

# **SYRIAN MINISTRY OF ENERGY**

**PUBLIC ESTABLISHMENT FOR TRANSMISSION AND  
DISTRIBUTION OF ELECTRICITY (PETDE)**

## **SYRIA EMERGENCY ELECTRICITY PROJECT (SEEP)**

### **Annex A - Environmental and Social Management Plan for Transmission Line Rehabilitation and Operation (ESMP- OHTL)**

**Final**

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## LIST OF ACRONYMS & GLOSSARY

Acronym	Full Term	Brief Description
<b>CESMP</b>	Construction Environmental and Social Management Plan	Contractor's project-specific ESMP for the construction phase.
<b>CHSS</b>	Community Health, Safety and Security	ESF/ESS4 domain covering impacts and risks to communities, incl. security.
<b>E&amp;S</b>	Environmental and Social	Shorthand for combined environmental and social aspects/risks.

<b>EHS</b>	Environment, Health and Safety	Integrated management of environmental, occupational health and safety issues.
<b>EPC</b>	Engineering, Procurement and Construction	Type of turnkey contractor responsible for design and construction.
<b>ERP</b>	Emergency Response Plan	SEEP emergency response framework (See Annex H)
<b>ESCP</b>	Environmental and Social Commitment Plan	Agreed time-bound E&S commitments between PETDE/GoS and the World Bank.
<b>ESF</b>	Environmental and Social Framework	World Bank's overarching framework comprising ESS1-ESS10.
<b>ESIA</b>	Environmental and Social Impact Assessment	Assessment of project E&S risks and impacts and identification of mitigation.
<b>ESMIP</b>	Environmental and Social Management Implementation Plan	Chapter 26 framework describing how ESMPs are organized, resourced and monitored.
<b>ESMP</b>	Environmental and Social Management Plan	Plan defining mitigation, monitoring and institutional measures for E&S risks.
<b>ESS</b>	Environmental and Social Standard	The ten standards under the ESF (ESS1-ESS10).
<b>GBV</b>	Gender-Based Violence	Umbrella term including SEA and SH, addressed through CoCs, training and GM.
<b>GBV/SEA/SH</b>	Gender-Based Violence / Sexual Exploitation and Abuse / Sexual Harassment	Combined reference to GBV risks associated with project workers and security.
<b>GM</b>	Grievance Mechanism	System for receiving, recording, and resolving complaints from workers and communities.
<b>KPI</b>	Key Performance Indicator	Quantitative indicator used to track ESMP performance and compliance.
<b>LRP</b>	Livelihood Restoration Plan	ESS5 instrument for restoring livelihoods where economically affected.
<b>NGO</b>	Non-Governmental Organization	Civil society organization that may support engagement, GBV referrals, etc.
<b>O&amp;M</b>	Operation and Maintenance	Routine inspection, operation and maintenance of OHTLs and related assets.
<b>OESMP</b>	Operational Environmental and Social Management Plan	ESMP covering the operation and maintenance phase.
<b>OHS</b>	Occupational Health and Safety	Management of worker health and safety risks under ESS2.
<b>OHTL</b>	Overhead Transmission Line	High-voltage line on towers, typically within an existing right-of-way.

<b>PETDE</b>	Public Establishment for Transmission and Distribution of Electricity	Syrian entity responsible for transmission and distribution; SEEP implementing agency.
<b>PMT</b>	Project Management Team	PETDE/Ministry team responsible for day-to-day SEEP implementation and oversight.
<b>RP</b>	Resettlement Plan	Plan under ESS5 detailing measures for physical/economic displacement where required.
<b>SEEP</b>	Syria Electricity Emergency Project	Name of the World Bank-financed project supporting grid rehabilitation.
<b>SEP</b>	Stakeholder Engagement Plan	ESS10 plan defining engagement, disclosure and grievance mechanisms.
<b>SEA/SH</b>	Sexual Exploitation and Abuse / Sexual Harassment	Specific forms of GBV addressed through CoCs, training and survivor-centered GM.
<b>TOR</b>	Terms of Reference	Document describing scope, tasks and deliverables for consultants/contractors.
<b>UXO</b>	Unexploded Ordnance	Munitions that failed to detonate and remain a hazard.
<b>UXO/ERW</b>	Unexploded Ordnance / Explosive Remnants of War	Combined reference to UXO and other explosive remnants from past conflict.

## 1. INTRODUCTION

This Environmental and Social Management Plan (ESMP) sets out the framework, measures, and responsibilities for managing environmental and social (E&S) risks and impacts associated with the rehabilitation of existing high-voltage Overhead Transmission Lines (OHTLs) under the Syria Electricity Emergency Project (SEEP).

The ESMP is consistent with the SEEP Environmental and Social Impact Assessment (ESIA), the Environmental and Social Commitment Plan (ESCP), the World Bank Environmental and Social Framework (ESF) and Environmental and Social Standards (ESSs), and applicable national requirements. It is intended to be included in procurement documents and to guide all parties (Public Establishment for Transmission and Distribution of Electricity (PETDE), supervision teams, Engineering, Procurement and Construction (EPC) contractors and subcontractors) in preparing and implementing project-specific Construction Environmental and Social Management Plans (CESMPs) and Operational Environmental and Social Management Plans (OESMPs).

The ESMP is generic at project level and covers both construction and operation phases of OHTL rehabilitation. It does not replace contractor CESMP and OESMP; rather, it defines minimum requirements, measures, monitoring, and institutional arrangements that must be reflected in those plans and in contractual obligations.

## 2. PROJECT SCOPE AND PHASES COVERED

This ESMP applies to all rehabilitation works on existing high-voltage OHTLs and associated activities (e.g., access tracks, tower foundations, conductor and earth-wire replacement, installation of bird diverters, temporary laydown areas, and construction camps where used).

Phases covered include:

- **Pre-construction:** planning, detailed design, permitting, land access arrangements, Unexploded Ordnance / Explosive Remnants of War (UXO/ERW) clearance planning, and contractor mobilization.
- **Construction:** civil and electrical works, tower and line works, stringing, site reinstatement, and demobilization.
- **Operation and maintenance:** routine and non-routine maintenance, vegetation management, access and patrolling, and emergency repairs.

