



**FEDERAL REPUBLIC OF SOMALIA**  
**MINISTRY OF ENERGY AND WATER RESOURCES**  
**(MoEWR)**

**Component 3: Stand-Alone Solar PV System Access to  
Public Institutions (Education & Health)**

**Environmental and Social Management Plan (ESMP) for  
the Health Facilities in Puntland State**

January, 2026

*SESRP - PIU*

**FINAL REPORT**

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## LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
BESS	Battery Energy Storage Systems
C-ESMP	Contractor's Environmental and Social Management Plan
COVID-19	Corona Virus 2019
EHSGs	Environmental Health and Safety Guidelines
ESF	Environmental and Social Framework
ESI	Electricity Supply Industry
ESIRT	Environmental and Social Incident Response Toolkit
ESMF	Environmental and Social Management Framework
ESMMP	Environment and Social Monitoring and Management Plan
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard
FGS	Federal Government of Somalia
FMS	Federal Member States
GBV/SH	Gender Based Violence / Sexual Harassment
GIIP	Good International Industry Practice
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HCFs	Health Care Facilities
HIV	Human Immunodeficiency Virus
IDA	International Development Association
ILO	International Labor Organization
IPF	Investment Project Financing
MoEWR	Ministry of Energy and Water Resources
NGO	Non-Governmental Organization
PIU	Project Implementing Unit
PPE	Personal Protective Equipment
PV	photovoltaic
SESRP	Somalia Electricity Sector Recovery Project
SMEs	Small Micro Enterprises
SMS	Short Text Message
PL	Puntland State

# 1. INTRODUCTION

## 1.1 Project Background

1. The Federal Government of Somalia (FGS) is implementing the Somalia Electricity Sector Recovery Project (SESRP) financed by the International Development Association IDA. The SESRP aims to increase access to lower-cost and cleaner electricity services and to re-establish the Electricity Supply Industry (ESI) in the Project Areas. The FGS has created the Ministry of Energy and Water Resources (MoEWR) which will be in charge of implementing the project. The Ministry also aims to define and implement overall energy sector policies and to regulate the sector. The MoEWR hosts the Project Implementing Unit (PIU). The SESRP comprises the following major components:

- **Component 1 – Distribution network reconstruction, reinforcement, and operations efficiency in the major load centers.** Sub-transmission and distribution network reconstruction and reinforcement in the major load centers through the integration of ESPs’ distribution networks and existing generation to optimize distribution network operations and scale-up of generation capacity.
- **Component 2 – Renewable energy generation optimization.** Hybridization and optimization of existing generation for increased electricity supply through installation of Battery Energy Storage Systems (BESS) and solar PV systems at existing diesel-based generation stations.
- **Component 3 – Electricity services for improved public services delivery (Health and Education).** This component will support activities to provide electricity to existing public facilities in rural and peri-urban areas, underpinned by the nationwide geospatial plan. Key activities under this component are proposed to include standalone solar PV systems augmented by BESS targeting public institutions as the anchor loads and where viable associated distribution networks to connect other loads such as SMEs and households. Besides playing a key role in enablement of community co-benefits, facilities that have access to electricity may be better positioned to attract and retain skilled workers, especially in rural areas. Further, this will equip public service institutions to better respond to emergencies.
- **Component 4 - Sector Capacity Enhancement and Project Implementation Capacity Support.** Proposed activities include (a) strengthening of sector governance and regulation to foster autonomy, accountability, and transparency; (b) increasing sector operational efficiency; (c) undertaking of sector integrated planning analytics, including a Sector Least Cost Development Plan - covering generation, transmission, and distribution - and an Electricity Access Plan, particularly for rural areas with related Investment Prospectus – both underpinned by a geospatial least-cost analysis. Activities will also support day-to-day sector undertakings with Business Support Services Firm (BSSF) to re-establish the Somali electricity sector – providing hands-on policy, oversight, operations and management training, and capacity building of sector staff.

## 1.2 Solar PV Systems for Existing Health Institutions

2. Under Component 3, the SESRP will support the electrification of existing Healthcare Facilities (HCFs) where electricity supply through Solar PV Systems represents the least cost option to improve public services in health sectors. Solar PV systems are proposed for installation in existing public health facilities depending on the facilities’ energy demand and thus vary from facility to facility. The generation system will combine solar PV and battery storage. New interventions will be implemented in approximately 33 health facilities (including hospitals, health centers/units, and maternal health clinics) in Puntland State with an approximate total demand of 20-300kW.

Table 1-1 below gives a breakdown of the targeted beneficiary facilities.

**Table 1-1: Beneficiary Health Facilities**

STATE	No. of Beneficiary Facilities	No. of Beneficiary Facilities Covered
Puntland State	35	12

### 1.3 Environmental and Social Management Plan (ESMP)

#### 1.3.1 Justification for the ESMP

This Environmental and Social Management Plan (ESMP) for the proposed Solar PV systems across 35 health care facilities was developed to assess potential environmental and social risks and impacts prior to the start of construction. The ESMP outlines both the positive and negative impacts associated with the Solar PV systems and recommends measures to minimize adverse effects while enhancing and maximizing the beneficial ones, thereby promoting the project’s sustainability. Specifically, the preparation of this ESMP aimed at achieving the following objectives:

- Identify key areas for environmental, social, health and safety concerns as well as the anticipated impacts associated with the proposed subproject (installation of the Solar PV systems) implementation and commissioning
- List of all suggested mitigation measures and control technologies, safeguards identified through the E&S screening process.
- Define the roles and responsibilities of all parties involved in project environmental and social management.
- Establish a comprehensive environmental management plan covering the construction, operation, and decommissioning phases of the project.
- Provide subproject monitoring program for effective implementation of the mitigation measures and ascertain efficacy of the control systems in place (which should be consistent with the provisions in the project’s ESMF)

#### 1.3.2 ESMP Approach and Methodology

3. As a WB-financed Project, the approach chosen in undertaking this study was careful to meet the objectives of the World Bank Environmental and Social Framework (ESF), where all 10 ESSs were examined for relevance. In particular, the ESMP was triggered to fulfill requirements of assessing, managing and monitoring E&S risks and impacts brought about by the implementation of the proposed 33 subprojects, as set out in the Environmental and Social Standard 1 (ESS1) – Assessment and Management of Environmental and Social Risks and Impacts. While the Project is seeking sound and sustainable measures to avoid or reduce E&S risks and impacts, this ESMP aims to introduce management measures to mitigate the reduced/minimized risks and impacts, based on (a) the country’s applicable national laws and regulations, (b) applicable requirements under the ESSs, and (c) the WBG’s Environmental Health and Safety Guidelines (EHSGs), and other relevant Good International Industry Practice (GIIP). In particular, the mitigation measures proposed have been aligned with the most relevant ones as introduced through the WBG’s General EHSGs typical to this type of construction, operation, and decommissioning. To prioritize identified environmental and social risks, the ESMP applied a risk classification matrix based on the likelihood and severity of impacts. Risks were

categorized as Low, Moderate, Substantial, or High. This classification informed the prioritization of mitigation and monitoring actions.

4. The ESMP involved largely an understanding of the project background, the preliminary designs and the implementation plan. The approach and methodology applied during the assessment enabled the collection of both primary and secondary data. Qualitative and quantitative methods of data collection were employed. Secondary data was obtained through literature reviews while primary data was obtained through physical observations, Photography, checklists, interviews, and stakeholders' consultation. Key activities undertaken during the assessment included the following:

- Physical inspections of the proposed project site,
- Literature review of relevant documents
- Consultation Engagement with facility management
- Gathering environmental and socio-economic data of the area by use of a checklist
- Continuous discussions with the facility management, including interviews and taking photos in the immediate neighborhood, as well as accessing other sources of information on the proposed project details, the site planning and implementation plan,
- Evaluation of the activities around the site and the environmental setting of the wider area.
- Report writing and submission.

5. The initial stage of this assessment was subproject screening. Screening of the subproject sought to ascertain whether this project falls within a category that requires ESMP before commencement. Other considerations made during this stage included a preliminary assessment of the environmental sensitivity of the proposed project area/site. This screening indicated that the proposed solar PV system poses low-to-moderate E&S risk and thus requires an ESMP to mitigate against any adverse impact.

6. The facility management consultations were carried out as part of the scoping exercise between 8<sup>th</sup> October to 21<sup>st</sup> October 2025. The heads of the facilities were interviewed, and their sentiments were included in the ESMP in section 4.

### **1.3.3 ESMP Content**

7. In compliance with the ESMP outline requirements described in ESS1, This ESMP consists of the set of mitigation, monitoring and institutional measures to be taken during the implementation and operation of the Project to minimize or mitigate potential negative impacts on the environment and communities while maximizing the positive contributions of the energy sector to the well-being of the Somali people. Therefore, the ESMP was prepared as a stand-alone document and has presented the following key sections:

- Introduction
- Subprojects Description
- Legal Framework
- Environmental and Social Risks and Impacts
- Environmental and Social Management and Monitoring Plan
- Liabilities of the Contractors
- Capacity Development and Training
- Annexes

## **2. SUB-PROJECT DESCRIPTION**

### **2.1 Site Reconnaissance**

8. Based on a survey done in October 2025, the various existing health facilities were assessed for consideration as beneficiary sites. The assessment was based on the availability of sufficient roofing or land on site for installation of the Solar PV System and facility being public or private but serving a large needy population, and the capacity ranges from 10KWp - 1030KWp. The target is to supply power from small public health centers to District Referral Hospitals in Puntland state for reduced electricity cost. This will entail the generation of electricity from solar and distribution internally using inverters sized for the power demand specific to each facility. The following Table 2-1 summarizes information on the sample facilities in Puntland State, which will receive the PV system within their premises. Given the extreme temperatures and arid conditions in Puntland, solar equipment will be selected for resilience. Panels and batteries will be heat-resistant and dust tolerant. Battery storage units will be installed in ventilated, shaded enclosures or containerized systems to ensure long-term performance.

**Table 2-1: Survey Findings for Each Proposed Healthcare Facilities**

<b>Item surveyed</b>	Badhan General Hospital	Bosaso General Hospital	Gardo General Hospital	Galkio General Hospital	Garowe General Hospital	Burtinle General Hospital	Ceeldahir HC	Carmo HC	Regional Cold Chain	Dhahar HC	Goldogob General Hospital	Dangaroyo HC
Is the Land owned by the Public Institutions i.e., Regional State or Federal Government	Public Land	Public Land	Public Land	Public Land	Public Land	Public Land	Public Land	Public Land	Public Land	Public Land	Public Land	Public Land
Is the land surveyed	No	No	No	No	No	No	No	No	No	No	No	No
Is there Master Plan showing Space Planning	No	No	No	No	No	No	No	No	No	No	No	No
If the answer is yes for No.3, is there possibility of sharing with the team	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Is there adequate space for the planned SPV -off grid project	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

<b>Item surveyed</b>	Badhan General Hospital	Bosaso General Hospital	Gardo General Hospital	Galkio General Hospital	Garowe General Hospital	Burtinte General Hospital	Ceeldahir HC	Carmo HC	Regional Cold Chain	Dhahar HC	Goldogob General Hospital	Dangaroyo HC
Type of the roof top- Gable, Hip or Flat	Mix of Slopped and Flat roof top											
Types of materials used for Rooftop- Concrete, Steel, corrugated sheet etc.	Corrugated and steel iron sheet											
Is there a need for reinforcing the roof in case PV panels are required to be mounted on top	No											
Is there a dedicated electrical/equipment room, within or a detached	Yes											
Is there need for bush and	No											

<b>Item surveyed</b>	Badhan General Hospital	Bosaso General Hospital	Gardo General Hospital	Galkio General Hospital	Garowe General Hospital	Burtinle General Hospital	Ceeldahir HC	Carmo HC	Regional Cold Chain	Dhahar HC	Goldogob General Hospital	Dangaroyo HC
tree clearance to open up additional space for the project												
Is the site accessible from major roads for the project's logistics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Soil profile of the site	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil	Arid sandy soil
Highest Temperature recordings in the year	37	37	37	37	37	37	37	37	37	37	37	37
Mean value of the temperature in the year	32	32	32	32	32	32	32	32	32	32	32	32
Lowest value of the Temperature	25	25	25	25	25	25	25	25	25	25	25	25

<b>Item surveyed</b>	Badhan General Hospital	Bosaso General Hospital	Gardo General Hospital	Galkio General Hospital	Garowe General Hospital	Burtinle General Hospital	Ceeldahir HC	Carmo HC	Regional Cold Chain	Dhahar HC	Goldogob General Hospital	Dangaroyo HC
recording in the year												
Average Sun Hours of the year	12 hours	12 hours	12 hours	12 hours	12 hours	12 hours	12 hours	12 hours	12 hours	12 hours	12 hours	12 hours

