints.	Monthly site visits will be conducted, accompanied by photo documentation as evidence.	Environmental Expert - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 80

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
Noise and vibration pollution arise from heavy machinery operation and construction activities. Prolonged exposure without mitigation can cause discomfort, stress, or hearing issues for workers and disturb nearby residents.	I) Construction activities will be restricted to daytime hours to minimize disturbances to the surrounding community. II) Noise levels at the site boundary will be maintained below 60dB(A) during the day, in accordance with the Bangladesh Noise Pollution (Control) Rules 2006. III) Low-noise equipment will be selected and utilized to reduce noise emissions. IV) Regular noise level monitoring will be conducted on-site to ensure compliance with	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.	Site Engineer in Charge and contractor	Record of timing for construction activities. Availability and functionality of noise measuring devices. Noise monitoring records. Terms of Reference (ToR) for procuring low-noise equipment. Wearing of PPE during work. Availability of low-noise equipment at the site. Number of complaints	Monthly site visits will be conducted, accompanied by photo documentation as evidence.	Environmental Expert - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 150

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	noise control measures. V) Appropriate safety gear, especially noise-cancelling headsets, will be provided to protect workers from hearing damage.			submitted through the Grievance Redress Mechanism (GRM) that have been addressed in a timely manner			
Soil and water contamination arises from improper wastewater management during construction activities, leading to environmental degradation and creating favorable conditions for mosquito breeding, which	I) Construction wastewater will be directed to a dedicated sedimentation pit to prevent soil and water contamination. II) The sedimentation pit and surrounding areas will be cleaned daily to remove potential mosquito breeding sites. III) Drainage channels will be maintained to ensure proper water flow and prevent stagnation.	On-site, specifically around the sedimentation pit and water channels, throughout the entire construction period (3 months).	Site Engineer in Charge and contractor	Physical observation records Sedimentation pit is available and waste water is directed to the pit The surroundings of the Sedimentation pit are neat and clean Smooth water flow in the drainage channel	Daily process inspections Monthly site visit	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	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
can pose health risks to workers and nearby communities.	IV) Mosquito repellents and larvicides will be applied to stagnant water areas as needed. V) A proper slope will be maintained in the drain to make sure a free gravitational water flow in the drain VI) Monthly cleaning of accumulated sludge from the drain			Evidence for the application of mosquito repellent Monthly drain cleaning records Physical observation of drainage sedimentation and water flow			
The risk of physical injury and psychological stress arises from unsafe working conditions during construction, electrical wiring, and machinery	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.	On-site during construction (3 Months).	Site Engineer in charge and Contractor	Percentage of workers wearing PPE during construction activities. Availability of First Aid box, Accident register.	Daily records indicating the discussed and site examination records. Monthly Site visit by the country team	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	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
setup. Without proper safety measures, these risks can lead to accidents, injuries, and mental health challenges for workers, affecting their well-being and productivity.	II. Implement strict safety protocols for all electrical wiring activities. III. Ensure accessible first aid kits are available on-site. IV. Offer adequate, well-ventilated workspaces, clean eating areas, and separate sleeping areas (if necessary) for workers' comfort and well-being.			Daily inspection and cleaning records of water-accumulated areas	and photo evidence. Photos/ physical checking		
The spread of communicable diseases and overall health deterioration among workers is caused by inadequate hygiene and	I. Provide well-maintained sanitation facilities, including hand washing stations, to ensure cleanliness and hygiene.	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 and observation during the site visit	Project Manager and MEL Manager- BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 75

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
sanitation facilities, leading to reduced morale and negative social and health outcomes.	II. Ensure a continuous supply of clean drinking water for workers.						
Psychological, physical, and social risks arise from incidents of sexual exploitation and abuse (SEA) and sexual harassment (SH), leading to mental distress, physical harm, and workplace disharmony.	I) Appoint a PSEA Focal Point at the site. II) Provide awareness training on recognizing, and preventing SEA/SH for a) Project workers, and b) affected communities III) Provide training on the GRM, including for SEA/SH-related grievances to a) Project workers, and b) affected communities IV) Request all Project workers to sign a Code of Conduct (CoC) including	Training and awareness will be conducted before the commencement of work Implementation of Gender Focal Points and singing of CoC at the site during the construction period	Site Engineer in charge from BPCL and Construction Contractor. A female volunteer from CDIP will act as BPCL's Gender and PSEA focal point on site. Gender and PSEA focal Point of BPCL	Number of training sessions provided to workers. Number of awareness sessions provided to communities. Number of training sessions on GRM provided to communities. Percentage of workers who have signed the Code of Conduct (CoC).	Monthly site visit	Project Manager and MEL Manager- BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 150