## 3. APPLICABLE STANDARDS AND REFERENCE DOCUMENTS

The ESMP is aligned with the following:

- World Bank ESF and ESS1 to ESS10, as applicable to SEEP, including:
  - ESS1 Assessment and Management of E&S Risks and Impacts
  - ESS2 Labor and Working Conditions
  - ESS3 Resource Efficiency and Pollution Prevention and Management

- ESS4 Community Health and Safety
- ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources
- ESS8 Cultural Heritage
- ESS10 Stakeholder Engagement and Information Disclosure
- World Bank Group Environment, Health and Safety (EHS) Guidelines:
  - General EHS Guidelines
  - EHS Guidelines for Electric Power Transmission and Distribution.
- Syrian legal and regulatory framework, including:
  - Environmental Law and implementing regulations.
  - Decision No. 818/2013 on EIA and environmental permitting.
  - National standards on air quality, ambient noise, and wastewater discharge (as summarized in ESIA).
  - Others as relevant
- Project E&S instruments:
  - SEEP ESIA, including Chapter 26 (Environmental and Social Management Implementation Plan (ESMIP)) and topic chapters relevant to OHTLs, which define the overarching E&S management framework and consolidated matrices.
  - Environmental and Social Commitment Plan (ESCP), which specifies time-bound E&S obligations for PETDE and contractors.
  - Stakeholder Engagement Plan (SEP), including community and worker grievance mechanisms (GMs) and Sexual Exploitation and Abuse / Sexual Harassment (SEA/SH)-sensitive reporting channels.
  - Labor Management Procedures (LMP), including worker GM, contractor management requirements, and Occupational Health and Safety (OHS) provisions.
  - Resettlement Plans (RPs) and/or Livelihood Restoration Plans (LRPs), if required under ESS5 for encroachment or livelihood impacts, prepared in line with ESCP Action 5.1 and the guidance in Annex G.
  - Other project-level plans and annexes referenced in the ESIA/ESMIP, including the Occupational Health and Safety Plan (OHS Plan), Hazardous Materials & Waste Management Plan (HM/WMP), Traffic Management Plan (TMP), Cultural Heritage Management and Chance-Finds Procedure (CHMP/CFP), the Contaminated Land Management Plan (CLMP) where applicable, Emergency Preparedness and Response Plan (ERP), Security Management Plan (SMP) and SEA/SH Action Plan.

## 4. ESMP OBJECTIVES AND PRINCIPLES

### Objectives:

- Avoid, minimize and, where residual impacts remain, mitigate and compensate adverse E&S impacts associated with OHTL rehabilitation and operation.
- Ensure compliance with the ESIA, ESCP and national requirements.
- Provide clear E&S requirements for EPC contractors and supervision teams, suitable for inclusion in bidding documents and contracts.

- Define monitoring, reporting, training and resources needed to implement E&S measures effectively.
- Operationalize the SEEP Environmental and Social Commitment Plan (ESCP) measures relevant to OHTL rehabilitation, including commitments on UXO/ERW risk management, ESS5 instruments (RP/LRP), Gender-Based Violence / Sexual Exploitation and Abuse / Sexual Harassment (GBV/SEA/SH) mitigation, stakeholder engagement, and E&S monitoring and reporting

**Principles:**

- Use existing OHTL corridors and footprints; avoid new greenfield corridors.
- Apply the mitigation hierarchy (avoid, minimize, restore, offset/compensate).
- Adopt a precautionary approach to conflict-related risks, UXO/ERW, and worker/community safety.
- Ensure non-discrimination, respect for human rights, and zero tolerance for SEA/SH and GBV.
- Engage stakeholders transparently and operate accessible and responsive grievance mechanisms.

## 5. INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

This section defines roles and responsibilities for ESMP implementation. Detailed terms of reference will be specified in project implementation documents and contracts.

### 5.1 PETDE / PROJECT MANAGEMENT TEAM (PMT)

- Overall accountability for ESMP implementation and compliance with ESIA and ESCP.
- Maintain a Project Management Team (PMT) with qualified E&S specialists (environment, social, OHS, GBV/SEA/SH focal point, and stakeholder engagement).
- Integrate ESMP requirements into procurement/bidding documents and contracts for all OHTL packages.
- Review and approve contractor CESMPs and sub-plans before mobilization.
- Supervise and monitor contractor E&S performance and ensure corrective actions are implemented.
- Consolidate monitoring data and report to the World Bank as per ESCP and ESMP.
- Lead ESS5 screening along OHTL corridors, tower locations, access routes and laydown areas and, where impacts are identified, ensure preparation, approval and implementation of any required site-specific RP and/or LRP in accordance with the ESCP and Annex G - Guidance for RP/LRP Preparation before commencement of the relevant works.
- Implement the SEEP SEP for OHTL works, including the community and worker grievance mechanisms (GMs), ensuring that SEA/SH-sensitive channels remain operational, confidential and accessible throughout construction and operation.
- Coordinate with relevant ministries, governorates, municipalities, and security agencies on E&S issues.

## 5.2 OWNER'S ENGINEER (OE)

- Act as PETDE's representative on-site for technical and E&S supervision.
- Ensure that All ESMP requirements are incorporated into method statements and work plans.
- Conduct regular E&S inspections, audits, and monitoring, and issue non-conformance reports where required.
- Verify implementation of UXO/ERW procedures, OHS measures, biodiversity measures, and community safety controls.
- Review contractor reports and provide E&S performance inputs to PETDE.
- Support PETDE in capacity-building and toolbox talks as requested.

## 5.3 EPC CONTRACTOR AND SUBCONTRACTORS

- Prepare and implement contract-specific CESMPs consistent with this ESMP, the ESIA, ESCP, and Term of Reference(TOR) for CESMP.
- Support PETDE in implementing the SEP at OHTL work fronts, including dissemination of information, organization of community meetings where requested, and facilitation of access to project GMs (with SEA/SH-sensitive options) for workers and community members.
- Prepare and implement topic-specific plans (OHS, Traffic, Waste/Hazardous Materials, Emergency Response, SEA/SH Action Plan, etc.) as required in the bidding documents.
- Provide adequate E&S staffing (environmental officer, social/GBV focal point, OHS manager, community liaison officer) and resources.
- Ensure all subcontractors and suppliers comply with the ESMP, CESMP, CoC and relevant procedures.
- Maintain records (training, incidents, grievances, monitoring data) and report regularly to the supervision consultant and PETDE.
- Implement corrective actions and stop work where serious non-compliances or unsafe conditions exist.