9. Additionally, the survey included photographing the availability of areas within the premises of the target HCFs, where PV systems can be placed,

10. Table 2-2: Geographic Locations and Proposed Sites for the New PV System

Institution	Type	Latitude	Longitude	Photos
Badhan General Hospital	Referral Hospital	10.714492°	48.330290°	
Bosaso General Hospital	Referral Hospital	11.284225°	49.180603°	
Gardo General Hospital	Referral Hospital	9.510378°	49.086151°	
Galkio General Hospital	Referral Hospital	6.770444°	47.42775°	

Institution	Type	Latitude	Longitude	Photos
Garowe General Hospital	Referral Hospital	8.406994°	48.477147°	 A photograph of a single-story white building with a flat roof, identified as Garowe General Hospital. The building is surrounded by a paved area and some trees under a cloudy sky. A map overlay at the bottom shows the location in Nugaal, Somalia.
Burtinle General Hospital	Referral Hospital	7.653855°	47.829896°	 A photograph of a sign for Burtinle District Hospital. The sign is white with blue and red text and logos, including UNICEF and KFW. It is mounted on a light-colored wall. A map overlay at the bottom shows the location in Burtinle, Nugaal, Somalia.
Ceeldahir HC	Health Centre	10.624571°	49.045721°	 A photograph of a health centre building with a white facade and a red roof. The building is surrounded by a dirt area and some trees. A map overlay at the bottom shows the location in Bari, Somalia.
Carmo HC	Health Centre	10.564252°	49.057433°	 A photograph of a health center building with a white facade and a red roof. The building is surrounded by a dirt area and some trees. A sign in front of the building reads 'CARMO HEALTH CENTER'. A map overlay at the bottom shows the location in Bari, Somalia.
Regional Cold Chain	Cold Chain	9.509968°	49.086206°	 A photograph of a health center building with a white facade and a green roof. The building is surrounded by trees and a paved area. A sign in front of the building reads 'XARUNTA CAAFIMAADKA EE GACANLIBAAX'. A map overlay at the bottom shows the location in Qardho, Bari, Somalia.
Dahar HC	Health Centre	9.755420°	48.821356°	 A photograph of a sign for Dahar General Hospital. The sign is white with blue and red text and logos, including a medical symbol. It is mounted on a light-colored wall. A map overlay at the bottom shows the location in Dahar, Bari, Somalia.

Institution	Type	Latitude	Longitude	Photos
Goldogob General Hospital	Referral Hospital	7.023437°	47.022598°	
Dangaroyo HC	Health Centre	8.721323°	49.343351°	

11. The proposed project sites like existing medical facilities are all fenced with controlled access with gates. In addition, the facilities are well lit at night, enhancing security. All the sites as already existing developments are accessible by roads whether tarmacked like in major towns or all-weather roads.

12. Based on site surveys and the preliminary designs, the Solar PV systems to be roof-top mounted as it's appropriate given the availability of the existing infrastructure and the use of 250 and below kw.

## 2.2 The PV System

13. The proposed setup will consist of three main components: a photovoltaic (PV) panel, an inverter, and a battery. The PV panel will harness solar energy and convert it into electricity. The generated electricity will be sent to the inverter, which will transform it into a usable form compatible with the electrical appliances and systems of the facility. Any surplus electricity produced by the PV panel will be stored in the battery for later use, ensuring a continuous and reliable power supply even during periods of low sunlight. This integrated system will provide a sustainable and efficient solution for meeting the electricity needs of the facility while reducing dependence on traditional energy sources and minimizing environmental impact. The system will be modular so that it can be upgraded easily to meet future demand needs. Main components of the system include:

- The PV Generator: consists of Silicon Crystalline Photovoltaic modules of capacity at STC of 250 Wp or more.
- Powerhouse: The Battery, Multi-mode inverter, and all monitoring equipment will be installed indoors (or containerized) with adequate air ventilation according to the manufacturer's recommendations.
- Multi-mode Inverter is a 20 kW (nominal) bidirectional sinusoidal inverter.
- The Battery: The battery considered is lead-acid, deep discharge type with a permissible repeated deep discharge without damage. Other types could be used, such as "gel" lead-acid batteries which are "maintenance less" but the unit weight is higher, and the lifetime is sensitive to high temperatures. And the Li-ion batteries have a longer lifetime and are lighter and smaller. However, they have a higher investment cost and are not adapted to high air temperatures, so an additional active cooling system is needed. The design lifetime of the batteries shall be of at least 15 years without losing more than 10% of the rated C10 capacity. When the batteries get damaged, they will be stored separately at the site,

stored in safe hangers and then transported outside the country for proper disposal. Cables used to connect the battery shall have a temperature rating higher than 20 °C above ambient temperature. A neutralization kit will be provided at the site to manage any battery acid spills that may occur.

14. There is the potential for fire on the site, and this will be managed by creating fire safety awareness and response as well the provision of fire protection and firefighting equipment including fire extinguishers, smoke and heat detection system, signage, danger plates, and nameplates. The fire equipment will be placed where they are visible and easy to reach.

### **2.3 Construction Phase Activities**

15. In line with the ESF requirements for the Contractor's ESHS Management Strategy and Implementation Plans: The Bidders/Proposers will be required to submit, as part of their Bid/Proposal, ESHS Management Strategies and Implementation Plans required to manage the key ESHS risks of the project. The suitability of these strategies and plans will be assessed as part of the Bid/Proposal evaluation, and discussed during pre-contract discussions, as appropriate. These strategies and plans will become part of the Contractor's Environmental and Social Management Plan (C-ESMP). As a requirement, the Contractor shall not commence any Works unless the Supervising Engineer is satisfied that appropriate measures are in place to address ESHS risks and impacts. At a minimum, the Contractor shall apply the plans and ESHS Code of Conduct, submitted as part of the Bid/Proposal, from contract award onwards.

16. It is anticipated that the proposed site will undergo alteration during construction to install the Solar PV Panels and associated structures on the rooftops.

17. Safety protocol, requirements, and precautions and established National and International Environmental protection regulations/ standards as well as all management plans proposed under this report for this project, shall guide the contractor and project operator during the project cycle. Modest construction procedures will be followed to reduce noise and vibration levels and the production of dust and any form of pollution that may affect the patients within the facilities and immediate neighborhoods.

18. All construction activities including erecting scaffolding, installation of Solar Panel Mounts, installation of the Solar Panels, and electrical wiring will be carried out by competent personnel obtained through respectable contractors to ensure a consistently high standard of finish and providing superb value for money.

19. The final design and construction of the Solar PV System will be undertaken by a contractor selected through a competitive bidding process. Construction will be supervised by MoEWR to ensure works are undertaken following specifications. This is to ensure quality work is achieved.

20. Construction activities will involve the following:

- The contractor shall perform site investigations in good time to ensure appropriate designs and construction are done on a sound engineering basis.
- Site preparation (e.g., ground-breaking, clearance of vegetation)
- Procurement of construction materials and delivery of the same to the site.
- Storage and utilization of materials.
- Civil, mechanical, and electrical works.
- Building works, trampling, and removal of construction wastes.
- Cabling.
- Post construction clean-up, restoration, and landscaping of the site.

- Load testing.
- Remedying of defects after functional tests.
- Solid waste collection and commissioning of the Solar PV System.

21. During construction, the contractor shall observe safety and shall erect warning signs to warn of any potential hazards, ensure proper and efficient use of Personal Protective Equipment (PPE) for all on-site, and observe safe work procedures.

22. Contractors will be required to develop and implement a Contractor Environmental and Social Management Plan (C-ESMP) that covers labor influx, subcontractor supervision, safety protocols, environmental compliance and grievance redress. All contractor plans will be reviewed by PIU and cleared prior to mobilization.

#### **2.4 Construction Supervision and Safety**

Throughout the construction phase, supervision shall be carried out by the MOEWR to ensure:

- Workers use personal protective equipment (such as hand gloves, helmets, safety shoes earmuffs, overalls, and dust coats) always as is appropriate.
- Motorized equipment is checked to ensure that it is in good working condition, safe to use, and produces minimal noise levels and reduced smoke emissions.
- Provision of first aid kit and firefighting equipment (portable cylinders) and placement at strategic positions for access
- Proper disposal of waste material and toilet facilities are provided for construction workers.
- Emergency response procedures are in place, and all workers are aware of them, as in case of fire.
- Workers shall be provided with ablution facilities and changing rooms.

#### **2.5 Operation Phase Activities**

23. The Solar PV System will be operated and maintained by the facility after construction. During the operation phase of the project, no unauthorized person shall access the Solar PV System site. This is in line with ensuring the safety of staff and the public. Routine maintenance is to be done under supervision by authorized staff.

24. Throughout the project life, the facilities shall adhere to all requirements of Environmental Management requirements as per the ESMP to ensure the protection and conservation of the environment.

#### **2.6 Decommissioning Phase Activities**

25. The facilities shall submit a decommissioning plan to the Ministry of MoEWR in good time before decommissioning. The decommissioning plan should include a restoration plan.

- During the decommissioning/demolition phase, the following activities will take place.
- Removal of Solar PV System panels and batteries and their associated switching equipment.
- Removal of electrical fittings, bus bars, and steel poles/structures.
- Ensure proper handling of the demolished materials and have authorized and guided transportation and disposal away from human settlements, water bodies, and wildlife conservation areas in line with the Ministry of Environment requirements for safe disposal.
- Demolish and remove all the concrete works.

26. During the decommissioning/demolition phase, the following activities will take place:
- Removal of Solar PV System panels and batteries and their associated switching equipment.
  - Removal of electrical fittings, bus bars, and steel poles/structures.
  - Ensure proper handling of the demolished materials and have authorized and guided transportation and disposal away from human settlements, water bodies, and wildlife conservation areas in line with the Ministry of Environment requirements for safe disposal.
  - Demolish and remove all the concrete works.
27. The host environment should be rehabilitated and restored to its former state through:
- Approved and appropriate landscaping methodology.
  - Planting of vegetation.
  - Removal of any soil that may have been impacted by oils or fuels for offsite (away from the project area) remediation.

## **2.7 Use of Services and Resources**

28. **Labor:** The size and composition of the workforce will be at the discretion of the contractor(s). The contractors will adhere to the ILO Employment guidelines in the recruitment and management of the employees. It is recommended that the contractor seeks unskilled labor from the immediate surrounding communities.

29. **Sewerage:** A negligible sewerage flow is anticipated for the duration of the construction period. On-site, use will be made of toilets that will be serviced periodically. For operations, a similarly negligible amount of sewage will be generated. Most of the areas are not served by a sewer system and as such the contractor(s) will be expected to utilize the existing infrastructure.

30. **Access Roads:** Existing roads will be utilized as far as possible during the construction and operational periods. No new road will be constructed because we have existing access roads to all the health facilities. The management is urged to facilitate the provision of a different access point for the patients and contractors on both safety and health considerations. During operations, there will be virtually very low traffic considering because once operational the Solar PV System will require minimal maintenance.

31. **Electricity:** Electricity will be essential for the proposed project both during construction and operation. The contractor will have to have a portable generator during construction for fabrication and welding where necessary, but the facility management provides electricity for operations from its constructed Solar PV System electrical network.

32. The project implementing unit at the MoEWR should ensure that all material sourcing does not trigger any environmental or social impacts. All hazardous materials should be handled according to the industry's best practices and relevant local and international regulations on hazardous waste. All new unidentified impacts should be mitigated and managed responsibly throughout the project cycle by the contractor and the project operator.

## **2.8 Products, By-Products, and Waste**

33. During the installation of the PV system, the proposed project is anticipated to generate different types of waste, which shall be included.
- Excavated soils and vegetation.

- Construction equipment and maintenance wastes.
- Dust and fumes.
- Scrap metals.
- Packaging materials, etc.
- Metal cuttings generated from the construction activities.
- Any excess construction materials brought to the project site by the contractor.

34. The contractors will be advised to seek construction materials for sites that have been permitted by the Regional / Local Authorities. Close collaboration with the Ministry of Interior will provide guidance of the access roads that are secure as well as limit traffic disturbance to community members.

35. The project will engage licensed service providers ranging from Waste Handlers (including the Asbestos materials from rooftops, if found. However, note that all rooftops were inspected and confirmed that no Asbestos containing materials were used), transporters, and PV System Installers among others.