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	instructions for SEA/SH prevention Provide specific SEA/SH response mechanism as part of the Project GRM, including referral to SEA/SH services			Number of SEA/SH Focal Points appointed. Availability of complaint box and actions taken in response to complaints			
Potential health issues arise from the influx of 26 labor, which can increase the risk of spreading communicable diseases and place additional pressure on local health resources.	I. Conduct awareness sessions on communicable diseases for all workers. II. Set up on-site first aid stations and ensure access to medical assistance for workers.	On-site throughout the three-month construction period.	Site Engineer in charge and Contractor	Records of meetings and awareness sessions. First aid kit maintenance logs	Monthly site visit	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	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
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 Construction Contractor	Percentage of construction companies whose capacity has been assessed. Number of toolbox talks conducted	Monthly monitoring	Project Manager and MEL Manager- BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 75
Lack of a Grievance Redress Mechanism (GRM)	I. Create awareness of the Project GRM and its reporting channels, implemented by the SACEP PIU II. A complaint box and the contact number of both construction contractors and the BPCL site engineer will be visibly displayed on-site. Workers will have the option to raise concerns anonymously, either by	Sub-Project Location/Throughout the operational period SEA/SH referral service mapping to be conducted prior to the commencement of works Linkages to Project GRM established prior to works	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	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	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	phone or through the complaint box. III. Ensure that the contact details of the SEA/SH Focal Point are placed on notice boards in the project location IV. Ensure that complaints received through the complaint boxes at the site are handled appropriately or transferred to the Project GRM V. Ensure that complaints received through additional complaint boxes or the SEA/SH Focal Point in relation to SEA/SH are handled with strict confidentiality and in a survivor-centered manner.			Availability of a map of local SEA/SH service providers			

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	VI. Establish a map of local SEA/SH service providers and ensure every case reported is provided with referrals if the survivor wishes that.						
Lack of compliance with labor laws and labor management procedures	I) Construction laborers will be trained and made aware of the (GRM). A complaint box and the contact numbers of both construction contractors and the BPCL site engineer will be visibly displayed on-site. II) Workers will have the option to raise concerns anonymously either by phone or through the complaint box III) Development and implementation of a code of conduct in line	On site throughout the construction	Site Engineer in charge and Construction Contractor	Number of workers' grievances filed. Availability and implementation of the Code of Conduct. Payroll records. 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	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	with national labor laws and ESF of the PLEASE Project III) Wages will be paid in accordance with national laws						
Risk of child labor	I. Comply with the minimum age requirements of the Project (in compliance with national laws and ESS2) and document the age of workers upon hiring II. Verify the age of workers with communities where required III. Conduct a track record search of the contractors at the bidding process (record	At the site, throughout construction	Site Engineer in charge and Contractor	Number of workers' grievances filed Number of track record searches conducted	Monthly Monitoring	Project Manager and MEL Manager- BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 75

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	of health and safety violations, fines, consult public documents related to workers' rights violations, GBV/SEA/SH issues etc.)						
Risk of forced labor	I) Establish a confidential and accessible Grievance Redress Mechanism (GRM) for workers to report issues. II) Raise awareness in communities	Throughout 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
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)	Prior to the commencement of works	Site Engineer in charge and Construction Contractor	Availability of stakeholder mapping. Number of project information dissemination events.	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	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	II) Define information dissemination channels for the identified stakeholders and provide sub-project-related information III) Define consultation channels of the mapped stakeholders and conduct consultations with all stakeholders including on environmental and social risks and mitigation measures			Number of consultations with identified stakeholders. Number of consultations with members of identified vulnerable groups.			