## 5.4 OTHER STAKEHOLDERS AND AUTHORITIES

- **Governorates and municipalities:** facilitate permits, traffic and road-use arrangements, and community coordination.
- **Environmental and labor authorities:** conduct inspections and enforce regulatory compliance.
- **UNMAS:** undertake UXO/ERW survey and clearance, provide an ERW Chance-Finds Procedure and training on it, and advise on security risk management where required.
- **Local service providers and Non-Governmental Organizations (NGOs):** support community engagement, GBV/SEA/SH referral pathways, and vulnerable-group outreach as relevant.
- **Ministry of Interior and Security Authorities (Police):** Responsible for responding to security incidents in accordance with the law. The Security Management Plan (SMP) to be developed by PETDE shall account for general coordination with such authorities and in cases of emergencies.
- **Security Contractors and/or Personnel: shall abide by a Code of Conduct (CoC) developed for security personnel for the project and by the Security Management Plan.**

## **5.5 SUMMARY OF ESMP RESPONSIBILITIES**

Clear allocation of responsibilities is essential for effective ESMP implementation and for maintaining compliance with lender requirements and national regulations. Table 5-1 below outlines the key functions and accountable entities across project phases, ensuring coordinated delivery of mitigation and monitoring measures and timely escalation and resolution of E&S non-compliances.

**Table 5-1. Summary of ESMP Responsibilities**

Function	Key ESMP Responsibilities	Phase	Accountable Entity
<b>Overall ESMP Oversight and Coordination</b>	<ul style="list-style-type: none"> <li>- Approve CESMP and OESMP</li> <li>- Ensure ESMP requirements are built into procurement, contracts and budgets</li> <li>- Assign competent E&amp;S staff and resources</li> <li>- Chair regular E&amp;S performance reviews</li> <li>- Ensure timely reporting to the World Bank and national authorities</li> <li>- Approve and oversee implementation of corrective actions and ESMP updates</li> </ul>	All phases	PETDE / PMT
<b>Site E&amp;S Supervision</b>	<ul style="list-style-type: none"> <li>- Review and clear contractor CESMPs and method statements before works</li> <li>- Conduct regular E&amp;S inspections and audits</li> <li>- Verify monitoring data and Key Performance Indicator (KPI) reporting</li> <li>- Issue non-conformance notices and require corrective actions</li> <li>- Exercise stop-work authority where serious risks or non-compliances are identified</li> <li>- Provide E&amp;S performance input to PETDE / PMT</li> </ul>	Construction (and major maintenance, where applicable)	Owner's Engineer
<b>Construction E&amp;S Management</b>	<ul style="list-style-type: none"> <li>- Develop, maintain and implement the CESMP and topic-specific plans (OHS, Traffic, Waste, ERP, SEA/SH, etc.)</li> <li>- Integrate ESMP measures into work packs, permits and method statements</li> <li>- Provide induction and task-specific training to all workers and subcontractors</li> <li>- Carry out day-to-day E&amp;S controls, monitoring and record-keeping</li> <li>- Investigate incidents and near misses and implement corrective actions</li> <li>- Support operation of worker and community GMs in line with SEP and ESCP</li> </ul>	Construction	EPC Contractor and Subcontractors
<b>Operation and Maintenance (O&amp;M) E&amp;S Management</b>	<ul style="list-style-type: none"> <li>- Maintain and implement the OESMP and O&amp;M procedures consistent with ESIA and ESCP</li> <li>- Integrate E&amp;S controls into line inspection, maintenance and emergency repair activities</li> <li>- Manage operational monitoring (e.g., bird interactions, public safety, waste, GM performance)</li> <li>- Ensure O&amp;M staff receive periodic E&amp;S and OHS training</li> <li>- Investigate operational incidents and implement corrective and preventive measures</li> </ul>	Operation (and decommissioning where applicable)	PETDE O&M Units with PETDE E&S support

Function	Key ESMP Responsibilities	Phase	Accountable Entity
<b>Stakeholder Engagement and Grievance Mechanisms</b>	<ul style="list-style-type: none"> <li>- Implement the SEEP SEP for OHTL works</li> <li>- Plan and deliver engagement with directly affected communities before and during works</li> <li>- Disclose key information and advance notices of disruptive activities</li> <li>- Maintain and publicize worker and community GMs, including SEA/SH-sensitive channels</li> <li>- Ensure timely, fair and documented grievance resolution and feedback</li> <li>- Analyze GM and engagement trends to inform updates to ESMPs and project decisions</li> </ul>	All phases	PETDE Social Team / PMT and EPC Contractor

## **6. KEY ENVIRONMENTAL AND SOCIAL MANAGEMENT MEASURES FOR OHTL REHABILITATION**

This section summarizes key mitigation and management measures by topic. Detailed activity-level controls, KPIs and monitoring requirements are set out in the ESIA ESMIP and should be further elaborated in the CESMP and OESMP to be developed by the EPC Contractor and Operator respectively.

### **6.1 THEMATIC ESMP MATRIX (CONSTRUCTION AND OPERATION)**

The thematic ESMP matrix in Table 6-1 below consolidates the key environmental and social risks, mitigation measures, operational controls, and responsibilities relevant to OHTL rehabilitation. It summarizes the minimum requirements that EPC contractors and PETDE must implement across pre-construction, construction and operation phases, and should be reflected in contractor CESMPs, method statements, permits-to-work, and routine O&M procedures. The measures listed are consistent with the ESCP, ESIA Chapters 7-24, and the ESMIP in Chapter 26 of the ESIA.

For land contamination along OHTLs, the ESIA does not require systematic contaminated land investigations; instead, a contamination chance-finds procedure shall be included in the Contractor's CESMP to ensure any unexpected contaminated soil or waste is safely managed.