### **3. LEGAL FRAMEWORK**

#### **3.1 Somali Legal Framework and Conventions**

36. The following Environmental Regulations, Policies, and Acts have been found relevant and/or applicable to the planned interventions and activities:

- The Constitution
- The National Environmental Management Policy
- The National Climate Change Policy
- The draft National Environmental Management Act
- The draft National Environmental and Social Impact Assessment Regulation.
- Land Laws of 1972 and 1980
- Labor Code of Somalia. The Code includes the following relevant provisions:
  - All contracts of employment must include a) the nature and duration of the contract; b) the hours and place of work; c) the remuneration payable to the worker; and c) the procedure for suspension or termination of the contract. Furthermore, all contracts must be submitted to the competent labor inspector for pre-approval.
  - The employer is obliged to provide adequate measures for health and safety protecting staff against related risks, including the provisions of a safe and clean work environment and of well-equipped, constructed, and managed workplaces that provide sanitary facilities, water, and other basic tools and appliances.
  - Workers have the right to submit complaints, and the employer must give the complaints due consideration.
  - Some work is considered dangerous and unhealthy and forbidden for women and youth (defined as 15-18 years of age). This includes carrying heavy weights or working at night. The Labor Code forbids work for children below the age of 12 but allows employment of children between the ages

of 12-15 yet employment must be compatible with proper protection, health, and the morals of children.

- The Code also recognizes freedom of association. Employers are prohibited from engaging in any kind of discrimination or restriction of the right of freedom of association. Workers are allowed to join a trade union.

- Civil Service Law (Law Number 11).
- Forced Labor Convention (1930/no. 29)
- The Freedom of Association and Protection of the Right to Organize Convention (1948) No 87
- The Right to Organize and Collective Bargaining Convention, 1949 (No. 98)
- Convention concerning Forced or Compulsory Labor (ILO No. 29)
- Convention on the Rights of the Child

### 3.2 World Bank Group’s Environment and Social Framework

The objective of the World Bank’s Environmental and Social Framework (ESF)<sup>1</sup> is to prevent and mitigate undue harm to people and their environment in the development process. The ESF includes 10

37. Environmental and Social Standards (ESSs) that provide overarching E&S guidelines for the borrowers to help them in the process of the identification, preparation, and implementation of programs and projects, which are to be funded through Investment Project Financing (IPF) window, The ESF also provides a platform for increasing participation of stakeholders in all project life cycle, thus increasing ownership and building common understanding among the local population.

38. The following ESSs (consistent with the SESRP’s ESMF – Table 3-1) have been found relevant and applicable to the proposed subprojects:

- ESS 1 (“Assessment and Management of Environmental and Social Risks and Impacts”)
- ESS 2 (“Labor and Working Conditions”)
- ESS 3 (“Resource Efficiency and Pollution Prevention and Management”)
- ESS 4 (“Community Health and Safety”)
- ESS6 (“Biodiversity and Sustainable Management of Living Natural Resources”)
- ESS 10 (“Stakeholder Engagement and Information Disclosure”)

**Table 3-1: World Bank Environmental and Social Safeguard Standards**

POLICY	APPLICABILITY TO THE PROJECT	TRIGGERED		POTENTIAL IMPACTS	RESPONSIBLE PARTY	TIMEFRAME
		YES	NO			
<b>ESS1 ASSESSMENT AND MANAGEMENT OF</b>	This policy is triggered due to the interaction of the proposed projects with the natural and human	√		To identify, evaluate, and manage the environment and social	Contractor	Construction Phase

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/837721522762050108-0290022018/original/ESFFramework.pdf>

POLICY	APPLICABILITY TO THE PROJECT	TRIGGERED		POTENTIAL IMPACTS	RESPONSIBLE PARTY	TIMEFRAME
		YES	NO			
<b>ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS</b>	environment. Also, the subprojects pose some risk which implies that the project impacts are less adverse but require Environmental Assessment which defines appropriate mitigation measures.			risks and impacts namely: Soil erosion Noise and Vibration Dust Emission, increased solid waste generation including E-Waste, hydrocarbon spills, To adopt a mitigation hierarchy approach to: (a) Anticipate and avoid (b) minimize or reduce; (c) mitigate; and (d) compensate for or offset them.		
<b>ESS2 LABOR AND WORKING CONDITIONS</b>	This policy is triggered due to the need for labour. There is a need to treat workers in the project fairly and provide safe and healthy working conditions.	√		Child/forced labour, unfair treatment, discrimination, and unequal opportunity of project workers, occupational health and safety hazards, non-payment of wages, limited freedom of association,	Contractor and PIU	Construction & Operation Phase

POLICY	APPLICABILITY TO THE PROJECT	TRIGGERED		POTENTIAL IMPACTS	RESPONSIBLE PARTY	TIMEFRAME
		YES	NO			
				and lack of collective bargaining,		
<b>ESS3 RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT</b>	This policy is triggered because the project is expected to have pollution impacts. There is a need to address resource efficiency and pollution prevention and management throughout the project life cycle.	√		To promote the efficient usage of resources, including energy, water, and raw materials, against potential impacts namely: Increased electricity consumption, Solar panel materials, environmental pollution,	Contractor	Construction Phase
<b>ESS4: COMMUNITY HEALTH AND SAFETY</b>	This policy is triggered because the project is expected to pose health and safety hazards and there is a need to mitigate those	√		To anticipate and avoid adverse impacts on the health and safety of project-affected communities namely: Community Health Hazards, security threats, road safety risks	Contractor	Construction Phase
<b>ESS6: BIODIVERSITY CONSERVA</b>	This policy is triggered because in some sites there might	√		Low impacts in areas where tree shadows	Contractor	Construction Phase

POLICY	APPLICABILITY TO THE PROJECT	TRIGGERED		POTENTIAL IMPACTS	RESPONSIBLE PARTY	TIMEFRAME
		YES	NO			
<b>TION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES</b>	be a need to trim and cut down some trees			cover solar panels		
<b>ESS10: STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE</b>	This policy is triggered because there will be public participation during the project cycle	√		Limited disclosure of information, complaint over non-involvement of stakeholders,	Contractor and PIU	Construction & Operation Phase

39. Para 36 of the ESS1 states that “projects involving multiple small subprojects, that are identified, prepared and implemented during the course of the project, the Bank will review the adequacy of national environmental and social requirements relevant to the subprojects, and assess the capacity of the Borrower to manage the environmental and social risks and impacts of subprojects as required by paragraph 37 (of the ESS1). When necessary, the project will include measures to strengthen the capacity of the Borrower.”

40. Para 37 of ESS1 also states that “The Bank will require the Borrower to carry out appropriate environmental and social assessment of subprojects, and prepare and implement such subprojects, as follows: (a) High Risk subprojects, in accordance with the ESSs; (b) Substantial Risk, Moderate Risk and Low Risk subprojects, in accordance with national law and any requirement of the ESSs that the Bank deems relevant to such subprojects.”

41. Additionally, Para 38 of ESS1 states that “If the Bank is not satisfied that adequate capacity exists on the part of the Borrower, all High Risk and as appropriate, Substantial Risk subprojects will be subject to prior review and approval by the Bank until it is established that adequate capacity exists.”

42. More stringent E&S framework will be applied throughout the life cycle of the proposed subprojects. Therefore, this ESMP has been built based on the requirements of the ESS1. In summary, this ESMP consists of a set of mitigation measures, monitoring and institutional measures that will be taken during implementation and operation of the project to eliminate adverse E&S risks and impacts, offset them, or reduce them to acceptable levels.

43. WBG has also put guidelines for Environment, Health and Safety (EHS)<sup>2</sup> that serve as useful references for general issues as well as sector-specific activities. The EHS guidelines are mainly on environmental, occupational health and safety, community health and safety as well as on construction and decommissioning. It contains guidelines cross cutting on environmental (waste management, ambient air quality, noise and water

<sup>2</sup> <https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-en.pdf>

pollution), occupational health and safety issues among others, applicable to all the industry sectors. Considering the nature of the civil works associated with the installation of PV systems at HCFs, the General EHSF will be applied.

44. The WBG's EHSGs have introduced international thresholds for environmental pollutants, for the project proponent, as well as for the contractor, to abide with during construction, operation and decommissioning. These included, but not limited to, WHO Ambient Air Quality Guidelines, Noise Level Guidelines, Noise Levels for Various Working Environments, Summary of Recommended Personal Protective Equipment According to Hazard, and Occupational Accident Reporting: See Annex 1 to 4 respectively:

These guidelines should be followed and incorporated into contracts and followed by contractors and consultants. The project should also follow relevant COVID-19 guidance, such as ESF/Safeguards Interim Note: COVID-19 Considerations in Construction/Civil Works Projects. PIU will supervise and monitor the implementation by the Contractor(s) who will take note and implement as part of the contractual obligation of these guidelines.

## 4. FACILITY MANAGEMENT CONSULTATIONS

### 4.1 Introduction

45. The facility management consultations were carried out as part of the scoping exercise between 8<sup>th</sup> – 21<sup>st</sup> October 2025. The heads of the facilities were interviewed, and their sentiments were included in the ESMP. During engagements, an overview of the project was presented to all those interviewed including the activities likely to take place and the associated potential risks and impacts. Future consultations will include vulnerable groups such as women, persons with disabilities, and the elderly. Feedback from these groups will be integrated into the mitigation design and throughout the contract. A stakeholder response matrix will be shared with communities quarterly to close the feedback loop.

46. Most of the participants interviewed welcomed the project's indication that it will be beneficial to the health facilities because it will greatly reduce the operation cost for the facilities whose electricity is currently being supplied by private service providers. They also noted that the solarization of public health facilities will greatly improve health service delivery due to the ability to refrigerate medicines and install new and modern equipment in the local facilities.

47. Community was in support of the project. They noted that the project will be beneficial to the community as it will: (a) Improve their access to Health care, and (b) Reduce cost, especially in health facilities being supplied by private companies or those using generators. (Community-wide Engagement planned to be conducted in the future to deeply emphasize the project's scope and benefits and to ensure everyone within the community fully understands their role)

### 4.2 Facility management Concerns

The management raised the following concerns:

- a) Demanded a detailed overview of the solar PV installation project, including its purpose, scale and expected benefits for the health facilities and the community.
- b) The management were eager to know the duration of the project activities as they were concerned about the possible disruptions during the installation, i.e, noise, dust or temporary restricted access during the solar system installation at the facilities.
- c) The management were eager to know who will be responsible during and after the completion of the project activities to avoid any sort of Risks related to vandalism or theft of solar equipment.
- d) Electronic waste (e-waste) is generated from the disposal of end-of-life solar panels and other electronic components.
- e) The management had Concerns over electrical safety, especially if systems are not installed or maintained properly.
- f) Management raised concerns regarding to gender equality, particularly in relation to employment opportunities, additionally emphasized the importance of prioritizing youth and women **in** recruitment processes.
- g) The management expressed concern about a potential **increase in HIV/AIDS cases** due to interactions between residents and technical staff coming from outside the project area.
- h) Issues related to Gender-Based Violence (GBV) and Sexual Harassment (SH) were mentioned, including fears that sexual favors could be demanded in exchange for employment opportunities.
- i) Facility managers requested clarity on the project's Grievance Redress Mechanism (GRM) and stressed the need for establishing accessible channels for continuous communication and feedback throughout the project lifecycle.

48. Additionally, despite the positive impacts that will accrue from Solar panel installation, they noted that health facilities are sensitive installations and hence there will be a need to take precautions during project implementation to ensure the safety of both the workers and the facility users. This will help avoid any inconvenience to the facilities. They reiterated the need for continuous engagement to ensure any emerging issues are addressed holistically and promptly. The Following Table 4-1 summarizes questions and responses.

**Table 4-1: Main Questions and Responses from the facility Engagement**

Questions	Response	Response by the PIU/MoEWR- on how the provided response will be used or acted upon
<b>How will this solar project affect our local environment?</b>	An Environmental and Social Assessment is being undertaken to identify and minimize potential impacts. Mitigation measures will include environmental preservation and adherence to responsible construction practices.	Relevant mitigation measures will be incorporated into the Environmental and Social Management Plan (ESMP), and contractors will be required to comply.
<b>Will the contractor employ locals, or will he come with employees?</b>	Local community members will be prioritized, especially for unskilled and semi-skilled positions.	Contract clauses will require contractors to prioritize local labor in hiring practices. This will be monitored throughout implementation.
<b>What measures are in place to ensure community safety during construction?</b>	The project will implement strict safety measures, conduct regular site inspections, and coordinate with local authorities to ensure public safety.	The ESMP and Occupational Health and Safety (OHS) protocols will be enforced and monitored. Contractor compliance will be regularly assessed.
<b>How long will the installation process take?</b>	Project timelines will be communicated ahead of the installation.	Each facility installation is expected to take <b>no more than two weeks</b> . Scheduling will be shared with stakeholders beforehand.