4.2 Operational Phase

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & 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	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. II. Routinely monitor and test treated wastewater before discharge to confirm it complies with environmental standards, with additional precautions taken during rainy	These measures will be implemented on-site with continuous monitoring and testing of treated wastewater throughout the operation phase to ensure compliance with environmental standards (ECR-2023) and protection of the canal ecosystem.	Hub Manager, BPCL	WTP operational records. Water quality testing report for the following parameters: pH, DO (Dissolved Oxygen), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), and TDS (Total Dissolved Solids). Physical observation record of no blockage and free flow of water	Analytical reports of treated water once in 3 month	Environmental Expert - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 1500

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
water quality.	seasons to avoid accidental runoff into the canal. III. Capture microplastics during the treatment process and securely store them in sealed containers to prevent 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						

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	spillage or overflow into						
Depletion of groundwater resources due to water use in the operation of the washing line, wastewater treatment plant (WTP), and sanitation facilities.	I. Implement a water reuse system that recycles treated wastewater from the WTP back into the washing line to significantly reduce the need for groundwater extraction.	On-site, with continuous reuse of treated wastewater in the washing line throughout the operational phase.	Hub Manager, BPCL	Amount of water reused	Report of total water consumption vs reused water	Environmental Expert - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 1200
Noise pollution results from machine operations during label removal and baling, causing discomfort, stress, and hearing problems for workers and disturbance to	I. Specify low-noise emission standards as a requirement in the procurement and bidding process for machinery to limit noise generation at the source. II. Regular monitoring of Noise levels to ensure compliance with noise control measures.	On-site during facility operations and throughout the machinery procurement process, Ongoing measures applied during machine operations.	Hub Manager, BPCL	Availability of reports and complaint register. Satisfactory noise levels at the RBU and its periphery area. Compliance with proper PPE usage by workers. Application of the Grievance Redress	Examination of Documents/reports/complaints Noise measurement report	Environmental Expert - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 500

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
nearby communities.	III. Maintain noise levels at the site boundary below 75dB(A) during daytime hours, in accordance with the Bangladesh Noise Pollution (Control) Rules 2006. IV. Provide personal protective equipment (PPE), including earplugs and noise-canceling earmuffs, for workers exposed to elevated noise levels. V. Create awareness of the Project GRM and its reporting channels			Mechanism (GRM) to record and address noise-related complaints			
Health risks arise from indoor air pollution and odor during plastic processing	I. Assess the adequacy of the existing natural ventilation system to ensure sufficient air circulation during	On-site, continuously during facility operation.	Hub Manager, BPCL	Operational status of exhaust fans. Compliance with PPE usage by workers.	Examination of Documents/reports/complaints Health report in	Project Manager and MEL manager - BPCL Technical Expert	USD 175

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
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activities, such as label removal, and baling, potentially causing respiratory issues and discomfort for workers.	processing activities. II. If natural ventilation is insufficient, install additional mechanical ventilation systems as needed to maintain air quality. III. Provide workers with appropriate personal protective equipment (PPE), such as masks and respirators, to reduce exposure to airborne pollutants.			Tracking and resolution of air quality complaints via the GRM	focus on respiratory issues Monthly on-site visits and observation	- environment UNOPS PLEASE project - Bangladesh	
Physical, mental, and hygienic risks arise from inadequate occupational health, safety, and hygiene measures during	I. Provide essential PPE and prepare safety guidelines, accompanied by daily safety briefings for all workers. II. Conduct regular medical check-ups for	At the Recycling Business Unit, with daily implementation and continuous availability throughout operational activities.	Hub Manager, Gender Focal point from BPCL, and Project Manager of CDIP	Percentage of workers wearing appropriate PPE. Monitoring health status through health cards. Availability of first aid	Monthly site visits including physical inspection and record checking as well as consultation with workers	Project Manager and MEL manager - BPCL Technical Expert - environment UNOPS PLEASE project -	USD 250