**Table 6-1. Thematic ESMP Matrix (Construction and Operation)**

Topic	Key Risks / Impacts	Key Construction Measures	Key Operation Measures	Main Responsibility	Key References
ESMS and planning	<ul style="list-style-type: none"> <li>- Fragmented E&amp;S management</li> <li>- Inconsistent implementation across packages</li> </ul>	<ul style="list-style-type: none"> <li>- Contractor ESMS and CESMP prepared and approved before works</li> <li>- Method statements to address E&amp;S risks</li> <li>- Inclusion of ESMP requirements in subcontracts</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE OESMP in place</li> <li>- Integration of E&amp;S requirements into O&amp;M procedures and maintenance planning</li> </ul>	PETDE / EPC	<ul style="list-style-type: none"> <li>- ESIA Ch. 26</li> <li>- ESCP</li> </ul>
UXO/ERW and conflict-related risks	Worker injury or fatality from unexploded ordnance or conflict remnants	<ul style="list-style-type: none"> <li>- No intrusive works before UXO/ERW clearance certificate by UNMAS</li> <li>- Engage accredited mine-action operators where required</li> <li>- Toolbox talks on UXO awareness</li> <li>- No off-ROW access without prior screening</li> <li>- Abide by the SEEP Traffic Management Plan (TMP) in Annex E following its approval</li> </ul>	<ul style="list-style-type: none"> <li>- UXO awareness maintained for maintenance crews</li> <li>- Procedures for emergency repairs in potentially contaminated areas (ERW Chance-Finds Procedure by UNMAS)</li> <li>- Approved TMP</li> </ul>	PETDE / EPC / specialist UXO agency (UNMAS)	<ul style="list-style-type: none"> <li>- ESIA conflict/UXO sections</li> <li>- ESMIP UXO lines</li> <li>- ESCP security measures</li> <li>- TMP</li> </ul>
Land access and livelihoods	<ul style="list-style-type: none"> <li>- Temporary land occupation, crop damage, access disruption</li> <li>- Residual economic displacement</li> </ul>	<ul style="list-style-type: none"> <li>- Use existing ROW; minimize footprints for laydown/stringing</li> <li>- Mark work areas</li> <li>- Prior notification to land users</li> <li>- Preparation of RPs/LRPs and documentation of impacts</li> <li>- Compensation and livelihood support consistent with project RP/LRP</li> <li>- Maintain access where feasible and provide alternative access where needed</li> </ul>	<ul style="list-style-type: none"> <li>- For maintenance, notify communities before works start</li> <li>- Limit disturbance and reinstate land promptly</li> <li>- Apply the same compensation principles for damages</li> </ul>	PETDE (Social Team) / EPC	<ul style="list-style-type: none"> <li>- ESIA social baseline</li> <li>- ESMIP and ESMIP social control lines</li> </ul>
Occupational health and safety	Falls from height, electrical hazards, traffic accidents, heat stress, manual handling injuries	<ul style="list-style-type: none"> <li>- Comprehensive OHS Plan</li> <li>- Job Safety Analysis (JSAs)</li> <li>- Work-at-height and lock-out/tag-out procedures</li> <li>- Insulated tools and PPE</li> <li>- First aiders and emergency response</li> <li>- Heat-stress management (rest, shade, hydration, appropriate clothing)</li> <li>- Safe driving program</li> </ul>	<ul style="list-style-type: none"> <li>- OHS procedures integrated into O&amp;M</li> <li>- Periodic refresher training</li> <li>- Inspection of PPE</li> <li>- Climbing gear and tools</li> <li>- Incident investigation and lessons learned</li> </ul>	EPC / PETDE O&M	<ul style="list-style-type: none"> <li>- ESIA OHS analysis</li> <li>- LMP</li> <li>- ESMIP OHS lines</li> <li>- WBG EHS Guidelines</li> </ul>
Labor and working conditions	<ul style="list-style-type: none"> <li>- Non-compliance with ESS2 and national labor law</li> <li>- Poor working and accommodation conditions</li> </ul>	<ul style="list-style-type: none"> <li>- Apply project Labor Management Procedures</li> <li>- Written contracts</li> <li>- Prohibition of child and forced labor and implementation of age verification procedure</li> <li>- Site management procedures (to be added to Methods Statement)</li> <li>- Fair wages and working hours</li> <li>- Worker GM</li> <li>- Safe and decent worker accommodation (compliant with EBRD/IFC 2009 Guidance) where provided</li> <li>- Regular E&amp;S and labor audits</li> </ul>	<ul style="list-style-type: none"> <li>- Maintain compliance for PETDE staff and any contracted maintenance crews</li> <li>- Maintain worker GM and labor records</li> </ul>	PETDE / EPC	<ul style="list-style-type: none"> <li>- LMP</li> <li>- ESIA labor baseline</li> <li>- ESCP commitments</li> </ul>
Community health, safety and traffic	Traffic accidents, community exposure to work sites, unsafe crossings under lines	<ul style="list-style-type: none"> <li>- Traffic Management Plan</li> <li>- Speed limits</li> <li>- Signage and flaggers near settlements</li> <li>- Fencing/cordoning of work areas</li> <li>- Community awareness on safety around lines and work sites</li> <li>- Coordination with local authorities and communities</li> </ul>	<ul style="list-style-type: none"> <li>- Ongoing community awareness on OHTL safety (clearances, no climbing towers)</li> <li>- Maintenance of warning signs and barriers; safe access management</li> </ul>	EPC / PETDE / Local authorities	<ul style="list-style-type: none"> <li>- ESIA CHSS analysis</li> <li>- ESMIP CHSS lines</li> <li>- SEP</li> <li>- Security Plan</li> </ul>
Biodiversity and vegetation management	Habitat disturbance, vegetation clearance, bird collision and electrocution, especially along flyways	<ul style="list-style-type: none"> <li>- Restrict works to existing ROW</li> <li>- Minimize vegetation clearance</li> <li>- No herbicide use unless approved</li> <li>- Pre-construction ecological/avifauna walkover along the OHTL route to identify sensitive habitats and high-risk spans for bird collisions</li> </ul>	<ul style="list-style-type: none"> <li>- Maintain bird diverters and line-marking devices</li> <li>- Adaptively manage based on bird mortality monitoring</li> </ul>	PETDE / EPC	<ul style="list-style-type: none"> <li>- ESIA biodiversity sections for OHTLs corridors</li> <li>- ESMIP ESS6 lines</li> </ul>