49. Lastly, the management requested the following from the project: (a) All employment opportunities, especially the non-skilled labor during the construction and operation Phases. They noted that the lack of job opportunities was a major setback to the state; (b) They inquired about the project's timelines because they were concerned that it would take too long to complete.

## **5. ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS**

This Environmental, Social, Health and Safety Management Plan (ESHSMP) consider potential impacts associated with the following project phases:

- **Construction Phase:** Includes site preparation, transportation of equipment and materials, installation of solar panel systems and system commissioning.
- **Operational Phase:** Involves the day-to-day operation and maintenance of the installed solar systems.
- **Decommissioning Phase:** Covers the removal of systems and disposal of materials in accordance with environmental and safety standards.

### **5.1 Positive Impacts during the Construction Phase**

The construction phase is expected to generate several beneficial impacts for the local community, including:

- a) Employment creation for local residents, particularly in unskilled and semi-skilled roles, including tasks involving manual labor.
- b) Growth of small-scale businesses and informal trade, driven by increased demand for goods and services due to the temporary presence of project personnel.

### **5.2 Positive Impacts during the Operating Phase**

During the operational phase, the project is anticipated to deliver long-term positive outcomes, such as:

- a) Enhanced delivery of public services in institutions like schools and government facilities through improved access to reliable electricity.
- b) Improved energy access in underserved and remote areas, contributing to social equity.
- c) Strengthened security in and around electrified public facilities, owing to improved lighting and infrastructure reliability.

### **5.3 Positive Impacts during Decommissioning Phase**

The decommissioning phase, while signaling the end of the solar system's life cycle, will also offer several local benefits:

- a) Short-term job opportunities for community members in dismantling activities, especially in non-skilled and semi-skilled tasks.
- Environmental restoration efforts, including top-soil replacement and re-vegetation, will enhance the site's visual appeal and ecological health.
- c) Potential for economic benefit through the sale or recycling of dismantled components such as scrap metal, wiring, batteries, and other electrical materials, contributing to income generation and resource recovery.

**Table 5-1: Summary E&S risks and impacts based on receptors and subproject phases**

Possible Receptors	Construction		Operation		Decommissioning	
	<i>Risks &amp; impacts</i>	<i>Significance</i>	<i>Risks &amp; impacts</i>	<i>Significance</i>	<i>Risks &amp; impacts</i>	<i>Significance</i>
Physical Environment Ref: ESS1, ESS3	Soil erosion, Noise and Vibration Dust Emission, increased solid waste from construction materials, Extraction of construction materials, oil spills,	Moderate	Increased solid waste generation including E-Waste,	Low	Soil erosion, Noise and Vibration Dust Emission, increased solid waste from decommissioned materials, oil spills	Low
Sub-project Workers Ref: ESS1, ESS2, ESS10	Worksite Safety, accidents, Health Hazards, Labour grievances, Gender-Based Violence, Theft and damage of solar panel systems, Limited disclosure of information, blindness due to extreme welding lights, injuries from minor to major/fatal leading to disability, catastrophic, and/or fatal.	Substantial	Slips and Falls from Height, Electrocution/Electric Shocks and Burns	Moderate	Worksite Safety, accidents, Health Hazards, Labour grievances, Gender Based Violence, Limited disclosure of information, blindness due to extreme welding lights during dismantling of the metallic rooftop solar stands, injuries from minor to major/fatal leading to disability, catastrophic, and/or fatal.	Moderate
Immediate Community Members Ref: ESS1, ESS4, ESS10	Security threats, traffic impacts.	Substantial	Security threats, Public Health concerns, traffic impacts	Low	Security threats, traffic impacts, Noise and Vibration during dismantling of rooftop metallic bases	Low

## **6. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN**

50. Based on requirements of the World Bank's ESSs in general, and the requirements of ESS1, in particular, this Environmental and Social Management Plan (ESMP) has been prepared to basically detail (a) the measures to be taken during the construction, operation, and decommissioning of the proposed set of PV System subprojects to eliminate or offset adverse environmental and social impacts, or to reduce them to acceptable levels; and (b) the actions needed to implement these measures. This ESMP section consists of the three main requirements of the ESS1, mitigation, monitoring, and the institutional measures to be taken during the three phases of the subprojects. Through this site-specific Plan, the PIU will (a) identify the set of responses (i.e., mitigation and monitoring/ supervision) to potentially identified adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements, in addition to (d) estimate cost of implementing the proposed measures throughout the subproject's life cycle.

### **6.1 Mitigation Measures**

51. The contractor(s) should be held accountable for the implementation of the mitigation measures to the PIU team during the construction and initial operation phases. The cost of implementing the various mitigation measures described in the ESMP to ensure that Environmental and Social risks are managed effectively shall be included in the overall budget of the contract between PIU and the contractor. It will be entirely the contractor's responsibility to come up at the time of preparing its offer, with the cost of various mitigation measures to put in place for various impacts highlighted in this report. It is also expected that the contractor must have designated trained personnel to monitor Environmental, Safety, and Health measures during construction works, and thus report regularly to PIU.

### **6.2 Monitoring Measures**

52. Monitoring aims to ensure that mitigation and enhancement measures are implemented to feed into the normal project reporting and evaluation, which determines the success, failure, and lessons learned. This shall be done regularly after the development of site-specific ESHSMP to ensure compliance with environmental standards and procedures including relevant policies and legislation. The Project Implementation Unit (PIU) officers from the Ministry of Health shall be responsible for the overall management of the implementation of site-specific ESMP.

53. The contractor's personnel on Environmental, Safety, and Health matters should be part of the project to provide advice on the implementation and monitoring of environmental and social measures and will be responsible for supervising and reviewing the works as regards environmental and social requirements, safety, and quality assurance systems and plan the supervision functions to ensure that works are implemented while protecting the social and environment aspects.

54. The compliance visits will be conducted to monitor the compliance of the proposed E&S mitigation measures and E&S monitoring activities. The compliance visits will mainly focus on.

- Compliance with the tender clause.
- Compliance with the mitigation measures.
- Timely and adequate implementation of environmental and social management plans.
- Overall environmental and social performance of the project.
- Work-related grievances and how they were resolved
- Work-related incidents and how they were addressed and reported back

- Environmental and community-related incidents were addressed and reported back

55. The contractor in collaboration with the PIU team, personnel from the Ministry of Health, and community members will ensure compliance with the environmental and social monitoring aspects of the project. The PIU team shall monitor the implementation of the mitigation measures. Arrangements for monitoring shall be developed depending on the project implementation duration. Reporting to the Ministry of Energy will be done quarterly by the PIU while the contractor will be doing monthly reporting.

56. The construction (incl. pre-construction work), operation, and decommissioning phases of the proposed stand-alone solar systems for communities shall be supervised by the PIU team. However, the Ministry of Health shall be involved throughout the project cycle in the implementation of the proposed solar and they will be getting instructions from the Project Engineers. The contractor will also be responsible for various issues during the construction phase of this proposed subproject. Table 6-1 below presents the detailed Management Plan for the proposed subprojects.