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
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operations, including sorting, baling, loading, and unloading, potentially leading to injuries, stress, and poor worker well-being.	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. V. Deliver safety and safeguard protocol training to all employees. VI. Implement an accident reporting mechanism to ensure prompt response and management of			kits with proper inventory. Number of workers trained on fire safety and safeguarding protocols. Presence of signboards displaying emergency phone numbers and precautionary messages at the workplace. Availability of an accident register in the RBU. Separate sanitation facilities, including handwashing stations, for male and female workers.		Bangladesh	

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		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	incidents. VII. Maintain clean and sanitary facilities, including separate washing areas for male and female workers, along with continuous access to safe drinking water.			Availability of first aid boxes and updated inventories			
Reduced workforce participation arises from the lack of adequate childcare support, causing increased absenteeism and stress among women workers with children, ultimately affecting	I. Establish a safe, hygienic childcare center within the business unit to provide dedicated support for workers with young children. II. Employ trained and certified childcare professionals to manage and supervise the facility. III. Equip the childcare center with essential	The Recycling Business Unit (RBU), in a designated area separate from the processing unit, with daily operations and support for workers.	Hub Manager, Child care attendant, CDIP	Child care log book and physical observation	Report checking once in three months	Project Manager and MEL manager - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
productivity and well-being.	resources, including safe drinking water and educational materials, to promote the well-being and development of the children.						
The possibility of social challenges arises from an influx of 13 labor, potentially leading to increased pressure on local resources, community tensions, and cultural conflicts.	I. Organize regular worker meetings and awareness sessions focused on communicable disease prevention and health practices. II. Provide education and training on preventing and responding to gender-based violence (GBV). III. Develop a gender action plan and appoint a safeguarding focal point to address and	At the Recycling Business Unit (RBU), with ongoing implementation throughout the operational period.	Hub Manager, Gender focal point, CDIP	Availability of meeting and training records, Records on gender awareness, Selection criteria for recruitment	Monthly visit and review the documents	MEL manager - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 250

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	prevent sexual exploitation (SE) and gender-based violence. IV. Prioritize hiring from the local community to reduce social disruption and foster local engagement.						
Gender discrimination arises from unequal employment opportunities and wage disparities, leading to reduced workplace equity, dissatisfaction, and lower morale among affected workers.	I. Develop and enforce non-discriminatory guidelines for recruitment processes and operational practices, ensuring equal treatment across all worker levels. II. Implement policies for equal pay, ensuring that male and female employees receive the same wages for equivalent roles and responsibilities.	At the Recycling Business Unit (RBU), with ongoing application throughout all employment practices and operations.	Hub Manager, Gender Focal Point and CDIP	Availability of safeguarding policy and its implementation. Number of workers who received nondiscriminatory orientation. Wage disbursement report for RBU workers. Availability of a complaint box.	Regular monitoring	MEL manager - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	III. Establish a confidential complaint box to enable workers to report gender-related concerns safely and anonymously.						
Waste generation arises from non-recyclable plastics, such as labels and wrappers, which, if not properly managed, can result in environmental pollution and health risks to nearby communities.	I) Store non-recyclable waste in sealed packets to prevent environmental contamination. II)Ensure proper waste storage and disposal to minimize environmental impacts. III) Sell stored waste to authorized recyclers.	Conduct bi-weekly inspections of storage conditions at RBU	Hub Manager	Waste storage conditions Amount of waste stored Disposal receipts from recyclers	Monthly visits, physical observation, and report checking	Project Manager and Environmental Expert - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 100
Risks of Sexual exploitation and abuse (SEA) and sexual	I. Provide a workers' grievance redress mechanism (Workers' GRM), incorporating	Throughout operation	Hub Manager, Gender focal point and project	Availability of workers' GRM and SEA/SH Focal Points.	Monthly monitoring	MEL manager - BPCL Technical Expert	USD 150

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
harassment (SH) among workers and between workers and community members at the facility	SEA/SH Focal Points for both genders and an effective referral mechanism II. Provide an anonymous reporting system along with protection measures for individuals who report III. Provide referrals to SEA/SH service providers as required IV. Provide training on recognizing, preventing, and responding to SEA/SH for workers and communities V. Prepare a Code of Conduct for workers at		manager of CDIP	Availability of reporting system. Availability of a 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		- environment UNOPS PLEASE project - Bangladesh	