Topic	Key Risks / Impacts	Key Construction Measures	Key Operation Measures	Main Responsibility	Key References
		<ul style="list-style-type: none"> <li>- Install and maintain bird diverters on high-risk spans</li> <li>- Timing of works to avoid critical breeding/migration periods where feasible</li> </ul>	<ul style="list-style-type: none"> <li>- Environmentally sensitive vegetation management during routine maintenance</li> </ul>		
<b>Pollution prevention (air, noise, soil, water)</b>	Dust, noise, spills, improper disposal of waste and hazardous materials	<ul style="list-style-type: none"> <li>- Implement good housekeeping</li> <li>- Dust suppression near receptors</li> <li>- Noise control and work-hour restrictions near settlements</li> <li>- Designated fuel and chemical storage with secondary containment</li> <li>- Spill kits and spill-response procedures; proper sanitation facilities</li> </ul>	<ul style="list-style-type: none"> <li>- Maintain good housekeeping at maintenance depots and substations</li> <li>- Proper storage and disposal of oils, chemicals and other materials used in maintenance</li> </ul>	EPC / PETDE	<ul style="list-style-type: none"> <li>- ESIA noise chapter</li> <li>- ESMIP</li> <li>- National and WBG EHS noise limits</li> <li>- ESIA climate and air quality chapters and ESMIP matrix</li> </ul>
Waste and hazardous materials	Improper disposal of construction waste, scrap metal, used oil, and SF6-containing equipment	<ul style="list-style-type: none"> <li>- Waste and Hazardous Materials Management Plan</li> <li>- Segregation at source</li> <li>- Licensed transport and disposal</li> <li>- Maximize recycling of scrap metal</li> <li>- Safe handling and recovery of oils and SF6 where applicable</li> </ul>	<ul style="list-style-type: none"> <li>- Waste management procedures for operational wastes</li> <li>- Proper records and manifests</li> <li>- Periodic audits of waste contractors</li> </ul>	EPC / PETDE	<ul style="list-style-type: none"> <li>- ESIA waste and hazardous materials sections</li> <li>- WMP</li> <li>- HMMP</li> <li>- ESMIP</li> </ul>
Cultural heritage and chance finds	Disturbance or damage to known or unknown cultural heritage	<ul style="list-style-type: none"> <li>- Implement Chance Find Procedure</li> <li>- Training for workers</li> <li>- Stop-work and notification protocol</li> <li>- Consultation with heritage authorities</li> <li>- Adapt design where required</li> </ul>	<ul style="list-style-type: none"> <li>- Apply chance-find procedure during emergency or major maintenance involving excavation</li> </ul>	EPC / PETDE / Heritage authorities	<ul style="list-style-type: none"> <li>- ESIA cultural heritage chapter</li> <li>- ESMIP ESS8 lines</li> </ul>
SEA/SH and GBV	Risk of SEA/SH, harassment or abuse by project workers or security personnel	<ul style="list-style-type: none"> <li>- SEA/SH Action Plan</li> <li>- Mandatory Code of Conduct</li> <li>- Induction and refresher training</li> <li>- Confidential GM with SEA/SH-sensitive channels and survivor-centered response</li> <li>- Mapping and coordination of GBV service providers</li> <li>- Sanctions for non-compliance</li> </ul>	<ul style="list-style-type: none"> <li>- Maintain CoCs and SEA/SH measures for PETDE staff and contracted crews</li> <li>- Continued awareness and functioning GM</li> </ul>	PETDE / EPC	<ul style="list-style-type: none"> <li>- ESIA social and GBV sections</li> <li>- SEP</li> <li>- LMP</li> <li>- ESCP</li> <li>- ESMIP GBV lines</li> </ul>
Security management	<ul style="list-style-type: none"> <li>- Inappropriate conduct by security personnel</li> <li>- Excessive use of force</li> <li>- Community tensions</li> </ul>	<ul style="list-style-type: none"> <li>- Security Management Plan aligned with ESS4</li> <li>- Screening and training of security personnel</li> <li>- CoC</li> <li>- Incident reporting</li> <li>- Coordination with public security forces</li> </ul>	<ul style="list-style-type: none"> <li>- Maintain security procedures for O&amp;M sites</li> <li>- Periodic training and review of incidents</li> </ul>	PETDE / security providers	Security Plan
Stakeholder engagement and grievance mechanisms	Low awareness, exclusion, mistrust, unresolved complaints and conflict.	<ul style="list-style-type: none"> <li>- Implement SEP</li> <li>- Disclose information in accessible formats and timely manner</li> <li>- Publicize and maintain community GM with multiple intake channels</li> <li>- Record</li> <li>- Track and close grievances in a timely manner</li> <li>- Feedback to complainants</li> <li>- Escalation procedures</li> </ul>	<ul style="list-style-type: none"> <li>- Continue stakeholder engagement during operation, focusing on safety, outages, and maintenance</li> <li>- Maintain GM and regularly publicize it.</li> </ul>	PETDE with contractor support	<ul style="list-style-type: none"> <li>- SEP</li> <li>- ESCP</li> <li>- ESIA stakeholder engagement chapters</li> </ul>

## 6.2 IMPLEMENTATION SCHEDULE AND WORK PROGRAM

ESMP measures will be integrated into the project schedule and method statements. As a minimum:

- Pre-construction:
  - Complete UXO/ERW non-technical and, where required, technical surveys and clearance for all work fronts before any intrusive works.
  - Finalize and approve contractor CESMPs and topic-specific plans (OHS, Traffic, Waste/Hazardous Materials, Emergency Response, SEA/SH Action Plan, etc.) prior to mobilization.
  - Undertake ESS5 screening and, where triggered, prepare and approve RP/LRP instruments and compensation/livelihood assistance before start of works that affect assets, crops or access.
  - Deliver core induction and role-specific training (including UXO/ERW, OHS, CHSS, SEA/SH, labor management, and chance-finds) before workers are deployed to site.
- Construction:
  - Sequence works so that ESMP controls (traffic measures, access arrangements, fencing, bird diverters on priority spans, etc.) are in place before starting higher-risk activities at each work front.
  - Integrate ESMP actions and monitoring tasks into weekly and monthly construction planning, method statements and permits-to-work.
  - Implement site reinstatement and damage-compensation procedures promptly after completion of works at each location.
- Operation and maintenance:
  - Reflect relevant ESMP measures in the PETDE OESMP and O&M procedures (e.g., vegetation management, bird diverter maintenance, UXO awareness for emergency repairs, CHSS and SEA/SH measures).
  - Plan periodic inspections, maintenance and monitoring (including bird interactions and community safety) as part of the routine O&M work program.

Contractors will be required to demonstrate in their construction schedules and method statements how ESMP requirements, pre-construction gates and monitoring activities are sequenced and resourced.

## 6.3 MONITORING, KEY PERFORMANCE INDICATORS (KPIs) AND REPORTING

Monitoring and KPIs for OHTL rehabilitation follow the ESIA ESMIP framework. This section highlights key OHTL-specific monitoring parameters and responsibilities as shown in Table 6-2.

**Table 6-2. Monitoring, KPIs, and Reporting during OHTL Rehabilitation**

Theme	Indicative KPI	Monitoring Method	Monitoring Frequency	Phase	Responsibility	Reporting
<b>OHS</b>	<ul style="list-style-type: none"> <li>- 0 worker or community fatalities per year</li> <li>- Lost Time Injury Frequency Rate (LTIFR) ≤ 0.5 per 200,000 person-hours (or stricter project-specific target agreed with PETDE/PMT and WB)</li> <li>- ≥ 90% of HSE corrective actions closed within agreed timeframe (typically ≤ 30 days)</li> </ul>	<ul style="list-style-type: none"> <li>- Incident and near-miss reports</li> <li>- HSE inspections and audits</li> <li>- Corrective action and closure logs</li> </ul>	<ul style="list-style-type: none"> <li>- Monthly</li> <li>- After any serious incident</li> </ul>	<ul style="list-style-type: none"> <li>- Construction</li> <li>- Operation</li> </ul>	<ul style="list-style-type: none"> <li>- EPC</li> <li>- PETDE/PMT</li> <li>- PETDE O&amp;M</li> <li>- OE</li> </ul>	<ul style="list-style-type: none"> <li>- EPC (construction) and PETDE O&amp;M (operation): OHS section in monthly E&amp;S/O&amp;M reports to PETDE/PMT (via OE where applicable)</li> <li>- PETDE/PMT: consolidated OHS in quarterly reports to WB</li> <li>- Serious incidents: 48-hr notification + CAP within agreed period</li> </ul>
<b>UXO/ERW</b>	<ul style="list-style-type: none"> <li>- 0 UXO/ERW-related injuries or fatalities</li> <li>- 100% of work fronts in mapped risk areas cleared and formally released by accredited UXO/ERW provider before intrusive works</li> <li>- 100% of staff working in UXO/ERW risk areas receive induction/refreshers on UXO/ERW procedures (ERW Chance-Finds Procedure)</li> </ul>	<ul style="list-style-type: none"> <li>- UXO/ERW clearance certificates and release permits</li> <li>- UXO/ERW Chance-Finds Procedure training attendance records</li> <li>- Site HSE/UXO checklists</li> <li>- Incident and near-miss logs</li> </ul>	<ul style="list-style-type: none"> <li>- Before works in any new risk area</li> <li>- Quarterly consolidated summary during construction</li> </ul>	<ul style="list-style-type: none"> <li>- Pre-construction</li> <li>- Construction</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE/PMT</li> <li>- EPC</li> <li>- specialist UXO/ERW agency</li> <li>- OE</li> </ul>	<ul style="list-style-type: none"> <li>- EPC/UXO provider: UXO clearance status and incidents in monthly E&amp;S reports</li> <li>- PETDE/PMT: UXO/ERW summary in quarterly reports to WB; serious UXO incidents reported within 48 hrs.</li> </ul>
<b>Land and livelihoods</b>	<ul style="list-style-type: none"> <li>- 100% of documented crop/asset damages verified and compensated in line with RP and/or LRP before demobilization from the relevant work front</li> <li>- ≥ 90% of land and livelihood-related grievances resolved within 30 days (non-SEA/SH cases)</li> <li>- 0 cases of physical displacement without prior approval and implementation of measures under the RP (if triggered)</li> </ul>	<ul style="list-style-type: none"> <li>- Compensation and payment records</li> <li>- GM database (including land and livelihood cases)</li> <li>- Field verification spot checks (sample)</li> </ul>	<ul style="list-style-type: none"> <li>- Quarterly during construction</li> <li>- Annually in operation (if applicable)</li> </ul>	<ul style="list-style-type: none"> <li>- Pre-construction</li> <li>- Construction</li> <li>- Operation (if applicable)</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE/PMT Social Team</li> <li>- EPC</li> <li>- OE</li> </ul>	<ul style="list-style-type: none"> <li>- EPC: compensation cases and related grievances in monthly E&amp;S reports</li> <li>- PETDE Social Team: RP/LRP implementation and grievance status in quarterly reports to WB</li> </ul>
<b>Biodiversity and birds</b>	<ul style="list-style-type: none"> <li>- 100% of identified priority spans fitted with and maintaining bird-flight diverters as per design</li> <li>- 0 unresolved high-risk bird collision/electrocution incidents &gt; 30 days after detection</li> <li>- Demonstrated downward trend in recorded bird collision/electrocution incidents per km-year over first 3 years of operation relative to Year 1 baseline</li> </ul>	<ul style="list-style-type: none"> <li>- Bird mortality and incident monitoring (carcass searches, incident reports, outage investigations)</li> <li>- Periodic OHTL patrol checklists including diverter integrity</li> </ul>	<ul style="list-style-type: none"> <li>- Quarterly in first 2 years of operation at priority spans</li> <li>- Thereafter as agreed with PETDE and WB (e.g. annual or risk-based)</li> </ul>	<ul style="list-style-type: none"> <li>- Construction</li> <li>- Operation</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE/PMT</li> <li>- PETDE O&amp;M</li> <li>- EPC</li> <li>- OE</li> </ul>	<ul style="list-style-type: none"> <li>- EPC (construction) and PETDE O&amp;M (operation): bird incidents and diverter status in monthly E&amp;S/O&amp;M reports (where relevant)</li> <li>- PETDE/PMT: biodiversity summary and any high-risk incidents in quarterly reports to WB</li> </ul>
<b>Waste and pollution</b>	<ul style="list-style-type: none"> <li>- 100% of hazardous waste consignments documented and transferred only to licensed facilities</li> <li>- 0 significant spills (Category 2 or higher as defined in ERP) per year</li> <li>- 100% of spills responded to and contained in line with ERP within 30 minutes of detection</li> </ul>	<ul style="list-style-type: none"> <li>- Waste manifests and disposal receipts</li> <li>- Site waste and pollution inspection checklists</li> <li>- Spill logs and incident investigation reports</li> </ul>	<ul style="list-style-type: none"> <li>- Monthly during construction</li> <li>- Semi-annual in operation (plus after any significant spill)</li> </ul>	<ul style="list-style-type: none"> <li>- Construction</li> <li>- Operation</li> </ul>	<ul style="list-style-type: none"> <li>- EPC</li> <li>- PETDE O&amp;M</li> <li>- PETDE/PMT</li> <li>- OE</li> </ul>	<ul style="list-style-type: none"> <li>- EPC (construction) and PETDE O&amp;M (operation): waste and spill summary in monthly E&amp;S/O&amp;M reports</li> <li>- PETDE/PMT: hazardous waste and spills in quarterly reports to WB; major spills also flagged as incidents</li> </ul>
<b>SEA/SH and GBV</b>	<ul style="list-style-type: none"> <li>- SEA/SH-sensitive GM operational and accessible in all directly affected communities (Yes/No)</li> <li>- ≥ 95% of project workforce (including subcontractors and security) receive SEA/SH and CoC training at induction and at least annually</li> <li>- 100% of SEA/SH allegations managed through survivor-centered procedures with referral offered within 24-48 hours; no retaliation</li> <li>- ≥ 90% of non-SEA/SH community grievances (tracked separately) closed within 30 days</li> </ul>	<ul style="list-style-type: none"> <li>- Training and induction records</li> <li>- GM database (SEA/SH cases aggregated, non-SEA/SH cases disaggregated by type; no PII for SEA/SH)</li> <li>- GBV/SEA/SH focal-point reports and service-provider feedback (aggregated)</li> </ul>	<ul style="list-style-type: none"> <li>- Quarterly</li> </ul>	<ul style="list-style-type: none"> <li>- Construction</li> <li>- Operation</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE/PMT GBV Focal Point</li> <li>- EPC</li> <li>- OE</li> </ul>	<ul style="list-style-type: none"> <li>- EPC: CoC/SEA/SH training and non-SEA/SH grievance stats in monthly E&amp;S reports</li> <li>- PETDE/PMT GBV Focal Point: aggregated GBV/SEA/SH and GM information (no PII) in quarterly reports to WB</li> </ul>
<b>Stakeholder engagement</b>	<ul style="list-style-type: none"> <li>- At least one formal engagement event per directly affected community before start of nearby works, with</li> </ul>	<ul style="list-style-type: none"> <li>- SEP implementation records (meeting minutes, attendance lists, notices)</li> </ul>	<ul style="list-style-type: none"> <li>- Quarterly during construction</li> </ul>	<ul style="list-style-type: none"> <li>- All phases</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE/PMT Social Team</li> <li>- EPC</li> </ul>	<ul style="list-style-type: none"> <li>- EPC: engagement activities and community grievances in monthly E&amp;S reports</li> </ul>