**Table 6-1: E&S Management and Monitoring Plan**

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
Physical Environment						
1.Noise & vibration	<ul style="list-style-type: none"> <li>▪ Compliance with the legal requirements for noise levels specified in the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009</li> <li>▪ Implementation of Noise prevention program as stipulated in the legislation for minimizing noise and vibration generation from construction activities.</li> <li>▪ Ensure that all generators and heavy-duty equipment are insulated or placed in enclosures (containers) to minimize ambient noise levels.</li> <li>▪ Notification of the community facilities management and neighbors about the construction schedule &amp; activities</li> <li>▪ Noise-generating activities that take place near residential or sensitive institutional receptors will be restricted to between 0800 and 1700 hours.</li> <li>▪ Working at night is not permitted.</li> <li>▪ Reduce the number of people accessing a construction site at any given time</li> </ul>	PPEs provided Workers with Earmuffs Noise management programme	Monthly	Field Visits, Noise monitoring devices	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
2.Increased energy consumption	<ul style="list-style-type: none"> <li>▪ Monitor energy use during construction and set targets for reduction of energy use.</li> <li>▪ Plan well for transportation of materials to ensure that hydrocarbons (diesel and petrol) are not consumed in excessive amounts</li> <li>▪ Ensure electrical equipment, appliances and lights are switched off when not being used.</li> </ul>	<p>Energy consumption report</p> <p>Energy conservation program</p>	Quarterly	Field Visits	Contractor	PIU – E&S team
3.Fire Hazards	<ul style="list-style-type: none"> <li>▪ Contractors shall take all necessary precautions to prevent fires caused either deliberately or accidentally.</li> <li>▪ Contractor shall prepare a fire prevention and fire emergency plan as part of the Environmental Plan to be submitted to the PIU.</li> <li>▪ The Contractor shall provide adequate firefighting appliances at specified localities on the worksite to meet any emergency resulting from ignition of a fire.</li> <li>▪ No burning of any litter/ cleared vegetation on site.</li> <li>▪ All working areas should have no smoking zones.</li> </ul>	<p>Fire management plan</p> <p>Presence of firefighting equipment</p> <p>Fire emergency plan in place</p> <p>Fire training records</p> <p>List of fire marshals</p>	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>Arrangements and labelling of battery terminals should be made adequately to prevent fire incidents.</li> </ul>					
4.Increased solid waste generation	<ul style="list-style-type: none"> <li>Use of an integrated solid waste management system i.e., through a hierarchy of options: 1. Reduction at source 2. Recycling 3. Reusing 4. Incineration 5. Sanitary land filling.</li> <li>Through accurate estimation of the dimensions and quantities of materials required.</li> <li>Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time.</li> <li>Dispose waste more responsibly by contracting a registered waste handler who will dispose of the waste at designated sites or landfills only.</li> <li>Waste collection bins to be provided at designated points.</li> </ul>	Waste management plan Waste receptacles in place Waste disposal tracking documents	Monthly	Field Visits	Contractor	PIU – E&S team
5.Generation of E-waste Obsolete Solar Panels, Batteries, inverters	<ul style="list-style-type: none"> <li>Conduct regular inspections and maintain inspection reports on the status of solar panel systems.</li> </ul>	E-waste management	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Have a contract with the supplier that requires for their collection and adequate disposal of E-waste.</li> <li>▪ Contract a licensed waste handler to ensure appropriate disposal of E-waste.</li> <li>▪ Assess disposal plans for E-waste.</li> </ul>					
6.Generation of wastewater	<ul style="list-style-type: none"> <li>▪ Provide means for handling sewage generated at the construction site-use of mobile toilet</li> <li>▪ Monitor effluent quality regularly to ensure that the stipulated discharge rules and standards are not violated.</li> </ul>	Availability of sanitary facilities	Monthly	Field Visits	Contractor	PIU – E&S team
7.Sourcing of Construction materials	<ul style="list-style-type: none"> <li>▪ Source building materials from local suppliers who use environmentally friendly processes in their operations.</li> <li>▪ Ensure accurate budgeting and estimation of actual construction material requirements to ensure that the least amount of material necessary is ordered.</li> <li>▪ Ensure that damage or loss of materials at the construction site is kept minimal through proper storage.</li> </ul>	Material inventory	Monthly	Field Visits	Contractor	PIU – E&S team
8.Oil spills Hazards	<ul style="list-style-type: none"> <li>▪ Care must be exercised not to spill any hydrocarbons.</li> </ul>	No oil spills	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ All oils and lubricants shall be stored away from weather elements and under an impermeable containment.</li> <li>▪ No maintenance of vehicles or equipment on site.</li> <li>▪ Vehicles bringing workers and solar PV materials to the site must be maintained in good condition and proper service to ensure no oils are likely to spill.</li> <li>▪ Any contaminated soil shall be scooped and disposed of appropriately.</li> <li>▪ In case of spillage the contractor should isolate the source of oil spill and contain the spillage using sandbags, sawdust and absorbent materials.</li> <li>▪ Develop oil spillage plan.</li> </ul>	Vehicle maintenance records				
1. Worksite Safety, accidents, and Health Hazards to employees	<p>Ensure compliance with the WBG's EHSGs:</p> <ul style="list-style-type: none"> <li>▪ Provision of all appropriate PPEs to the contractor's employees and ensure they are always worn while they are working including but not limited to welder goggles and/or a full-face eye shield for all personnel involved in, or assisting, welding operations, gloves, safety shoes, harnesses, helmet, among others.</li> </ul>	Number of accidents or near misses Accident registers in place Safety inspections reports	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Ensure engagement of competent staff for skilled work.</li> <li>▪ Holding toolbox talks every morning before commencing work and they will be based on working safely.</li> <li>▪ Provide and place necessary and appropriate warning signs at various points that are risky.</li> <li>▪ Barricade with conspicuous warning tapes within worksites</li> <li>▪ Provision of the first aid kits on site with trained first aiders.</li> <li>▪ Adequately inspect scaffolds and ladders that shall be used when working at height.</li> <li>▪ Ensure OSH awareness creation and training for all contractor staff</li> <li>▪ Provide a general register for adequate reporting of accidents.</li> </ul>					
2.Working at Heights Slips and Falls from Height	<ul style="list-style-type: none"> <li>▪ Carry out a risk assessment to identify hazards associated with the work process and mitigate them accordingly.</li> <li>▪ Assess the structural strength of the building and roofs onto which solar panels shall be mounted</li> </ul>	No slips/ falls recorded Inspection reports PPE provided	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Inspect all ladders and scaffolds used while working at a height.</li> <li>▪ Provide adequate personal protective equipment for use by contractor staff.</li> <li>▪ Carry out inductions and regular toolbox talks before the commencement of work by staff.</li> <li>▪ Assess the structural strength of buildings and roofs onto which solar panels shall be mounted.</li> </ul>					
3. Electrocution/Electric Shocks and Burns/Electrical Fires	<ul style="list-style-type: none"> <li>▪ Engage certified electricians when carrying out wiring activities.</li> <li>▪ Create awareness on electrical safety.</li> <li>▪ Provide well coded and appropriate firefighting appliances.</li> <li>▪ Provide emergency contact information for fire services for display.</li> <li>▪ Carry out Risk Assessments to identify hazards associated with work processes and mitigate accordingly.</li> <li>▪ Use quality materials when carrying out wiring activities.</li> </ul>	Wiring certificate Wiring inspection report Risk assessment report	Monthly	Field Visits	Contractor	PIU – E&S team
4. Gender Based Violence (Sexual Exploitation and Abuse of community members by project workers (SEA)/ workplace	<ul style="list-style-type: none"> <li>▪ Build and improve project staff capacity to address risks of SEA/SH through the development of guidance, training and</li> </ul>	Training records on GBV-SEA/SH	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
Sexual Harassment amongst project workers (SH)	<p>continuous provision of learning activities and materials.</p> <ul style="list-style-type: none"> <li>▪ Regular sensitization and training for all project workers and projects affected people on human rights, gender and GBV.</li> <li>▪ Created HIV awareness to workers and community members (PAPs).</li> <li>▪ Develop and implement a Gender Based Violence Management Plan including a GRM that ensures confidential reporting of GBV cases.</li> <li>▪ Prepare a Grievance redress mechanism detailing processes, procedures and principles for adequate and timely reporting and resolution of all grievances.</li> </ul>	Signed code of conducts				
Community						
1. Public Health Concerns and safety risks posed by the influx of workers or people providing support services in an area because of the project	<ul style="list-style-type: none"> <li>▪ Restricting access to the site, through a combination of institutional and administrative controls i.e., complete hoarding of the site.</li> <li>▪ Collaboration with local communities and responsible authorities to improve signage, visibility and overall safety of the Solar PV installation Site.</li> </ul>	Employment records Clean water Rest rooms provided	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Coordination with emergency responders to ensure that appropriate first aid is provided in the event of accidents.</li> <li>▪ Use of skilled trainers to raise awareness among project workers of the risks, expected behaviors, and consequences of violations, communicated through training, and publicized codes of conduct.</li> <li>▪ Implement the provisions of the LMP.</li> </ul>					
2. Traffic impacts on infrastructure	<ul style="list-style-type: none"> <li>▪ All drivers coming to the site must observe traffic rules and exercise courtesy to other road users.</li> </ul>	Smooth flow of vehicles Availability of traffic marshals	Monthly	Field Visits	Contractor	PIU – E&S team
3. Gender Based Violence (Sexual Exploitation and Abuse of community members by project workers (SEA)/ workplace Sexual Harassment amongst project workers (SH)	<ul style="list-style-type: none"> <li>▪ Build and improve project staff capacity to address risks of SEA/SH through the development of guidance, training and continuous provision of learning activities and materials.</li> <li>▪ Regular sensitization and training for all project workers and projects affected people on human rights, gender and GBV.</li> <li>▪ Created HIV awareness for workers and community members (PAPs).</li> </ul>	Training records on GBV-SEA/SH Signed code of conducts	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Develop and implement a Gender Based Violence Management Plan including a GRM that ensures confidential reporting of GBV cases.</li> <li>▪ Prepare a Grievance redress mechanism detailing processes, procedures and principles for adequate and timely reporting and resolution of all grievances.</li> </ul>					
Physical Environment						
	hydrocarbons					
Fire Hazards	<ul style="list-style-type: none"> <li>▪ The contractor shall prepare a fire prevention and fire emergency plan as part of the Environmental Plan during the operation phase of the project.</li> <li>▪ The contractor shall provide adequate firefighting appliances at specified localities on the worksite to meet any emergency resulting from ignition of a fire.</li> <li>▪ No burning of any litter/ cleared vegetation on site.</li> <li>▪ All working areas should have no smoking zones.</li> </ul>	Fire management plan Presence of firefighting equipment Fire emergency plan in place Fire training records List of fire marshals and Fire Emergency Plan in place	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>Arrangements and labelling of battery terminals should be made adequately to prevent fire incidents.</li> </ul>					
<p>Increased solid waste generation namely: Inverters and batteries used in PV systems also have a limited lifespan and can contribute to e-waste. Solar panels have a finite lifespan (typically 20-30 years), and their disposal can generate electronic waste (e-waste)</p>	<ul style="list-style-type: none"> <li>Use of an integrated solid waste management system i.e., through a hierarchy of options: 1. Reduction at source 2. Recycling 3. Reusing 4. Incineration 5. Sanitary land filling.</li> <li>Through accurate estimation of the dimensions and quantities of materials required.</li> <li>Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time.</li> <li>Promote recycling and reusing solar panel components. Implement extended producer responsibility (EPR) programs to ensure manufacturers take back and properly recycle old panels. Explore ways to refurbish or repurpose panels for other applications.</li> <li>Promote recycling and proper disposal of inverters and batteries.</li> </ul>	<p>Waste management plan Waste receptacles in place Waste disposal tracking documents</p>	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Encourage regular maintenance and upgrading of PV systems to extend their useful life.</li> <li>▪ Consider incentives for retrofitting or upgrading older systems rather than complete replacement.</li> <li>▪ Dispose of waste more responsibly by contracting a registered waste handler who will dispose of the waste at designated sites or landfills only. Waste collection bins are to be provided at designated points.</li> </ul>					
Generation of E-waste Obsolete Solar Panels, Batteries, inverters	<ul style="list-style-type: none"> <li>▪ Conduct regular inspections and maintain inspection reports on the status of solar panel systems.</li> <li>▪ Have a contract with the supplier that requires for their collection and adequate disposal of E-waste.</li> <li>▪ Contract a licensed waste handler to ensure appropriate disposal of E-waste.</li> <li>▪ Assess disposal plans for E-waste.</li> </ul>	E-waste management	Monthly	Field Visits	Contractor	PIU – E&S team
Workers						
Working at Heights during the maintenance works may lead to Slips and Falls from Height	<ul style="list-style-type: none"> <li>▪ Carry out a risk assessment to identify hazards associated with the work process and mitigate them accordingly.</li> </ul>	No slips/ falls recorded Inspection reports	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Inspect all ladders and scaffolds used while working at a height.</li> <li>▪ Provide adequate personal protective equipment for use by contractor staff.</li> <li>▪ Carry out HS inductions and regular toolbox talks before the commencement of work by staff Periodically assess the structural strength of buildings and roofs onto which solar panels have been mounted before undertaking maintenance works.</li> </ul>	PPE provided				
Electrocution/Electric Shocks and Burns/Electrical Fires	<ul style="list-style-type: none"> <li>▪ Engage certified electricians when carrying out wiring activities.</li> <li>▪ Create awareness on electrical safety.</li> <li>▪ Provide well coded and appropriate firefighting appliances.</li> <li>▪ Provide emergency contact information for fire services for display.</li> <li>▪ Carry out Risk Assessments to identify hazards associated with work processes and mitigate accordingly Use quality materials when carrying out wiring activities.</li> </ul>	Wiring certificate Wiring inspection report Risk assessment report	Monthly	Field Visits	Contractor	PIU – E&S team
Community						
Physical Environment						

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
Noise & vibration	<ul style="list-style-type: none"> <li>▪ Compliance with the legal requirements for noise impact specified in the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.</li> <li>▪ Implementation of Noise prevention program as stipulated in line with the Environmental Management and Coordination (Noise and Excessive Pollution) (Control) Regulations, 2009.</li> <li>▪ Noise-generating activities that take place near residential or sensitive institutional receptors will be restricted to between 0800 and 1700hrs.</li> <li>▪ Working at night is not permitted Reduce the number of people accessing a construction site at any given time.</li> </ul>	PPEs provided Workers with Earmuffs Noise management programme	Monthly	Field Visits	Contractor	PIU – E&S team
Increased electricity consumption during the dismantling of the solar rooftop bases,	<ul style="list-style-type: none"> <li>▪ Monitor use of electricity during decommissioning and set targets for reduction of energy use.</li> <li>▪ hydrocarbons Ensure electrical equipment, appliances and lights are switched off when not being used.</li> </ul>	Energy consumption report Energy conservation program	Quarterly	Field Visits	Contractor	PIU – E&S team

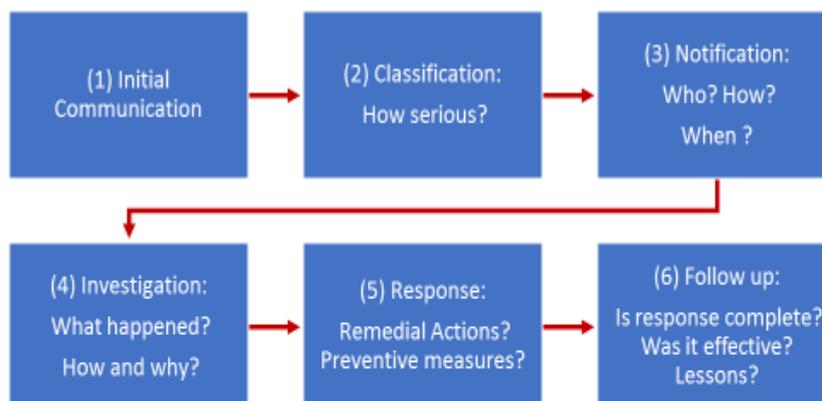
E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
Fire Hazards	<ul style="list-style-type: none"> <li>▪ Decommissioning Contractor shall take all necessary precautions to prevent fires caused either deliberately or accidentally during construction process.</li> <li>▪ Decommissioning Contractor shall prepare a fire prevention and fire emergency plan as part of the Environmental Plan to be submitted to the PIU.</li> <li>▪ No burning of any litter/ cleared vegetation on site.</li> <li>▪ All working areas should be no smoking zones.</li> <li>▪ Arrangements and labelling of battery terminals should be made adequately to prevent fire incidents.</li> </ul>	Fire management plan Presence of firefighting equipment Fire emergency plan in place	Monthly	Field Visits	Contractor	PIU – E&S team
Workers						
Worksite Safety, accidents, and Health Hazards to employees	<ul style="list-style-type: none"> <li>▪ Ensure compliance with WBGs EHS Guidelines:</li> <li>▪ Provision of all appropriate PPEs to the decommissioning workers and ensure they are always worn while they are working.</li> <li>▪ Ensure engagement of competent staff for skilled work.</li> </ul>	Number of accidents or near misses Accident registers in place	Monthly	Field Visits	Contractor	PIU – E&S team

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Holding toolbox talks every morning before commencing work and they will be based on working safely.</li> <li>▪ Provide and place necessary and appropriate warning signs at various points that are risky.</li> <li>▪ Barricade with conspicuous warning tapes or hoard the site.</li> <li>▪ Provision of the first aid kits on site with trained first aiders.</li> <li>▪ Adequately inspect scaffolds and ladders to be used when working at height.</li> <li>▪ Assess the structural strength of the building and roofs which solar panels have been mounted before starting to work.</li> <li>▪ Ensure OSH awareness creation and training for all engaged staff.</li> <li>▪ Provide a general register for adequate reporting of accidents.</li> </ul>	Safety inspections reports				
Theft or vandalism of equipment (e.g., batteries, panels) Threats to personnel safety during fieldwork	<ul style="list-style-type: none"> <li>▪ Employ local guards, lockable storage containers, secure fencing around installations</li> </ul>					

E&S aspects	Mitigation measures	Monitoring/ Supervision measures	Monitoring/ Supervision frequency	Monitoring/ Supervision methods and reporting	Responsibilities	
					Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>▪ Conduct community briefings, implement SMP, avoid high-risk areas, restrict work to daylight hours</li> </ul>					
Community						
Traffic Hazards	All drivers coming to the site must observe traffic rules and exercise courtesy to other road users Awareness creation for community members on traffic safety. Adoption of safety measures that are protective of road users: including safety / traffic signages.	Number of Project Traffic accidents	Monthly	Field Visits	Contractor	PIU – E&S team
Community tension or backlash	Engage elders and local leadership, clarify project benefits, ensure inclusive hiring		Prior to mobilization and monthly thereafter	Field Visits	MoEWR-PIU	PIU – E&S team

### 6.3 Incident Reporting

57. The project will follow the WB Environmental and Social Incident Response Toolkit (ESIRT) for incident management and reporting process that is comprised of six steps (*See figure below*):



**Figure 6-1: Overarching Incident Management and Reporting Process**

#### 6.3.1 Incident Reporting and Initial Communications

58. The incidents shall be classified into Indicative, Serious, or Severe, and then a brief one- to two-page Incident Report shall be prepared with the support of the project’s Safeguards specialist and be transmitted to the Bank within 24 hours.