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	the facility that includes reference to SEA/SH VI. 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 investigated promptly, with resolutions to	On site throughout operation	Hub Manager, MEL manager of BPCL, and project manager of CDIP, Gender and PSEA focal Point of BPCL	A number of workers' grievances filed. Availability and implementation of code of conduct. Payrolls Site visit and reviewing received complaints.	Monthly monitoring	Project Manager and MEL manager - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 75

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

Anticipated E&S Risks and Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & Monitoring cost
		Location/ Timing/ Frequency	Responsibility	Aspects / Parameters to be monitored	Methodology including Location & Frequency	Responsibility	
	II. Raise awareness in communities		manager of CDIP			Technical Expert - environment UNOPS PLEASE project - Bangladesh	
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 to male and female	Throughout the operations	Hub Manager, Gender Focal point and project manager of CDIP	Availability of HR Policy Grievance Redress Mechanism	Monthly monitoring	MEL manager - BPCL Technical Expert - environment UNOPS PLEASE project - Bangladesh	USD 125

5. Capacity Development & Training

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

Construction Phase:

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

Operational Phase:

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

6. Implementation Schedule and Cost Estimates

Construction Phase		
Mitigation Measure	**Implementation Timeline**	**Estimated Cost (USD)**
1. Mitigation Measures *(Construction Stage)*: Includes noise testing, PPE provision, first aid kit facilities, social and sanitation facilities, and tree planting to mitigate construction impacts.	September- December 2024	USD 300
2. Machine Installation: Provision of PPE and noise measurement during the setup phase.	December, 2024	USD 500
3. Grievance Redress Mechanism, Stakeholder engagement, technical expert, all kinds of monitoring activities, and site visit expenses	September- December 2024	USD 375
4. Construction wastewater management, sedimentation tank, and drainage channel maintenance, Mosquito repellent.	September- December 2024	USD 405
5. Community consultation, awareness sessions and Health Camp	Up to the end of December 2024	USD 355
Operational Phase		
Mitigation Measure	**Implementation Timeline**	**Estimated Cost (USD)**
1. Wastewater Treatment and Analysis: Ongoing treatment and quality analysis of wastewater generated from operations	January-March, 2025	USD 1500
1. Facility Operation and Management: Controls for noise and vibration, Water reuse systems, Ventilation systems, waste management and disposal, fire extinguishers, first aid kits, emergency control measures, sign boards, social and gender-related initiatives, and PPE.	January, 2024	USD 1200

2. Maintenance and support for childcare facilities.	January, 2024	USD 700
3. Regular M&E to monitor GRM	January 2025 - May, 2025	USD 500
4. Community consultation, and awareness sessions addressing the misconception about Recycling Business unit	January 2025 - May, 2025	USD 600
5. Capacity Development and Training: Completion of training sessions and programs for employees covering all operational, health, safety, gender discrimination and environmental standards.	Up to end of May 2025	USD 350

7. Attachments

- Land Agreement Shiddhirganj.pdf
- Trade licence.pdf
- Shiddhirganj Land Survey Report.docx
- LMP for Siddhirganj RBU
- GRM for Siddhirganj RBU
- BOQ for Siddhirganj RBU
- Architectural drawing for Siddhirganj RBU
- Structural Drawing Siddhirganj RBU
- Soil Test Report Siddhirganj RBU
- Stakeholder Consultation on Siddhirganj RBU
- WTP report on Siddhirganj RBU
- Environmental Conservational rules 2023

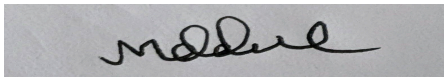
IV. Review & Approval

Shared By: Taufir Seam

Taufir Ahmed Seam

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

Date: 30/11/2024



Reviewed By: Md. Obidul Islam

Position: Project Manager

Date: 02/12/2024

Approved By: Kapila Rajapaksha

Position: Environment and Social Development Specialist PIU-SACEP

Date : 21/01/2025