	refreshers at least every 6 months where construction continues - ≥ 90% of non-SEA/SH community grievances resolved within 30 days, in line with SEP and GM - 100% of significant access or service disruptions communicated to affected communities ≥ 48-72 hours in advance, except where emergency works are required	- GM database and closure reports - Community feedback during follow-up meetings or surveys	- Annually in operation (at minimum)		- OE	- PETDE/PMT Social Team: SEP and GM implementation summary in quarterly reports to WB
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Contractors will submit E&S monthly reports to the supervision consultant and PETDE. PETDE will consolidate and report to the World Bank in accordance with the ESCP (typically quarterly and annually, and after significant incidents).

## 7. TRAINING AND CAPACITY BUILDING

Effective ESMP implementation depends on adequate E&S capacity within PETDE, contractors, and supervision teams. Table 7-1 below outlines the required trainings to ensure that workers and staff have the competencies needed to manage project risks, implement mitigation measures, and maintain compliance with lender requirements and national regulations throughout the project lifecycle.

**Table 7-1. Indicative Training Program for OHTL ESMP**

Audience	Topic	Key Content	Frequency	Responsibility
All contractor workers	Induction (E&S, OHS, CoC, SEA/SH)	Project risks, site rules, PPE, labor management, GM, CoC obligations, SEA/SH zero tolerance, UXO awareness basics, traffic safety, community interaction	<ul style="list-style-type: none"> <li>- On hire</li> <li>- Refresher at least annually or when scope changes</li> </ul>	EPC (HSE and social teams)
Supervisors and foremen	Task-specific OHS and environmental controls	JSAs, work-at-height, lifting operations, spill prevention, waste segregation, supervision of subcontractors	<ul style="list-style-type: none"> <li>- Before starting critical activities</li> <li>- Periodic refreshers</li> </ul>	EPC / OE
PETDE and supervision E&S staff	ESF, ESMP implementation and monitoring	ESF/ESS requirements, ESCP, ESIA and OHTL ESMP, CESMP review and approval, monitoring and KPIs, incident classification and investigation, reporting to WB	<ul style="list-style-type: none"> <li>- Prior to construction</li> <li>- Periodic refreshers (e.g., annually)</li> </ul>	PETDE / external trainers
PETDE O&M staff (OHTLs)	Operational E&S and OHS for OHTLs	ESMP/OESMP requirements in operation, bird diverter inspection and maintenance, vegetation management, emergency repairs and UXO awareness, CHSS, SEA/SH and GM in routine O&M	<ul style="list-style-type: none"> <li>- Before handover of rehabilitated lines</li> <li>- Refreshers every 2–3 years</li> </ul>	PETDE O&M with PETDE/PMT and OE support
Security personnel	Security and human rights, CoC, SEA/SH	Proportional use of force, interaction with communities, conflict de-escalation, non-discrimination, SEA/SH prevention, reporting and GM, coordination with EPC/PETDE	<ul style="list-style-type: none"> <li>- On mobilization and annually</li> </ul>	PETDE / EPC / security provider

## 8. BUDGET AND RESOURCES

PETDE will ensure that adequate budget is allocated to implement this ESMP, including costs for staffing, training, monitoring, audits, UXO surveys/clearance, community engagement, GBV/SEA/SH measures, and compensation and livelihood restoration (as per RP/LRP). Budget cost categories are summarized in Table 8-1.

**Table 8-1. Budget Cost Categories for OHTL ESMP Implementation**

<b>Cost Category</b>	<b>Description</b>	<b>Indicative Responsibility for Budgeting</b>	<b>Notes</b>
E&S staffing and supervision	<ul style="list-style-type: none"> <li>- PETDE/PMT E&amp;S staff</li> <li>- Supervision consultant (OE) E&amp;S staff</li> <li>- Field allowances</li> <li>- Basic equipment (vehicles, laptops/tablets, PPE for supervision)</li> </ul>	PETDE (PMT and OE scope)	<ul style="list-style-type: none"> <li>- Built into project management and supervision contracts</li> <li>- Should be costed explicitly in PMT and OE budgets</li> </ul>
Contractor E&S resources	<ul style="list-style-type: none"> <li>- Contractor HSE and social personnel</li> <li>- PPE</li> <li>- Induction and training</li> <li>- Routine monitoring (e.g., site inspections, basic dust/noise checks)</li> <li>- Waste management</li> <li>- Emergency preparedness and response equipment</li> </ul>	EPC (included in contract prices)	To be reflected in BoQs/technical specs so bidders price adequate E&S resources
UXO/ERW services	<ul style="list-style-type: none"> <li>- UXO/ERW risk assessments, non-technical and technical surveys, and clearance of tower locations, laydown areas and access routes as required</li> </ul>	PETDE and/or EPC, as specified in contracts	Scope and allocation (Client vs Contractor) must be clearly defined in bidding documents and contracts
Monitoring and surveys	<ul style="list-style-type: none"> <li>- Environmental, social and OHS monitoring (e.g., bird interactions, noise where relevant, patrol checks)</li> <li>- Occasional third-party audits agreed with WB</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE (core and independent audits)</li> <li>- EPC (routine construction monitoring)</li> </ul>	<ul style="list-style-type: none"> <li>- Frequency defined in ESMP/ESMIP</li> <li>- Independent audits may be budgeted as lump sum items</li> </ul>
Waste and pollution management	<ul style="list-style-type: none"> <li>- Containers, labels, temporary storage areas, transport and disposal fees for general and hazardous wastes (oils, filters, contaminated soil, etc.)</li> <li>- Spill kits and absorbents</li> </ul>	<ul style="list-style-type: none"> <li>- EPC during construction</li> <li>- PETDE during operation (O&amp;M budgets)</li> </ul>	Disposal routes and licensed facilities need to be confirmed and referenced in contracts
Stakeholder engagement and GM	<ul style="list-style-type: none"> <li>- Community meetings</li> <li>- Disclosure materials</li> <li>- Notices</li> <li>- GM operation (intake, tracking, feedback)</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE (SEP implementation)</li> <li>- EPC (site-level engagement support and GM interface)</li> </ul>	<ul style="list-style-type: none"> <li>- Often integrated into SEP budget at PETDE level</li> <li>- EPC costs should be included in general obligations</li> </ul>

Cost Category	Description	Indicative Responsibility for Budgeting	Notes
GBV/SEA/SH measures	<ul style="list-style-type: none"> <li>- CoC preparation and implementation</li> <li>- SEA/SH and GBV training</li> <li>- Awareness sessions in directly affected communities</li> <li>- Coordination with GBV service providers and referral pathways</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE (overall GBV framework and service-provider liaison)</li> <li>- EPC (workforce training and site-level measures)</li> </ul>	Some costs can be shared with training and stakeholder engagement budgets
Compensation and livelihood restoration	Cash or in-kind compensation and livelihood restoration support for eligible affected persons, as per RP/LRP (including admin and verification costs)	<ul style="list-style-type: none"> <li>- PETDE (per RP/LRP and ESCP)</li> </ul>	Typically held as a dedicated budget line with contingency, based on RP/LRP estimates
Security management (if required)	<ul style="list-style-type: none"> <li>- Security risk assessments</li> <li>- Training for security personnel</li> <li>- Awareness raising for project workers</li> <li>- Basic equipment and facilities needed to implement ESS4-aligned security measures</li> </ul>	<ul style="list-style-type: none"> <li>- PETDE (overall framework)</li> <li>- EPC (site security where contracted)</li> </ul>	Security arrangements should be proportional to risk and consistent with ESS4 and ESCP
External audits and evaluations	Independent E&S audits or evaluations of ESMP implementation and OHTL performance, if agreed with WB	PETDE	<ul style="list-style-type: none"> <li>- May be scheduled mid-term or at key milestones</li> <li>- Costed as discrete consultancy items</li> </ul>
Contingency	Allowance for unforeseen ESMP-related needs (extra mitigation, remedial works, targeted community support, etc.)	PETDE	Often expressed as a percentage of total E&S-related budget lines

## 9. ESMP REVIEW AND UPDATE

This ESMP is a living document. PETDE will review and, where necessary, update it in consultation with the World Bank and key stakeholders when any of the following occur:

- Significant changes in project design, scope or implementation arrangements.
- New or unforeseen environmental or social risks and impacts emerge.
- Major incidents or non-compliances indicate that existing measures are insufficient.
- Periodic review (e.g., every 2-3 years) during operation.

Revisions to this ESMP will be communicated to contractors and other stakeholders and reflected in updated CESMPs, OESMPs and contractual requirements as appropriate.