59. Indicative Incidents: These are relatively small-scale, localized, and one-off non-compliance incidents that negatively impact a small geographic area or a small number of people, and do not result in significant or irreparable harm to people or the environment.

**Table 6-2: Examples of Indicative Incidents**

<b>Environmental</b>	<b>Social</b>	<b>Occupational Health &amp; Safety</b>
Small-volume hydrocarbon or chemical spills	Small-scale crop damage or livestock deaths	Underuse of personal protective equipment (PPE) by Works Contractor
Localized dust, light, or noise pollution	Grievances due to project use of public roads	Local increase in the occurrence of communicable disease
Illegal hunting of wildlife (non-endangered)	Project interference with locally significant incidents and sites	Minor job site injuries
Small volume sediment, pesticide, or fertilizer runs off into local waterways	Vehicle damage to public or private roads caused by Works Contractors	Poor “housekeeping” at site, e.g., littering and random disposal of solid waste
Minor off-site disposal of solid waste from project	Nuisance-level contact between employees and community	Lack of understandable warning or traffic control signage
Poor quality or delayed site restoration and revegetation	Minor instances of inappropriate behavior of security forces or other Contractor personnel	Almost empty first aid kit at work site

<b>Environmental</b>	<b>Social</b>	<b>Occupational Health &amp; Safety</b>
Poorly functioning erosion-control measures	Overloading of local commercial services from use by project personnel	Poorly organized or sporadic health & safety induction and training
	Minor impacts on livelihood restoration and/or access to community natural resources	Multiple “slip and trip” hazards throughout the site
	Minor impacts on cultural sites/areas	Lack of Health & Safety plan and/or training for staff

60. **Serious Incidents:** Incidents that negatively impact moderate to large geographic areas; many members of a community; or result in significant or irreparable harm to individual people, community resources, or the natural environment. Also, repeated non-compliance incidents/failure to remedy non-compliance.

**Table 6-3: Examples of Serious Incidents**

<b>Environmental</b>	<b>Social</b>	<b>Occupational Health &amp; Safety</b>
Large-volume hydrocarbon or chemical spills, or other hazardous substances impacting the environment	Cases of mistreatment of communities potentially, including vulnerable groups, by project workers or security forces, including incidents such as sexual harassment	Injury/ies requiring off-site medical attention
Large-volume or long-term sediment, pesticide, or herbicide runoff into waterways	Significant and repeated community impacts from project vehicles and construction activities	Instances of serious communicable diseases among workforces
Lack of implementation of agreed environmental restoration program	GRM not functioning	Consistent lack of health & safety plans and training at work site
	Inadequate consultation and engagement of stakeholders in the project leading to significant conflict and/or delays	Chronic non-use of PPE at project work site
	Non-violent community protests against the project, or mild community unrest	Repeated non-compliance or failure to remedy non-compliance

61. **Severe Incidents:** Incidents that result in great harm to individuals or the environment, or present significant reputational risks that could endanger the Bank’s ability to operate in a country or region. Also, persistent non-compliance includes inability or unwillingness to remedy situations that could result in serious or severe harm.

**Table 6-4: Examples of Severe Incidents**

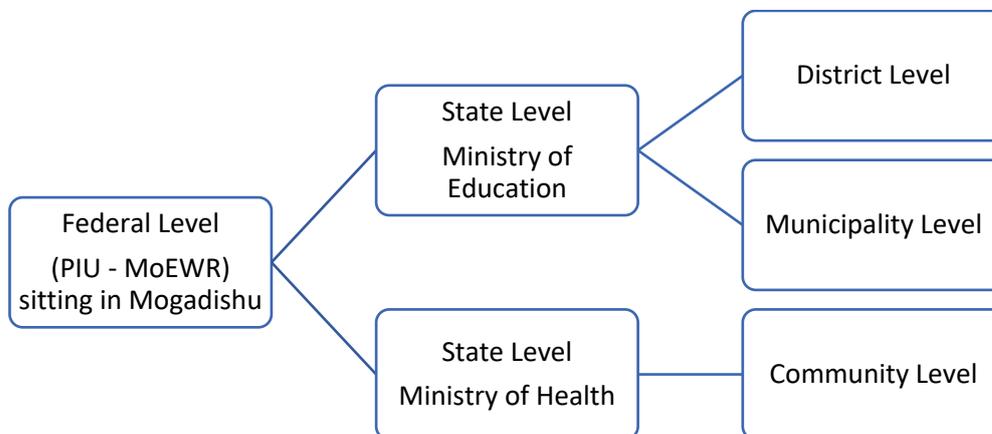
<b>Environmental</b>	<b>Social</b>	<b>Health &amp; Safety</b>
Hydrocarbon or chemical spills, or release of other hazardous substances into the environment, causing widespread impacts, and/or	Abuses of community members (including vulnerable groups e.g., women, children, youth, elderly, disabled/sick by site security or	Any fatality Permanent disability

<b>Environmental</b>	<b>Social</b>	<b>Health &amp; Safety</b>
requiring large-scale remediation	other project workers, including but not limited to GBV	
Major river contamination causing decimation of fish population or other aquatic resources	Human trafficking and child labor	Outbreak of life-threatening communicable disease
	Violent community protests against the project	Criminal and political attacks at worksite
		Forced labor by project's Works Contractor
		Works Contractor is unresponsive regarding ongoing worksite risks of bodily injury
		Persistent non-compliance and/or inability or unwillingness to remedy non-compliance that could result in bodily injury or harm
		Murders, kidnappings, manslaughter and assaults, while criminal matters and not Safeguards incidents per se, have occurred in Bank projects and should be treated as severe incidents. These incidents would be referred to local authorities with notification to WB Security

## 6.4 Grievance Redress Mechanism

### 6.4.1 GRM Institutional Framework

62. The GRM is intended to be implemented at the federal, state, district, and municipality levels. The framework for the institution of the GRM will take a hierarchical approach as shown below;



**Figure 6-2: GRM Institutional Framework**

63. This is the project wide GRM that is available for use by PAPs. The GRM will work interconnected with local level actors at the FMS, Ministries, Regional Level, District, and municipal levels. This is to ensure that all measures are taken to address grievance. The GRM will be housed at MoEWR and provide access to SESRP stakeholders and contractors to register complaints received at sub-project level or the field. At the Municipality/Local Government level, a Grievance Redress Committee (GRC) shall be established and composed of local leaders, municipal representatives, the project, community-based organizations, Legal Aid and law enforcement agencies. The GRC will be headed through a consensual appointment done with affected communities, and steps will be taken to ensure that all grievances are properly documented and transferred to the digital platform for tracking of resolution. PAPs may also make complaints directly to the project wide GRM through the key contact persons (Grievance Officer), contact numbers-: +252610850613, +252628850613, email address: grm.sesrp@gmail.com, digital platform either by calling, sending text, WhatsApp etc. The project will identify an NGO GBV service provider to set up and ethically manage SEA/SH complaints as documented in the separate GBV and SEA /HS Action Plan.

64. To ensure effective operation of the GRM, potential grievances, tools for presentations and responding authority are classified according to the three project components on Table 6-5 below.

**Table 6-5: Potential Grievances, Presentations, and Responding Authority**

<b>Project Component</b>	<b>Project Intervention Activity</b>	<b>Potential Nature of Grievance</b>	<b>Tools for Presentation</b>	<b>Ultimate Responding Authority</b>
<b>1</b>	Distribution network reconstruction, reinforcement, and operations efficiency in the major load centers	<ul style="list-style-type: none"> <li>- Land related matters, e.g., poles and cables running through or above homes and private lands</li> <li>- Environmental concerns due to presence of batteries and other equipment</li> <li>- Waste management (e.g., battery disposal)</li> <li>- Gender based violence / Sexual exploitation of locals because of labor influx</li> </ul>	<ul style="list-style-type: none"> <li>- Physical complaints,</li> <li>- Written petitions,</li> <li>- Official Emails,</li> <li>- Phone calls &amp; SMS to GRM hotlines,</li> <li>- Use of designated drop boxes</li> <li>- Channels for confidential and safe complaints for GBV/ SEA related grievances</li> </ul>	MoEWR, PIU, and ESPs
<b>2</b>	Renewable energy generation optimization.	<ul style="list-style-type: none"> <li>- Supply of equipment considered by consumers as substandard</li> </ul>	Physical complaint, <ul style="list-style-type: none"> <li>- Written petitions,</li> <li>- Official Emails,</li> <li>- Phone calls &amp; SMS to GRM hotlines</li> </ul>	MoEWR, PIU, and ESPs
<b>3</b>	Electricity services for improved public services delivery (Health) Institutions	<ul style="list-style-type: none"> <li>- Accidents or injuries to students or community</li> <li>- Gender based violence/ Sexual Exploitation / Sexual Harassment because of labor influx</li> <li>- Security matters</li> </ul>	<ul style="list-style-type: none"> <li>- Physical Complaint</li> <li>- Written petitions,</li> <li>- Official Emails,</li> <li>- Phone calls &amp; SMS to GRM hotlines,</li> <li>- Use of designated drop boxes</li> <li>- Channels for confidential and safe complaints for GBV/ SEA related grievances</li> </ul>	Relevant ministries, PIUs, and ESPs
<b>4</b>	Sector Capacity Enhancement and Project Implementation Capacity Support.	<ul style="list-style-type: none"> <li>- Gender based violence/ sexual exploitation /sexual harassment because of labor influx</li> <li>- Security related matters</li> </ul>	<ul style="list-style-type: none"> <li>- Channels for confidential and safe complaints for GBV/ SEA related grievances</li> <li>- Physical complaint,</li> <li>- Written petitions,</li> <li>- Official Emails, Phone calls &amp; SMS to</li> <li>- GRM hotlines</li> </ul>	

65. The GRM will be in place and functional throughout the project life cycle, until completion of all construction activities to the point that the project is decommissioned after achieving all expected deliverables.

A separate mechanism will be developed to address worker grievances, which will be referred to as the Workers GRM. Grievances under the Workers GRM will be resolved by the contractors GRM has been established as early as possible in project development and supported by appropriate human and financial resources before start-up and function throughout project life, including operation and decommissioning.

66. The GRM will be a project wide GRM that will also be available for use by PAPs. The GRM will work inter-connectedly with local level actors at the FMS, Regional, Community, District, and municipal levels. This is to ensure that all measures are taken to address grievance. The GRM will be housed at MoEWR (FGS) and will provide access to SESRP stakeholders and contractors to register complaints received at sub-project level or the field. At the project level, a Grievance Redress Committee (GRC) has been established and is composed of the Director of Energy Department, project Legal Aid, Gender Specialist, Environmental and Social Safeguard Specialists of the project. State, Municipality and Community Level GRCs that consist of local leaders, municipal representatives, community-based organizations, Legal Aid and law enforcement agencies will be established after the first of the project or once the construction activities start. This GRC will be headed through a consensual appointment done with affected communities, and steps will be taken to ensure that all grievances are properly documented and transferred to the digital platform for tracking of resolution. NB aspect of gender representation shall be taken into consideration to ensure no gender is disadvantaged.

67. Resident Community may also make complaints directly to the project wide GRM through the key contact people (Grievance officer).

**Hotline number: 478**

**Contact numbers:-** +252610850613, +252628850613,

**Email address:** grm.sesrp@gmail.com, digital platform either by calling, sending text,

**WhatsApp numbers:** +252610850613, +252628850613.

68. The project will liaise with the identified NGO GBV service provider to ethically manage SEA/SH complaints, these complaints shall be documented in the separate GBV and SEA /HS Action Plan.

The GRM implementation process will involve the following steps:

- The Social Safeguards specialists at MoEWR (FGS) will manage the GRM platform for Project level to ensure timely sorting and escalation of grievances to resolving officer,
- Assign a focal person (s) from Contractors and local GRC for grievance uptake and reporting,
- Train assigned focal person (s) to receive and log complaints in the GRM Database.
- Constitute GRM Committee to resolve grievances,
- Screen, classify and refer complaints to appropriate unit for redress Monitor, track and evaluate the process and results,
- Provide feedback to complainants within a period not later than 30 days for serious cases and 60 working days for catastrophic cases. The complainant shall be given an opportunity to appeal if not satisfied with resolution approach, findings or recommended remedy.
- Overall, the process for grievances reporting by aggrieved parties includes the following steps:
  - Lodge complaints through phone calls through the key contact persons, contact numbers, email addresses, text message, WhatsApp, in-person directly to the digital platform or the GRC at the local levels.
  - Acknowledgment and registration.
  - The investigation, verification, and determination of resolution options.
  - Provision of feedback to the stakeholder regarding resolution and progress towards resolution and complainant satisfied.

- Final resolution - tracking and documenting actions and outcomes in the database and with the stakeholder.
- Where a PAP is fully satisfied with the resolution process, the matter will be formally closed.
- If the complainant is not satisfied with the mediation provided using the project GRM, they are within their discretions to refer the complaint to the court of Law.

69. Diverse methods for reporting grievances that are culturally appropriate are to be used and they should permit self-identified, confidential, or anonymous procedures (professional letter writers, suggestion boxes, Email, toll-free telephone etc).

Avenues for verbal complaints are:

- Complaints to members of the local Grievance Redress Committee (GRC),
- GRM specialists, E&S Safeguards & Communications desks at the SESRP –PIU,
- Open community mediation sessions,
- Operators’ Customer Care Unit,
- Town hall meetings,

Avenues for written complaints are:

- Complaint Boxes in the community, operator’s office or by hand,
- Letters or Email to the SESRP-PIU,
- Dedicated telephone lines should include:
- SESRP -PIU hotlines
- Operator Customer Care hotlines

An email feedback system and 24/7-hour phones have been established and operationalized at the PIU.

**Hotline Number: 478**

**Telephone:** +252610850613 / +252628850613

**WhatsApp:** +252610850613 /+252628850613

**Email:** [grm.sesrp@gmail.com](mailto:grm.sesrp@gmail.com)

#### **6.4.2 Security Context, Risks and Mitigation Plan**

Puntland State is characterized by a strong local governance structure and with no presence of federal security forces, meaning that state security forces fully manage and handle security issues. Since its establishment, Puntland has experienced occasional inter-clan conflicts, but these are typically short-lived, as the government actively intervenes and resolves disputes efficiently. Overall, Puntland presents a stable security environment compared to other federal member states, though caution is still required in project planning and implementation.

In addition to political tensions, challenges include:

- Remote and hard-to-access sites: Some project locations have limited road access, which could affect emergency response or logistical support.
- Limited formal emergency services: Police or medical services may be unavailable in some remote locations, placing additional responsibility on local management.

In line with the project SMP the following general framework shall be applicable:

- Decisions on the appropriate scope of the project's security arrangements will be guided by an assessment of (a) potential risks to the project's personnel and property, which may require a security response; (b) appropriate responses to the identified security risks; (c) potential impacts of a security incident on the project, local communities and other parties; and (d) potential mitigation measures.
- The SMP shall define how and by whom security will be managed and delivered, the resources required, and the behavior that is expected of security personnel, as well as the security risks related to security personnel behavior and impacts on communities outlined in ESS4.
- The project will be guided by country laws and be in line with ISO 31000 and World Bank Good Practice Note on Security Personnel. As well as the principles of proportionality and Good International Industry Practice (GIIP), and by applicable relevant international standards and laws in relation to hiring (such as the UN Basic Principles on the Use of Force) and rules of conduct (such as the International Code of Conduct for Private Security Providers), training, equipping, and monitoring of such security workers. The project will not sanction any use of force by direct or contracted workers in providing security except when used for preventive and defensive purposes in proportion to the nature and extent of the threat.
- Stakeholder and Community Engagement: Conduct pre-mobilization meetings with elders, youth groups and local authorities to explain the project, timelines and clarify that installations are public assets and recruit local security guards (if needed) and laborers by contractors to enhance community ownership and reduce sabotage risks.
- Periodic assessment of security risks during the life of the project allows security arrangements to be updated to reflect any new risks or changes in the operating environment. Security arrangements will be reviewed annually, or when a major event occurs that could affect the security of the project or the project's operating environment.
- The contractor EHS officer will liaise with the project's E&S team at PIU (MoEWR) for the guidance of the level of security threat within different project implementation areas and seek security clearance and physical support from the Ministry of Interior as per the security threat,
- The contractor EHS officer shall provide security clearance for project operation prior to work commencement in collaboration with the respective E&S team.
- It is important to take these risks and impacts into consideration and to determine measures to address them and this shall be part of the stakeholder engagement on the project, as described in ESS10. Project-level grievance mechanisms that are available to project workers, local communities, and other stakeholders allow them to provide feedback on the project's security arrangements and personnel.

The project-level grievance mechanism will be able to accept concerns or complaints regarding the conduct of security personnel and that such concerns and complaints, as well as any associated evidence and facts, be promptly documented and assessed and action be taken to prevent recurrence.

## 7. E&S Liabilities of the Contractor

### 7.1 Contractor's General Responsibilities

- The contract shall comply with the provisions of the labor laws, legislation, and WB's ESS 2 provisions. Wherever possible, give priority to qualified local people when hiring employees. Recruitment should be fair and transparent to ensure all community segments - men, women, vulnerable individuals, minority clans, and VMGs who meet ESS 7 criteria - can access subproject benefits during construction, and that prioritizes the hire of locals for skilled, semi-skilled, and unskilled labor.
- The contractor shall be responsible for the implementation of the contractor-related aspects of the ESMP and regular (monthly) reporting capturing the following areas as well:
  - Workplace Health and Safety aspects
  - Community Health and Safety
  - Project Emergency Preparedness
  - Management of SEA/SH Prevention and Response
  - Sensitize community members and workers on contractor GRMs (both for the workers and general project GRM)
  - Contractors should possess the capacity to provide training to their employees, subcontractors, and labor force regarding the environmental and social aspects of the project. This training may include safety protocols, waste management, and community engagement
- Contractors are responsible for ensuring the safety and well-being of their workforce. They should have the capacity to develop and enforce safety protocols and provide necessary personal protective equipment (PPE) for workers.
- The contractor on his part will have to appoint an EHS officer and a Social Specialist to coordinate and report on the ESMP implementation respectively.
- The contractor is to engage a Community Liaison Officer to act as a link between the community and the contractor and support the Social Specialist.
- The contractor will also have an obligation to identify and manage the E&S risks related to his/her operations.
- Contractors are expected to maintain accurate records and documentation related to environmental and social aspects of the project. This includes reporting on incidents, compliance, and any corrective actions taken.
- Contractors should have contingency plans in place for responding to emergencies or unforeseen events that may have environmental or social impacts. They should be prepared to take immediate action to mitigate and manage such incidents.
- Contractors must establish monitoring mechanisms to track their environmental and social performance throughout the project's lifecycle. Regular assessments and reporting are essential to ensure ongoing compliance.
- Contractors should promptly report any instances of non-compliance with the ESMP to the project's management and regulatory authorities. This ensures that corrective measures can be taken in a timely manner.
- Contractors should collaborate closely with the project management team to address any emerging environmental and social issues and to ensure that the project is executed in alignment with the ESMP's objectives.

- Maintaining the required level of stakeholder engagement and communication, including providing project schedule information to the public, accepting, and resolving public grievances, advertising, and hiring local workers.
- Maintain a working grievance redress mechanism.
- The contractor is to comply with all regulations and by-laws at the county level and other relevant regulations and laws.
- The contractor shall refer to ESMP recommendations and the ESMP when preparing the contractors-ESMP and the specific plans.
- The contractor should provide water required for use in connection with the work, including the work of subcontractors and shall provide temporary storage tanks, if required.
- The contractor shall plan for sanitary conveniences for his workers. Any arrangements so made shall conform with the public health requirements for such facilities and the contractor shall be solely liable for any infringement of the requirements.
- The contractor shall be responsible for all the actions of any subcontractor with whom he subcontracts.
- The contractor should take all possible precautions to prevent nuisance, inconvenience, or injury to the neighboring property and the public generally and shall take proper precautions to ensure the safety of the community.
- All work operations that may generate noise, dust, vibrations, or any other discomfort to the workers and/or visitors of the client and the local community must be undertaken with care, with all necessary safety precautions taken.
- The contractor shall make all efforts to muffle the noises from his tools, equipment, and workmen to not more than 70 dBA.
- The contractor shall, upon completion of the work, remove and clear away all plant, rubbish, and unused materials and shall leave the whole site in a clean and tidy state to the satisfaction of the Proponent. He shall also remove from the site all waste.
- No shrubs, trees, bushes or underground thicket shall be removed except with the express approval of the proponent.
- The standard of workmanship shall not be inferior to the Somali Bureau of Standards where it exists. No materials for use in the permanent incorporation into the works shall be used for any temporary work or purpose other than that for which it is provided. Similarly, no material for temporary support may be used for permanent incorporation into the works.
- Disposing of the waste generated during construction activities by the Environment and Social Monitoring and Management Plan (ESMMP).
- The contractor EHS officer will report on ESMMP implementation during the construction period. The aspect to be reported by the contractor will include safety issues i.e. hours worked, recordable incidents and corresponding Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, incidents and accidents, potential near misses, and remedial and preventive activities required (for example, revised job safety analysis, new or different equipment, skills training, etc.); Environmental incidents and near misses; noncompliance incidents with permits and national law; Training on E&S issues (dates, number of trainees, and topics); Details of any security risks; Worker & External stakeholder grievances and E&S inspections by contractor, including any authorities.

## **7.2 Contractor's Liabilities Onsite**

- **Safety of Workers:** The contractor is responsible for ensuring the safety of their workers and subcontractors. This includes providing appropriate safety training, personal protective equipment (PPE), and adherence to all relevant safety regulations and standards including WBGs and ESHGs.

- **Structural Integrity:** Roof-mounted solar PV systems can be heavy and may require modifications to the building's structure to support the added weight. Contractors are responsible for assessing the rooftop's structural integrity/capacity, obtaining necessary permits, and ensuring that any modifications are done safely and in compliance with building codes.
- **Electrical Safety:** Contractors must ensure the safe installation of electrical components, such as solar panels, inverters, and wiring. This includes proper grounding, insulation, and compliance with electrical codes and standards to prevent electrical hazards.
- **Fire Safety:** The contractor should take precautions to minimize the risk of fire associated with the solar PV system. This may include installing fire-resistant materials, ensuring proper spacing between panels, and implementing fire safety measures.
- **Infection Control:** In a healthcare facility, infection control is paramount. Contractors should take extra precautions to prevent the spread of contaminants, dust, or debris during the installation process. This is especially important in sensitive areas like operating rooms and patient rooms.
- **Patient Privacy and Security:** Contractors must respect patient privacy and security. The installation process should not compromise patient confidentiality or access to medical facilities.
- **Insurance and Liability Coverage:** Contractors should carry appropriate insurance coverage, including general liability insurance and workers' compensation insurance, to protect against accidents, injuries, or damage that may occur during installation.
- **Compliance with Healthcare Regulations:** Healthcare facilities are subject to strict regulations and guidelines related to patient care and safety. Contractors must be aware of and comply with these regulations, including those related to infection control, noise levels, and security.
- **Environmental Considerations:** Contractors should be mindful of environmental impacts during installation, such as the disposal of old equipment or hazardous materials. Proper disposal and recycling practices should be followed, and
- **Project Timeline:** Delays or disruptions caused by the contractor's work could impact on the healthcare facility's operations and patient care. Contractors should work closely with HCF management to minimize disruptions and adhere to agreed-upon timelines.

70. **Construction Management Plan:** The construction Environmental and Social Management Plan (C-ESMP) for the proposed subprojects shall include the following:

a) **Control of Access:** The contractor shall ensure that the construction site is accessed by authorized people only and that up-to-date records are kept.

b) **Management of Fuels and Other Hazardous Materials:** The Contractor shall comply with all applicable laws, regulations, permit and approval conditions, and requirements relevant to the storage, use, and proper disposal of hazardous materials.

c) **Management of the Construction Site:** The contractor shall prevent littering and the random discard of any solid waste on or around the construction site. The contractor shall manage other solid and liquid waste.

d) **Fire Prevention and Management:** The Contractor shall prepare a fire prevention and fire emergency plan as a part of the plans to be submitted to MoEWR. The Contractor shall take all necessary precautions to prevent fires caused either deliberately or accidentally during the construction process.

e) **Management of Air Quality:** The Contractor shall institute appropriate measures to minimize or avoid air quality impacts. This can be achieved through the formulation of air quality management plans.

f) **Neighboring Landowner and Occupier Relations:** The Contractor shall always respect the property and rights of neighboring landowners and occupiers and shall treat all persons with deliberate courtesy. Additionally, the contractor shall respect any special agreements between the MoEWR and the neighbors.

g) **Complaints Register:** The contractor shall establish and maintain a register for periodic review by the MoEWR that logs all the complaints raised by the neighbors or the public about project activities. The register shall be regularly updated, and records maintained including the name of the complainant, his/her domicile and contact details, the nature of the complaint, and any action taken to rectify the problem. A separate mechanism will be developed to address worker grievances, which will be referred to as the Workers GRM. The primary purpose of the Workers GRM will be to provide all workers with an avenue to raise workplace concerns. This shall be implemented in line with the Project Labor Management Plan that has been developed. The scope of the Workers GRM which will be developed shall be to create a systematic approach to improving the management of risks and impacts related to labor and working conditions in projects. The Workers GRM seek to engage project workers and their representatives on labor issues, including with representatives of workers' organizations where they exist; help inform the assessment of labor risks and impacts, by providing useful context and additional information.

71. **Rehabilitation and Site Closure:** After completion of construction activities, the contractor shall clear the site of construction materials and dispose of waste in appropriate disposal sites. The contractor shall remove all temporary work on the construction site and grow grass in areas that are not covered by the installations to control erosion.

## 8. Roles and Capabilities at the Ministerial/ PIU Levels

### 8.1 Roles and Capabilities at the Ministerial/ PIU Levels

- Investing in capacity-building programs for the Ministries of Energy and the project implementing unit's staff. This includes training in project management, environmental and social safeguards, financial management, and other relevant areas.
- Engage and hire experienced professionals, consultants, and advisors in energy project management, environmental and social safeguards, and other critical areas. This can help bridge knowledge gaps and provide guidance on complex issues.
- Implement robust project management systems, including tools for planning, monitoring, and evaluation. Ensure that project management software and reporting mechanisms are in place to track project progress and performance.
- Define clear roles and responsibilities for each team member within the Ministries of Energy and the project implementing units. This helps avoid duplication of efforts and ensures that everyone knows their specific tasks.
- Develop a comprehensive stakeholder engagement strategy to involve key stakeholders, including local communities, civil society organizations, and donors, in project planning and decision-making processes.
- Review and strengthen the regulatory framework governing the energy sector in Somalia. Ensure that it aligns with international best practices and is conducive to investment and sustainable development.
- Develop a comprehensive risk management plan that identifies potential risks and outlines strategies for mitigating and managing them. Regularly update and review this plan throughout the project lifecycle.
- Establish sound financial management systems to ensure transparency and accountability in budgeting, expenditure, and financial reporting. This includes regular audits and adherence to financial regulations.
- Strengthen the capacity to manage environmental and social aspects of the project. This may involve the development of an Environmental and Social Management Unit (ESMU) within ministries or project units, as well as training in environmental and social safeguards.
- Develop a robust monitoring and evaluation framework to track project progress, measure impacts, and make data-driven decisions. Regularly review and adjust the framework as needed.
- Establish clear reporting mechanisms for project updates, including regular progress reports and compliance reports related to environmental and social safeguards. Ensure that documentation is well-maintained, and
- Maintain open and transparent communication with all stakeholders, including the public. Share project information, progress, and results through various channels, including websites, public meetings, and media.
- **Planning for Closure:**
  - a) The implementing agency shall investigate practical options for the closure of the facility at least one year before decommissioning and submit a report to relevant authorities.
  - b) The MoEWR shall develop a rehabilitation and decommissioning plan in conjunction with relevant stakeholders at least one year before the end of the facility's operations.
  - c) The MoEWR shall explore options for re-use and recycling of the facility's components/structures.

- **Decommissioning**

- The MoEWR shall take into consideration the health and safety of personnel, contractors, neighbors, and the public during the planning and implementation of the demolition process.
- The MoEWR shall undertake a further survey to identify any contaminated areas and remediate them accordingly.

- **Post-closure**

72. The MoEWR should ensure that the facility’s site is free of impacts associated with the closure and demolition. The MoEWR shall develop, roll out and implement a monitoring plan that includes:

- Monitoring the rehabilitated site to confirm whether progress is satisfactory.
- Outline of how land improvement and future land use will be affected by the past operations and decommissioning of the associated infrastructure.

**8.2 Monitoring and evaluation matrix dashboard will be developed to visualize key metrics including:**

- Number of grievances logged
- Status of corrective actions
- EHS incidents per site
- Worker and community training completion rates

**8.3 Proposed Training Plan for this ESMP**

73. The Training Plan for Environment and Social Management Plan (ESMP) is a critical component that outlines the strategies and activities for educating and building the capacity of the contractor’s staff during the construction of the PV system, as well as ensuring enough capabilities of the MoH staff during operating the PV system at the selected sites. The Training Plan within an ESMP aims to ensure that all relevant parties understand and implement the necessary measures to mitigate and manage site-specific E&S risks and impacts effectively. The following Table summarizes the key requirements.

**Table 8-1: Proposed E&S Training Program**

#	Trainings/ Topics	Target trainees	Type	Time Hours	Responsibility	Cost Estimation (USD)
1	Introduction to ESMP	Hospital & Health Center Staff, Facility Management Teams, Contractors and Construction Workers	Workshops and Seminars	4	PIU / contractor	2,000
2	Regulatory Framework both Somalia and World Bank	Environmental Health Officers, Project Managers and Supervisors, Contractors and Construction Workers, Regulatory Authorities and Inspectors	Workshops and Seminars	4	PIU / contractor	2,000

#	Trainings/ Topics	Target trainees	Type	Time Hours	Responsibility	Cost Estimation (USD)
3	Environmental & Social Management Plan (ESMP)	Project Managers and Supervisors, Regulatory Authorities and Inspectors	Workshops and Seminars	4	PIU / contractor	2,000
4	Occupational, Health and Safety Protocols	Safety and Security Personnel, Project Managers and Supervisors, Contractors and Construction Workers	On-the-Job Training	5	PIU / contractor	1,000
5	Community Health and Safety Protocols	Safety and Security Personnel	Simulation and Role-Playing Exercises	5	PIU / contractor	1,000
6	Waste Management	Environmental Health Officers, Project Managers and Supervisors, Contractors and Construction Workers	Field Visits and Site Tours:	4	PIU / contractor	2,000
7	Energy Efficiency, Renewable Energy and Water Management	Environmental Health Officers, Project Managers and Supervisors, Contractors and Construction Workers	Field Visits and Site Tours:	4	PIU / contractor	2,000
8	Stakeholder / Community Engagement	Community Liaison Officers, Contractors and Construction Workers, Civil Society Organizations (CSOs) and NGOs, Community Representatives	Focus Group Discussions	3	PIU / contractor	5,000
9	Gender and Social Inclusion	Contractors and Construction Workers, Regulatory Authorities and Inspectors	Workshops and Seminars	3	PIU / contractor	2,000

## Annexes

### Annex 1: WHO Ambient Air Quality Guidelines

WHO Ambient Air Quality Guidelines <sup>7, 8</sup>		
	Averaging Period	Guideline value in mg/m <sup>3</sup>
Sulfur dioxide (SO <sub>2</sub> )	24-hour	125 (Interim target-1) 50 (Interim target-2) 20 (guideline)
	10 minutes	500 (guideline)
Nitrogen dioxide (NO <sub>2</sub> )	1-year	40 (guideline)
	1-hour	200 (guideline)
Particulate Matter PM <sub>10</sub>	1-year	70 (Interim target-1) 50 (Interim target-2) 30 (Interim target-3) 20 (guideline)
	24-hour	150 (Interim target-1) 100 (Interim target-2) 75 (Interim target-3) 50 (guideline)
Particulate Matter PM <sub>2.5</sub>	1-year	35 (Interim target-1) 25 (Interim target-2) 15 (Interim target-3) 10 (guideline)
	24-hour	75 (Interim target-1) 50 (Interim target-2) 37.5 (Interim target-3) 25 (guideline)
Ozone	8-hour daily maximum	160 (Interim target-1) 100 (guideline)

## Annex 2: General Noise Guidelines

Noise Level Guidelines <sup>3</sup>		
Receptor	One Hour $L_{Aeq}$ (dBA)	
	Daytime 07:00 - 22:00	Nighttime 22:00 - 07:00
Residential; institutional; educational <sup>4</sup>	55	45
Industrial; commercial	70	70

## Annex 3: Noise Limits for Various Working Environments

Noise Limits for Various Working Environments		
Location /activity	Equivalent level $L_{Aeq,8h}$	Maximum $L_{A_{max,fast}}$
Heavy Industry (no demand for oral communication)	85 dB(A)	110 dB(A)
Light industry (decreasing demand for oral communication)	50-65 dB(A)	110 dB(A)
Open offices, control rooms, service counters or similar	45-50 dB(A)	-
Individual offices (no disturbing noise)	40-45 dB(A)	-
Classrooms, lecture halls	35-40 dB(A)	-
Hospitals	30-35 dB(A)	40 dB(A)

<sup>3</sup> Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999.

<sup>4</sup> For acceptable indoor noise levels for residential, institutional, and educational settings refer to WHO (1999)

#### Annex 4: Summary of Recommended PPE According to Hazard

Summary of Recommended Personal Protective Equipment According to Hazard		
Objective	Workplace Hazards	Suggested PPE
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation.	Safety Glasses with side-shields, protective shades, etc. ‘‘ Glasses have safety frames constructed of metal or plastic and impact-resistant lenses. Shields are constructed of vulcanized fiber or fiberglass and fitted with a filtered lens. The lenses have a minimum shade of 5’.
Head protection	Falling objects, inadequate height clearance, and overhead power cords.	Plastic Helmets with top and side impact protection. ‘‘ Class C hard hats meeting EN 397, ANSI Z89.1 and AS/NZS 1801 standards’’
Hearing protection	Noise, ultra-sound.	Hearing protectors (ear plugs or earmuffs). ‘‘ Pre-formed or molded reusable. In line with 29 CFR 1910.95(c) OSHA standardization system.’’
Foot protection	Falling or rolling objects, pointed objects. Corrosive or hot liquids.	Safety shoes and boots for protection against moving & falling objects, liquids and chemicals. ‘‘ Safety shoes with impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces. (EN ISO 20345)’’.
Hand protection	Hazardous materials, cuts or lacerations, vibrations, extreme temperatures.	Gloves made of rubber or synthetic materials (Neoprene), leather, steel, insulating materials, etc. ‘‘Cut resistant leather gloves in accordance with EN 388 OSHA standards for hand protection’’
Respiratory protection	Dust, fog, fumes, mist, gases, smoke, vapors.	Facemasks with appropriate filters for dust removal and air purification (chemicals, mist, vapors and gases). Single or multi-gas personal monitors, if available.
	Oxygen deficiency	Portable or supplied air (fixed lines). On-site rescue equipment.
Body/leg protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration.	Insulating clothing, body suits, aprons etc. of appropriate materials.
Vest/Reflectors	High Visibility	Orange or yellow with multiple strips of reflective material on the front and back.

**Annex 5: Survey assessment photos**



***Badhan General Hospital Management***



***Ceeldaahir Health Centre***



***Bosaso General Hospital Management***



***Burtinle General Hospital Management***



***Goldogob General Hospital Management***



***Galkacyo General Hospital Management***



*Gardo General Hospital Management*