



UNITED NATIONS OFFICE FOR PROJECT SERVICES

**For the benefit of the Republic of Yemen
Yemen Emergency Electricity Access Project-Phase II
(P178347)**

Environmental and Social Management Framework (ESMF)

Fourth Draft

10 February 2022



Second Yemen Emergency Electricity Access Project-Phase II (P178347)

Prepared by UNOPS with the support of Yves Prévost

Document History

UNOPS v1	UNOPS internal review	19 January 2022
UNOPS v2	Sent to the World Bank	24 January 2022
UNOPS v2 comments from WB Specialists	Received by UNOPS	27 January 2022
UNOPS v3	Sent to the World Bank	1 February 2022
UNOPS v3 comments from ESQAT	Received by UNOPS	8 February 2022
UNOPS v4	Sent to the World Bank	10 February 2022

Table of Content

Document History	i
List of Tables	v
List of Figures	v
Abbreviations	vi
Glossary of Terms Used in the ESMF	vii
Executive summary	ix
<i>Potential Environmental and Social Risks and Mitigation</i>	<i>x</i>
<i>Procedures to Address Environmental and Social Risks</i>	<i>xi</i>
<i>Monitoring and Reporting</i>	<i>xii</i>
<i>Capacity</i>	<i>xii</i>
Chapter 1 Introduction and Background	1
1.1 Introduction	1
1.2 Background	1
Chapter 2 Project Description	2
2.1 Development Objective	2
Component 1. Financing for Off-grid Solar (US\$ 80 million)	2
<i>Subcomponent 1.1. Solar home systems for households (US\$ 20 million)</i>	<i>2</i>
<i>Subcomponent 1.2. Solar systems for health clinics, drinking water wells and schools (US\$ 50 million)</i>	<i>3</i>
<i>Subcomponent 1.3. Support to COVID-19 health care facilities (US\$ 10 million)</i>	<i>3</i>
Component 2. Implementation Support and Market Development (US\$ 20 million)	4
<i>Subcomponent 2.1. Project Implementation Support through UNOPS (US\$ 9 million)</i>	<i>4</i>
<i>Subcomponent 2.2. Technical Assistance (TA) for Power Sector Recovery (US\$ 6 million)</i>	<i>4</i>
<i>Subcomponent 2.3. Technical Assistance to Support Solar-PV Market (US\$ 5 million)</i>	<i>4</i>
Component 3. Contingency Emergency Response Component (CERC)	5
2.2 Beneficiaries	6
2.3 Implementation Arrangements	6
Chapter 3 Legal and Regulatory Framework	8
3.1 World Bank Requirements	8
3.1.1 World Bank Environmental and Social Framework	8
3.1.2 Environmental and Social Risk Classification	8
3.1.3 Environmental and Social Commitment Plan	9
3.1.4 Labor Management Procedures	9
3.1.5 Environment, Health and Safety Guidelines	9
3.1.6 Stakeholder Engagement and Information Disclosure	10

3.1.7	<i>Grievance Mechanism</i>	10
3.1.8	<i>Information Disclosure</i>	10
3.1.9	<i>Contingent Emergency Response Components (CERC)</i>	11
3.2	UNOPS Requirements	11
3.3	National Requirements and Policies	12
3.3.1	<i>National Environmental Action Plan</i>	13
3.3.2	<i>Environmental Protection Law</i>	13
3.3.3	<i>Water Law</i>	14
3.3.4	<i>Resettlement</i>	15
3.3.5	<i>Labor</i>	15
3.3.6	<i>International Conventions</i>	16
3.4	Comparison between World Bank Requirements and Yemeni Requirements	16
Chapter 4	Environmental and Social Baseline	25
4.1	Background	25
4.2	Solar PV in Yemen	26
Chapter 5	Potential environmental and social risks and mitigation measures	28
5.1	Waste from Solar PV Systems	35
5.2	Life and Fire Safety	36
5.3	Sustainable Management of Water Resources	36
5.4	Contractors	37
5.4.1	<i>Code of Practice for Solar PV Systems</i>	<i>39</i>
Chapter 6	Procedures for managing the environmental and social risks and impacts of subprojects	40
6.1	Subproject Selection and Implementation	40
6.1.1	<i>Selection of Beneficiaries (subcomponent 1.1)</i>	<i>40</i>
6.1.2	<i>Subprojects under subcomponents 1.2 and 1.3</i>	<i>40</i>
6.2	Screening	42
6.3	Environmental and Social Risk Management Instruments	42
6.3.1	<i>Subprojects requiring a proportionate ESMP</i>	<i>42</i>
6.4	Incorporating ESHS requirements in contracts	44
6.5	Environmental and Social Liabilities of Contractors	44
6.6	Grievance Mechanism	45
Chapter 7	Monitoring and Reporting	46
7.1	Environmental and Social Standards Officer (ESSO)	46
7.2	Environmental and Social Database	46
7.3	Contractor Monitoring	46
7.4	Incidents and Accidents	51
7.5	Third party Monitoring	51

Chapter 8 Capacity Building	52
8.1 UNOPS	52
<i>8.1.1 Environmental and Social Standards Officer (ESSO)</i>	<i>52</i>
<i>8.1.2 Health, Safety, Social and Environmental Officer</i>	<i>52</i>
8.2 Capacity Development	53
8.3 Budget	54
Chapter 9 Stakeholder Engagement and Information Disclosure	55
9.1 Stakeholder Engagement during YEEAP 1	55
9.2 Stakeholder Engagement during Project Preparation	57
<i>9.2.1 Consultations regarding YEEAP 2</i>	<i>57</i>
<i>9.2.2 ESF Consultations</i>	<i>58</i>
Annex 1. Template for Subproject Screening	60
Screening Form for Potential Environmental and Social Issues	60
Annex 2. Environmental and Social Requirements for Contractors	62

List of Tables

Table 1. Comparison of World Bank and Yemeni environmental and social requirements relevant to the Project	17
Table 2. Risks and mitigation measures for Project activities	29
Table 3. Potential ESHS risks and impacts associated with the activities of contractors	37
Table 4. Indicative costs of capacity building activities	54
Table 5. List of Environmental and Social Management Plans (ESMPs) with the numbers of persons who answered questionnaires	56
Table 6. Consultations with public authorities, local authorities, and other stakeholders	57
Table 7. List of CSOs, MFIs and contractors consulted during the preparation of YEEAP 2	58

List of Figures

Figure 1. Example of pico-system under subcomponent 1.1	2
Figure 2. MFI point of sale	3
Figure 3. Project Management Structure	6
Figure 4. The waste components of off-grid solar (GOGLA, 2019)	35

Abbreviations

CERC	Contingent Emergency Response Component
CSO	Civil Society Organization
DNA	Damage and Needs Assessment
DNP	Defect Notification Period
ECRP	Yemen Emergency Crisis Response Project
EHS	Environmental, Health and Safety
EPL	Environmental Protection Law (26/1995)
ESF	Environmental and Social Framework of the World Bank
ESHS	Environment, Social (including labor), Health, and Safety
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard
GBV	Gender Based Violence
GDP	Gross Development Product
GHS	General Health and Safety guidelines
GIIP	Good International Industry Practice
GM	Grievance Mechanism
GOAM	General Organization for Antiquities and Museums
HSSE	Health, Safety, Social and Environment
IDA	International Development Association
IDP	Internally Displace Person
LED	Light Emitting Diode
LMP	Labor Management Procedures
LTI	Lost Time Injury
MFI	Microfinance Institution
MoPIC	Ministry of Planning and International Cooperation
MoWE	Ministry of Water and Environment
NGO	Non-Governmental Organization
NWSSIP	National Water Sector Strategy and Investment Program
PAP	Project Affected People
PUE	Productive Use of Energy
PV	Photovoltaic
RCA	Root Cause Analysis
RoY	Republic of Yemen
SCAP	Safeguards Corrective Action Plan
SEA	Sexual Exploitation and Abuse
SH	Sexual Harassment
SEP	Stakeholder Engagement Plan
SMP	Security Management Plan
TPM	Third Party Monitoring
UNDP	United Nations Development Program
UNICEF	United Nations Children's Emergency Fund
UNOPS	United Nations Office for Project Services
WASH	Water, Sanitation and Hygiene
WFP	World Food Program
WHO	World Health Organization



WUA Water User Associations

Glossary of Terms Used in the ESMF

Chance find procedure. A chance find is archaeological material encountered unexpectedly during project construction or operation. A chance find procedure is a project-specific procedure which will be followed if previously unknown cultural heritage is encountered during project activities. The chance finds procedure will set out how chance finds associated with the project will be managed. The procedure will include a requirement to notify relevant authorities of found objects or sites by cultural heritage experts; to fence off the area of finds or sites to avoid further disturbance; to conduct an assessment of found objects or sites by cultural heritage experts; to identify and implement actions consistent with national law; and to train project personnel and project workers on chance find procedures.

Child labor consists of work by children that is economically exploitative or likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

Compliance compares how well a process meet the requirements placed on the process.

Disposal. Final placement or destruction of wastes, polluted soils, and toxic or hazardous materials. Disposal may be accomplished through approved secure landfills, surface impoundments, or incineration.

Environmental, Health, and Safety Guidelines (EHSGs) are technical reference documents with general and industry-specific statements of Good International Industry Practice. The EHSGs contain the performance levels and measures that are generally considered achievable in new facilities by existing technology at reasonable cost. For complete reference, consult the World Bank Group Environmental, Health, and Safety Guidelines, http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines.

Environment and Social Impact Assessment (ESIA) identifies and assesses the potential environmental risks impacts of a proposed project, evaluate alternatives, and design appropriate mitigation, management, and monitoring measures.

Environmental and Social Management Plan (ESMP) details: (a) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental impacts, or to reduce them to acceptable levels; and (b) the actions needed to implement these measures.

Environmental and Social Management Framework (ESMF) is an instrument that examines the risks and impacts when a project consists of a program and/or series of subprojects, and the risks and impacts cannot be determined until the program or subproject details have been identified.

Good International Industry Practice (GIIP) is defined as the exercise of professional skill, diligence, prudence, and foresight that would reasonably be expected from skilled and experienced professionals engaged in the same type of undertaking under the same or similar circumstances globally or regionally. The outcome of such exercise should be that the project employs the most appropriate technologies in the project-specific circumstances.

Grievance. An issue, concern, problem, or claim (perceived or actual) that an individual or community group wants a project implementor or contractor to address and resolve.

Grievance Mechanism (GM) is a locally based, formalized way to accept, assess, and resolve community feedback or complaints from individuals or communities who believe they are adversely affected by the Project.

Hazardous wastes. By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Substances classified as hazardous wastes

possess at least one of four characteristics—ignitability, corrosivity, reactivity, or toxicity—or appear on special lists.

Lost Time Injury (LTI) is the incapacity to work for at least one full workday beyond the day on which the accident or illness occurred.

Lost workdays are the number of workdays (consecutive or not) beyond the date of injury or onset of illness that the employee was away from work or limited to restricted work activity because of an occupational injury or illness.

Mitigation. Measures taken to reduce adverse impacts on the environment.

Monitoring. Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements or pollutant levels in various media or in humans, animals, and other living things.

Occupational Health and Safety deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards (WHO).

Resettlement Framework (RF) is instrument used to clarify resettlement principles, eligibility criteria, compensation entitlement, organizational arrangements and guidelines for carrying out census surveys and Resettlement Action Plan (RAP).

Solid wastes. Nonliquid, insoluble materials, ranging from municipal garbage to industrial wastes that contain complex, and sometimes hazardous, substances. Solid wastes include sewage sludge, agricultural refuse, demolition wastes, and mining residues. Technically, solid wastes also refer to liquids and gases in containers.

Stakeholder. Persons or groups who are directly or indirectly affected by a project as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively. They may include locally affected communities or individuals and their formal or informal representatives, national or local government authorities, politicians, religious leaders, civil society organizations and groups with special interests, the academic community, or other businesses.

Stakeholder Engagement is a broad, inclusive, and continuous process between a project proponent and those potentially affected by the project that usually spans the project's life. It includes consultations, information disclosure and dissemination, and participation.

Executive summary

This Environmental and Social Management Framework (ESMF) was prepared by United Nations Office for Project Services (UNOPS) for the Yemen Emergency Electricity Access Project-Phase II (YEEAP 2; P178347) to meet the requirements of the World Bank's Environmental and Social Framework (ESF), most particularly the Environmental and Social Standard on the Assessment and Management of Environmental and Social Risks (ESS1), including the World Bank Group Environment, Health and Safety (EHS) Guidelines. The ESMF also meets the UNOPS Environmental, Health and Safety (EHS) procedures and practices and complies with Yemeni environmental and social laws and regulations.

The World Bank is financing YEEAP 2 to support Yemen's reconstruction and recovery, under the provisions of World Bank OP 10.00, paragraph 12, *Projects in Situations of Urgent Need of Assistance or Capacity Constraints*. The Project is a follow-up to the Yemen Emergency Electricity Access Project (YEEAP 1; P163777) that became effective on May 15, 2018. T

The use of a framework is appropriate and necessary, given that the Project consists of a large number of subprojects in many different localities, and that the specific location and activities of each subproject will only be determined during implementation.

UNOPS has also prepared an Environmental and Social Commitment Plan (ESCP) to meet ESS1 requirements, as well as a Stakeholder Engagement Plan (SEP) to meet the requirements of ESS10, Stakeholder Engagement and Information Disclosure. The ESMF, SEP and ESCP will be disclosed before Project Appraisal.

UNOPS will in parallel prepare a Labor Management Procedure (LMP) to meet the requirements of ESS2, Labor and Working Conditions, and a Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) Prevention and Response Action Plan, a Security Management Plan (SMP) to meet the requirements of ESS4, Community Health and safety.

The Project will improve access to electricity in rural and peri-urban areas within the Republic of Yemen through 3 Components:

Component 1 Financing for Off-grid Solar

Subcomponent 1.1. Solar home systems for households

Subcomponent 1.2. Solar systems for health clinics, drinking water wells and schools

Subcomponent 1.3. Support to COVID-19 health care facilities

Component 2 Implementation Support and Market Development

Subcomponent 2.1. Project Implementation Support through UNOPS

Subcomponent 2.2. Technical Assistance (TA) for Power Sector Recovery

Subcomponent 2.3 Technical Assistance to Support Solar-PV Market

Component 3 Contingency Emergency Response Component (CERC)

The United Nations Office for Project Services (UNOPS) is responsible for overall project implementation, in partnership with local Microfinance Institutions and local contractors and primary suppliers of solar PV Systems. UNOPS has recruited an Environmental and Social Safeguards Officer (ESSO) based in Sana'a, to oversee Project safeguards, as well as a Gender Mainstreaming Officer, a Health and Safety Officer, and a part-time international expert to support the ESSO in the implementation of the ESMF.

The Project's two primary groups of beneficiaries are: (i) rural and peri-urban populations, who will benefit directly from improved access to modern energy and electricity-dependent services through solar home systems and improved access to services; the project is designed to reduce gender gaps related to women's access to energy and finance, thus benefiting women and girls in particular; and (ii) critical

public service providers (health clinics, schools, rural water user associations, and COVID-19 isolation facilities/units) that will benefit from improved access to electricity through the provision of solar PV systems.

Potential Environmental and Social Risks and Mitigation

The World Bank has rated the environmental and the social risks of the Project as substantial.

Environmental Risks and Impacts

The environmental risks include:

- temporary impacts during the installation of solar PV systems under subcomponents 1.2 and 1.3
- life and fire safety aspects following the installation of the solar PV systems
- the improper disposal of batteries

Potential impacts arising from these risks are expected to be local, site-specific, and manageable. The Project includes support for capacity building and studies to address e-waste and battery waste management in a more systematic manner. However, the capacity of potential beneficiaries to manage these risks according to ESF requirements is limited.

UNOPS will address Life and Fire safety risks by:

- Assessing target facilities under subcomponents 1.2 and 1.3 to ensure their compliance with local building codes and local fire department regulations
- Verifying that the facilities are structurally strong enough (particularly roofs) to support the proposed solar PV systems
- Confirming that solar PV systems will not overload the existing electrical installations
- Integrating preventive or corrective life and fire safety (L&FS) measures to address the incremental risks arising from the installation of solar PV systems, in accordance to paragraphs 6 and 7 of ESS4, Infrastructure and equipment design, and Section 3.3 of the General EHS Guidelines.

Social Risks and Impacts

The potential adverse social risks of the Project are expected to be similar to Phase 1 and will be relatively limited. Furthermore, all solar PV systems will be installed within existing facilities and will cause neither land acquisition nor economic displacement. Nonetheless, Component 1 activities may cause the following risks:

- elite capture of investments by powerful or better-connected beneficiaries, at the risk of excluding some segments of society, especially disadvantaged and marginalized groups
- injuries and health impacts to workers or community members, including the spread of COVID-19
- the use of forced labor or child labor by contractors
- work related sexual exploitation and abuse (SEA) and sexual harassment by contractor workers
- the interruption or closure of services from beneficiary facilities because of conflict
- security risks because of the ongoing conflict

A large part of the social risks will be mitigated by implementing the LMP, the SEA/SH Prevention and Response Action Plan, and the SEP.

Technical Assistance

Component 2 includes a variety of TAs and pilot studies and activities with potential environmental and social risks such as the exclusion or discrimination of female stakeholders, the management disposal of waste batteries, and potentially support to existing power plants and transmission lines.

Contractors

The bulk of the Project environmental and social risks and impacts are related to the activities of the MFIs and of Contractors. UNOPS will mitigate the environmental and social risks and impacts of Contractor activities by requiring them to meet a detailed set of **Environmental, Social, Health, and Safety (ESHS) requirements¹ that directly match the identified risks and impacts**. The ESHS requirements for YEEAP 2 are organized into 11 sections or sub-plans:

1. General Provisions
2. ESHS Training
3. Construction Site Management
4. Occupational Health and Safety (OHS)
5. Road safety and Traffic Safety
6. Chance Find Procedures
7. Emergency Preparedness and Response
8. Stakeholder Engagement
9. Labor force management, including the Code of Conduct
10. Contractor Environmental and Social Reporting
11. Solar PV System Code of Practice (the COP was adapted from the ECOP prepared for YEEAP 1)

Procedures to Address Environmental and Social Risks

Subproject selection and implementation

The MFIs will be responsible for the selection of beneficiaries of pico-solar systems according to the following criteria:

- Beneficiaries must be residents of rural and peri-urban areas
- No more than one product will be sold to each household
- Beneficiaries shall not resell the products they receive
- Beneficiaries must be 18 years old or above;
- Beneficiaries cannot be a direct (i.e., father, mother, brother, sister, son, daughter) or a close relative (i.e., grandparents, aunts, uncles, half-brother or half-sister, first cousins, or in-laws) of an employee of the MFI.

Plug and Play pico-solar systems will not require installation by the MFIs. However, the MFIs will provide the beneficiaries with the requisite information in writing (in Arabic) and provide customer support as necessary.

For subproject under subcomponent 1.2 and 1.3, UNOPS will establish a long list of target facilities, from which it will derive a short list of eligible facilities. UNOPS will exclude:

- Facilities that might require involuntary resettlement, land access restrictions, economic displacement, or land acquisition
- Interventions in urban districts
- Buildings with a commercial or entertainment character
- Any activity that would have impacts on Natural Habitats and trigger ESS6

¹ The ESHS requirements are broadly based on the General EHS Guidelines of the World Bank Group, and other World Bank Guidelines

The ESSO will screen all subproject proposals prepared by UNOPS to: (i) determine the environmental and social issues that might be triggered by the subproject, (ii) identify the relevant Environmental and Social Standards (ESS); (iii) determine the appropriate Environmental and Social risk rating for the subproject, and; (iv) specify the type of environmental and social assessment required, including specific instruments/plans. Subprojects with high and substantial risk subprojects will not be eligible under the Project.

UNOPS will prepare proportionate ESMPs for moderate risk subprojects, according to the following table of content:

- Summary Sheet
- Subproject Description
- Environmental and Social Baseline
- Consultations
- Mitigation Instruments

UNOPS will incorporate environmental and social requirements for MFIs, contractors and consultants in tender documentation and contract documents, so that potential bidders are aware of environmental and social performance requirements expected from them and are able to reflect that in their bids. The cost to contractors of meeting the ESHS requirements will be included in their respective contracts. UNOPS and its Implementing Partners will enforce compliance by contractors with these requirements.

UNOPS will apply the World Bank's requirements for consultation and disclosure, as detailed in the Project Stakeholder Engagement Plan. Consultations will be initiated as soon as subprojects screening has been completed and consultation records will be kept in the Project Office. Consultations will take into consideration the sociocultural context of Yemen, as well as the ongoing COVID-19 epidemic.

UNOPS will establish a Grievance Mechanism (GM), as detailed in the Project Stakeholder Engagement Plan that will be used for environmental, resettlement and social issues. The ESSO in UNOPS and the Implementing Partners will handle Project activity-related complaints.

Monitoring and Reporting

UNOPS will monitor and report on implementation of the ESMF, with inputs from the TPM agent. The UNOPS ESSO will ensure that safeguards monitoring is included in the Project's quarterly reports to the World Bank.

UNOPS will notify the World Bank of any incident or accident related to the Project, which has, or is likely to have, a significant adverse effect on the environment, the targeted communities, the public or contracted workers and consultants including security incidents, sexual exploitation and abuse and sexual harassment (SEA/SH) among others, within 48 hours after learning of the incident or accident, followed by an initial report.

Capacity

UNOPS will maintain or recruit qualified staff and resources to support the management of the Environmental, Social, Health, and Safety (ESHS) risks and impacts of the Project, including one Environmental and Social Safeguards Officer (ESSO), one Gender Mainstreaming and GBV Officer, and one Health and Safety Officer, all with qualifications and experience acceptable to the Association

UNOPS is fully covering, as part of the fee that it will charge the Bank, the cost of the ESSO, the Gender Mainstreaming Officer, the Health and Safety Officer, as well as any associated operational costs.

The cost of due diligence for specific subprojects (preparation of the screening form, consultations, GM, preparation of ESMPs, and monitoring) are included in the costs/budget for each subproject.

Chapter 1

Introduction and Background

1.1 Introduction

1. This Environmental and Social Management Framework (ESMF) for the *Yemen Emergency Electricity Access Project-Phase II* (YEEAP 2; P178347) was prepared by UNOPS to meet the requirements of the World Bank's Environmental and Social Framework (ESF), most particularly the Environmental and Social Standard on the Assessment and Management of Environmental and Social Risks (ESS1), including the World Bank Group Environment, Health and Safety (EHS) Guidelines. It also seeks to comply with relevant Yemeni laws and regulations, and to meet UNOPS Environmental, Health and Safety (EHS) procedures and practices, as well as national environmental laws and regulations.
2. The World Bank is financing YEEAP 2 to support Yemen's reconstruction and recovery, under the provisions of World Bank OP 10.00, paragraph 12, Projects in Situations of Urgent Need of Assistance or Capacity Constraints.
3. The use of an ESMF is appropriate and necessary, given that the Project consists of a large number of subprojects in many different localities, and that the specific locations and activities of each subproject will only be determined during implementation.
4. The Project ESMF will guide UNOPS in ensuring that all project activities meet the requirements of the World Bank's ESF, including the preparation and implementation of subproject specific environmental and social management instruments. For this purpose, the ESMF details how UNOPS will screen each subproject to assess its environmental and social risks and impacts, identify the necessary mitigation measures, and monitor the implementation of Environmental and Social Management Plans (ESMPs), most particularly the environmental and social performance of Project contractors.
5. UNOPS has also prepared an Environmental and Social Commitment Plan (ESCP) to meet ESS1 requirements, as well as a Stakeholder Engagement Plan (SEP) to meet the requirements of ESS10, Stakeholder Engagement and Information Disclosure. The ESMF, SEP and ESMP will be disclosed before Project Appraisal.
6. UNOPS will in parallel prepare a Labor Management Procedure (LMP) to meet the requirements of ESS2, Labor and Working Conditions, a GBV/SEA/SH Plan and a Security Management Plan (SMP) to meet the requirements of ESS4, Community Health and safety.

1.2 Background

7. The Project is a follow-up to the Yemen Emergency Electricity Access Project (YEEAP 1; P163777) that became effective on May 15, 2018. The original project aimed to improve access to electricity in rural and peri-urban areas by financing solar solutions to provide urgently needed access to electricity for households, schools, health clinics, drinking water wells, COVID isolation units, and healthcare workers. With the original project close to being fully disbursed and having been successful in achieving its development objectives and outcomes, there remains a very large need to increase electricity access in rural and peri-urban areas and support preparation of activities to improve electricity supply in the country during the ongoing conflict.
8. A Level-2 project restructuring of YEEAP 1 was completed in June 2021 to extend the project closing date to 30 December 2022 and reallocate funds within the project budget to fund expenses associated

with the closing date extension. YEEAP 1 is in compliance with social and environmental safeguards, including those specified in the CERC annex of the Environmental and Social Management Framework (ESMF).

Chapter 2

Project Description

9. YEEAP 2 will continue with the approach that was championed by the YEEAP Phase 1 to expand access to electricity by households and by electricity dependant public services for rural and peri-urban population in Yemen through the use of photovoltaic panels. Like YEEAP 1, the proposed Project will reach remote areas of Yemen, with a balanced distribution of facilities across North and South, to be delivered by UNOPS through Microfinance Institutions (MFIs), solar distributors and installers, and local contractors. A significant advantage of working with the local private sector is the ability to reach remote rural areas and the building up of private sector capacity in the country, which will be critical for Yemen’s reconstruction and recovery.
10. In addition to scaling up YEEAP 1 activities, the YEEAP 2 will collaborate and coordinate with the Health, Education, and WASH sector teams to ensure critical issues of common interest are addressed. Interventions have been designed to enhance the benefits realized and incorporate the lessons learned under YEEAP 1, as well as allow UNOPS the flexibility to respond to the variable circumstances brought about by both the ongoing conflict and COVID-19.

2.1 Development Objective

11. The Project Development objective is the same as for the phase 1 project:

to improve access to electricity in rural and peri-urban areas within the Republic of Yemen

Component 1. Financing for Off-grid Solar (US\$ 80 million)

Subcomponent 1.1. Solar home systems for households (US\$ 20 million)

- (i) scale-up provision of pico solar systems for households, building on the success of both the in-kind grant support mechanism targeting smaller, more working capital constrained MFIs, and the results-based financing mechanism targeting larger, less capital-constrained MFIs
- (ii) were applicable, introduce a new component for larger, medium-sized household solar systems.

Figure 1. Example of pico-system under subcomponent 1.1



12. Depending on the outcome of studies being conducted under YEEAP 1, a pilot program for Pay-As-You-Go that could enhance female beneficiary participation, may also be initiated. The component will take into account lessons learned from YEEAP 1 in encouraging sales to women (credit and cash) through financial incentives.

Figure 2. MFI point of sale



Subcomponent 1.2. Solar systems for health clinics, drinking water wells and schools (US\$ 50 million)

13. The Project will continue to scale up the delivery of lifesaving interventions designed under YEEAP 1, and seek to broaden collaboration with Health, Education, and Water, Sanitation and Hygiene (WASH) for greater impact and sustainability of interventions by:
- (i) Providing solar systems to additional primary health centers/units, including maternal and reproductive health care facilities, and expanding to health facilities in districts that require larger budgets per facility (health facilities will be crucial for treating more complicated and inpatient cases that health centers/units cannot handle). These might require additional interventions including, but not limited to, building dedicated rooms for batteries, rewiring and retrofitting existing electric components in the facilities.
 - (ii) Scaling-up the provision of solar solutions for drinking water wells as the demand for clear, potable water is huge, urgent, and requires additional interventions all over Yemen, including supporting activities like provision of submersible pumps, solar panels, water storage tanks, small desalination units, small water networks, and water meters as well as capacity building support to Water User Associations (WUA) in collaboration with WASH and women collaboratives².
 - (iii) Providing solar systems to additional girls' and boys' schools, in collaboration with ongoing education sector interventions.

Subcomponent 1.3. Support to COVID-19 health care facilities (US\$ 10 million)

14. This component will focus specifically on scaling up of the COVID-19 response, previously

² The project does not support water usage for agricultural or commercial purposes and, given water scarcity issues due to climate change and drought conditions in Yemen, imposes usage limitations to protect against overuse.

Component 3 of YEEAP 1. Additional COVID-19 isolation units and vaccine cold chain units will be identified to deliver the beneficial impacts of providing electricity to COVID-19 treatment facilities. rapid response teams that work in areas with limited access to electricity as part of healthcare and logistics operations under the country-wide COVID-19 response.

Component 2. Implementation Support and Market Development (US\$ 20 million)

Subcomponent 2.1. Project Implementation Support through UNOPS (US\$ 9 million)

15. This subcomponent will finance:

- (i) general management support (indirect) costs for UNOPS
- (ii) direct management and supervision costs required to support the implementation of the project (including the use of remote monitoring technology)
- (iii) independent audits of project activities, if required
- (iv) the establishment of a Grievance Mechanism (GM) in the UNOPS Sana'a Office to document complaints and ensure follow-up.

16. UNOPS will engage a third-party monitoring (TPM) agent to undertake independent performance verification and field monitoring of activities funded under the project.

Subcomponent 2.2. Technical Assistance (TA) for Power Sector Recovery (US\$ 6 million)

17. The aim of this subcomponent is to prepare for the recovery of the power sector as the country emerges from the conflict. It will be informed by the outcome of Yemen Energy Sector TA (P178128), and will involve both on-grid and off-grid intervention, including:

- (i) power sector reform, policy, institutional and regulatory aspects
- (ii) rapid studies on rehabilitation, reconstruction and expansion of generation, transmission and distribution systems, and to the extent possible the preparation of associated pre-feasibility studies
- (iii) the preparation of a geospatial-based electrification plan consisting of grid-based expansion, mini-grids and stand-alone system and assessing the suitability of public sector and private sector delivery models
- (iv) a diagnostic of PEC to assess performance improvement needs including capacity building, structural and system enhancements like improvements in metering, billing and collection.

Subcomponent 2.3. Technical Assistance to Support Solar-PV Market (US\$ 5 million)

18. In addition to Project Implementation Support (through UNOPS and the TPM, the Project will lay the foundations for sustainability and the scale up of the solar market through a series of market assessments, scoping studies, and technical assistance/capacity building activities for MFIs, solar PV suppliers and beneficiaries. They would be mainstreamed in subsequent projects. Topics will include:

- (i) **Off-Grid Solar Pay-As-You-Go (PAYG) Pilot.** A market assessment is being carried out under YEEAP 1 to analyze the potential market for PAYG in Yemen. If MFIs express interest, the Project will support the design and implementation of PAYG pilots in the proposed project as part of Component 1.1.
- (ii) **Off-Grid Solar Market Assessment.** The project will undertake a market assessment to provide a comprehensive analysis of: a) the current market for the Productive Use of Energy (PUE) market for appliance categories such as cooling, cold storage, ice-making, drying, agro-processing and livestock and its key stakeholders; b) the potential market; c)

the main market barriers; and d) recommendations regarding how market barriers might be overcome.

- (iii) **Mini-Grid Market Assessment.** The Project will support an assessment of the sectoral legal, policy, and regulatory reforms required to establish a mini grid market, evaluate the current market and the potential market, identify the main barriers to establishing mini-grids, and indicate how these might be overcome. On the technical side, the assessment will take full account of plans for grid extension and the work of other stakeholders in this area before seeking to identify a specific geographical area where the project might develop and test a model for supporting electricity service delivery through mini-grids and analyze mini-grid feasibility in more detail for that location. The assessment will also take stock of international best practice regarding support to the mini-grid sector in other FCV or humanitarian settings, such as Somalia.
- (iv) **Quality Standards and Capacity Building.** YEEAP 1 developed a set of guidelines to promote quality in the wider component-based off-grid solar market, consisting of a set of recommended IEC standards which could be used to select quality components, as well as guidelines for system sizing, installation, and maintenance by qualified engineers. The Project will develop a comprehensive quality assurance framework for component-based off-grid solar systems and related PUE appliances, and support the training of MFIs and their distribution partners to meet these requirements. ***UNOPS will develop a revised ESMF***, incorporating component-based off-grid solar systems and PUE appliances, so that off-grid solar PUE can be supported either under the Project or from the outset in future operations, depending upon findings.
- (v) **E-Waste Management Scoping and Capacity Building.** The project will explore options to incentivize and finance product/component takeback from end-users to MFIs for Solar Home Systems and O&M contract holders for public facilities, as well as reverse logistics for MFIs/contractors to return products and components to accredited facilities where they can be recycled or safely disposed of. Targeted interventions to strengthen e-waste recycling infrastructure will also be considered, if necessary, as well as assessment of options and costs implications for repair, component replacement, partial recycling, full recycling, safe disposal, and environmental and social implications and mitigation measures will all be considered. Once a viable, sustainable solution has been identified, MFIs and contractors will be provided with funding and technical support to implement the solution, as part of Component 1.
- (vi) **Sector Electricity Needs Assessments.** The Project will carry out a series of needs assessment covering priority sectors for public service delivery such as water supply, education, and vaccine cold chains. Each assessment will assess the sector's electricity needs, the status of current supply, and make recommendations for how the Component 1.2 can best be targeted to deliver impact at scale:
 - The water sector assessment will consider opportunities to enhance access to drinking water through provision of submersible pumps, solar panels, water storage tanks, small desalination units, small water networks and water meters, as well as capacity building support to Water User Associations (WUAs) to ensure O&M of the water system, with a particular focus on the needs of women.
 - The education sector assessment will consider opportunities to enhance educational attendance and attainment (especially of girls) through the provision of electricity at either primary or secondary facilities, for lighting, cooling, use of computers and/or internet access.
 - For cold chains, the use of diesel generators currently places a significant financial burden on the health sector, and solar could present an opportunity to both lower cost of electricity whilst improving quality and reliability of service.
 - All sector needs assessments will map what activities other stakeholders such as government agencies, aid agencies and NGOs (Non-Governmental Organizations) are currently delivering or have planned, to ensure strong coordination and maximize the added value of the project's activities.

- (vii) **Gender Impact Assessment.** The Project will support a gender impact assessment that will drill down into available data to better understand the experience of women and girls through the Project, and to develop a strategy to further enhance the Project's impact on women and girls in terms of electricity access, financial inclusion, market access and job creation as well as potential health, education, and water outcomes.

Component 3. Contingency Emergency Response Component (CERC)

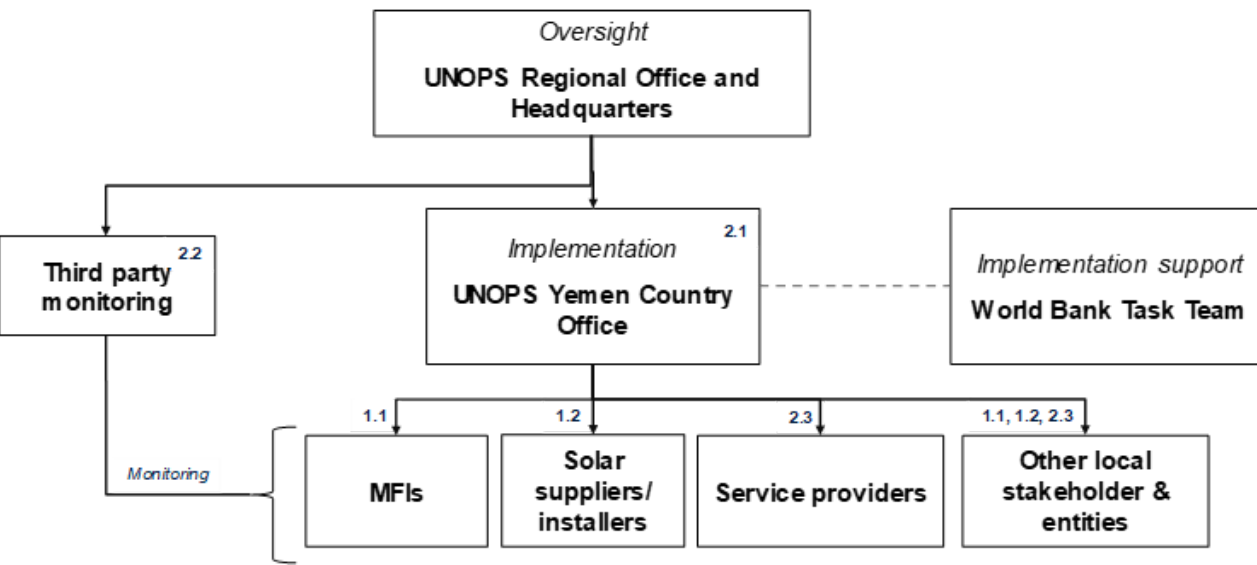
19. The objective of this component is to provide immediate response to an eligible crisis or emergency following the procedures governed by paragraph 12, Section III of the Bank Policy, Investment Project Financing. There is a possibility that, during project implementation, a natural disaster, epidemic or another emergency may occur, which would cause a major adverse economic and/or social impact. In anticipation of such an event, the Contingent Emergency Response Component (CERC) allows the implementing agency to receive support by reallocating funds from other project components or serving as a conduit to process additional financing from other funding sources for eligible emergencies to mitigate, respond to and recover from the potential harmful consequences arising from the emergency. Disbursements under this subcomponent will be subject to the declaration of emergency by Yemen, the international community, or the UN.

2.2 Beneficiaries

20. The proposed project's two primary groups of beneficiaries are: (i) rural and peri-urban populations, who will benefit directly from improved access to modern energy and electricity-dependent services through solar home systems and improved access to services; the project is designed to reduce gender gaps related to women's access to energy and finance, thus benefiting women and girls in particular; and (ii) critical public service providers (health clinics, schools, rural water user associations, and COVID-19 isolation facilities/units), which will benefit from improved access to electricity through grant-financed solar systems. Support to rural and peri-urban livelihoods and access to primary public service delivery remains critical in view of the hardships caused by the continued conflict and the ongoing pandemic. Indirect beneficiaries of the project include the local contractors, MFIs and distributors involved in the project that benefit from increased capacity to provide quality solar products and services to customers outside of the project. This is expected to benefit the beneficiaries under the project as well as solar users in Yemen in general (households, businesses, and the public sector). In addition, with an estimated 50–60 percent of the investment value expected to remain in the local economy, the project will contribute to the creation of jobs and mobilization of private capital, benefitting the Yemeni economy.

2.3 Implementation Arrangements

21. The Project will be implemented by UNOPS through MFIs, solar distributors and installers, and local contractors (see Figure 3). Working through UNOPS as implementing agency during YEEAP 1 enabled the project to reach all parts of Yemen and manage implementation in an adaptive and flexible manner. This includes coordination with all sides of the conflict during implementation and re-prioritization of supported facilities in response to changes in the security situation, as well as a flexible design of the grants to MFIs under Component 1.1 Providing Basic Electricity Supply to Households, where MFIs can re-prioritize governorates and business models as needed.

Figure 3. Project Management Structure


22. The priority interventions will be selected in close consultation with local entities and stakeholders identified throughout Project preparation, in coordination with UNOPS, in accordance with selection criteria developed and agreed with the World Bank.
23. UNOPS will be responsible for monitoring in accordance with the Results Framework and ensure that implementation is appropriately responsive to changing circumstances on the ground. UNOPS will provide quarterly progress reports to the World Bank, incorporating regular monthly progress reports by the MFIs, following an agreed template that will include: (a) a summary of the progress and the context within which the project is implemented; (b) activities carried out during the reporting period; (c) any challenges encountered and measures taken; (d) changes introduced during implementation, including changes in the budget; (e) achievements and results of the project with reference to identified indicators; and (f) the work plan for the subsequent reporting period. In addition, UNOPS will provide updated GIS maps of the project areas to help monitor progress of activities under Subcomponent 1.2 and 1.3.
24. The Third-party Monitoring Agency will be engaged as to undertake independent verification of project activities in accordance with the Terms of Reference (TOR) developed by UNOPS and agreed upon with the World Bank. UNOPS will share the TPM agency quarterly reports with the World Bank and will include in the report the actions taken to address any implementation issues identified by the TPM agency.
25. The World Bank will monitor and evaluate project performance based on UNOPS' progress reports, financial reports, reverse missions, and field visits (when they become possible). A midterm review mission will be carried out 18 months after effectiveness. An Implementation Completion and Results Report mission will be carried out at the end of the project.

Chapter 3

Legal and Regulatory Framework

26. This ESMF is prepared to:

- Meet the requirements of the World Bank’s Environment and Social Standards (ESS), including the World Bank Group Environment, Health and Safety (EHS) Guidelines, and other guidelines and guidance
- Comply with national environmental and social laws and regulations.

3.1 World Bank Requirements

3.1.1 World Bank Environmental and Social Framework

27. The World Bank Environmental and Social Framework (ESF) sets out the World Bank’s Commitment to sustainable development. It includes a set of ten Environmental and Social Standards that establish the mandatory requirements that the Recipient³ must meet through the project life cycle:

Environmental and Social Standard 1. Assessment and Management of Environmental and Social Risks and Impacts

Environmental and Social Standard 2. Labor and Working Conditions

Environmental and Social Standard 3. Resource Efficiency and Pollution Prevention and Management

Environmental and Social Standard 4. Community Health and Safety

Environmental and Social Standard 5. Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

Environmental and Social Standard 6. Biodiversity Conservation and Sustainable Management of Living Natural Resources

Environmental and Social Standard 7. Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

Environmental and Social Standard 8. Cultural Heritage

Environmental and Social Standard 9. Financial Intermediaries

Environmental and Social Standard 10. Stakeholder Engagement and Information Disclosure.

28. The standards establish objectives and requirements to avoid, minimize, reduce and mitigate environmental and social risks and impacts, and to compensate for or offset any residual impacts.

29. In the context of YEEAP 2, UNOPS shall address the Project’s environmental and social risks as part of the environmental and social assessment process, in accordance with ESS1. ESS2–10 set out the obligations of UNOPS in identifying and addressing environmental and social risks and impacts that may require particular attention.

30. Only ESS1, ESS2, ESS3, ESS4 and ESS10 were deemed relevant to the Project by the World Bank.

3.1.2 Environmental and Social Risk Classification

31. The World Bank classifies all projects into one of four classifications: High Risk, Substantial Risk, Moderate Risk or Low Risk. This classification takes into account relevant issues, such as the type,

³ Although the ESF uses the term Borrower, the correct term for UNOPS is recipient. Accordingly, the term Recipient is used, except if quoting from the ESF.

location, sensitivity, and scale of the project; the nature and magnitude of the potential environmental and social risks and impacts; and the capacity and commitment of the Recipient to manage the environmental and social risks and impacts in a manner consistent with the ESSs. Other areas of risk may also be relevant to the delivery of environmental and social mitigation measures and outcomes, depending on the specific project and the context in which it is being developed. These could include legal and institutional considerations; the nature of the mitigation and technology being proposed; governance structures and legislation; and considerations relating to stability, conflict or security.

32. The World Bank has classified both the environmental and social risks of YEEAP 2 as substantial. It will review the risk classification on a regular basis during implementation, and will change the classification where necessary, to ensure that it continues to be appropriate. Any change to the classification will be disclosed on the World Bank's website.

3.1.3 Environmental and Social Commitment Plan

33. In the context of YEEAP 2, UNOPS developed and will implement an Environmental and Social Commitment Plan (ESCP), which sets out the measures and actions required for the project to achieve compliance with the ESSs over a specific timeframe. The ESCP will be agreed with the World Bank and disclosed before project appraisal, and will form part of the legal agreement. The ESCP may be revised periodically to address issues that arise during implementation.

3.1.4 Labor Management Procedures

34. Under ESS2 on Labor and Working Conditions, UNOPS is required to develop labor management procedures (LMP) for YEEAP 2. The LMP will be prepared as a standalone document according to the established template.
35. The purpose of the LMP is to facilitate planning and implementation of the project. The LMP identifies the main labor requirements and risks associated with the Project, and help UNOPS determine the resources necessary to address Project labor issues. The LMP is a living document, which is initiated early in project preparation, and is reviewed and updated throughout the development and implementation of the project.
36. A concise and up to date LMP will enable different project-related parties, for example, staff of the implementing unit, contractors and sub-contractors and project workers, to have a clear understanding of what is required on a specific labor issue. The level of detail contained in the LMP will depend on the type of project and information available. Where relevant information is not available, this should be noted and the LMP should be updated as soon as possible.
37. In preparing and updating the LMP, the Recipient refers to the requirements of national law and ESS2 and the Guidance Note to ESS2.

3.1.5 Environment, Health and Safety Guidelines

38. The ESF also requires all projects to apply the relevant requirements of the World Bank Group Environmental, Health and Safety Guidelines (EHSGs)⁴, especially the General Guidelines. These are technical reference documents, with general and industry specific examples of Good International Industry Practice (GIIP). They define acceptable pollution prevention and abatement measures and emission levels in World Bank financed projects.
39. The EHSGs contain the performance levels and measures that are normally acceptable and applicable to projects. If less stringent levels or measures than those provided in the EHSGs are appropriate in

⁴ A complete list of industry-sector guidelines can be found at:
www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines

view of the financial constraints or other specific subproject circumstances, the World Bank will require UNOPS to provide full and detailed justification for any proposed alternatives through the environmental and social assessment of the subproject. This justification must demonstrate, to the satisfaction of the World Bank, that the choice of any alternative performance level is consistent with the objectives of the ESSs and the applicable EHSs, and is unlikely to result in any significant environmental or social harm.

40. In the context of YEEAP 2, UNOPS will use the General EHS Guidelines⁵. The General Guidelines cover environmental, occupational health and safety, and community health and safety related risks. Section 1.6 of the General Guidelines covers Waste Management.

3.1.6 Stakeholder Engagement and Information Disclosure

41. ESS10 requires that UNOPS implement a Stakeholder Engagement Plan (SEP) proportionate to the nature and scale of the project and its potential risks and impacts. UNOPS, in consultation with the World Bank, developed a SEP that it will disclose prior to Project appraisal as a standalone document. As described in paragraphs 14-16 of ESS10, the SEP must:

- *Describe the timing and methods of engagement with stakeholders throughout the life cycle of the project, distinguishing between project-affected parties and other interested parties.*
- *Describe the range and timing of information to be communicated to project-affected parties and other interested parties, as well as the type of information to be sought from them.*
- *Take into account the main characteristics and interests of the stakeholders, and the different levels of engagement and consultation that will be appropriate for different stakeholders.*
- *Set out how communication with stakeholders will be handled throughout project preparation and implementation.*
- *Describe the measures that will be used to remove obstacles to participation, and how the views of differently affected groups will be captured. Where applicable, the SEP will include differentiated measures to allow the effective participation of those identified as disadvantaged or vulnerable. Dedicated approaches and an increased level of resources may be needed for communication with such differently affected groups so that they can obtain the information they need regarding the issues that will potentially affect them.*

3.1.7 Grievance Mechanism

42. As required by ESS10, UNOPS has prepared, will disclose before Project appraisal and will implement a grievance mechanism as part of the SEP to receive and facilitate resolution of concerns and grievances of project-affected parties related to the environmental and social performance of the project in a timely manner.
43. The grievance mechanism required by ESS10 must *be proportionate to the potential risks and impacts of the project and will be accessible and inclusive. Where feasible and suitable for the project, the grievance mechanism will utilize existing formal or informal grievance mechanisms, supplemented as needed with project-specific arrangements.*
- *The grievance mechanism is expected to address concerns promptly and effectively, in a transparent manner that is culturally appropriate and readily accessible to all project-affected parties, at no cost and without retribution. The mechanism, process or*

⁵

<https://www.ifc.org/wps/wcm/connect/e22c050048855ae0875cd76a6515bb18/Final%2B-%2BWater%2Band%2BSa-nitation.pdf?MOD=AJPERES>

procedure will not prevent access to judicial or administrative remedies. The Borrower will inform the project-affected parties about the grievance process in the course of its community engagement activities, and will make publicly available a record documenting the responses to all grievances received

- *Handling of grievances will be done in a culturally appropriate manner and be discreet, objective, sensitive and responsive to the needs and concerns of the project-affected parties. The mechanism will also allow for anonymous complaints to be raised and addressed.*

3.1.8 Information Disclosure

44. The World Bank requires that all documents provided to it by UNOPS meet the requirements of the World Bank Policy on Access to Information. UNOPS must provide sufficient information about the potential risks and impacts of the Project during consultations with Project stakeholders. Such information must be disclosed in a timely manner, in an accessible place, and in a form and language understandable to project-affected parties and other interested parties as set out in ESS10, so they can provide meaningful input into project design and mitigation measures.
45. UNOPS will disclose the ESMF ESCP and the SEP prior to Project appraisal. The World Bank will also disclose these instruments in its publicly available web portal.

3.1.9 Contingent Emergency Response Components (CERC)⁶

46. The World Bank requires all activities financed through the CERC to meet ESF requirements, keeping in mind that this requirement only applies once the CERC is triggered. CERC activities will rely as much as possible on the Project's environmental and social instruments.
47. If the CERC is activated, the World Bank will advise UNOPS on the following elements:
 - Confirming which activities can proceed on the basis of the provisions of the CERC-ESMF, with no additional environmental or social assessment, and which ones require assessment (and at what level) prior to being initiated.
 - Rapidly assessing the environmental and social baseline of the planned CERC activities and locations based on readily available information.
 - Determining the sequencing and implementation plan for:
 - Mobilizing technical assistance and funding to prepare any additional safeguard instruments, e.g., Environmental and Social Management Plan, Resettlement Action Plan, etc.
 - Preparing the safeguards instruments and carrying out their Bank review, revisions, clearance, and approval.
 - Consultations and disclosure.
 - Establishing roles and responsibilities for safeguards implementation, and monitoring.
 - Estimating the costs for safeguards preparation and implementation.
48. In the event that CERC activities exceed the scope of the original PDO and thus this ESMF, UNOPS might be called on to prepare a supplemental CERC-ESMF as part of an eventual Project restructuring. The CERC-ESMF would include a screening process for the potential activities, the institutional arrangements for environmental and social due diligence and monitoring, any needed capacity-building measures, and generic guidance on emergency small-scale civil works. It would also indicate which kinds of emergency response actions can proceed with no additional environmental or social assessment, and which ones would require assessment (and at what level) prior to being initiated. It may also identify trade-offs, where required short-term responses could create longer-term risks that need to be managed.

⁶ This section is based on Paragraphs 17 of the World Bank Guidance on Contingent Emergency Response Components (CERC) (16 October 2017)

49. Given the uncertainties and rapid changes inherent in emergency situations and responses, the CERC-ESMF would be built around a flexible, “adaptive management” approach, i.e., with emphasis on monitoring of key outcomes and mechanisms to feed information rapidly and effectively into decision- making and management.
50. UNOPS will use the same institutional framework and the same screening process and criteria for the CERC as for the other Project components.

3.2 UNOPS Requirements

51. UNOPS is in the process of developing a comprehensive set of environmental and social safeguards that will be applicable to all of the Project’s it implements. The safeguards will be based on the Model Approach to Environmental and Social Standards for UN Programming⁷. The Model Approach represents a key step in moving towards a common approach among UN entities for addressing environmental and social standards for UN programming.
52. UNOPS has already adopted a policy on Health & Safety and Social & Environmental (HSSE) Management, and developed a General Environmental Management (GEM) Guidelines⁸, a General Health and Safety (GHS) Guidelines⁹, and accompanying templates. It has also set up an HSSE Unit based in Copenhagen.
53. When applied to contractors, the GEM and GHS can provide clear and comprehensive instructions to contractors, particularly regarding work safety issues. The templates accompanying the guidelines are practical and can easily be operationalized. Overall, the guidelines are more than equivalent with the EHS Guidelines where they overlap.
54. The existing UNOPS guidelines do not yet cover certain critical issues, such as Labor Management, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), Community Health and Safety, and Stakeholder Engagement and Disclosure. They are also not yet publicly available. In addition, although the UNOPS guidelines are referenced in the bidding document for the contracts that UNOPS manages, they are generally not included as technical clauses of contracts. As a consequence, UNOPS

⁷ https://unemg.org/wp-content/uploads/2019/07/FINAL_Model_Approach_ES-Standards-1.pdf

⁸ The 6 UNOPS Environmental Management Guidelines are:

- GEM 01 Generic Register of Environmental Impacts
- GEM 02 Waste Management and Hazardous Substances
- GEM 03 Protection of Water
- GEM 04 Wastewater
- GEM 05 Borrow Pit Management
- GEM 06 Preservation of Historical, Archeological and Cultural Remains

⁹ The 14 UNOPS Health and Safety Guidelines are:

- GHS 01 General Site Rules
- GHS 02 Lifting
- GHS 03 Electrics
- GHS 04 Excavation
- GHS 05 Fire Safety
- GHS 06 Noise
- GHS 07 Scaffold
- GHS 08 Underground Services
- GHS 09 Working at Heights
- GHS 10 Significant Accident or Incident Response
- GHS 11 Confined Space
- GHS 12 Site Establishment
- GHS 13 Welfare Facilities
- GHS 14 Construction Camp

will default for the purpose of this Project to a set of Environment, Social (including labor), health, and safety requirements derived from World Bank requirements and guidelines (see Annex 2) that UNOPS will include as technical clauses in the contracts they prepare for this Project. The option is available for UNOPS to use some of their procedures at the operational level, where they go beyond Bank requirements.

3.3 National Requirements and Policies

55. The Republic of Yemen (RoY) has drafted policies, developed sectoral legislation and implementation procedures, established institutions responsible for environmental management, and joined international conventions. The ongoing conflict has considerably weakened the capacity of the assigned institutions to implement policies and existing laws. As a consequence, the use of Yemen's environmental and social management framework is not considered for the Project.

3.3.1 National Environmental Action Plan

56. The foundational document for environmental management in Yemen is the National Environmental Action Plan (NEAP) that the ROY prepared in 1995, with the support of the UNDP and the World Bank. The NEAP defines priority actions regarding key environmental issues such as water resources, land resources, natural habitats, and waste management.

3.3.2 Environmental Protection Law

57. The Environmental Protection Law (Law 26/1995; EPL), was enacted in 1995 in the wake of the NEAP. It constitutes the framework environmental legislation for Yemen, including provisions for environmental protection, the issuance of permits, and the requirement to prepare Environmental Impact Assessments (EIAs). The provisions of the law are implemented through By-Law 148/000.

58. The law is also designed to: (i) incorporate environmental considerations in economic development plans at all levels and stages of planning, (ii) protect the national environment from activities practiced beyond national boundaries, and; (iii) implement international commitments ratified by the RoY in relation to environmental protection, pollution control, the conservation of natural resources, and global environmental issues such as the ozone layer depletion and climate change.

Environmental Protection Authority¹⁰

59. The EPL established an Environmental Protection Council (EPC) and granted it power to take all measures necessary to protect and improve the quality of environment and to prevent pollution of the environment. Decree 101/2005 established the Public Environmental Protection Authority (EPA) to replace the EPC and lays down its objectives, tasks and management. The functions assigned to the EPA include:

- preparing and executing appropriate policies/strategies/plans to protect the environment
- conducting environmental surveys
- assessing areas/resources/species to be protected through necessary measures conserving the ecosystem including flora and fauna, wild and marine life as per existing laws and monitoring their application
- developing legislative proposals for environment protection in coordination with other agencies involved

¹⁰ The information regarding the Environmental Protection Authority is purely indicative, as the EPA will not play any role during Project implementation.

- developing a National Emergency Plan to combat natural disaster and environmental pollution in consultation with the agencies implementing environmental protection law and other relevant laws/regulations
- reviewing EIA studies for public /private sector projects for giving clearance and monitoring their execution
- coordinating relevant programs/activities with national, regional and international agencies and organizations
- recommending necessary laws, regulations and systems to protect the environment, in accordance with regional and international agreements on environmental protection.
- collecting data, assessing and evaluating the status of the environment, and setting up suitable monitoring systems
- laying down appropriate standards for protecting the environment from pollution and formulating policy guidelines to combat industrial pollution and protect animal, plant and marine ecology

Environmental Impact Assessments

60. The EPL requires the preparation of EIAs for projects proposed by the public and private sectors. The proponent is responsible to undertake the EIA, but the report may be prepared by the proponent or the competent authority or both. Line ministries and Government bodies commission EIA studies at the request of funding agencies and seek the advice of the EPA.
61. The EPA is responsible for implementing screening procedures, assisting in scoping, evaluation and approval of the Environmental Impact Statement (EIS). However, there is still no regulatory framework to support the implementation of the EPL and the provision of undertaking EIAs for projects is not strictly enforced, particularly for projects that are not internationally funded.
62. Given the current context, modifications to the EIA procedures are not expected during the project. Current procedures will be taken into account, but there is no expectation at this point that the EPA will review the Project's environmental and social instruments.

National Environmental Standards and Specifications

63. The former Environment Protection Council (EPC) issued environmental standards and specifications as annexes to the Executive Regulations, covering potable water quality, wastewater quality for agriculture, and ambient air quality, emissions, noise, biodiversity and protected areas. These include standard application forms intended for use by all relevant government bodies.
64. The EPC has released draft standards for wastewater quality and air quality but a comprehensive set of standards is not yet available. In their place international standards, primarily those of the World Health Organization (WHO) are used.
65. Decree 148/2000 sets permissible limits for pollutants for use by all government bodies (see Annex 2).

3.3.3 Water Law¹¹

66. The Water Law (Law 33/2002, updated by Law 41/2006) regulates water supply and sanitation. The structure of water sector institutions consists of two national-level ministries (MoWE and MAI) and an intermediate-level water authority (NWRA). According to the amended water law and its by-law, the MoWE/NWRA are jointly responsible for organizing and developing water resources. The MAI is responsible for formulating policies and legislation that regulate the use of the irrigation water in line with the national water policies and plans and under the umbrella of the National Water Sector Strategy and the Investment Program (NWSSIP). The MoWE is the lead ministry for the oversight of

¹¹ Based on the National Water Sector Strategy and Investment Program (original NWSSIP, 2004), and Dire Straits: The Crisis Surrounding Poverty, Conflict, and Water in the Republic of Yemen (World Bank, 2017)

water resources and water service provision, including in rural areas. The MoWE also supervises local water companies/corporations (public utilities) and all water suppliers (including private) to the domestic and industrial sectors.

Water Supply

67. Under Article 54 of the updated Water Law, MoWE has “*the authority to protect the water resources from contamination, preserve its standard quality, and prohibit activities that lead to its contamination or deterioration of its standards and combat cases of emergency contamination in cooperation with the relevant and competent authorities.*”
68. The Water Law also “*provides a legal basis for controlling groundwater abstractions. It includes measures like licensing and registration requirements for wells and rigs, and more strict control regimes in water stressed catchments. The Water Law also supports decentralization in the form of encouraging the formation of basin committees and requires working closely with Local Councils in implementation of water management measures.*” The government has worked to put in place a system of water rights, and to enforce contracts involving voluntary transfers of such rights between consenting parties. The NWRA (through its branch offices) is authorized to implement water laws and regulation and to allocate surface and groundwater resources to the most compelling needs.

Wastewater

69. The Water Law specifies that treated wastewater shall not be disposed of or allowed to be used except after coordination with the MoWE and the relevant authorities, and after consultation and coordination with its users and those who are affected by its use.
70. Article 54 of the Water Law indicates that the concerned competent agencies shall, in coordination with the MoWE, issue licenses for; (i) the disposal of waste, sludge, waste water, oils and specify locations and methods of their disposal and construction of their facilities; (ii) reuse of treated water sewerage effluents according to the approved standards and specifications, and; (iv) construction of sewerage networks and desalination plants according to the relevant laws
71. The NWSSIP Update defines acceptable sanitation systems, taking into account that Yemeni topography, and the low flow of waste water can make centralized sewage treatment systems uneconomic.

3.3.4 Resettlement

72. The law most directly relevant to Project resettlement issues is the Public Eminent Domain Law (Law 1/1995), most particularly Articles 12-16 on temporary acquisition, and Articles 21-27 defining provisions for land acquisition. The Yemeni laws and regulatory framework are presented extensively in the Resettlement Framework (RF), which outlines the key issues and procedures for involuntary land acquisition under this Law.

3.3.5 Labor

73. The Labor Law (Law 5/1995) requires employers to address Occupational Health and Safety issues, including ventilation and lighting of workspaces; protection from emissions (gas, dust, etc.) hazards; protection from machine accidents and hazards; provision of gender-specific toilet facilities; provision of safe drinking water for workers; basic firefighting equipment and emergency exits; provision of appropriate personal protection equipment; fair compensation; access to periodic medical examinations; availability of first aid.
74. The Labor Law regulates the rights and wages of workers, their protection, occupational health and safety. In addition, the Social Insurance Law regulates retirement compensation.

Gender

75. The Labor Law states that women are equal to man in all aspects without any discrimination, and that equality should be maintained between women and men workers in recruitment, promotion, wages, training, social insurance. It also regulates work time for pregnant women.
76. Yemen also ratified the Convention on Elimination of all Forms of Discriminations Against Women (CEDAW) in 1984, and prepared a National Strategy for Women Development in 1997, which was updated in 2015. Implementation of CEDAW is delegated to relevant ministries and authorities (Decree 55/2009). Based on amendments proposed by the Women National Committee, 24 laws were amended to ensure building gender balance in accordance with the convention.

ILO Fundamental Conventions

77. Yemen has ratified ILOs eight “fundamental” Conventions, covering subjects that are considered to be fundamental principles and rights at work:
12. Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87)
 13. Right to Organize and Collective Bargaining Convention, 1949 (No. 98)
 14. Forced Labour Convention, 1930 (No. 29) (and its 2014 Protocol)
 15. Abolition of Forced Labour Convention, 1957 (No. 105)
 16. Minimum Age Convention, 1973 (No. 138)
 17. Worst Forms of Child Labour Convention, 1999 (No. 182)
 18. Equal Remuneration Convention, 1951 (No. 100)
 19. Discrimination (Employment and Occupation) Convention, 1958 (No. 111)
78. Law 7/2001 ratified ILO Convention Number 138 on Minimum Age for Admission to Employment. ILO Convention 182 on the Worst Forms of Child Labor refers to child labor as work that is mentally, physically, socially or morally dangerous and harmful to children; and interferes with their schooling by depriving them of the opportunity to attend school, by obliging them to leave school prematurely; or by requiring them to attempt to combine school attendance with excessively long and heavy work. Nonetheless, drawing a line between “acceptable” forms of work by children and child labor can prove difficult, as it depends on the child’s age, the types of work performed, the conditions under which it is performed.

3.3.6 International Conventions

79. The RoY is party to a number of international environmental agreements. The most important are:
- World Heritage Convention (UNESCO)
 - International Convention on Civil Liability for Oil Pollution Damage
 - The Convention on Biodiversity (CBD)
 - The Convention on the Conservation of Migratory Species (CMS)
 - The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
 - The United Nations Framework Convention on Climate Change (UNFCCC)
 - Kyoto Protocol (Yemen is not yet a party to the Paris Climate Agreement)
 - The Environmental Modification Convention (ENMOD)
 - The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
 - Convention on Wetlands of International Importance Especially as Waterfowl Habitat
 - Law of the Sea
 - The Montreal Protocol on Substances that Deplete the Ozone Layer
 - Stockholm Convention on Persistent Organic Pollutants
80. In general, national agencies are not currently in a position to handle the technical complexities and

reporting requirements of international agreements. Project activities are not expected to be in breach of any international agreement to which the RoY is a party.

3.4 Comparison between World Bank Requirements and Yemeni Requirements

81. The following table compares World Bank environmental and social requirements with Yemeni Requirements, identifies gaps and suggests recommended actions.

Table 1. Comparison of World Bank and Yemeni environmental and social requirements relevant to the Project

World Bank Objectives (direct quote)	Yemeni Requirements	Agreed Action
ESS1. Environmental Assessment		
<p><i>Identify, evaluate and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs.</i></p>	<p>The Environment Protection (EPL, 26/1995) requires the preparation of an EIA during the preparation of all projects and the inclusion of mitigation measures in the project's capital and recurrent costs (Cabinet Decree 89/1993). The EIA should describe: (i) proposed project activities, design of activity, the surrounding environment that may be affected, including a land use map of the adjacent areas, the requirement and types and source of energy, raw material and infrastructure services and roads emergency plan and safety, waste disposal etc.; (ii) and (iii) alternatives using less polluted inputs, as well as consideration of the 'no-project' alternative (EPL Article 37 Para (b)).</p> <p>The EIA guidelines require that ESAs consider the social acceptability or refusal of the local communities to the proposed project, with evidence and record of public consultations and, if it is accepted, should include baseline data, indicators and monitoring plan. It also includes requirements for monitoring, capacity building, verification of monitoring results and findings (EPL Article 60).</p>	<p>National requirements and ESF objectives are aligned, and complement each other. UNOPS will apply both the ESF and national requirements</p>
<p><i>To adopt a mitigation hierarchy approach to anticipate and avoid risks and impacts;</i></p> <p><i>Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels;</i></p> <p><i>Once risks and impacts have been minimized or reduced, mitigate;</i></p> <p><i>Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.</i></p>	<p>Yemeni law has no equivalent to the mitigation hierarchy.</p> <p>National law gives priority to the principle of environmental protection and pollution prevention, and not only to the mitigation or compensation of impacts. All new projects must carry out EIAs to prevent adverse impact and must obtain an environmental permit. No project or new structure that could harm, pollute or deteriorate the environment and natural resources is allowed and all new projects should use best available practices for clean production and apply environment protection/pollution prevention measures.</p>	<p>UNOPS will apply the ESF requirements</p>
<p><i>To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project.</i></p>	<p>Included in the EPL (26/1995)</p>	<p>National requirements and ESF objectives are aligned and complement each other. UNOPS will apply both ESF and national requirements</p>

World Bank Objectives (direct quote)	Yemeni Requirements	Agreed Action
<p><i>To utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate.</i></p>	<p>The Environmental Protection Council must inform the proposed projects proponents of the screening results within three months from submission of the project proposal and determines the appropriate EA instrument and required studies required to assess potential risks and impacts. The EIA guideline provides the possibility of using regional and international assessment procedures and norms when applicable. If the project is rejected, the rejection note should indicate the basis for the rejection, as well as the relevant sections of the regulatory framework. The EIA guideline also provides the possibility for project proponents to contest any rejection and to appeal to the special court, within a period of 60 days. The court is required to make a final judgment within six months (Chapter 1 Article 3, EPL 26/1995 - By-law 148/2000).</p>	<p>UNOPS will take into account national laws and regulations when applying the ESF requirements</p>
<p><i>To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity.</i></p>	<p>Include in the Environmental Protection Law No. 26/1995.</p>	<p>UNOPS will take into account national laws and regulations when applying the ESF requirements</p>
<p>ESS2. Labor and Working Conditions</p>		
<p><i>To promote safety and health at work.</i></p>	<p>Included in Yemen Labor Law Number 5/1995, Articles 113, 114, 115, 116, 117 and 118, Chapter 9 of the Labor Law (5/1995), Law Number 25/1997 and Law Number 25/2003 address Occupational Health and Safety and work environment in Articles 113 to 118. Chapter 10 covers worker's insurance. Employers are required to provide necessary occupational safety and health conditions, including: ventilation and lighting of workspaces; protection from emissions (gas, dust, etc.) hazards; protection from machine accidents and hazards; provision of gender-specific toilet facilities; provision of safe drinking water for workers; basic firefighting equipment and emergency exits; provision of appropriate personal protection equipment; fair compensation; access to periodic medical examinations; availability of first aid. The competent authority shall ensure the availability of the appropriate work environment and conditions for occupational safety and health. The Ministry of Labor is charged with advising employers in the field of occupational health and safety; organize and implement accident prevention training programs; exchange of technical information; identify and evaluate the means of accident prevention measures; etc. The Minister may establish sub-committees for occupational health and safety in the governorates and in the sectors and industries, which include the relevant bodies. The composition decision shall determine the functions of these committees, their terms of reference and the rules governing their work. Where employers fail to implement labor protection and labor safety</p>	<p>Each contractor will be required to have an OHS Officer and First Aider. Contractors required to keep logs of incidents and should be reported and investigated regularly. Contractors will do daily toolkit talk, and UNOPS will conduct weekly induction talks to workers and contractors.</p>

World Bank Objectives (direct quote)	Yemeni Requirements	Agreed Action
	<p>regulations, they could receive a one week stop order from the Minister, until the reasons for the breach are explained. The Minister must refer the matter to the competent arbitration committee if the partial suspension is extended or if a total suspension is requested. If the risk is still not removed by the employer, the workers who have stopped working are entitled to full wages.</p>	
<p><i>To promote the fair treatment, non-discrimination and equal opportunity of project workers.</i></p>	<p>Article 30 of the Labor Law requires that every employee be provided with written particulars of employment. See also Articles 27, 28, 29, 31, 32, 33, 34</p> <p>Nondiscrimination and equal opportunity is Included in the Labor Law Articles 5, 42, and 67.</p>	<p>Contractors will be required to comply with national legislation when recruiting workers.</p>
<p><i>To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate.</i></p>	<p>Included in Yemen Labor Law Number (5/1995), Articles 5, 15, 42, 43, 44, 45, 46, 47a, 47b and 89; the Law for the Organization of Workers' Unions (35/2002); the Law for Social Insurance (26/1991).</p> <p>The Labor Law regulates the rights and wages of workers, their protection, occupational health and safety. In addition, the Social Insurance Law regulates retirement compensation.</p> <p>Gender</p> <p>Yemen ratified the Convention on the Elimination of all Forms of Discriminations Against Women (CEDAW) in 1984, and prepared a National Strategy for Women Development in 1997, which was updated in 2015. Implementation of CEDAW is delegated to relevant ministries and authorities (Decree 55/2009). Based on amendments proposed by the Women National Committee, 24 laws were amended to ensure building gender balance in accordance with the convention.</p> <p>The Labor Law (Law 5/1995) states that women are equal to man in all aspects without any discrimination, and that equality should be maintained between women and men workers in recruitment, promotion, wages, training, social insurance. It also regulates work time for pregnant women.</p>	<p>National legislation will be applied.</p> <p>However, the World Bank standards will be enforced where there are gaps.</p> <p>The higher standard between the national legislation and World Bank standards will always prevail in case of uncertainty in applicable requirements.</p>

World Bank Objectives (direct quote)	Yemeni Requirements	Agreed Action
<p><i>To prevent the use of all forms of forced labor and child labor.</i></p>	<p>Forced Labor Included in Yemen Labor Law Number 5/1995, Articles 55</p> <p>Child Labor Included in Yemen Labor Law Number 5 /1995, Article 49 Yemen has also ratified ILO Convention Number 138 on Minimum Age for Admission to Employment (Law 7/2001). The Convention establishes a minimum age for admission to employment. Yemen has also ratified the ILO Convention 182 on the Worst Forms of Child Labor. It refers to child labor as work that is mentally, physically, socially or morally dangerous and harmful to children; and interferes with their schooling by depriving them of the opportunity to attend school, by obliging them to leave school prematurely; or by requiring them to attempt to combine school attendance with excessively long and heavy work. Drawing a line between “acceptable” forms of work by children and child labor can prove difficult, as it depends on the child’s age, the types of work performed, the conditions under which it is performed.</p>	<p>Forced Labor Contractors and primary suppliers will be required to comply with national legislation and as precautionary measure to conduct an induction and random inspection will be done on a regular basis to ensure compliance</p> <p>Child Labor Contractor will be prohibited to employ anyone under the age of 18 years. Monitoring will be done through the National ID system that every employee is required to produce on employment. If a contractor is found to have engaged under age children in the project: - a formal case will be reported and the contract will be terminated.</p>
<p><i>To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.</i></p>	<p>Included in Yemen Labor Law (5/1995) Articles 151 and 152, and the Law for the Organization of Workers’ Unions (35/2002)</p>	<p>Contractors must inform workers of their right to organize according to the law.</p>
<p><i>To provide project workers with accessible means to raise workplace concerns.</i></p>	<p>Included in Yemen Labor Law (5/1995) Articles 129, 130, 132 and 136.</p>	<p>Contractors will be required to comply with national legislation in this regard. Contractors will be required to have a grievance procedure and inform workers of the same during induction. UNOPS and TPM will require contractors to log worker’s grievances in monthly reports</p>
<p>ESS3. Resource Efficiency and Pollution Prevention and Management</p>		
<p><i>To promote the sustainable use of resources, including energy, water and raw materials.</i></p>	<p>Included in the EPL, the Water Law (33/2002), the Law for Mines and Quarries (24/2002), the Electricity Law (1/2009), and the Renewable Energy Strategy.</p>	<p>National requirements and ESF objectives are aligned and complement each other.</p>

World Bank Objectives (direct quote)	Yemeni Requirements	Agreed Action
<i>To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.</i>	National law gives priority to the principle of environmental protection and pollution prevention, and not only to the mitigation or compensation of impacts. All new projects must carry out EIAs to prevent adverse impact and must obtain an environmental permit. No project or new structure that could harm, pollute or deteriorate the environment and natural resources is allowed and all new projects should use best available practices for clean production and apply environment protection/pollution prevention measures. Yemeni Law encourages related sectors and projects to provide institutional capacity and training for projects to enhance their capacity and knowledge in handling environmental issues. It also encourages research and development in all environmental aspects (EPL, Article 90).	UNOPS will apply both ESF and National requirements to the Project
<i>To avoid or minimize project-related emissions of short and long-lived climate pollutants</i>	Included in the EPL (26/1995), and is a Yemeni commitment under the Climate Change Convention.	Both World Bank ESF objectives and National requirements will apply to the Project
<i>To avoid or minimize generation of hazardous and non-hazardous waste.</i>	Included in the EPL (26/1995), the Pesticide Law (25/1999), the Public Cleaning Law (39/1999), and the Law Establishing Cleaning Funds (20/1999)	Both World Bank ESF objectives and National requirements will apply to the Project
<i>To minimize and manage the risks and impacts associated with pesticide use</i>	Included in the Pesticide Law (25/1999), and the EPL (26/1995)	Both World Bank ESF objectives and National requirements will apply to the Project
ESS4. Community Health and Safety		
<i>To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and nonroutine circumstances.</i>	Yemeni Law does not specifically address community health and safety	UNOPS will follow ESF requirements
<i>To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams.</i>	No equivalent in Yemeni law. However, IPCC National Contribution commitments and other various national laws (EPL Chapter 2 Article 5 and 7) address global environmental concerns, such as the ozone layer and climate change	UNOPS will follow ESF requirements
<i>To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.</i>	No equivalent in Yemeni law	UNOPS will follow ESF requirements
<i>To have in place effective measures to address emergency events</i>	Included in Yemen Labour Law Number 5 for 1995, Articles 119, 121	National requirements and ESF objectives are aligned, and no significant gaps are noted. Both World Bank ESF objectives and National requirements will apply to the Project.

World Bank Objectives (direct quote)	Yemeni Requirements	Agreed Action
<i>To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.</i>	No equivalent in Yemeni Law	UNOPS will follow ESF requirements
ESS5. Land Acquisition, Restrictions on Land Use and Involuntary Resettlement		
Not relevant		
ESS6. Biodiversity Conservation and Sustainable Management of Living Natural Resources		
Not relevant		
ESS7. Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities		
Not Relevant		
ESS8. Cultural Heritage		
<i>To protect cultural heritage from the adverse impacts of project activities and support its preservation.</i>	<p>EPL (26/1995, Chapter 3 Article 37) requires the establishment of a national list of all sites with important cultural heritage or environmental sensitivity such as wetland sites, coral reefs, protected areas and national parks.</p> <p>During projects planning in urban and rural areas, projects should plan for the protection of cultural heritage. If there is an indication of existence of any cultural heritage, the relevant authority must be consulted before commencement of project works. Project works should be located no closer than 500 m from the nearest known cultural heritage (Presidential Decree 21/1994, Parliament Decree 14/1994 and Law 8/1997 Amending the Antiquities Law 21/1994, Article 12).</p> <p>In the event of a chance find of above ground or underground cultural heritage, government authorities must be consulted and the site must be guarded safely until the related governmental authority experts came, investigate and have a hold on it, in return the finder is entitled to suitable reward regardless of the value and age of the cultural heritage.</p> <p>The General Organization for Antiquities and Museums (GOAM) has the mandate to stop any works that could damage antiquities and cultural heritage areas and to preserve cultural field work and excavation findings (Presidential Decree 21/1994, Parliament Decree 14/1994 and Law 8/1997 Amending article 9 of the Antiquities Law 21/1994).</p> <p>UNESCO, the Doha Office of GOAM and Oxford University agreed to jointly launch the Yemeni Heritage Management Platform Database in 2017</p>	<p>The Yemeni requirements are more specific. UNOPS will ensure that any cultural heritage encountered during the work will be reported to the GOAM and the Yemeni Heritage Management Platform Database</p> <p>National requirements and ESF objectives are aligned, and no significant gaps are noted. Both World Bank ESF objectives and National requirements will apply to the Project.</p>

World Bank Objectives (direct quote)	Yemeni Requirements	Agreed Action
<i>To address cultural heritage as an integral aspect of sustainable development</i>	To conduct field-based surveys by specialists and describe the proposed site for project including map, borders and neighborhoods with design of infrastructures, facilities and services and all inputs and outputs (EPL and EIA Guideline).	National requirements and ESF objectives are aligned and complementary. UNOPS will apply both ESF and national requirements
<i>To promote meaningful consultation with stakeholders regarding cultural heritage.</i>	No comparable requirement under Yemeni law	UNOPS will apply ESF requirements
<i>To promote the equitable sharing of benefits from the use of cultural heritage.</i>	No comparable requirement under Yemeni law	UNOPS will apply ESF requirements
ESS9. Financial Intermediaries		
Not Relevant		
ESS10. Stakeholder Engagement and Information Disclosure		
<i>To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties.</i>	Article 35 of the Yemeni Constitution declares that Environment protection is the responsibility of the state and the community and that it is a duty for every citizen. Community and NGO participation are considered an essential part of consultation while planning proposed projects, and is a continuous process before, during and after project implementation (EPA EIA Guideline). Furthermore, NGOs and individuals can directly sue any person or entity who causes harm to the environment and natural resources or participate in its deterioration and pollution (EPL Article 4, para 4 and Article 82).	UNOPS will follow ESF requirements
<i>To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance.</i>	Included in the Local Administration Law	UNOPS will follow ESF requirements
<i>To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.</i>	Included in the Local Administration Law	UNOPS will follow ESF requirements
<i>To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.</i>	ESIAs should include a reference list and a non-technical summary for public use and disclosure in a form and language understandable to general public (EPA EIA guideline).	National requirements and ESF objectives are aligned, and no significant gaps are noted. Both World Bank ESF objectives and National requirements will apply to the Project.

World Bank Objectives (direct quote)	Yemeni Requirements	Agreed Action
<p><i>To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances</i></p>	<p>Article 51 of the Constitution allows for recourse to the courts. The Public Eminent Domain Law and the Local Administration Law provide for the right of grievance before the Estimation Committee/courts.</p> <p>To address grievances, PAPs can first seek satisfaction through local customary practices for resolving conflict. They can then initiate legal proceedings in accordance with provincial national law.</p>	<p>National requirements and ESF objectives are aligned, and no significant gaps are noted.</p> <p>Both World Bank ESF objectives and National requirements will apply to the Project.</p>

Chapter 4

Environmental and Social Baseline

4.1 Background

82. In 2014, before the conflict erupted, only about 66 percent of the population in the Republic of Yemen (henceforth referred to as Yemen) had access to public electricity (another 12 percent had access to private electricity solutions), the lowest level in the region. Rural and peri-urban areas, which account for approximately two-thirds of Yemen's estimated 27 million population,¹² suffered disproportionately from a lack of access to modern energy, with rural electricity access rates of only 53 percent.
83. The conflict has caused major loss of life, internal displacement, and damage to infrastructure and service delivery throughout the economy and society, especially in rural and peri-urban areas, which were already characterized by lack of access to basic infrastructure and service facilities. The impact of the collapse of public electricity has been devastating. By the end of 2017, access to electricity had dropped to below 10 percent¹³ due to extensive damage to the national grid and fuel shortages across the country.¹⁴ Electricity has become a major constraint for critical service facilities that do not have the means to invest in alternative energy sources, such as health facilities, vaccine cold chains, primary schools, water supply and sanitation, food supply, and banking services.
84. Even where diesel generators were adopted for emergency power supply, fuel shortages are leading to severe constraints to service delivery, including in the water and health sectors where prolonged power outages are contributing to the spread of the cholera epidemic.¹⁵ Continued lack of electricity access is likely to contribute to a decrease in productivity, a deterioration of the business environment, and a reduction in the country's gross domestic product (GDP).
85. The collapse of electricity and fuel supplies has also severely affected employment and household incomes in rural and peri-urban areas, due to the dependence on agriculture and energy-intensive groundwater extraction for irrigation. It has also increased dependency on scarcely available and expensive liquid fuels. Social impacts include limits to children's ability to study in the evenings and limited functionality of schools. The absence of and nighttime lighting has added to security concerns, especially among women for whom the lack of lighting on the way to shared latrines exacerbates risks to gender-based violence (GBV).¹⁶ Due to the lack of electricity for water pumping, many rural households have been forced to travel long distances to fetch water—a task that falls disproportionately on women and girls.¹⁷ Health effects on households include indoor air pollution

¹² World Bank population estimates based on extrapolations from 2004 census data.

¹³ The Yemen Humanitarian Response Situation Report (Save the Children, October 2016) estimated access to grid-based electricity at 10 percent. Phone survey results from November 2017 by the World Food Programme (WFP) indicate that less than 1 percent of households relied on the electricity grid as their main source of electricity.

¹⁴ Using fuel sales to electricity plants as an indicator, total power generation in 2015 dropped by 77 percent compared to 2014. Light emissions visible from satellite imagery indicate a decline in electricity consumption by about 75 percent.

¹⁵ As electricity is required for pumping clean water, many Yemenis have resorted to drinking surface water, which may be contaminated with cholera bacterium.

¹⁶ Oxfam and Care International. 2016. Conflict and Gender Relations in Yemen: A Field Assessment. IASC Gender Standby Capacity Project (GenCap): Sana'a, Yemen. UNFPA Yemen Factsheet: Protecting Women and Girls (October 2017) indicates that a total of 2.6 million women and girls are currently at risk of GBV.

¹⁷ Ibid.

from using liquid fuels to power appliances and kerosene for lighting, and reduced access to health services that depend on electricity. Fuel shortages have also caused prices to spike, with the price of cooking gas rising by 66 percent compared to pre-crisis times,¹⁸ and many women have reportedly resorted to cooking with plastic,¹⁹ which releases severely harmful chemicals.

4.2 Solar PV in Yemen²⁰

86. The crisis has resulted in boosting the photovoltaic (PV) market in Yemen where PV has penetrated the market with a high growth rate, with access to PV systems reaching around 50% of households in rural areas and 75% in urban areas, translating over one billion USD private sector driven investment in PV systems for residential sector alone over the past five years, with huge untapped potential in many other sectors. This has a positive impact on the Yemeni society, not only by improving energy access during the conflict time but also by enhancing socio-economic conditions in both urban and rural areas. PV technology has reached many houses and farms, as well as some health centers and schools. This situation coupled with the dramatic reduction in PV technology prices have opened the doors for a newly emerging market with unique experiences in how the growth occurred and how the labor skills were gained and developed to serve the market needs.
87. The market penetration of the PV technology in Yemen is dominated by the residential sector accounting for most of the sales volume. Some public and essential services have implemented solar PV systems either as stand-alone or in simple hybrid²¹ arrangement with diesel or petrol generators.
88. PV systems have been installed for several essential public services. For example:
1. **Hospitals.** The health facilities and hospitals have suffered from partial or complete blackouts during the recent periods. Several large hospitals have minimized their dependence on the national grid by installing diesel generators where the fuel was supplied by the government or international organizations. Other hospitals have installed solar PV systems for lighting, especially for the emergency departments there are cases where health facilities have installed solar PV systems for their necessary loads such as keeping vaccinations and medicines when low temperature storage is needed. For example, in Dhamar governorate, 18 health facilities have installed solar PV systems. Also, five health facilities in Sanhan directorate have installed solar PV systems.
 2. **Schools.** The total number of schools in Yemen is around 17 thousand schools (16,961 schools in 2011 records). Scattered information has revealed some initiatives to build schools in many areas around Yemen, however data about most of them are neither available nor organized.
The number of schools that use solar energy is estimated to be less than 10% of the total schools in Yemen. In the Sana'a city that contains 370 schools, UNICEF has the largest initiatives for the solar electrification of schools. The reported project is to install solar PV in 100 schools; the first phase of the project had accomplished 70 of them (Ministry of Education, 2016). Other PV-implementing schools in Sana'a are either supported by individual initiatives from the school staff or the community served by the school.
 3. **Drinking Water.** Yemen highly depends on ground water in all the areas. Water supply has been affected due to the diesel shortage, and people are forced to buy water from tankers transferring

¹⁸ WFP phone survey results, 2017.

¹⁹ Oxfam and Care International, 2016.

²⁰ This section is adapted from World Bank, May 2017. Assessment of the status of solar PV in Yemen. Prepared by the Regional Center for Renewable Energy and Energy Efficiency

²¹ These systems are not fully integrated, which means that they are manually switched between solar PV systems and diesel/petrol generators. These types of system are not confined to the essential services but also in the residential sector, where a high percentage of people have diesel/petrol generators as back-up systems, which were installed before the recent conflict given to the usual frequent power outages.

water to remote locations. This type of water supply costs 4 times more than the original water cost due to the long transportation and fuel expenses. It was reported that 300,000 liters of diesel are required monthly for water supply purposes in the capital Sana'a. UNICEF and the Red Cross have implemented initiatives to supply free diesel for the water wells managed by the Yemeni government. Other initiatives were reported to have installed PV systems in the water field for IDP needs by a few organizations such as CARE international, Oxfam, ADRA and NRC. The use of PV powered pumps for drinking water is an alternative that is not really implemented on a large scale. The reason behind this is the high power required by those pumps, which makes securing the required areas for the PV difficult in main cities like Sana'a.

4. **Street lighting.** By February 2016, the Ministry of Electricity and Energy in coordination with the General Authority for Maintaining Historic Sites and the Cooperative and Agricultural Credit Bank (CAC Bank) began the pilot stage to light streets and squares of old Sana'a with solar PV. This stage targets to light only 2% of the old Sana'a and it costs 10 million YER (40.000 USD) (Sharha, 2016). Individuals have taken initiatives in many places to light their streets by solar PV systems in some major cities.
89. Generally, the maintenance of solar PV system for the essential services is conducted during the warranty period by the company that supplied and installed the system. In other cases, the facility owning the system calls any individual engineer or practitioner available in the local market for the repair/maintenance of the system on its own account.

Chapter 5

Potential environmental and social risks and mitigation measures

90. The Project's interventions are expected to have positive environmental impacts in the form of mitigated greenhouse gas emissions and lower air pollution (indoor and outdoor). Nonetheless, the World Bank rated the environmental and social risk rating of YEEAP 2 as substantial.

Environmental Risks and Impacts

91. The environmental risks include:
- (i) temporary impacts during the installation of solar PV systems under subcomponents 1.2 and 1.3
 - (ii) life and fire safety aspects following the installation of the solar PV systems
 - (iii) the improper disposal of batteries
92. Potential impacts arising from these risks are expected to be local, site-specific, and manageable. The Project includes support for capacity building and studies to address e-waste and battery waste management in a more systematic manner. However, the capacity of potential beneficiaries to manage these risks according to ESF requirements is limited.

Social risks and impacts

93. The potential adverse social impacts of the Project are expected to be similar to Phase 1 and will be relatively limited. Furthermore, all solar PV systems will be installed within existing facilities and will cause neither land acquisition nor economic displacement. Nonetheless, Component 1 activities may cause the following risks:
- (i) elite capture of investments by powerful or better-connected beneficiaries, at the risk of excluding some segments of society, especially disadvantaged and marginalized groups
 - (ii) injuries and health impacts to workers or community members, including the spread of COVID-19
 - (iii) the use of forced labor or child labor by contractors
 - (iv) work related sexual exploitation and abuse (SEA) and sexual harassment by contractor workers
 - (v) the interruption or closure of services from beneficiary facilities because of conflict

Technical assistance

94. Component 2 includes a variety of TAs and pilot studies and activities with potential environmental and social risks such as the exclusion or discrimination of female stakeholders, the management disposal of waste batteries, and the scaling up **and support to existing power plants and transmission lines**²².

²² Quote from the draft PAD

Table 2. Risks and mitigation measures for Project activities²³

Activity (as described in the PAD)	Risk	Mitigation measure
Component 1: Financing for Off-grid Solar (US\$ 80 million)		
Subcomponent 1.1. Solar home systems for households (US\$ 20 million)		
<ul style="list-style-type: none"> Scale-up provision of plug and play pico solar systems (below 350 watts) to households, building on the success of both the in-kind grant support mechanism targeting smaller, more working capital constrained MFIs, and the results-based financing mechanism targeting larger, less capital-constrained MFIs 	<ul style="list-style-type: none"> Elite capture of investments by powerful or better-connected beneficiaries, at the risk of excluding some segments of society, especially disadvantaged and marginalized groups Disposal of used batteries 	<ul style="list-style-type: none"> UNOPS will implement the Stakeholder Engagement Plan The MFIs will apply and disclose the selection criteria for beneficiaries The number of systems available per household and per district will be restricted to mitigate the risk that the subsidized products being systematically resold by beneficiaries UNOPS will require MFIs to implement the Code of Practice for Solar Systems section of the ESHS requirements
<ul style="list-style-type: none"> Introduce a new component for larger, medium-sized household plug and play solar PV systems below 1000 watts. 	<ul style="list-style-type: none"> Elite capture of investments by powerful or better-connected beneficiaries, at the risk of excluding some segments of society, especially disadvantaged and marginalized groups Disposal of used batteries and battery waste 	<ul style="list-style-type: none"> UNOPS will implement the Stakeholder Engagement Plan The MFIs will apply the selection criteria for beneficiaries The number of systems available per household and per district will be restricted to mitigate the risk that the subsidized products being systematically resold by beneficiaries UNOPS will require MFIs to implement the Code of Practice for Solar Systems section of the ESHS requirements, including provisions for the disposal of batteries
Subcomponent 1.2. Solar systems for health clinics, drinking water wells and schools (US\$ 50 million)		
<ul style="list-style-type: none"> Provide solar systems to more primary health centers/units, including maternal and reproductive health care facilities, and expanding to hospitals in districts that require larger budgets per facility (hospitals will be crucial for treating more complicated and inpatient cases that health centers/units cannot handle in remote areas) 	<ul style="list-style-type: none"> Elite capture of investments by powerful or better-connected beneficiaries, at the risk of excluding some segments of society, especially disadvantaged and marginalized groups Solar PV systems might overload existing electrical wiring and cause fires 	<ul style="list-style-type: none"> UNOPS will implement the Stakeholder Engagement Plan UNOPS will select beneficiaries in a transparent manner, according to preestablished criteria UNOPS will prepare ESMPs for all subprojects UNOPS will incorporate the Environmental, Social, Health and Safety requirements (ESHS) in all MFI

²³ The list of activities is taken directly from the Project Concept Note (PCN)

Activity (as described in the PAD)	Risk	Mitigation measure
	<ul style="list-style-type: none"> • Disposal of used batteries • Injuries and health impacts to workers or community members, including the spread of COVID-19 • The use of forced labor or child labor by contractors • Work related sexual exploitation and abuse (SEA) and sexual harassment (SH) by contracted workers • The interruption or closure of services from beneficiary facilities because of conflict 	contracts, including the Solar PV System Code of Practice (see Annex 2), and the Code of Conduct <ul style="list-style-type: none"> • UNOPS will assess incremental fire risk associated with the solar PV system and include preventative measures to accompany the solar PV system • UNOPS will audit the incremental life and safety risks associated with the installation of solar PV systems, and include proportionate mitigation measures • UNOPS will apply the LMP to contractors and their workers, including provisions regarding forced labor, child labor, and SEA/SH • UNOPS will implement the Security Management Plan
<ul style="list-style-type: none"> • Scale-up the provision of solar solutions for drinking water wells, including the provision of submersible pumps, solar panels, water storage tanks, small desalination units, small water networks, and water meters as well as capacity building support to Water User Associations (WUAs) in collaboration with WASH and women collaboratives 	<p style="text-align: center;">Same as above +</p> <ul style="list-style-type: none"> • Excessive extraction of ground water 	<p style="text-align: center;">Same as above +</p> <ul style="list-style-type: none"> • UNOPS will ensure that all solar PV systems for drinking wells will be installed in replacement of existing diesel generators, with equivalent power. • UNOPS will verify that there is no legacy of excessive abstraction when selection beneficiaries
<ul style="list-style-type: none"> • Target additional girl and boy schools, in collaboration with ongoing education sector interventions 	<p style="text-align: center;">Same as above</p>	<p style="text-align: center;">Same as above</p>
<p>Subcomponent 1.3. Support to COVID-19 health care facilities (US\$ 10 million)</p>		
<ul style="list-style-type: none"> • Scale up the COVID-19 response under YEEAP 1. Additional COVID-19 isolation units will be identified to deliver the beneficial impacts of providing electricity to dedicated COVID-19 treatment facilities. 	<p style="text-align: center;">Same as above</p>	<p style="text-align: center;">Same as above</p>
<p>Component 2. Implementation Support and Market Development (US\$ 20 million)</p>		
<p>Subcomponent 2.1. Project Implementation Support through UNOPS (US\$ 9 million)</p>		
The subcomponent will support: <ul style="list-style-type: none"> • general management support (indirect) costs for UNOPS • direct management and supervision costs required to support the implementation of the project (including the use of remote monitoring technology) • independent audits of project activities, if required 	<ul style="list-style-type: none"> • There are no environmental and social risks associated with this subcomponent 	

Activity (as described in the PAD)	Risk	Mitigation measure
<ul style="list-style-type: none"> the establishment of a Grievance Redress Mechanism (GRM) in the UNOPS Sana'a Office to document complaints and ensure follow-up. 		
Subcomponent 2.2. Technical Assistance (TA) for Power Sector Recovery (US\$ 6 million)		
<p>The subcomponent will support:</p> <ul style="list-style-type: none"> power sector reform, policy, institutional and regulatory aspects rapid studies on rehabilitation, reconstruction and expansion of generation, transmission and distribution systems, and to the extent possible the preparation of associated pre-feasibility studies the preparation of a geospatial-based electrification plan consisting of grid-based expansion, mini-grids and stand-alone system and assessing the suitability of public sector and private sector delivery models a diagnostic of PEC to assess performance improvement needs including capacity building, structural and system enhancements like improvements in metering, billing and collection. 	<ul style="list-style-type: none"> The studies might not reflect the concerns and expectations of marginalized and vulnerable groups Consultants conducting the studies might cause SEA/SH 	<ul style="list-style-type: none"> UNOPS will ensure that ToRs are responsive to ESF requirements and will submit them to the World Bank for prior review UNOPS will implement the SEP to ensure meaningful consultations the preparation of the market assessments UNOPS will require all consultants and consulting firm workers to sign the Code of Conducts
Subcomponent 2.3. Technical Assistance to Support Solar-PV Market (US\$ 5 million)		
<p>Off Grid Solar Pay-As-You-Go (PAYG)</p> <ul style="list-style-type: none"> Support the design and implementation of PAYG pilots in the proposed project as part of Component 1.1. 	<ul style="list-style-type: none"> The assessment might not reflect the concerns and expectations of marginalized and vulnerable groups Consultants conducting the studies might cause SEA/SH 	<ul style="list-style-type: none"> UNOPS will ensure that ToRs are responsive to ESF requirements and will submit them to the World Bank for prior review UNOPS will implement the SEP to ensure meaningful consultations the preparation of the market assessments UNOPS will require all consultants and consulting firm workers to sign the Code of Conducts
<p>Off-Grid Solar Market Assessment</p> <ul style="list-style-type: none"> Undertake a market assessment to provide a comprehensive analysis of: a) the current market for the Productive Use of Energy (PUE) market for appliance categories such as cooling, cold storage, ice-making, drying, agro-processing and livestock and its key stakeholders; b) the potential market; c) the main market barriers; and d) recommendations regarding how market barriers might be overcome. 	<ul style="list-style-type: none"> The assessment might not reflect the concerns and expectations of marginalized and vulnerable groups Consultants conducting the studies might cause SEA/SH 	<ul style="list-style-type: none"> UNOPS will ensure that ToRs are responsive to ESF requirements and will submit them to the World Bank for prior review UNOPS will implement the SEP to ensure meaningful consultations the preparation of the market assessments UNOPS will require all consultants and consulting firm workers to sign the Code of Conducts
<p>Mini-Grid Market Assessment</p>		

Activity (as described in the PAD)	Risk	Mitigation measure
<ul style="list-style-type: none"> Support an assessment of the sectoral legal, policy, and regulatory reforms required to establish a mini grid market, evaluate the current market and the potential market, identify the main barriers to establishing mini-grids, and indicate how these might be overcome 	<ul style="list-style-type: none"> The assessment might not reflect the concerns and expectations of marginalized and vulnerable groups Consultants conducting the studies might cause SEA/SH 	<ul style="list-style-type: none"> UNOPS will ensure that ToRs are responsive to ESF requirements and will submit them to the World Bank for prior review UNOPS will implement the SEP to ensure meaningful consultations the preparation of the market assessments UNOPS will require all consultants and consulting firm workers to sign the Code of Conducts
<p>Quality Standards and Capacity Building</p> <ul style="list-style-type: none"> Develop a comprehensive quality assurance framework for component-based off-grid solar systems and related PUE appliances Support the training of MFIs and their distribution partners to meet these requirements Develop a revised ESMF, incorporating component-based off-grid solar systems and PUE appliances, so that off-grid solar PUE can be supported either under the Project or from the outset in future operations, depending upon findings. 	<ul style="list-style-type: none"> The quality assurance framework might not reflect the concerns and expectations of marginalized and vulnerable groups, if there is no user needs assessments based on stakeholder engagement Consultants preparing the frameworks might cause SEA/SH Components-based off-grid solar systems might be larger than the systems in Component 1, and thus cause environmental risks that are not covered in the ESMF 	<ul style="list-style-type: none"> UNOPS will ensure that ToRs are responsive to ESF requirements and will submit them to the World Bank for prior review UNOPS will implement the SEP to ensure meaningful consultations the preparation of the market assessments UNOPS will require all consultants and consulting firm workers to sign the Code of Conducts UNOPS will revise the ESMF to include the risks of components-based solar systems
<p>E-Waste Management Scoping and Capacity Building</p> <ul style="list-style-type: none"> Explore options to incentivize and finance product/component takeback from end-users to MFIs for Solar Home Systems and O&M contract holders for public facilities, as well as reverse logistics for MFIs/contractors to return products and components to accredited facilities where they can be recycled or safely disposed of. Strengthen e-waste recycling infrastructure Assess options and costs implications for repair, component replacement, partial recycling, full recycling, safe disposal, and environmental and social implications and mitigation measures will all be considered. Provide MFIs and contractors with funding and technical support to implement the solution, as part of Component 1. 	<ul style="list-style-type: none"> Consultants preparing the frameworks might cause SEA/SH The strengthening of e-waste recycling infrastructure might create risks that are beyond the scope of this ESMF 	<ul style="list-style-type: none"> UNOPS will require all consultants and consulting firm workers to sign the Code of Conducts UNOPS will revise the ESMF to include the risks of activities that are currently not covered
<p>Sector Electricity Needs Assessments</p> <ul style="list-style-type: none"> Carry out a series of needs assessment covering priority sectors for public service delivery such as water supply, education, and vaccine cold chains. 	<ul style="list-style-type: none"> The assessments might not reflect the concerns and expectations of marginalized and vulnerable groups 	<ul style="list-style-type: none"> UNOPS will ensure that ToRs are responsive to ESF requirements and will submit them to the World Bank for prior review

Activity (as described in the PAD)	Risk	Mitigation measure
<ul style="list-style-type: none"> ○ The water sector assessment will consider opportunities to enhance access to drinking water through provision of submersible pumps, solar panels, water storage tanks, small desalination units, small water networks and water meters, as well as capacity building support to Water User Associations (WUAs) to ensure O&M of the water system, with a particular focus on the needs of women. ○ The education sector assessment will consider opportunities to enhance educational attendance and attainment (especially of girls) through the provision of electricity at either primary or secondary facilities, for lighting, cooling, use of computers and/or internet access. ○ For cold chains, the use of diesel generators currently places a significant financial burden on the health sector, and solar could present an opportunity to both lower cost of electricity whilst improving quality and reliability of service. ○ All sector needs assessments will map what activities other stakeholders such as government agencies, aid agencies and NGOs (Non-Governmental Organizations) are currently delivering or have planned, to ensure strong coordination and maximize the added value of the project's activities. 	<ul style="list-style-type: none"> ● The assessments might not take into account the requirements of ESS ● Consultants conducting the studies might cause SEA/SH 	<ul style="list-style-type: none"> ● UNOPS will implement the SEP to ensure meaningful consultations the preparation of the market assessments ● UNOPS will require all consultants and consulting firm workers to sign the Code of Conducts
<p>Gender Impact Assessment</p> <ul style="list-style-type: none"> ● Support a gender impact assessment to better understand the experience of women and girls through the Project ● Develop a strategy to further enhance the Project's impact on women and girls in terms of electricity access, financial inclusion, market access and job creation as well as potential health, education, and water outcomes. 	<ul style="list-style-type: none"> ● The assessment and strategy might not reflect the concerns and expectations of marginalized and vulnerable groups ● Consultants conducting the studies might cause SEA/SH 	<ul style="list-style-type: none"> ● UNOPS will ensure that ToRs are responsive to ESF requirements and will submit them to the World Bank for prior review ● UNOPS will implement the SEP to ensure meaningful consultations the preparation of the market assessments ● UNOPS will require all consultants and consulting firm workers to sign the Code of Conducts
<p>Component 3. Contingency Emergency Response Component (CERC) (US\$0).</p>		
<ul style="list-style-type: none"> ● Provide immediate response to an eligible crisis or emergency following the procedures governed by paragraph 12, Section III of the Bank Policy, Investment Project Financing. 	<ul style="list-style-type: none"> ● The risks will be determined when the CERC is triggered 	<ul style="list-style-type: none"> ● The mitigation measures will be determined when the CERC is triggered

5.1 Waste from Solar PV Systems²⁴

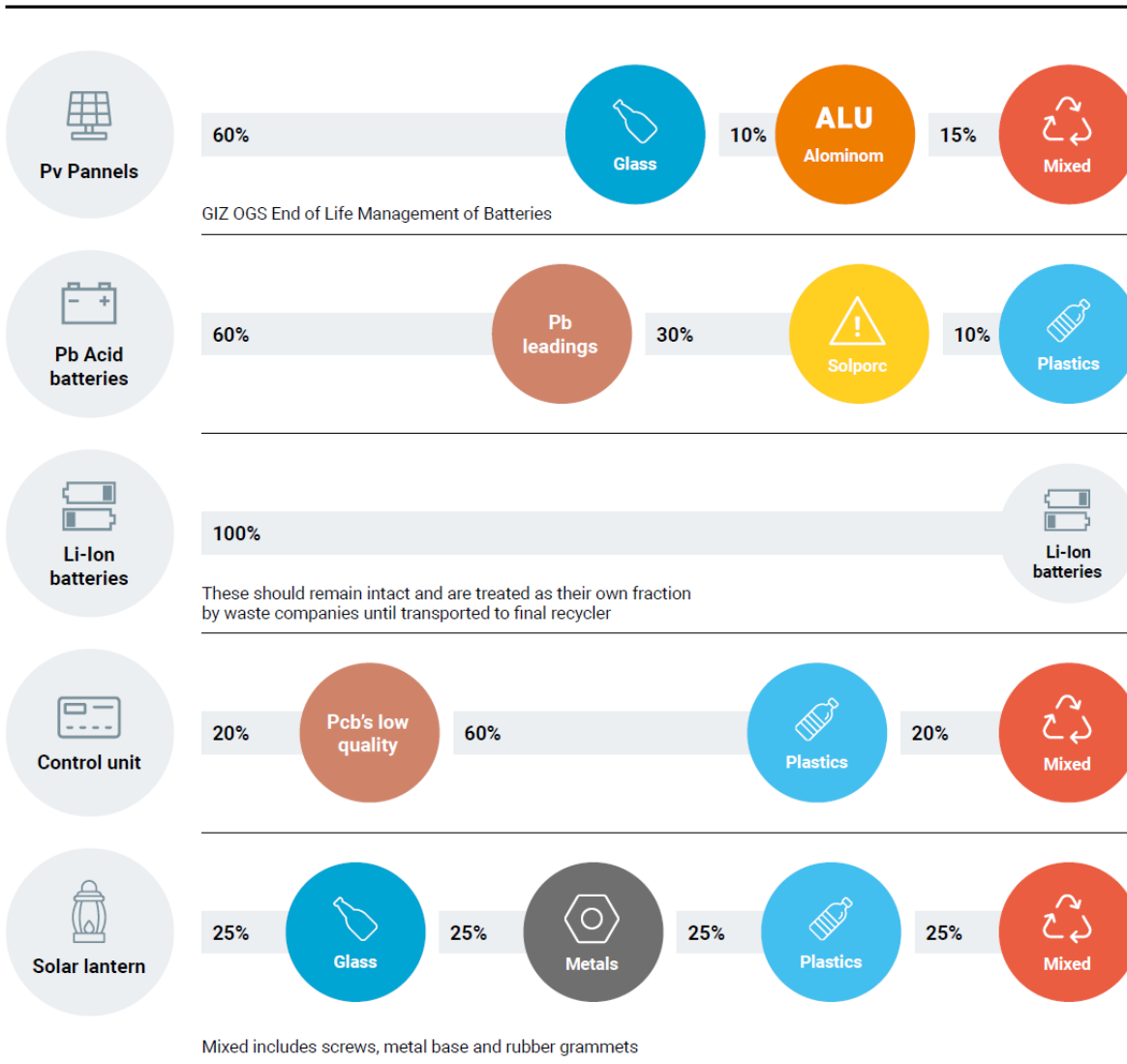
95. The main components of an off-grid solar product include photovoltaic (PV) solar modules, batteries (lithium-based or lead acid), lamps (mainly LED), control units with circuit-board-mounted electronic controls, cables, metal frames and fixtures, and appliances (TVs, radios, fans, etc) (GOGLA, 2019).²⁵

²⁶ After becoming waste, the components of the off-grid solar products are grouped according to fractions such as metal, glass, plastics, paper and cardboard, and cables.

²⁴ This section was extracted and adapted from: Gibson, M. and E. Demir. Electronic Waste (E-waste) Management for Off-grid Solar Solutions in displacement Settings. Norwegian refugee Council. 35 pages

²⁵ GOGLA (2019a). E-waste Toolkit Module 1 Briefing Note: Technical introduction to recycling of off-grid products. www.gogla.org/e-waste/introductionto-recycling

²⁶ GOGLA is a global association for the off-grid solar energy industry. It chairs an E-waste Circularity Working Group with GOGLA members, companies, investors, manufacturers, universities, and research institutes, which acts as a consultation group for developing learning output and sector guidance, through particular themes (repairability, standardized product labelling for disposal), and sharing best practices, problems, and solutions.

Figure 4. The waste components of off-grid solar (GOGLA, 2019)


96. Figure 3 provides an overview of fractions of off-grid solar products. PV panels mainly consist of glass, followed by aluminum and mixed fractions (i.e., screws, metal and crystalline silicon). Lead is the main fraction of lead acid batteries, mixed with sulfuric acid and plastics. Lithium-Ion batteries consist of graphite, copper, aluminum, lithium, and plastics and should remain intact and treated as a separate fraction while being transported to final recycler for safety reasons. The main fraction for control units is plastic, in addition to printed circuit board and mixed electrical and electronic components. The cables are mostly made up of copper and plastic. E-waste insulation. Finally, the fractions of solar lanterns consist of PV panel, lithium battery, LEDs, printed circuit boards, and plastic making the fractions a mix of glass, metals, plastics, and mixed materials.
97. Batteries are commonly defined as hazardous waste and are therefore subject to a different but complementary regulatory regime with regard to waste management. Different types of batteries are used in solar products. Lead-acid batteries (LABs) are used for mini-grids, larger PV systems and self-made systems and may require replacing as frequently as every five to six years. Recycling LABs is relatively common, but the disposal and recycling methods need to be improved in terms of safety. Lithium Ion (Li-ion) batteries are found in smaller plug-and-play systems (solar home systems, solar lanterns, etc.). LMO (lithium-manganese-oxide) and LFP (lithium-iron-phosphate) are currently the

most relevant Li-batteries for off-grid solar products. Li battery recycling is, however, a high-tech and high-cost process, only found in industrialized countries.

5.2 Life and Fire Safety

98. Although rare, design flaws, component defects, and faulty installation can cause solar rooftop or battery fires (very rare with lead acid batteries, contrary to Lithium-Ion batteries). Furthermore, solar PV systems can exceed the capacity of existing wiring. As with all electrical systems, these problems can cause arcs between conductors or to the ground, as well as hot spots, which can ignite nearby flammable material. Battery fires can be caused by either mechanical, thermal or electrical factors. Mechanical would be caused by physically damaging the unit, which can generate gases or increase the heat of a battery cell. Thermal could result from air conditioning or airflow not reaching the cells, allowing heat to build up. Electrical abuse happens during overcharging, undercharging or shorts from the inverter.

99. UNOPS will address Life and Fire safety risks by:

- Assessing target facilities under subcomponents 1.2 and 1.3 to ensure their compliance with local building codes and local fire department regulations
- Verifying that the facilities are structurally strong enough (particularly roofs) to support the proposed solar PV systems
- Confirming that solar PV systems will not overload the existing electrical installations
- Integrating preventive or corrective life and fire safety (L&FS) measures to address the incremental risks arising from the installation of solar PV systems, in accordance to paragraphs 6 and 7 of ESS4, Infrastructure and equipment design, and Section 3.3 of the General EHS Guidelines. The nature and extent of life and fire safety measures required will depend on the building type, occupancy, and exposures. Such measures might include, as necessary:
 - Fire Prevention
 - Means of Egress
 - Detection and Alarm Systems
 - Compartmentation to prevent or slow the spread of fire and smoke
 - Fire Suppression and Control, such as the inclusion of portable fire extinguishers
 - Emergency Response Plan
 - Operation and Maintenance

5.3 Sustainable Management of Water Resources

100. Groundwater resources are already being depleted at an alarming rate, particularly in the main basins of the highlands, including Sana'a, Taiz, Amran, Saadah, and Radaa. Thus, the continued unmonitored and uncontrolled abstraction of limited groundwater resources, particularly for agriculture, is a cause for concern, especially in light of the link between water resources, fragility, conflict and violence.

101. The replacement of diesel generators by solar PV systems for wells providing drinking water could aggravate this situation if solar PV systems are installed at wells that have insufficient recharge. UNOPS will address water resource sustainability by:

- Not supporting water wells used for agricultural or industrial purposes
- Assessing sustainable extraction levels for each target well through historical records and consultations with beneficiaries
- Installing pumping capacity that does not exceed replenishment levels

- Avoiding cumulative impacts by limiting the number of target wells that use the same aquifer
- Verifying that well water levels are maintained throughout the Defect Notification Period (DNP)

5.4 Contractors

102. Whereas UNOPS will directly manage the overall risks associated with the Project, UNOPS must also cascade environmental and social requirements to all contracted entities. Table 3 provides a generic list of risks and impacts that the entities contracted by the Project might cause. Some of the listed risks and impacts might only be relevant to some of the Project activities in Table 2. The list anticipates the risks and impacts that might become relevant across the range of Project activities but does not imply that any or all of the listed risks are likely to happen for a specific Project activity.
103. The environmental and social risks and impacts of contracted entities will be mitigated by requiring them to meet a detailed set of Environmental, Social, Health, and Safety (ESHS) requirements (Annex 2), which matches the risks and impacts listed in Table 3. They are largely based on the General EHS Guidelines of the World Bank Group, and other World Bank Guidelines.
104. Given that Project activities range from the use of pico-solar systems, the installation and operation of small solar systems, as well as advisory services and consultancies, their environmental and social risk profiles will significantly vary; some of the requirements will not be relevant for certain activities. This will be determined during the screening of activities (see Chapter 6), and UNOPS will apply the ESHS requirements to contracted entities in a manner that is proportional to their relevance for a particular set of activities.

Table 3. Potential ESHS risks and impacts associated with the activities of contractors

RISK or IMPACT	Relevant ESS
Site management	
<i>Damage to Existing Installations</i>	
<ul style="list-style-type: none"> • Existing installations, such as buildings, structures, works, pipes, cables, sewers, or other services may be damaged 	ESS4
<ul style="list-style-type: none"> • Owners, tenants, or occupiers of properties may be disturbed or inconvenienced by Project activities 	ESS4
<i>Waste from Activities</i>	
<ul style="list-style-type: none"> • Transport of waste might litter roads 	ESS3
<ul style="list-style-type: none"> • Solid waste and debris might be disposed of improperly 	ESS3
<i>Hazardous and Toxic Waste</i>	
<ul style="list-style-type: none"> • The production of liquid waste can lead to soil or groundwater pollution 	ESS3
<ul style="list-style-type: none"> • Hazardous or potentially hazardous wastes that can spill into the environment 	ESS3
<i>Area Signage</i>	
<ul style="list-style-type: none"> • The absence of appropriate signage and precautionary measures can lead to accidents 	ESS2, ESS4
Health and Safety	
<i>Potable Water Supply</i>	
<ul style="list-style-type: none"> • Inadequate supply of potable water on site can lead to worker illness and disease 	ESS2
<i>Personal Protective Equipment (PPE)</i>	

RISK or IMPACT	Relevant ESS
<ul style="list-style-type: none"> The lack of appropriate PPE, and of training in its use, can lead to injuries 	ESS2
Noise	
<ul style="list-style-type: none"> High noise levels can permanently affect the hearing of workers 	ESS2
<ul style="list-style-type: none"> Increased levels of noise and vibration that are a nuisance to the community around the site 	ESS4
Slips and Falls	
<ul style="list-style-type: none"> Slips and falls on the same elevation are among the most frequent cause of lost time accidents at construction sites 	ESS2
Working at Heights	
<ul style="list-style-type: none"> Falls from elevation associated with working with ladders, scaffolding, and partially built or demolished structures are among the most common cause of fatal or permanent disabling injury at construction sites 	ESS2
Struck by Objects	
<ul style="list-style-type: none"> Construction and demolition activities pose significant hazards related to the potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities 	ESS2
Welding/Hot Works	
<ul style="list-style-type: none"> Welding may seriously injure a worker's eyesight, and in extreme cases blindness may result 	ESS2
Communicable Diseases	
<ul style="list-style-type: none"> Construction sites can facilitate the spread of communicable diseases 	ESS2, ESS4
COVID-19	
<ul style="list-style-type: none"> Construction sites can increase the spread of COVID-19 	ESS2, ESS4
Vector-Borne Diseases	
<ul style="list-style-type: none"> Poorly managed construction site can favor vector borne diseases, particularly if pools of stagnant water are not avoided 	ESS2, ESS4
Road safety and Traffic Safety	
<ul style="list-style-type: none"> Project related traffic can cause accidents 	ESS2, ESS4
Emergency Preparedness and Response	
<ul style="list-style-type: none"> Lack of preparation can seriously increase the negative impact of an emergency 	ESS4
Stakeholder Engagement	
<ul style="list-style-type: none"> The lack of engagement with neighboring communities affected by Project activities might cause tensions, and result in complaints 	ESS10
Labor Force Management	
Labor Conditions	
<ul style="list-style-type: none"> Contractors might not provide workers with the terms and conditions they are entitled to under Yemeni Labor Legislation (wages, leave and rest, overtime, maternity leave) 	ESS2
Insurance	
<ul style="list-style-type: none"> Contractors might not compensate workers and their families for workplace injuries or deaths 	ESS2
Grievance Mechanism for Workers	

RISK or IMPACT	Relevant ESS
<ul style="list-style-type: none"> Lack of a functioning worker GM, or contractors might not act on worker grievances 	ESS2
Protection from Sexual Exploitation and Abuse	
<ul style="list-style-type: none"> Workers might sexually abuse or exploit women or children or might be exposed to SEA/SH 	ESS2, ESS4
Protection from Child Labor or Forced labor	
<ul style="list-style-type: none"> Contractors might unknowingly employ workers under the age of 18, or forced laborers 	ESS2
Code of Conduct	
<ul style="list-style-type: none"> The behavior of workers towards women can be prejudicial to neighboring communities, and to fellow workers 	ESS2
Solar PV systems	
Installation	
<ul style="list-style-type: none"> Installation by untrained or inexperienced workers might be defective and cause accidents 	ESS4
Life and Fire Safety	
<ul style="list-style-type: none"> Poorly designed solar PV system installations might overload existing wiring and cause fires 	ESS4
Beneficiary and user Health and Safety	
<ul style="list-style-type: none"> Beneficiaries or users might be injured by batteries 	ESS4
Safe Handling of Batteries	
<ul style="list-style-type: none"> Poor handling of batteries might cause accidents and injuries 	ESS2, ESS4
Chemical Hazards	
<ul style="list-style-type: none"> The sulfuric acid in lead-acid batteries can lead to skin irritation, eye damage, respiratory irritation, and tooth enamel erosion 	ESS2, ESS4
Safe Movement of Batteries	
<ul style="list-style-type: none"> Battery casings can break and release acid if not handled properly 	ESS2, ESS3, ESS4
Management and Disposal of Used Batteries	
<ul style="list-style-type: none"> The poor disposal of batteries creates environmental hazards 	ESS4

5.4.1 Code of Practice for Solar PV Systems

105. UNOPS developed a Code of Practice (COP) for solar PV systems under YEEAP 1 that set requirements for contractors regarding the appropriate handling, recycling and disposal of batteries. This Code of Practice has been incorporated as a section into the ESHS requirements. UNOPS will apply the Code of Practice to MFIs under subcomponent 1.1, and to contractors under subcomponent 1.2 and 1.3. Whereas subcomponent 1.1 will provide pico-systems to approximately 200,000 beneficiaries, subcomponents 1.2 and 1.3 will provide small solar PV systems (20-180 PV panels and batteries) to approximately 750 facilities.

Chapter 6

Procedures for managing the environmental and social risks and impacts of subprojects

106. This section sets out in detail the procedures²⁷ to be followed in addressing the environmental and social risks and impacts of subprojects. A subproject is a set of activities that are grouped together for the purpose of assessing environmental and social impacts, and of defining appropriate and sufficient mitigation measures. Whenever possible and efficient, UNOPS will synchronize the organization of activities into subprojects for the purpose of environmental and social risks management with the bundling of activities for the purpose of procurement. Subprojects could thus be a single facility, or also a cluster of facilities depending on the circumstances.

6.1 Subproject Selection and Implementation²⁸

107. UNOPS will target rural and peri-urban districts throughout Yemen, striving for a balance between the logistics of operating in an FCV context, and maintaining as wide of a geographic area as possible. By design, the Project will capitalize on the geographical reach of the private sector supply chain to reach otherwise hard-to-reach rural and peri-urban areas.

6.1.1 Selection of Beneficiaries (subcomponent 1.1)

108. The MFIs will be responsible for the selection of beneficiaries of pico-solar systems according to the following criteria:

- Beneficiaries must be residents of rural and peri-urban areas
- No more than one product will be sold to each household
- Beneficiaries may not resell the products they receive
- Beneficiaries must be 18 years old or above;
- Beneficiaries cannot be a direct (i.e., father, mother, brother, sister, son, daughter) or a close relative (i.e., grandparents, aunts, uncles, half-brother or half-sister, first cousins, or in-laws) of an employee of the MFI.

109. Pico-solar systems will not require installation by the MFIs. However, the MFIs will provide the beneficiaries with the requisite information in writing (in Arabic) and provide customer support as necessary.

6.1.2 Subprojects under subcomponents 1.2 and 1.3

Establishment of a long list

110. UNOPS will identify a long-list of critical facilities in rural and peri-urban areas that do not have the means to invest in alternative energy sources (health clinics, schools, rural water corporations, and other providers of critical services). The list will be identified in coordination with: (i) UN agencies, other international humanitarian agencies and local NGOs active in health, education, water and infrastructure sectors; (ii) local government authorities; and (iii) solar equipment contractors (to

²⁷ The Project Operations Manual (POM) will detail the linkages between the ESMF and Project implementation

²⁸ The selection process will be more fully described in the Project Implementation Manual. The process will be similar to that used during YEEAP 1.

identify logistical feasibility). It is expected that UNOPS will receive nominations from local or central authorities.

111. UNOPS will pre-screen facilities for eligibility by conducting a desk review and contact local authorities, the entity responsible for the facility. UNOPS will exclude:

- Facilities that might require involuntary resettlement, land access restrictions, economic displacement, or land acquisition
- Interventions in urban districts²⁹
- Buildings with a commercial or entertainment character
- Any activity that would have impacts on Natural Habitats and trigger ESS6

Establishment of a short list

112. UNOPS engineers and consultants will do a site inspection of long listed facility, test the buildings for structural integrity (particularly roofs), assess the additional electrical load caused by the installation, document the layout of the site and collect the required technical and administrative data (half a day visit to the facility). On the basis of the inspection, UNOPS will establish a short-list of the facilities to be supported based on the following criteria:

Urgency and visibility

- facilities that are not functional or partially functional mainly because of lack of electricity
- restoration of life-saving services
- facilities that, if functionality is restored, would bring a tangible improvement in the quality of life through the nature of the services provided and the number of people benefiting from the services

Reach and logistics

- facilities that private solar contractors are able to reach safely and economically to install and maintain the systems

Financial & technical sustainability

- facilities where operators, local authorities or NGOs can make credible commitment to fund operation and maintenance of the solar system beyond the project lifetime
- facilities that in general are more likely to be operated in a financially and technically sustainable manner

Synergies with other interventions

- facilities that have synergies with interventions of other humanitarian agencies and NGOs targeting health and nutrition, the cholera response, education, and general public service delivery, including other World Bank funded projects in Yemen.

113. UNOPS will involve the Environmental and Social Standards Officer (ESSO) in the establishment of the short list, and the application of the relevant environmental and social exclusion criteria.

Preparation and implementation of subprojects

- UNOPS will prepare, approve and clear a detailed design, and then tender out and sign a contract with the selected contractor
- UNOPS engineers will organize a site handing over to the contractor for each facility, with the involvement of the entity responsible for the facility (schools and health centers) or water association representatives (water wells), in the presence of UNOPS engineers (half day visit to the site).

²⁹ UNOPS supports access to electricity in urban areas through the second Yemen Integrated Urban Services Emergency Project (P175791)

- Once the main components of the systems arrive in Yemen (usually all except the batteries), the contractor will spend 2-6 days at each facility to install the components at hand. UNOPS engineers and/or TPM are expected to check the quality of the installation and whether required ESHS measures are in place.
- Once the remaining components arrive to Yemen (usually the batteries), the contractor will spend a day at the facility to install the batteries and make an initial test of the system, usually in the presence of UNOPS engineers. The installation of main components and of the batteries might be combined in very hard to reach sites.
- Once all is in place, a testing and commissioning day will be set where the contractor, UNOPS and the entity responsible for the facility will witness the testing and commissioning of the system and the signing of the handing over documents back to the facility. The commissioning will include training of the facilities staff in the use and maintenance of the solar system. The TPM will also do needed quality and completeness checks.
- The contractor will visit the facility periodically (usually on a monthly basis) during the maintenance and defect notification period (DNP; usually one year), and perform required maintenance activities. Facility maintenance teams, UNOPS engineers and/or the TPM will also visit sites to check if things are working as expected.
- In the case of a defect during the DNP, the contractor must correct the issue as soon as possible.

6.2 Screening

114. Once UNOPS has established the short-list of targeted facilities, the ESSO will, within 5 days of receiving the specific subproject technical proposal from UNOPS technical staff, prepare, sign, and pass on to the Project Manager a subproject specific screening form (Template is in Annex 1), indicating:

- The proposed environmental and social risk rating (Moderate or Low), with justifications. **High and substantial risk subprojects are not eligible under the Project.**
- The proposed environmental and social risk management instruments.

115. Subprojects requiring a full ESIA and ESMP will be excluded. As necessary, the ESSO will visit the proposed site to confirm his conclusions.

6.3 Environmental and Social Risk Management Instruments

6.3.1 Subprojects requiring a proportionate ESMP

116. The ESSO will prepare or supervise the preparation of proportionate site-specific subproject ESMPs. As defined in Annex 1, E of ESS1, the ESMPs will consist of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of a subproject to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to an acceptable level. The proportionate site-specific ESMPs will meet the relevant ESF requirements, and also incorporate the subproject specific measures arising from the LMP (part of this ESMP), and the SEA/SH Prevention and Response Action Plan, and SEP prepared for the Project.

117. UNOPS will prepare the proportionate site-specific ESMP according to the following table of content:

Summary Sheet

Subproject Name	
------------------------	--

Subproject Location	
Risk level (low, moderate, substantial or high)	
Date of the field visit	
Consultation Summary	
Observations/Comments	
Signature of ESSO	
Date	

Subproject Description

- Nature and scope of activities, particularly installation works. Include all the technical details that are relevant to understanding the environmental and social risks and impacts of the subproject.
- Location, including a map. If the subproject includes multiple locations, then the particulars of each location must be provided.

Environmental and Social Baseline

- Provide all the necessary information required to understand the environmental and social risks and impacts of the subproject.
- Provide enough pictures to illustrate environmental and social issues, with appropriate legends.

Environmental and Social Risks and Impacts

- Describe the environmental and social risks and impacts, based on the risks and mitigation measures identified in Chapter 5

Consultations

- Detail how UNOPS has engaged with affected and concerned stakeholders of the subproject, through the process of stakeholder engagement described in the Project (SEP).
In particular UNOPS will initiate consultations to inform stakeholders about the activities to be undertaken, their timetable and possible impacts, as well as the subproject specific grievance mechanism procedures.
- The consultations shall include the communities and persons that might be negatively affected, and not only beneficiaries or interested and concerned parties.
- The consultation process will take in account the sociocultural context of Yemen. Consultations can take the form of focus groups, discussions with elders/community leaders, or interviews.
- The consultations should be carried out in a safe place taking into account security risks.
 - Conduct separate consultations for women in order to ensure that any special concerns and needs are taken into account during the preparation of the safeguard instruments
 - Ensure that Project Affected Persons (PAPs) are not exposed to risks as part of their participation in subproject consultations, for example by not disclosing personal information/photos.
 - Document all subproject specific consultations (date, location, list of participants, affiliations, topics discussed, issues raised, and conclusions).
 - Indicate how stakeholder comments, suggestions, concerns, and expectations were addressed in the site-specific proportionate ESMP
 - Include photos of consultation events

Mitigation Instruments

- Propose and implement differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and ensure that they are not disadvantaged in sharing any development benefits and opportunities resulting
- Refer to the ESHS requirements (Annex 2), including the Solar PV Code of Practice, and attach them to the ESMP
- Highlight the ESHS requirements to which subproject contractors must pay the greatest attention. If

necessary, the ESMP will “proportionalize” the ESHS requirements to the subproject’s nature, scope, the specific environmental and social risks, and the number of workers involved. For example, the ESMP might need to specify for small contracts the type of PPE, or the contents of First Aid Boxes.

- If necessary, indicate additional requirements that will be applicable to the subproject contractor.
- Indicate the mitigation measures that UNOPS will be implementing to address the environmental and social risks and impacts not associated with contractors including legacy issues, and technical assistance.
- Detail subproject specific measures required for the subproject to be in accordance to the Project Labor Management Procedures (LMP)
- Detail subproject specific measures required for the subproject to be in accordance with the Project SEA/SH Prevention and Response Action Plan
- Provide a subproject specific monitoring plan that indicates what parameters will be monitored, how they will be monitored, who will monitor them, and how frequently they will be monitored.
- Detail any training provided by UNOPS to the contractors and their workers.

Budget

- Provide a budget for the mitigation measures to be implemented by UNOPS. The cost to contractors of meeting the ESHS requirements will be included in their respective contracts.

118. UNOPS will submit ESMPs to the Bank. UNOPS will publicly disclose ESMPs on the UNOPS’s website, immediately upon their approval by the World Bank.

6.4 Incorporating ESHS requirements in contracts

119. UNOPS will for each subproject:

- Reference the ESHS requirements (Annex 2) in Requests for Proposals and Invitations to Bid
- Require that bidders submit a preliminary environmental and social plan as part of their bids, describing the principles and methodology they will use to address relevant ESHS issues during the contract, and include all costs associated with managing environmental and social issues in their bids.
- Consider during the selection process the quality of the preliminary environmental and social plan, the bidders' past environmental and social performance, and the ability of the bidder to manage environmental and social issues
- Require that selected contractors prepare a Contractor Environmental and Social Management Plan (C-ESMP) that details how the relevant ESHS requirements will be implemented, including personnel, taking into account the site-specific proportionate ESMP prepared by UNOPS for the subproject
- Approve the C-ESMP before the start of activities
- Use the C-ESMP as the benchmark when monitoring and evaluating the contractor’s environmental and social performance

120. Contractors will be contractually obligated to fully implement their respective C-ESMPs.

6.5 Environmental and Social Liabilities of Contractors

121. UNOPS will hold Contractors accountable for their environmental and social performance, as well as any environmental or social damage or prejudice caused by their staff, by including the following measures in bidding documents and contracts:

- Mitigation measures to be included in the contract will be specified in the subproject ESMP prepared by the UNOPS.
- Any impact that is not properly mitigated will be the object of an environmental/social notice by the UNOPS.

- For minor infringements and social complaints, an incident which causes temporary but reversible damage, the contractor will be given a notice to remedy the problem and restore the environment. No further actions will be taken if UNOPS confirms that restoration is done satisfactorily.
- For social notices, the Project engineer will alert the contractor to remedy the social impact and to follow the issue until solved. If the contractor does not comply with the remediation request, work will be stopped and considered under no excused delay.
- If the contractor has not remedied the environmental impact during the allotted time, UNOPS will stop the work and give the contractor a notification according to the non-complied mitigation measure that was specified in the bidding document.
- No further actions will be required if UNOPS sees that restoration is done satisfactorily. Otherwise, if Contractor hasn't remedied the situation within one day any additional days of stopping work will be considered no excused delay
- Environmental notifications issued by UNOPS might include one or more environmental penalty.
- In the event of repeated noncompliance, UNOPS will bring the environmental and social notices history to its procurement in order to take legal action.

6.6 Grievance Mechanism

122. UNOPS will establish and maintain a Grievance Mechanism (GM) that builds on the Grievance Redress Mechanism (GRM)³⁰ system of YEEAP 1, where UNOPS has established a unit in its Sana'a Office to handle Project activity-related complaints with dedicated focal points.
123. The Project SEP further details the Project GM. It defines channels to voice complaints or raise issues faced by Project beneficiaries and stakeholders, and procedures for investigating and resolving complaints. Subproject related grievances can be brought up by affected people in case of: (i) non-fulfilment of contracts or agreements; (ii) compensation entitlements; (iii) types and levels of compensation; (iv) disputes related to destruction of assets or livelihoods; or (v) disturbances caused by construction activities, such as noise, vibration, dust or smell. Anonymous complaints will be admissible. Multiple access points (telephone, complaint box, website, email, text message, etc.) are provided so that beneficiaries have different ways to voice their concerns.
124. The GM also includes a referral pathway for responding to sexual exploitation and abuse/sexual harassment (SEA/SH) related complaints. The principles of confidentiality and anonymity will be implemented along with a survivor centric approach.
125. The ESSO within UNOPS will ensure that all complaints and inquiries from Project affected communities or individuals regarding any environmental or social impacts due to activities of their subprojects are addressed. UNOPS will also allocate the human resources necessary to respond to grievances within the defined timeframes.

³⁰ The term Grievance Redress Mechanism (GRM) was in use under the Safeguard Policies. Grievance Mechanism (GM) is used instead under the ESF.

Chapter 7

Monitoring and Reporting

7.1 Environmental and Social Standards Officer (ESSO)

126. The ESSO shall monitor the overall implementation of the ESMF by UNOPS, most particularly the:

- Timely preparation of environmental and social screening forms for all subprojects
- Timely preparation and clearance of subproject ESMPs (list of instruments with dates)
- Management of prior reviews by the World Bank
- Monitoring of ESMPs implementation.
- Training of Project staff (list of persons, dates and places).

127. The ESSO shall prepare:

- bi-annual reports summarizing monitoring results, to be included in the project's bi-annual reports to the World Bank
- reports that aggregate and analyze monitoring results ahead of regular "reverse" World Bank implementation support missions with UNOPS
- an annual evaluation of all environmental and social monitoring activities, which will be submitted to the World Bank as part of overall project implementation reporting.

7.2 Environmental and Social Database

128. The ESSO shall establish, maintain and regularly update a database of subprojects that will include for each subproject:

- type of subproject, name of subproject
- environmental and social risk level
- timeline (clearance of screening form, clearance of ToRs, clearance of environmental and social risk management instruments)
- supervision reports on environmental and social issues by the ESSO and other UNOPS staff
- contractor reports
- noncompliance by contractors
- cross references to the Grievance Mechanism's log of complaints.

7.3 Contractor Monitoring

129. UNOPS will monitor and supervise the implementation of the ESHS requirements by contractors. UNOPS will carry out random checks on each contractor to verify compliance with the ECOP and provide status update reports to the World Bank on a frequent basis.

Area engineer

130. As YEEAP is working all over Yemen and reaching remote areas, we divided Yemen into 7 areas and assigned an area engineer for each to lead the field activities in his area. For very remote sites, the visits by area engineers will be coordinated with the contractors and several sites will be visited during one trip that would take in some places more than a week with limited access to electricity, or internet. As needed, the area engineers will be supported by engineers or Health, Safety, Social and Environmental (HSSE) Officers on retainer as needed. The area engineers will;

- Assess sites and verify eligibility. This includes a long list of technical and administrative data collection and checklists
- Handing over of site to contractor, including administrative documentation and reminders of ESHS requirements
- Monitor, verify and ensure safe implementation of the works and that the contractor is abiding by the ESHS requirements
- Monitor, verify and ensure the quality of works, conformity of material, and that the contractor is abiding by the contract BOQ, design and clauses
- Monitor and report the progress of works and the findings of the above
- Perform with the contractors and end beneficiaries the required testing and commissioning exercise
- Finalize the handing over procedures with related technical and administrative requirements
- Monitor and ensure that the contractor is performing the maintenance as per contract
- Make sure that all works are done to the highest standards at the technical, ESHS, and administrative levels as per the contract
- With each visit, the area engineer have a long list of data gathering and checklists to follow all the above

Monitoring indicators

131. UNOPS will ensure that the following indicators are monitored once during subproject implementation:

Indicator	Frequency	Responsibility
General Provisions		
● C-ESMP was prepared, submitted and approved prior to the start of activities	Beginning of Contract	ESSO
ESHS Training		
● Proof that all Contractor workers, including subcontractors, underwent ESHS training	Beginning of Contract	UNOPS area engineer
Site Management		
Signage		
● Presence of appropriate signage	Throughout the installation process	UNOPS area engineer
Cultural Heritage		
● Confirmation that no tangible cultural heritage was found and affected	Throughout the installation process	UNOPS area engineer
Waste from activities		
● Records showing that all solid waste was transported to waste disposal sites approved by UNOPS	Throughout the installation process	UNOPS area engineer
● Records showing that the Contractor appropriately sanctioned workers and subcontractors who littered or inappropriately dumped waste materials	Throughout the installation process	UNOPS area engineer
● Confirmation that worksites were cleared of waste upon completion of works	Throughout the installation process	UNOPS area engineer
Hazardous and Toxic Materials		
● Confirmation that all hazardous areas are marked according to international standards	Throughout the installation process	UNOPS area engineer

Indicator	Frequency	Responsibility
<ul style="list-style-type: none"> Number and nature of recorded spills of hazardous or toxic waste 	Throughout the installation process	UNOPS area engineer
Occupational Safety		
<i>Lavatories</i>		
<ul style="list-style-type: none"> Availability of adequate lavatory facilities (toilets and washing areas) for the number of workers at the Project sites 	Throughout the installation process	UNOPS area engineer
<i>Potable water supply</i>		
<ul style="list-style-type: none"> Adequate supplies of potable drinking water were provided 	Throughout the installation process	UNOPS area engineer
Personal Protective Equipment (PPE)		
<ul style="list-style-type: none"> Availability and use of appropriate Personal Protective Equipment (PPE) at no cost for all workers 	Throughout the installation process	UNOPS area engineer
Noise		
<ul style="list-style-type: none"> Results of hearing checks by doctors for employees exposed to high-noise 	Quarterly	ESSO
Health		
<ul style="list-style-type: none"> On site availability of qualified first aid personnel 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Records of the number and nature of accidents, injuries or illnesses 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Records of the number and nature of health awareness and education initiatives 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Confirmation that all serious injuries or disease were properly investigated and reported to UNOPS 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Records of screening and monitoring of workers for communicable diseases 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Preventive measures taken to avoid vector-borne diseases 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Measures are in place to reduce COVID-19 spread 	Throughout the installation process	UNOPS area engineer
Road Safety		
<ul style="list-style-type: none"> Number and nature of traffic accidents involving project vehicles & equipment 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Reports showing that the Contractor sanctioned all reported instances of speeding, inconsiderate and risky driving 	Throughout the installation process	UNOPS area engineer
Emergencies		
<ul style="list-style-type: none"> Records of any event triggering an emergency 	Throughout the installation process	
Labour Force Management		
<i>Labor Conditions</i>		
<ul style="list-style-type: none"> Proof that locals were employed to the extent possible 	Throughout the installation process	UNOPS area engineer

Indicator	Frequency	Responsibility
<ul style="list-style-type: none"> Records proving that the transfer of skills to local women was promoted through concrete measures, to facilitate their employment at Project sites 	Quarterly	ESSO
Worker Grievance Mechanism		
<ul style="list-style-type: none"> Availability of a registry of complaints by workers 	Throughout the contract	ESSO
<ul style="list-style-type: none"> Number of worker grievances registered and resolved 	Throughout the contract	ESSO
Child Labor		
<ul style="list-style-type: none"> Verifiable documentation showing that no person under 18 is employed 	Throughout the contract	UNOPS area engineer
Code of Conduct		
<ul style="list-style-type: none"> Records of training on the Code of Conduct 	Throughout the contract	ESSO
<ul style="list-style-type: none"> Signed Code of Conduct 	Throughout the contract	ESSO
<ul style="list-style-type: none"> The number and content of awareness training on sexual exploitation and abuse (SEA) and Sexual Harassment (SH) conducted by the Contractor 	Throughout the contract	ESSO
<ul style="list-style-type: none"> Records showing that the Contractor investigated and sanctioned all reported instances of SEA/SH by workers or Contractor staff, and subcontractor 	Throughout the contract	ESSO
<ul style="list-style-type: none"> Records showing that the Contractor summarily dismissed workers having proven inappropriate relations with children under the age of 18 (eighteen) or engaged in SEA/SH 	Throughout the contract	ESSO
<ul style="list-style-type: none"> Records showing that the Contractor fully cooperated with law enforcement agencies in investigating complaints about gender-based violence 	Throughout the contract	ESSO
<ul style="list-style-type: none"> Monthly reports show that Contractor reported all SEA/GBV instances and responses 	Monthly reports	ESSO
<ul style="list-style-type: none"> Confirmation that the Contractor established and facilitated a confidential reporting system for SEA/SH complaints 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Confirmation that the contractor provided a copy the Code of Conduct to all local communities in Arabic 	Throughout the installation process	UNOPS area engineer
Stakeholder Engagement		
<ul style="list-style-type: none"> Records showing that the Contractor provided all workers with culturally sensitive training regarding engagement with local communities, including positive examples of behavior towards local populations (contractor reports and beneficiary feedback) 	Throughout the contract	UNOPS area engineer and ESSO
<ul style="list-style-type: none"> Number and nature of documented stakeholder engagement activities (contractor reports and beneficiary feedback) 	Throughout the contract	UNOPS area engineer and ESSO
<ul style="list-style-type: none"> Number and nature of complaints targeted at the Contractor (from the GM and beneficiary feedback) 	Throughout the contract	UNOPS area engineer and ESSO
<ul style="list-style-type: none"> Records showing that the Contractor satisfactorily resolved complaints 	Throughout the contract	ESSO

Indicator	Frequency	Responsibility
Environmental and Social Monitoring by Contractor		
<ul style="list-style-type: none"> Register of environmental and social issues maintained and sufficiently detailed 	Monthly	ESSO
<ul style="list-style-type: none"> Reports provided by the Contractor 	Monthly	ESSO
Solar PV Systems		
<i>Installation</i>		
<ul style="list-style-type: none"> Number of accidents during the installation of solar PV systems. Each accident must be investigated 	Throughout the contract	UNOPS area engineer and ESSO
<i>Life and Fire Safety</i>		
<ul style="list-style-type: none"> Instances of fire caused by batteries (from reports or GM) 	Throughout the contract	UNOPS area engineer and ESSO
<i>Beneficiary and user Health and Safety</i>		
<ul style="list-style-type: none"> Confirmation and users that beneficiaries have received training on the risks associated with batteries 	Throughout the installation process	UNOPS area engineer
<ul style="list-style-type: none"> Number beneficiaries or users injured by batteries (from reports or GM) 	Throughout the installation process	UNOPS area engineer
<i>Safe Handling of Batteries</i>		
<ul style="list-style-type: none"> Confirmation that contractor workers and beneficiaries were trained on the safe handling of batteries (contractor reports and beneficiary feedback) 	Throughout the installation process	UNOPS area engineer
<i>Chemical Hazards</i>		
<ul style="list-style-type: none"> Confirmation that contractor workers and beneficiaries were trained on the chemical hazards of batteries (contractor reports and beneficiary feedback) 	Throughout the installation process	UNOPS area engineer
<i>Safe Movement of Batteries</i>		
<ul style="list-style-type: none"> Confirmation that contractor workers and beneficiaries were trained on how to move batteries safely (contractor reports and beneficiary feedback) 	Throughout the installation process	UNOPS area engineer
<i>Management and Disposal of Used Batteries</i>		
<ul style="list-style-type: none"> Proof that end-of-life or defective batteries were collected and reexported (contractor reports) 	Quarterly	ESSO

7.4 Incidents and Accidents

132. UNOPS will notify the World Bank of any incident or accident related to the Project, which has, or is likely to have, a significant adverse effect on the environment, the targeted communities, the public or contracted workers and consultants including security incidents, sexual exploitation and abuse and sexual harassment (SEA/SH) among others, within 48 hours after learning of the incident or accident, followed by an initial report within 10 days indicating possible root causes and proposing possible corrective actions.
133. UNOPS will provide within 30 days after the notification details of the incident or accident, indicating immediate measures taken or that are planned to be taken to address it, and including any information provided by any contractor or supervising entity, as appropriate. Subsequently, as per the World Bank's request, UNOPS will prepare a Summary report on the incident or accident that includes: (i) a description of the incident or accident, (ii) the measures that UNOPS is taking or plans to take to address the incident or accident and to prevent any future similar event, and (iii) an identification of any part of the information for which confidentiality is required.

7.5 Third party Monitoring

134. Environmental and social risk management is also part of the scope of the Third-Party Monitoring (TPM) services TPM contracted by UNOPS. More specifically, the TPM will report on the compliance with environmental and social requirements and on the implementation of environmental and social mitigation measures.
135. The TPM agent will need to verify the compliance with intervention's environmental and social management measures as provided in the ESHS requirements included in the contract and the Environmental and Social Management Plan (ESMP) following a three phased approach:
- Phase 1 includes compliance check with the environmental and social safeguards requirements as per sub-Project's relevant documents with regard to the sub-projects preparation/design as well as ensuring application of these requirements in the bid and contract documents and/ or other related implementation arrangements;
 - Phase 2 includes verification of conformity with safeguards requirements during implementation of sub-projects; and compliance check with all environmental and social safeguards requirements per subproject's relevant documents.
 - Phase 3 includes the correction actions taken by contractors or UNOPS

Chapter 8

Capacity Building

136. This chapter reviews the capacity and skills available within UNOPS to implement and monitor the ESMF, and proposes measures to enhance this capacity.

8.1 UNOPS

137. UNOPS will maintain or recruit qualified staff and resources to support the management of the Environmental, Social, Health, and Safety (ESHS) risks and impacts of the Project, including one Environmental and Social Safeguards Officer (ESSO), one Gender Mainstreaming and GBV Officer, and one Health and Safety Officer, all with qualifications and experience acceptable to the Association. The officers will be supported by an international expert who will be available on an as-needed basis to oversee the overall implementation, monitoring, and reporting of safeguards aspects.

138. UNOPS is already familiar with ESF requirements and will ensure that environmental and social issues will be addressed by qualified specialists.

8.1.1 *Environmental and Social Standards Officer (ESSO)*

139. UNOPS' Environmental and Social Standards Officer (ESSO) based in UNOPS Sana'a Office will oversee the management of environmental and social risks for the Project. The ESSO will:

- Review and clear environmental and social screening forms for all subprojects
- Supervise the preparation of ESMPs prepared by UNOPS
- Provide draft subproject ESMPs to the World Bank for review and clearance
- Monitor subproject compliance with the ESMPs, including field visits and spot checks
- Work closely with UNOPS engineers and procurement officers to incorporate environmental and social requirements into subproject design, appraisal and resource mobilization
- Compile quarterly, biannual and annual reports on safeguards performance of the project that will be incorporated into the project's M&E report;
- Provide assistance and deliver capacity building trainings to UNOPS staff
- Organize and oversee the preparation, production and distribution of training manuals and awareness materials

8.1.2 *Health, Safety, Social and Environmental Officer*

140. UNOPS Health, Safety, Social and Environmental (HSSE) Officer based in Sana'a will:

- Prepare and/or update health, safety, social and environmental management plans, review them on a regular basis and keep them up to date at all times.
- Advise and instruct project staff, contractors, consultants and other stakeholders on various safety, health, social and environmental related matters related to project implementation.
- Support the Project Manager in raising awareness on health and safety issues among project staff, consultants, contractors and other stakeholders and within UNOPS in general, working closely with all related sections.
- Conduct risk assessment and enforce preventative measures on HSSE.

- Initiate, organize and conduct HSSE training for UNOPS project team, contractors, consultants and other stakeholders.
- Inspect work sites and the work of personnel on a regular basis to identify issues or non-conformity, and enforce necessary actions where unsafe acts or processes that seem dangerous or unhealthy are detected.
- Oversee installations, maintenance and disposal of substances, plant and equipment etc. to ensure they are done in conformity with applicable laws and industry best practice.
- Record and investigate incidents (including near misses) to determine the cause and to propose improvements to processes in the future.
- Prepare reports on incidents (including near misses) and compile statistical information to present to upper management on HSSE matters.
- Ensure a safe workplace environment is maintained at all times without risk to health and safety of everyone including workers, UNOPS staff, other stakeholders and general public.
- Ensure that all Health & Safety policies, procedures, rules and regulations are adhered to and are regularly reviewed, updated and communicated.
- Ensure the contractor meets its statutory obligations in all areas pertaining to health, safety and welfare at work, including statutory training and reporting.
- Ensure that safety inspections, risk assessments, working procedures are managed, and contractors and employees are aware of their responsibilities in relation to health and safety issues.
- Coordinate the development of HSSE policies, systems, procedures and guidelines.
- Ensure full and accurate health and safety training records are documented.
- Establish a full programme of documented HSSE inspections, audits and checks.
- Establish and conduct a structured programme of health & safety training (including a well-developed induction program) for project staff, contractors, consultants and other stakeholders.
- Establish an HSSE Committee, manage and devise the agenda for, chair and formulate & distribute minutes for the Health & Safety Committee meetings.
- Keep up to date with all aspects of relevant health, safety & welfare at work legislation and communicate relevant changes to the stakeholders.
- Provide regular reports to the Project Manager on relevant health and safety activities.

8.2 Capacity Development

141. UNOPS will ensure that the ESSO, the Gender Mainstreaming Officer, and the Health and Safety Officer within UNOPS, as well as the ESSO and Health and Safety consultants within RAP receive training on the ESF and ESMF and their implementation.

142. The ESSO will organize training for the persons involved in project implementation, including:

- A launch workshop to operationalize the ESMF and agree on roles and responsibilities moving forward
- A workshop with UNOPS engineers and technical staff to explain the ESMF and its implementation
- Environmental and social risk management training and capacity enhancement for participating contractors, and local authorities
- Toolbox talks for contractors to explain the ESMF and the ESHS requirements, including the grievance mechanism for workers, sexual exploitation and abuse (SEA)/sexual harassment (SH) and the associated grievance management, and worker OHS, including:
 - On-site risk identification and mitigation
 - Use of PPEs
 - Emergency Prevention and Preparedness

- Sessions to sensitize the local councils to the ESMF and its implementation
143. UNOPS will also finance the production of training manuals and awareness materials as needed.

Table 4. Indicative costs of capacity building activities

Capacity Building Measures	Unit Cost (USD)	Costs (USD)
5 X 2-day training on ESF for MFIs and contractors	2,000/session	10,000
5 X 1-day consultation with local authorities and key stakeholders	2,000/session	10,000
40 X 1-day training on ESMP and contractual clauses for contractors	1,000/session	40,000
Production of environmental and social awareness materials (brochures, posters, fliers)	5,000	5,000
TOTAL		65,000

8.3 Budget

144. UNOPS is fully covering, as part of the fee that it will charge the Bank, the cost of the ESSO, the Gender Mainstreaming Officer, and the Health and Safety Officer, as well as any associated operational costs.
145. The cost of due diligence for specific subprojects (preparation of the screening form, consultations, GM, preparation of ESMPs, implementation of ESMPs, and monitoring) are included in the costs/budget for each subproject. These costs are scalable to the level and scope of the potential risks and impacts, and might include the costs of consultants recruited by UNOPS to assist on specific tasks.

Chapter 9

Stakeholder Engagement and Information Disclosure³¹

9.1 Stakeholder Engagement during YEEAP 1

146. YEEAP 2 is a continuation of YEEAP 1 (P163777)³². A distinct project was prepared rather than an Additional Financing, because of the need to transition to the Environmental and Social Framework. The ESMF for YEEAP 1 addressed Stakeholder Engagement in Chapter 12. It summarized consultations held on the YEEAP 1 ESMF in late 2017 to early 2018, and defined consultation and disclosure requirements for subprojects that UNOPS implemented for the 154 subprojects implemented during YEEAP.
147. YEEAP 1 carried out public consultations throughout the second and third year of the project. The following are the key findings of these consultations:
- Early engagement and communication with local authorities, service providers, and beneficiaries are key for successful implementation and delivery.
 - Integration of efforts and effective technical coordination among humanitarian/development partners and local stakeholders are essential for successful delivery.
 - Tangible and visible results are important. Excessive visibility and communication can undermine Project activities by creating expectations that cannot be met. Effective communication and visibility must reflect the actual needs expressed by target beneficiaries and local authorities and what the Project can realistically achieve
 - Beyond the public disclosure requirements, the GRM for YEEAP 1 provided an effective means for stakeholders to voice not only their complaints but also their concerns or queries in a timely manner.
 - UNOPS' eSourcing on the UN Global Market and the bilingual website with its interactive GIS platform also increased the Project's transparency and accountability during tendering, implementation, and post-delivery.
148. UNOPS also prepared 25 area specific Environmental and Social Management Plans (ESMPs) for the supply and installation of solar PV systems in health facilities, schools, and water wells in various target districts as per the Table 1. During the preparation of the ESMPs, UNOPS conducted gender-based consultation sessions during the preparation of these ESMPs with 4,154 beneficiaries, including 2,263 males and 1,891 females. The consultations:
- Ensured the participation of subproject beneficiaries both females and males
 - Informed beneficiaries about the activities to be undertaken, the sub-project timetable and work plan
 - Informed beneficiaries, both male and female, on their rights to participate in all subproject implementation phases, provide feedback and raise their concerns.
 - Discussed the potential negative impacts of the subproject and presented the proposed mitigation measures

³¹ The Stakeholder Engagement Plan (SEP) for YIUSEP 2 is the reference document describing how UNOPS will engage with stakeholders

³² YEEAP 1 was implemented under the World Bank Safeguard Policies, whereas YEEAP 2 will be implemented under the Environmental and Social Framework.

- Documented and addressed the concerns and expectations of local communities, and to get their feedback on the subproject
- Informed the beneficiaries about the Grievance Mechanism, and explained how to send or communicate complaints
- Provided information on sexual harassment, exploitation and abuse, and on the principles of confidentiality
- Raises awareness regarding protection measures for COVID-19

Table 5. List of Environmental and Social Management Plans (ESMPs) with the numbers of persons who answered questionnaires

Subproject Description	Persons	
	Female	Male
Supply and Installation of Solar PV Systems to 28 Rural Facilities	149	194
Supply and Installation of Small-Scale Solar PV Systems to 10 Health Centers and 19 Schools in Lahj, Abyan and Al Dhala'a and Hodeida Governorates	54	42
Supply and Installation of Small-Scale Solar PV Systems to 26 Health Centers and 25 Schools in Sana'a, Dhamar, Ibb and Taiz Governorates	112	114
Supply and Installation of Solar PV Systems to 31 Rural Facilities (16 Health Centers and 15 Schools) in Hadramout, Al Mahra and Shabwah Governorates	56	113
Supply and Installation of Small-Scale Solar PV Systems to 47 Rural Facilities (31 Schools and 16 Health Centers) in Sana'a, Dhamar and Hajjah Governorates	288	241
Supply and Installation of Small-Scale Solar PV Systems to 18 Rural Facilities (15 Schools and 4 Health Centers) in Aden, Lahj and Hodeida Governorates	58	58
Supply and Installation of Small-Scale Solar PV Systems to 25 Rural Facilities (12 Health Centers and 13 Schools) in Al Mahara, and Hodiedah Governorates	64	61
Supply and Installation of Small-Scale Solar PV Systems to 37 Rural Facilities (18 Health Centers and 19 Schools) in Mareb, Al Jawf, Al Baida, Sada'a and Hadramout Governorates	124	133
Supply and Installation of Small-Scale Solar PV Systems to 13 Rural Facilities (6 Health Centers and 7 Schools) in Mareb, Al Jawf, Sada'a, and Shabwa Governorates	61	55
Supply and Installation of Small-Scale Solar PV Systems to 9 Rural Facilities (4 Health Centers and 5 Schools) in Taiz Governorate	28	69
Supply and Installation of Small-Scale Solar PV Systems to 39 Rural Facilities (23 Health Centers and 16 Schools) in Sana'a, Amanat Al Asimah, Ibb, Taiz, Al Mahwit, Hodeida, Raymah, Sa'adah, and Lahj Governorates	188	243
Supply and Installation of Small-Scale Solar PV Systems to 40 Facilities (16 Health Centers and 24 Schools) in Aden, Lahj, Al Dhalea, Shabwah, Hadramout and Al Mahrah Governorates	113	91
Supply and Installation of Small-Scale Solar PV Systems to 22 Rural Facilities (20 Health Centers and 2 Hospitals) in Al-Baydah, Raymah, Al-Hudaydah, Sa'ada, Sana'a, Amanat Al-Asimah and Dhamar Governorates	49	124
Supply and Installation of Small-Scale Solar PV Systems to 28 Rural Facilities (12 Health Centers and 16 Schools) in Abyan, Ad-Dhale'a, Lahj, Taiz, Aden and Hadramout Governorates	140	139
Supply and Installation of Small-Scale Solar PV Systems 3 health centers in Hajjah governorate.	49	124
11 Health Units and 12 Schools in Sana'a, Dhamar, Al Mahweet and Taiz Governorates	12	14

Supply and Installation of Small-Scale Solar PV Systems for 8 Health Units and 8 Schools around Aden in Abyan, Lahej and Al Dhala Governorates	4	24
Supply, Installation and Operation of Solar Water Pumping Systems into 7 Rural Wells in Sanaa, Amran, Hajjah and Al-Mahweet Governorates Sub-Projects	47	81
Supply, Installation and Operation of Solar Water Pumping Systems to 6 Wells in Shabwah, Hadramout, Al Mahrah and Ibb Governorate	36	52
Supply, Installation and Operation of Solar Water Pumping Systems into 4 Rural Wells in Al-Dhalea, Abyan, Hajjah, and Sa'dah Governorates Sub-Projects	37	47
Supply, Installation and Operation of Solar Water Pumping Systems to 5 Wells in Amran, Sa'adah, Shabwah and Sana'a Governorates	45	55
Supply, Installation and Operation of Solar Water Pumping Systems into 5 Rural Wells in Al Dhala'a, Lahej, Mareb and Abyan Governorates	42	37
Supply, Installation and Operation of Solar Water Pumping Systems to 7 Wells in Hodaidah, Dhamar, Lahj and Sana'a Governorates	55	58
Supply, Installation and Operation of Solar Water Pumping Systems to 4 Wells in Al Mahweet, Sadah, Lahj and Taiz Governorates	36	41
Supply, Installation and Operation of Solar Water Pumping Systems into 3 Rural Wells in Taiz Governorate Sub-Project	44	53
Total	1,891	2,263

9.2 Stakeholder Engagement during Project Preparation

9.2.1 Consultations regarding YEEAP 2

149. Despite the emergency situation and the current COVID-19 pandemic, UNOPS consulted with public authorities between November 2021 and January 2022 as per the table below. The consultations were carried during field missions and official meetings, virtual meetings, and through phone calls.

150. The consultations sought to ensure that YEEAP 2 responds to the “urgent” priority needs identified during the implementation of YEEAP 1. They focused on the following issues:

- Supporting the national responses to the COVID-19 pandemic by providing access to reliable source of electricity (solar energy) in rural and peri-urban areas
- Enhancing public services in health, education, and water supply through the provision of solar energy solutions to eligible facilities in target areas
- Enabling households’ access to electricity through the provision of pico solar systems to households in rural and peri-urban areas who meet the project edibility criteria

Table 6. Consultations with public authorities, local authorities, and other stakeholders

Category	Organization	Date
Central Authority	Ministry of Planning and International Cooperation	15 December 2021
Central Authority	Ministry of Water and Environment	23 November 2021, 1 January 2022
Central Authority	Ministry of Health	21 November 2021
Central Authority	Ministry of Local Authority	21 November 2021
Central Authority	General Authority for Rural Water Supply	December 2021-January 2022

Local Authority	Local Authority in Aden	24-25 November 2021
Local Authority	Local Authority in Sana'a	18 December 2021
Local Authority	Local Authority in Lahj	20 November 2021
Local Authority	Local Authority in Abyan	25 November 2021
Local Authority	Local Authority in Sa'adah	27 September 2021
Local Authority	Local Authority in Hodeida	5 December 2021
Local Authority	Local Authority in Al- Dhalie	25 November 2021
Local Authority	Local Authority in Taiz	19 November 2021
Local Authority	Local Authority in Mukalla	27 November 2021
National Institution	University of Aden	4 November 2021
National Institution	University of Sana'a	11 January 2022
United Nations	WHO	9 November 2021-Periodic Health Cluster meetings
United Nations	UNICEF	9 November 2021 and WASH Cluster meetings
Development Partner	KfW	29 December 2021
Development Partner	Saudi Reconstruction of Yemen Program	23 November 2021

9.2.2 ESF Consultations

151. UNOPS consulted with selected Yemeni civil society organizations, MFIs, and contractors to discuss and seek their inputs and feedback on the YEEAP 2 environmental and social risk management instruments.

152. Consultations were carried out by phone on 12 and 13 January 2022 with selected Yemeni Civil Society Organizations, MFIs, and contractors, as per the following table.

Table 7. List of CSOs, MFIs and contractors consulted during the preparation of YEEAP 2

Organization	Type	Participant	Title
For All Foundation	CSO	Ms. Sabah Badri	Executive manager
Manahil Al -Hudaydah for Development	CSO	Ms. Asma'a Taher Mohammed	Executive Director
Generations without Qat	CSO	Mr. Mohamed Alaswadi	Project Manager
Wa3i Foundation	CSO	Ms. Ghada Alamoodi	Project Manager
Progress Organizations for Development	CSO	Mr. Othman Ali	General Director
Kuraimi Bank	MFI	Mr. Taha Eskander	Project Manger
Al-Amal MF Bank	MFI	Mr. Samih Alhakimi	Project Manager
National Microfinance Foundation	MFI	Mr. Sharaf Alkibsi	Executive Director
Yemen Kuwait Bank (YKB)	MFI	Mr. Ahmed Alathary	Project Manager
Al-Atheer EST for trading	Contractor	Mr. Mohammed Naser	Executive Director
Tagadod for Solar Energy	Contractor	Mr. Rami Al-Duba'e	Technical Manager
Stidama Rene-Tech Enterprise	Contractor	Mr. Hilal Al-Faqih	Managing Director
Abdulmajeed Al-Wahbani Trading Group	Contractor	Mr. Bassam Al-Hamadi	Project Manager

153. These participants have strong presence in most of urban and rural areas cities in Yemen and have

recognized partnerships with international NGOs and UN agencies such as UNOPS, UNDP, IOM, UNFPA, OCHA, and UN Women. Due to the current COVID-19 situation and the poor internet connections in Yemen, the consultations were carried out by phone. The main outcomes of those consultations were:

- Although all participants have a good understanding and experience in adopting and implementing safeguard plans, the new WB ESF seems to include more requirements that require capacity building and additional resources to implement.
- Mr. Rami Al-Duba'e (Tagadod for Solar Energy) stated that the environmental and social requirements should not only be included as contractual clauses for contractors whereby contractors are liable to their compliance at all time. These requirements should be also taught and impart to contractors through tailored capacity building training before the tendering process. UNOPS has taken this suggestion into consideration for YEEAP 2.
- Although YEEAP 2 can build on the success of YEEAP 1, special attention should be given to the increasingly challenging situation in Yemen (i.e., ground fighting, limited access, and the pandemic), which could hinder the project's implementation in rural areas.
- The For All Foundation shared their experience in carrying out citizen engagements, most particularly the fact that the ongoing challenges and the Yemeni tribal traditions and norms have caused major barrier in carrying out gender-based consultations with women in rural areas.
- Mr. Hilal Al-Faqih (Abdulmajeed Al-Wahbani Trading Group), Ms. Sabah Badri (For All Foundation), and Mr. Samih Al-Haimi (Al-Amal MF Bank), recommended that UNOPS organize SEP consultations based on YEEAP 2 target sectors to ensure relevant productive discussion and feedback during SEP consultations. UNOPS has taken this recommendation into consideration.
- All participants expressed their concern about the sustainable local market availability of the "High quality products" that YEEAP 1 and 2 provide after both projects complete (ending the grant and subsidy funding of high-quality products to beneficiaries).

154. All participants expressed an interest to participate in capacity training and stakeholder consultations that mutually benefit them and local communities under YEEAP 2. UNOPS indicated that it would notify these participants (and others) regarding any upcoming ESF

Annex 1.

Template for Subproject Screening

Screening Form for Potential Environmental and Social Issues

UNOPS will use this form to screen for the potential environmental and social risks and impacts of a proposed subproject. The form will allow UNOPS to: (i) identify the relevant Environmental and Social Standards (ESS); (ii) establish an appropriate Environmental and Social risk for the subproject; and (iii) specify the type of environmental and social assessment required, including specific instruments/plans.

The Screening Form is not a substitute for subproject-specific environmental and social assessments or specific mitigation plans.

Subproject name	
Subproject location	
Estimated Investment	
Subproject Risk Level	
Was the site visited beforehand	
Estimated Start/Completion Date	
Observations/Comments	
Signature of UNOPS ESSO	
Signature of Program Manager	

Questions	
Is the subproject likely to generate large to medium scale adverse risks and impacts on human populations or the environment?	An ESIA and ESMP must be prepared
What is the nature of these risks and impacts and what standards must an ESIA and ESMP would have to take into account	
Does the subproject involve civil works including the rehabilitation of buildings affected by the POB?	
Is the subproject located in the vicinity of any known cultural heritage sites?	
Does the subproject have adverse risks and impacts on human populations or the environment that are not likely to be significant, do not involve activities that have a high potential for harming people or the environment, and are located away from environmentally or socially sensitive areas.	A proportionate ESMP must be prepared
Does the subproject have potential adverse risks to and impacts on human populations or the environment that are likely to be minimal or negligible?	The SEP, LMP, and the SEA/SH Prevention and Response Plan

Conclusions of the screening:

- 1. Indicate the proposed environmental and social risk ratings³³ (Moderate or Low) and provide justifications. High and substantial risk subprojects³⁴ are not eligible under the Project).**
- 2. Indicate the proposed environmental and social risk management instruments that must be prepared.**

³³ **Moderate Risk** subprojects have adverse risks and impacts on human populations and/or the environment that are not likely to be significant, because the subproject is not complex or large, do not involve activities that have a high potential for harming people or the environment, and are located away from environmentally or socially sensitive areas.

Low Risk subprojects have potential adverse risks to and impacts on human populations or the environment that are likely to be minimal or negligible. These subprojects do not require further ES assessment following the initial screening.

³⁴ **Substantial Risk** subprojects are likely to generate some significant adverse risks and impacts on human populations or the environment, because of their large to medium scale. They are not located in a highly sensitive area. Impacts are likely to be mostly temporary, predictable and reversible.

High Risk subprojects are likely to generate a wide range of significant adverse risks and impacts on human populations or the environment, because of the complex nature of the Project, their large to very large scale, or the sensitivity of the subproject locations. Impacts are likely to be long term, permanent, irreversible, and impossible to avoid entirely due to the nature of the Project

Annex 2.

Environmental and Social Requirements for Contractors

The Environmental, Social, Safety and Security (ESHS) requirements³⁵ are a standard list of requirements that contractors must implement for most subprojects. The subproject specific ESMPs prepared by UNOPS will highlight the relevant requirements, but might also supplement the ESHS requirements, as needed, by defining additional requirements.

The ESHS requirements will be incorporated in the bidding documents and as technical clauses in contracts.

The ESHS requirements include 10 sections

1. General Provisions
2. ESHS Training
3. Site Management
4. Occupational Safety
5. Health
6. Road safety and Traffic Safety
7. Emergency Preparedness and Response
8. Labor force management, including the Code of Conduct
9. Stakeholder Engagement
10. Contractor Environmental and Social Reporting
11. Solar PV Systems (Code of Practice)

General Provisions*Contractor Environmental and Social Management Plan (C-ESMP)*

The Contractor shall:

- Prepare and submit to UNOPS for approval a Contractor Environmental and Social Management Plan (C-ESMP), including the following sections or subplans:
 - ESHS training
 - Site management
 - Occupational Safety
 - Health
 - Road safety and Traffic Safety
 - Emergency Preparedness and Response
 - Labor force management, including the Code of Conduct
 - Stakeholder Engagement
 - Contractor Environmental and Social Reporting
 - Solar PV Systems
 - Include in the C-ESMP a detailed explanation of how the contractor's performance will meet the ESHS requirements as defined in the contract bidding documents
 - Include in the C-ESMP an organization chart of the personnel assigned to environmental and social management

³⁵ The ESHS requirements build on the General EHS Guidelines of the World Bank Group, but also take into account other World Bank guidelines, and good practice notes

- Ensure that sufficient funds are budgeted to meet the ESHS requirements, and that sufficient capacity is in place to oversee, monitor and report on C-ESMP performance.
- Put in place controls and procedures to manage their ESHS performance

The C-ESMP will be a contractual document that will serve as a reference during the monitoring and evaluation of the environmental and social performance of the Contractor.

National Laws and Regulations

The Contractor shall:

- Know, respect and apply the laws, regulations and standards in force in Yemen relating to the environment, as well as to social, health and safety aspects
- Assume full responsibility for any claims related to activities under their control that do not comply with these laws, regulations, or standards

Contractual obligations

The Contractor shall:

- Get prior written approval from UNOPS Engineers before starting any activities
- Designate a ESHS Officer who will ensure that ESHS requirements are rigorously followed by all and at all levels of execution, both by the Contractor's workers and by any persons in contact with the Contractor's activities
- Comply with ESHS requirements and its C-ESMP until final acceptance of the work by UNOPS
- Remedy any defect, failure, or non-performance of the ESHS requirements or its C-ESMP that is duly notified to it by UNOPS or its representative
- Assume the costs associated with any delay or interruption of works, as well as any additional work resulting from non-compliance with the ESHS requirements or its C-ESMP

In accordance with the contractual provisions, failure to comply with the ESHS requirements or the C-ESMP may be grounds for termination of the contract. The Contractor who has been terminated for failure to comply with ESHS requirements or its C-ESMP may be subject to sanctions up to and including suspension of the right to bid for a period determined by UNOPS, as well as a freeze on the holdback.

Failure by the Company to comply with one or more ESHS requirements or its C-ESMP may expose it to refusal of final acceptance of the work by UNOPS.

The Contractor's obligations with respect to ESHS requirements run until final acceptance of the contracted activity, which will only be given by UNOPS after all the measures required by the ESHS requirements have been met.

ESHS Training

The Contractor shall

- Determine ESHS training needs in collaboration with UNOPS
- Maintain records of all ESHS training, orientation, and induction.
- Ensure, through appropriate contract specifications and monitoring that service providers, as well as contracted and subcontracted labor, are trained adequately before assignments begin.
- Demonstrate that its employees are competent to carry out their activities and duties safely. For this purpose, the Contractor shall issue a Competence Certificate for every person working on site (relative to trade and aspect of work assignment) that specifies which tasks can be undertaken by which key personnel.

Orientation Training

The Contractor shall:

- Provide ESHS orientation training to all employees, including management, supervisors, and workers, as well as to subcontractors, so that they are apprised of the basic site rules of work at/on the site and of personal protection and preventing injury to fellow employees.
- Training should consist of basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. Any site-specific hazard or color coding in use should be thoroughly reviewed as part of orientation training.

New Task Employee and Contractor Training

The Contractor shall:

- Ensure that all workers and subcontractors, prior to commencement of new assignments, have received adequate training and information enabling them to understand work hazards and to protect their health from hazardous ambient factors that may be present. The training should adequately cover the step-by-step process that is needed for Project activities to be undertaken safely, with minimum harm to the environment, including:
 - Knowledge of materials, equipment, and tools
 - Known hazards in the operations and how they are controlled
 - Potential risks to health
 - Precautions to prevent exposure
 - Hygiene requirements
 - Wearing and use of protective equipment and clothing
 - Appropriate response to operation extremes, incidents and accidents

Site Management

General Provisions

- Obtain all permits necessary to perform the work under the contract, including permits from local authorities, water departments, or the labor authorities

Signage

The Contractor shall:

- Appropriately mark hazardous areas
- Install warning signs in Arabic
- Ensure that signage is in accordance with international standards and is well known to, and easily understood by workers, visitors and the general public as appropriate.
- Demarcate work sites with safety tape, fencing or barricades, as appropriate, to prevent unauthorized access to the Project sites
- Safeguard public safety by covering holes and by installing guardrails along temporary pathways

Protection of Existing Installations

The Contractor shall:

- Safeguard all existing buildings, structures, works, pipes, cables, sewers, or other services or installations from harm, disturbance or deterioration during activities
- Coordinate with local authorities to identify existing infrastructure that might not be visible
- Repair any damage caused by the Contractor's activities, in coordination with concerned authorities.

- Take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of properties, and more generally to the public
- Maintain safe access to public and private properties that might be affected by Project activities. If necessary, provide acceptable alternative means of passage or access to the satisfaction of the persons affected.
- Install retaining nets to hold falling debris during activities.
- Avoid working during night hours

Cultural Heritage

The Contractor shall:

- Avoid indirect damage to existing cultural heritage, such as affecting masonry through vibration
- Develop and adopt a chance find procedure that describes the steps to be taken if previously unknown cultural heritage is encountered during activities, including:
 - Determine in advance the possibility of finding physical cultural heritage during activities
 - Train workers and supervisors to spot potential archaeological finds
 - Keep a detailed record of findings and actions taken
 - Stop work in the affected area
 - Immediately notify the Department of Archaeology at the Ministry of Culture or a local university, for quick assessment and action
 - Take measures to protect the site to avoid any destruction, including the definition and the materialization of a protection perimeter
 - Suspend the works inside the protection perimeter until the national body responsible for historical and archaeological sites has given the authorization to continue them
 - Prohibit the removal and relocation of objects and remains
 - Define clear criteria for work stoppages required to address chance finds

Waste from Activities

The Contractor shall:

- Collect and properly manage all solid wastes resulting from Project activities, including debris, to prevent the contamination of soil and groundwater
- Agree with relevant municipalities about waste disposal
- Carefully select waste disposal sites, to be approved by UNOPS
- Minimize littering of roads by ensuring that vehicles are licensed and loaded in such a manner as to prevent falling off or spilling of materials, and by sheeting the sides and tops of all vehicles carrying mud, sand, other materials or debris
- Transfer waste to assigned places in the selected waste disposal sites with documented confirmation.
- Properly dispose of solid waste and debris at designated permitted sites waste disposal sites allocated by the local authorities, and obtain a receipt of waste from the authorized landfill authority.

Hazardous and Toxic Materials

Toxic and deleterious wastes resulting from the Contractor's activities require special attention in order to forestall their introduction into the natural environment which could result in harm to people, aquatic life or natural growth of the area. Accordingly, the Contractor shall:

- Train workers regarding the handling of hazardous materials

- Label using easily understandable symbols, and provide material safety data sheets, for chemical substances and mixtures according to the Globally Harmonized System (GHS) of classification and labelling of chemicals
- Store hazardous materials as per the statutory provisions of the Manufactures, Storage and Import of Hazardous Chemicals Rules (1989), under the Environment (Protection) Act, 1986
- Treat hazardous waste separately from other waste
- Avoid the storage or handling of toxic liquid adjacent to or draining into drainage facilities
- Keep absorbent materials or compounds on Site in sufficient quantities corresponding to the extent of possible spills
- Select landfill sites used for the disposal of solid waste in coordination with the relevant authorities

Decommissioning of Worksites

The Contractor shall:

- Clear sites of any equipment or waste, and ensure that the sites are free from contamination.
- Dispose of or ensure the recycling of any equipment or waste in an appropriate and environmentally sound manner.
- Restore any installation damaged by its activities to a condition equivalent to that which they were in before the start of the work.
- Ensure that sites are free of contamination.

Occupational Safety

Contractors will collaborate with other contractors in applying health and safety requirements, when workers from more than one contractor are working together in one location, without prejudice to the responsibility of each party for the health and safety of its own workers.

Severe Weather and Facility Shutdown

The Contractor shall:

- Design and build work place structures to withstand the expected elements for the region and designate an area designated for safe refuge, if appropriate.
- Develop Standard Operating Procedures (SOPs) for project or process shut-down, including an evacuation plan.

Lavatories

The Contractor shall:

- Provide adequate lavatory facilities (toilets and washing areas) for the number of people expected to work at the sites, and make allowances for segregated facilities, or for indicating whether the toilet facility is “In Use” or “Vacant”.
- Provide toilet facilities with adequate supplies of hot and cold running water, soap, and hand drying devices.
- Provide separate toilets for women workers at the worksite

Potable Water Supply

The Contractor shall:

- Provide adequate supplies of potable drinking water
- Ensure that water supplied to areas of food preparation or for the purpose of personal hygiene (washing or bathing) meets drinking water quality standards

Personal Protective Equipment (PPE)

The Contractor shall:

- Identify and provide at no cost appropriate PPE to workers, the workers of subcontractors, as well as to visitors, which gives adequate protection without incurring unnecessary inconvenience to the individual, including helmets, safety boots, gloves, goggles, safety jackets, and N95 masks, as well as body coverall, gloves, respirators with filters, and goggles in the case of contaminated sites
- Ensure that the use of PPE is compulsory
- Provide sufficient training in the use, storage and maintenance of PPE to its workers and workers of its subcontractors
- