

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

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN  
OF PET RECYCLING FACILITY  
AT BHARATPUR

GRANTEE : CREASION - NEPAL

# Environmental and Social Management Plan (ESMP)

## Collaborative Approach for Preventing Plastic Leakages in Rivers - By CREASION

### 1. Subproject Information

<b>Subproject Title:</b>	Construction of PET Recycling Facility (PRF)
<b>Estimated Cost:</b>	USD 814,265.00
<b>Start/Completion Date:</b>	1 <sup>st</sup> Feb 2024 / 31 <sup>st</sup> Jan 2025

### 2. Site/Location Description

The proposed PRF is in Bharatpur Metropolitan City, Ward No. 04, in the Chitwan District of Bagmati Province (Annex 1). The facility is conveniently located 5 kilometers (km) from Bharatpur Airport and 3.15 kilometers away from East-West highway in Chitwan. Similarly, it is 500m away from the Narayani Riverbank. The geographical coordinates for the facility are 27.673722° North latitude and 84.377869° East longitude. It is situated in the Dune Valley, within the alluvial flood plains of Inner Terai, and features alluvial soil.

The facility is surrounded by the uncultivated agricultural land and has the minimum level of air and noise pollution which is under the National Standards with P.M10 98.5µg/m<sup>3</sup>, PM2.5 29.9µg/m<sup>3</sup> and 42.1dBA (Annex 2). The proposed project location is well facilitated with road access, drinking water facilities, educational institutes, health and other facilities like transportation, markets and recreation centers. The location is situated in the subtropical climate zone and with a maximum temperature of 40 Degree Celsius during summer and minimum of 4 Degree Celsius during winter. It has the record of average annual rainfall of 1550 millimeter (mm). The project location is dominated by the Hindu and Chettri community followed by other ethnicities like Gurung, Magar, Tharu and Kumal.

The project area is outside the National Park or the Buffer Zone area of any protected area of the country and it does not contain any significant forest zone. The existing vegetation types of the project area are tropical and subtropical forest. Most of the tree species recorded during the field visit near the project area are Gum Trees (*Eucalyptus globulus*), Simal (*Bombax ceiba*), Mango (*Mangifera indica*), Sissoo (*Dalbergia sissoo*), Guava (*Psidium guajava*) etc. Similarly, other than the domestic animal, the project location area is also the home of the avian and reptile species etc.

### 3. Subproject Description and Activities

The key activity of the PRF is to recycle Polyethylene Terephthalate (PET) plastics commonly found in beverage bottles, food containers, and packaging materials. The primary purpose of the PRF is to collect, sort, clean, and process PET plastics into reusable materials, thereby reducing the amount of plastic waste that ends up in landfills or pollutes the environment. The proposed PRF aims to produce 3000 MT of PET granules annually. Also, the project aims to recycle colored PETs to produce straps as packaging material. This facility conserves natural resources and reduces energy consumption and

minimizes pollution associated with producing new plastic materials. The key Features of the project are provided in Annex 3.

**The key activity of the PRF is listed below:**

**A) Construction Phase**

1. Land leasing

The land leasing process will encompass site selection and finalization. Once the PRF site is finalized, all necessary documentation, including land leasing agreements and approvals from municipalities and relevant authorities, will be completed. During this phase, the project CAP team will conduct a screening and baseline survey to assess the ambient environment of the selected PRF site.

2. Fencing

After completing all the legal documentation, the selected PRF site will be fenced, and boundaries will be established to prevent intrusion by external factors. This measure will help the project and construction teams work within a defined area, reducing the likelihood of unexpected and unwanted conflicts with the local community and construction workers.

3. Building Construction

During the PRF building's construction, four main activities will take place: foundation laying, wall construction, roofing, and flooring. This process includes the construction of the main PRF building and staff quarters.

4. Electric wiring / plumbing and sanitaryware fitting / finishing/ Painting and coloring

After the construction of the staff quarters and PRF building, the remaining finishing tasks will be conducted by the construction workers under the guidance of the contractors. These tasks include electrical wiring, plumbing, sanitaryware installation, and painting and coloring the buildings. This step is the final and crucial phase in the construction of the PRF site.

5. Gardening and tree plantation

After completing all construction work, gardening and planting native plants and flowers will maintain the greenery of the PRF site. These measures will help reduce air and noise pollution at the PRF site. The gardening and tree plantation will be carried out according to the prepared ESMP documents.

**B) Operation Phase**

1. Machineries import and fitting

At the start of PRF operations, all the required machinery will be imported and installed at the site. Some of the required machinery for the PRF includes PET Wash Line, PET extruder and PET Strap Machine. A pre-trial of the machinery will be conducted to minimize any occupational hazards.

2. Raw materials import and storage

The import and storage of raw materials are crucial during the operational phase of the PRF, as they impact all outcomes of the site. Importing PET bottles and storing them properly to minimize occupational hazards is essential during this phase. In this phase recording and the verification of all the important raw materials to set the target of deliverables from the PRF.

3. Operation of the factory and Production of PET granules

The implementation and operation of the PRF results in PET granules production. This phase includes removing the labels, crushing of the PET bottles, washing and production of PET granules. The crushing includes transforming the PET bottles into smaller flakes to reduce the volume of the bottles

which makes it easier for handling and processing. After the crushing of PET bottles into small pieces, washing will be done to remove the residues from the PET bottles. Washing of PET flakes will ensure the PET granules free from the dirt, food remnants and other impurities. Those washed small flakes of PET granules then melted and reform into small, unified granules. It also involves market analysis and verification of the produced PET granules, followed by supplying them to relevant polymer companies as raw materials. These PET granules will serve as raw materials for other plastic companies, adding value and providing an income source for the waste workers involved.

#### **Generation of Waste**

The production of PET granules will also generate waste. Emissions and noise from the machinery, waste from raw materials, and wastewater from the washing process will contribute to this waste generation.

- I) Solid waste sources: Raw material segregation, grinding and damage end products, office wastes
- II) Waste water sources: Wash line, storm water, sewerage,
- III) Air pollution sources: Loading and unloading by transporting trucks, vehicles, diesel generators grinding of PET

#### **Market Supply**

After the production of PET granules market supply will be done which will go side by side of the PET granules production.

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

The Environmental and Social Management Plan (ESMP) for the proposed PRF aims to minimize the potential environmental and social risk due to the project. At the same time, it also tries to address environmental sustainability and community development through enhanced waste management and economic opportunities. In Table 1 and 2 of the ESMP, it lists all the potential site specific adverse environmental and social risk and its impact and the parallel mitigation measures to be implemented in both construction and operation phase. The identified risk is under the Environmental and Social Standards 1-10 given by the World Bank. The pre-identified this risk will ensure the project efficiency and outcomes.

Table 1: ESMP for the construction Phase<sup>1</sup>

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
Acquisition of applicable permits and licenses (urban development permit)	I) Submission of complete requirements for the processing company registration, land agreements, Municipal Approval, Public hearing minutes, IEE II) Field visit by the municipal authority III) Project introduction and details to Department of Industry	Project Location/Before construction begins	Focal Person/Creasion	Compliance to conditions of applicable public hearing minutes, municipal approval documents, meeting minutes of local authorities, IEE approval [08] permits and licenses	Monitoring method: Provision of compliance matrix Monitoring period: Prior to start of construction activities	ES Officer Creasion/ UNOPS Country Team	15,000.00 *Included in Project Cost
Loss of vegetation cover and vegetative soil due to land clearance and preparation	Green belt will be developed I) 700 native plants will be planted after the completion of construction work II) Establishment of garden	Project Location/After Construction period,	Environmental Safeguarding Officer	number of native plants planted, Survey reports	Monitoring method: Direct Observation/site visits Monitoring Period: Monthly	ES Officer Creasion/ UNOPS Country Team	1000.00 *Included in the construction cost
Vehicular traffic congestion and hindrance to public access due to loaded-vehicular movement like material loaded trucks and trippers	The PRF is stationed 1 km meters from the national highway, and 100 m from moderately busy roads which will not impact vehicular movement; Measures Includes: I) Proper traffic signs will be installed in and around the PRF sites to caution highway vehicles to speed down	Project Location/During Material transportation for construction	Contractor/ Environmental Safeguarding Officer	Use and no. of sign boards, Number of vehicular traffic congestion / accidents	Monitoring method: Verification of Transportation Management Plan (TMP), Site visit Monitoring period: Daily	ES Officer Creasion/ UNOPS Country Team	200.00 *Included in the construction cost

<sup>1</sup> All possible means of reducing risk and impacts would be employed

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
	II) Introduction and implementation of Transportation Management Plan (TMP)						
Soil Pollution due to excavation and deposits of mucks, generation of Construction waste, Debris, and mixed spoils like soil, dirt and rubble	<p>I) Precautionary measures will be adopted during the construction such as nets for debris and deposits</p> <p>II) Construction will only take place adhering to the national standards</p> <p>III) Waste stockpiles will be securely placed to prevent wash-off and will be covered with appropriate material</p> <p>IV) Any construction waste and debris generated during the construction will be disposed of in a permitted municipal disposal site.</p> <p>V) Use proper safety gears for the protection workers and their physical health</p>	Project Location/During the construction period when necessary	Environment and Safeguarding Officer/ Infra coordinator	Use of nets/clothes, condition of tools and equipment, Records on accumulation of waste and the disposal, Process inspections	Monitoring method: Direct observation, Site inspection, Record reviewing Monitoring Period: Monthly	ES Officer Creasion/ UNOPS Country Team	600.00  *Included in the construction cost

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
Overuse of local water resources cause the community disputes, pressure on local resources	I) Groundwater boring facility development prior to construction	Project Location/Prior Construction period	Contractor	Water usage records	Monitoring method: Operational Procedures for Construction Management, Monitoring Period:Daily/ Monthly water usage checks (Reviewing records)	ES Officer Creasion/ UNOPS Country Team	500.00 *Included in the construction cost
Air pollution due to dust from:- Excavation and earthworks Loading and unloading of construction materials, Emission from diesel generator, Machineries like dozer, Release of air pollutants and particulate matters and its impacts on the health and safety of the workers and community	I) Precautionary measures will be adopted during the construction such as nets for dust reduction, II) Construction will only take place during the day adhering to the national standards III) The loaded material in the truck will be properly covered with a tarpaulin to minimize dust blowing IV) Dust in the surrounding areas will be controlled through water sprinkling. V) Use proper safety gears like N 95 masks, for the protection of the waste workers	Throughout the construction period when necessary/ Project Location	Environment and Safeguarding Officer	Air quality parameters, Air quality (PM 10; PM 2.5, AQI) Use of PPEs, Implementation of mitigations	Monitoring method: Reviewing Air Quality Monitoring records and site visit , Air Quality Monitoring Device  Monitoring Period: Weekly/monthly /mid-term and end-term of construction	ES Officer Creasion/ UNOPS Country Team	2300.00 *Included in the construction cost

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
	VI) Machines will be maintained in optimal condition to minimize emissions						
Noise and vibrations during construction activities due to excavation activity ,earthworks, welding activities and machinery use lead to public nuisance and health implications for workers	<ul style="list-style-type: none"> <li>I) Use of Noise proof fence, selection of less Noisy Equipment, and vibration prevention, greenery activities</li> <li>II) Use of suitable safety gears, earplugs, PPE</li> <li>III) Assurance of construction work during the daytime</li> <li>IV) Schedule Work to Control Workers' Exposure to Noise</li> </ul>	Project Location/Construction period/Daily	Contractor/ Environment and Safeguarding Officer	Noise Level (dB) monitoring based on National Standards of Nepal 2069 i.e. 65dB for day time and 55dB Night time ,Use of PPE	Monitoring method: Baseline Monitoring Data, Direct Observation in site visit, Decibel Meter  Monitoring method: Daily/Weekly/Monthly	ES Officer Creasion/ UNOPS Country Team	300.00  *Included in the project cost
Hazardous chemicals lead to health implications and damage to the environment	<ul style="list-style-type: none"> <li>I) Designated area for the chemical storage as per the instruction given in MSDS</li> <li>II) Use of appropriate PPEs</li> <li>III) Segregation of solid waste into hazardous, non-hazardous and reusable waste</li> <li>IV) Disposal of the hazardous waste according to authorized method</li> </ul>	Project Location/During and After Construction period/Daily	Contractor/ Environment and Safeguarding Officer	Storage area for solid waste and chemicals, Records of regular disposal	Monitoring method: Visual inspection of storage area, Verification of records Monitoring period: Daily	ES Officer Creasion/ UNOPS Country Team	375.00  *Included in the construction cost



Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
Mitigation on construction waste water lead to sanitation and hygienic concerns to workers and community, foul smell and water contamination	<ul style="list-style-type: none"> <li>I) Segregation of solid waste into hazardous, non-hazardous and reusable waste</li> <li>II) Regular disposal of wastes to the designated landfill in coordination with local bodies;</li> </ul>	Project Location/During and After Construction period/Daily	Contractor/ Environment and Safeguarding Officer	Records of regular disposal of waste, Waste segregation practice	Monitoring method: Visual inspection of waste area Verification of records Monitoring period: Daily	ES Officer Creasion/ UNOPS Country Team	300.00  *Included in the project cost
Theft and vandalism	<ul style="list-style-type: none"> <li>I) Installation of security measures (fences, cameras)</li> </ul>	Project Location/Construction period	Contractor	Security incident reports	Monitoring method: Security logs Monitoring period: Daily	ES Officer Creasion/ UNOPS Country Team	1000.00  *Included in the Project Cost
Community Health and Safety issue due to occurrence of physical hazards, accidents and injuries	<ul style="list-style-type: none"> <li>I) Install barriers and signages</li> <li>II) Provision of security personnel to restrict public access</li> <li>III) Operate construction night light at the vicinity of construction sites</li> <li>IV) Provision of adequate safer passageways for the public crossing the construction sites</li> <li>V) Maintaining Accident Registry</li> <li>VI) Provision of First Aid facility</li> </ul>	Project Location/Construction period	Contractor/ Environment and Safeguarding Officer	Safety control such as signages, lightings, and barriers Health and safety records and accident registry (near miss, first aid, lost time accident) Presence of security personnel	Monitoring method: Visual inspection of site, Reviewing records Monitoring period: Daily	ES Officer Creasion/ UNOPS Country Team	500.00  *Included in the Project Cost

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			Mitigation & monitoring cost
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility	
Complaints Due to Project	<ul style="list-style-type: none"> <li>I) Establish the approved Project's Grievance Redress Mechanism (GRM), actions and implementation measures to GRM</li> <li>II) Publicize the existence of the Project's GRM through campaigns, websites, billboards, etc.</li> <li>III) Ensure that the contact details are placed on notice boards and/or websites</li> </ul>	Project Location/Construction period	Contractor	Number of community complaints	Monitoring method: Reviewing GRM, Complaint log and implementation measures on received complains Monitoring period: Monthly	ES Officer Creasion/ UNOPS Country Team	300.00 *Included in the project cost
Occupational Health and Safety	<ul style="list-style-type: none"> <li>I) Provision of PPE, safety training programs, and group accidental insurance to laborers/employees</li> <li>II) Provision of proper sanitary facilities and safe drinking water</li> <li>III) Safety kits, Emergency Health services, First Aid Kits, Emergency exit doors, and fire extinguishers</li> <li>IV) Provision of workers with adequate and well-ventilated camps, clean eating areas, and separate sleeping</li> <li>V) Separate quarters for male and female workers</li> </ul>	Project Location/Construction period	Contractor/ GESI and Safeguarding Officer	Number of incidents, training records; Verification of health and safety plan and records	Monitoring method: Operational Procedures for Construction Management, Safety audits Monitoring Period: Monthly	ES Officer Creasion/ UNOPS Country Team	300.00 *Included in the construction cost

Table 2: ESMP for the Operation Phase<sup>2</sup>

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
High energy consumption and release of Greenhouse Gases (GHGs) due to use of machineries, electricity use impacts on resource efficiency and use	<ul style="list-style-type: none"> <li>I) Promoting green building initiatives</li> <li>II) Provision of rainwater harvesting</li> <li>III) Provision of daylight-controlled and motion-controlled lighting fixtures</li> <li>IV) Conducting frequent energy audits and conducting measures to optimize the system</li> <li>V) Incorporating good ventilation in the design to reduce the energy consumed by air conditioning system</li> </ul>	Project location, Water tank, electricity dashboard, Monthly energy usage reports	Operation Officer/Environment and Safeguarding Officer	Energy consumption records, Assessment of carbon footprint reduction	Monitoring method: Energy usage reports, Energy audits, and site visits  Monitoring period: Monthly	ES Officer Creasion/ UNOPS Country Team	1000.00  *Included in the project & construction cost
Air pollution due to vehicular movement, gravel roads	<ul style="list-style-type: none"> <li>I) Watering of roads, use of tarps/mesh tarps in vehicles</li> </ul>	Near the project location, Generator, Regularly during construction	Environment and Safeguarding Officer	Air quality measurements	Monitoring method: Air quality measurements, Baseline Air Quality Monitoring Report, Semiannual air quality reports  Monitoring period: Monthly/semi annual	ES Officer Creasion/ UNOPS Country Team	500.00  *Included in the project & construction cost
Emission of pollutants (Machinery emission, generator unit, PET extruders, Strapping machines, ETP, noxious gasses,	<ul style="list-style-type: none"> <li>I) Incorporate specifications in the bidding documents to ensure that machinery used in the PRF factory does not emit noxious gasses, fumes, or vapor</li> <li>II) Mildly generated dust by Shredder and Extruders may affect the pulmonary</li> </ul>	Project location, Inside facility Weekly air quality monitoring (Mobile Device)	Environmental Safeguarding Officer	Emission levels/ Use of mask/workers health checkup records	Monitoring method: Air quality monitoring records, Baseline Air Quality Monitoring Report , Process inspection	ES Officer Creasion/ UNOPS Country Team	1000.00  *Included in the project & construction cost

<sup>2</sup> All possible means of reducing risk and impacts would be employed

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
Fumes and vapor, Foul smell)	health of workers which can be overcome by using N-95 masks III) Proper ventilation channel will be ensured in the PRF site;				Monitoring Period: Daily/Weekly		
Noise from machinery impacts on health of the workers and lead to public nuisance	I) Machineries like Shredder and Extruder will be installed confined in the soundproof chamber II) Use of safety gears, PPE, ear plugs and maintenance of greenery III) Specifying low noise emissions as a requirement for machinery in the bidding process	Generator, Project Locations of Machinery, Daily Noise monitoring	Environmental Safeguarding Officer	Noise Level (dB) Monitoring based on National Standards of Nepal 2069 i.e. 65dB for day time and 55dB Night time	Monitoring period: Daily Monitoring Method: Noise monitoring, Baseline Noise Data	ES Officer Creasion/ UNOPS Country Team	4000.00  *Included in the project & construction cost
Sanitation and related issues due to end waste handling and management, organic and sewage waste from washrooms and management of waste from PRF operation, organic and sewage waste from washrooms	I) Introducing a SOP for waste handling II) Segregation of solid waste into decomposable, recyclable and non-recyclable waste; III) Decomposable waste will be converted into manure and use in PRF gardens IV) Recyclable waste selling to the respective waste workers V) Proper disposal of non-recyclable waste to the municipal landfill sites VI) Liquid waste from the plant will be treated using ETP and after treatment it will be released into the local drainage/sewage system	Project location, different departments of the project,	Factory Manager/ Environmental Safeguarding Officer	Waste handling records, ETP test records	Monitoring method: Reviewing waste handling records, Quarterly Waste audits, Test reports of the ETP Monitoring period: Quarterly	ES Officer Creasion/ UNOPS Country Team	

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
	VII) Regular disposal of non-recyclable wastes to the designated landfill						
Water pollution (Impact on water quality of receiving body of water from discharge of untreated wastewater)	<p>I) Integration of Effluent Treatment Plant (ETP): Treatment process comprises both physical and chemical treatments along with micronutrients. It includes both macro and micro components available in wastewater.</p> <p>II) Use of septic tank for domestic waste or connect to sewer lines</p> <p>III) Incorporate appropriate microplastic filtering mesh into the treatment process if necessary</p>	Project location, water sources, ETP, Monthly water quality tests	Environment and Safeguarding Officer	Effluent quality reports	Monitoring period: Monthly, Monitoring method: Regular inspection of equipment; Analysis of wastewater by accredited 3rd party laboratory; Semiannual water quality tests, Baseline Tests Reports	ES Officer Creasion/ UNOPS Country Team	700.00 *Included in the project Cost
Gender discrimination in job opportunity and wage	<p>I) Compliance of Labour Act 2017 for all workers</p> <p>II) Preparation of Non discriminating guidelines for recruitment process and operations affecting all level of workers</p> <p>III) Equal wages to male and female workers/employee</p> <p>IV) Anonymous reporting mechanism for gender based violence incidence along with protection measures for individuals who report</p> <p>V) Complain box/issue box installation</p> <p>VI) Timely payment on monthly basis</p>	Project Location/Operation Period/ Daily	Operation officer/ Human Resource Officer/ GESI & Safeguarding Officer	Employee records; Complaint box; Anonymous report; Sex ratio or workers involved; Payment sheet	Monitoring method: Contract Agreement, Labor audits, site inception; Verification of sex ratio of the workers; Survey on Pay scale across different genders and ethnicities  Monitoring Period: Daily/Monthly	ES Officer Creasion/ UNOPS Country Team	3000.00 *Included in the project & construction cost

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures		Impact Mitigation		Impact/Mitigation Monitoring		
			Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility
Occupational Health and Safety	I) Implementation of Occupational Health and safety management plan	Project Location, Daily	Environment and Safeguarding Officer/ Infra coordinator / GESI and Safeguarding Officer	Number of incidents, training, Use of PPEs, Use of first aid	Monitoring period: Monthly	ES Officer Creasion/ UNOPS Country Team	2000.00  *Included in the project & construction cost
II) Conducting frequent medical check ups for employees	Monitoring method: Site visit, reviewing records on training, accident registry, medical check ups, First aids , safety audits, review of Emergency evacuation plan,						
III) Provision of PPE, safety training programs, and group accidental insurance to laborers/employees,							
IV) Preparation and implementation of Emergency evacuation plan							
V) Provision of Safety kits, Emergency Health services, First Aid Kits, Emergency Siren, Emergency exit doors, Installation of adequate fire extinguishers and Fire Hydrant							
VI) Provision of waste workers with adequate and well-ventilated camps, clean eating areas, and medical checkups							
VII) Separate quarters for male and female workers							
Sexual Exploitation, Abuse and Harassment	I) Proper safety measures for workers from sexual exploitation, abuse and sexual harassment	Project location / construction period	GESI and Safeguarding Specialist	Number of complaints received	Monitoring method: Site observation, direct interviews and group discussion with women workers	ES Officer Creasion/ UNOPS Country Team	1000.00  *Included in the project & construction cost
II) Availability of a separate washroom, and changing room	Monitoring period: Monthly, Depends on Number of complain						
III) Provision of anonymous reporting mechanism along with protection measures for individuals who report							

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
	IV) Regular trainings and workshops regarding gender-based violence identification and mitigations				received and the measures taken		
Poor working conditions due to insufficient office space, safety gears, pay scale, basic facilities impact on employee morale, productivity, mental health, Hygiene, workers disputes	<ol style="list-style-type: none"> <li>1. Implementation of employee welfare programs like Employees Provident Fund, Allowances</li> <li>2. Regular workshops and trainings to the workers and employee</li> <li>3. Implementation of safer hygienic workplace</li> <li>4. Availability of the food and the services</li> <li>5. Availability of separate rest room and toilets for the male and female workers</li> </ol>	Project location, Bi-annual surveys	Environment and Safeguarding Officer/ Infra coordinator	Employee satisfaction surveys	Bi-annual surveys Standard Operation Procedure	ES Officer Creasion/ UNOPS Country Team	500.00  *Included in project cost
Community Health and Safety	<ol style="list-style-type: none"> <li>I) Operate night light at the vicinity of PRF site</li> <li>II) Availability of security guards</li> <li>III) Installation of Complaint box, availability of the contact number of focal person</li> </ol>	Project Location/Construction period	Operation Officer/GESI and Safeguarding Officer	Monitoring method: Safety control such as signages, lightings, and barriers Health and safety records (near miss, first aid, lost time accident) Presence of security personnel, complain box	Monitoring method: Visual inspection of site Monitoring period: Daily	ES Officer Creasion/ UNOPS Country Team	500.00  *Included in the project & construction cost

Anticipated E&S Risks & Impacts	Risk Mitigation & Management Measures	Impact Mitigation		Impact/Mitigation Monitoring			
		Location/ Timing/ Frequency	Responsibility	Parameter to be monitored	Methodology, including Location & Frequency	Responsibility	Mitigation & monitoring cost
				Monitoring period: Monthly			
Complaints Due to Project	<p>I. Establish the approved Project's Grievance Redress Mechanism (GRM) and actions for the GRM</p> <p>II. Publicize the existence of the Project's GRM through campaigns, websites, billboards, etc.</p> <p>III. Ensure that the contact details are placed on notice boards and/or websites</p>	Project Location/Operational phase	Operation Officer	Number of community complaints	Monitoring method: Grievance Redress Mechanism, Complaint log and implementation Monitoring period: Monthly	ES Officer Creasion/ UNOPS Country Team	375 *Included in the construction cost and project cost



## 5. Capacity Development

CREASION will develop a training, capacity-building, and awareness program for all its employees and contractors to implement project ESMP, and other Safeguard Instruments associated with the ESMP. New employees and contractors will attend mandatory induction sessions covering occupational health and safety, environmental awareness, community engagement, and other relevant topics. This training program will lead to an understanding of the standards to be followed during both construction and operation phase as per the ESMP. Audio Visual Presentations, newsletters and posters, along with verbal communication during routine briefings, will be utilized to raise awareness on various occupational, health, safety, and community-related issues. All the employees and workers will be trained to maintain a safe and sound working environment. This training will be provided to provide all personnel with information about business continuity and emergency response and planning. Also, during the construction phase, emergency exercises related to emergencies such as earthquake, fire, etc. will be planned and implemented. Events such as a work accident, hazardous situation, near-miss in the field will be recorded regularly and the training program will be revised in the light of this information.

CREASION will mandate the orientation and capacity training from the contractor's side for any new employees or the recruitment.

Trainings and awareness session for capacity building will be compromised :

- Induction training on the CAP project and project activities and target audience
- Job-specific expert training (e.g. excavation operators, Machine operations, Safety measures for waste workers)
- Training on PRF ESMP indicators and role identification
- First Aid Trainings
- Training of emergency evacuation plan
- Training on anonymous complaint reporting, Grievance Redress Mechanism (GRM)
- Training on disaster preparedness
- Workshops on Occupational Health and Safety measures like use of PPE, monitoring of air and noise pollution, use of safety gears etc.
- Community workshops/Public hearing/ community meetings
- Awareness on components on Labor Act 2017
- Compliance and regulatory trainings/workshops
- Provide training on recognizing, preventing, and responding to SEA and SH
- Awareness on gender based violence (GBV)

## 6. Implementation Schedule and Cost Estimates

Mitigation measures for potential environmental and social risks, as outlined in ESMP Tables 1 and 2, along with the corresponding mitigation and monitoring costs and schedules.

## 7. Attachments

Annex 1	<u>Map of Project Location, Bharatpur Metropolitan showing the wards and Chitwan National Park</u>
Annex 2	<u>Baseline Air quality and Noise level Report</u>
Annex 3	<u>Key Features of the Project</u>
Annex 4	<u>PRF Factory Land Agreement.pdf</u>
Annex 5	<u>IEE Clearance Document.pdf</u>
Annex 6	<u>Environmental and Social Screening Report.docx</u>
Annex 7	<u>PRF Site Map.dwg</u>
Annex 8	<u>Mitigation Measures Implementation Timeline and Cost Estimates</u>

### Annex 07:

#### IV. Review & Approval

<b>Prepared By:</b> Ujjwal Upadhya and Lila Paudel (Signature) Position: Team Leader / Environment and Safeguarding Officer Date: August 22, 2024	
<b>Reviewed By:</b> Rajendra KHANAL Position: Project Manager- Nepal Date: August 22, 2024 	<b>Approved By:</b>  Kapila Mahesh Rajapaksha, Position: Environment and Social Development Specialist. SACEP Date: 22nd August 2024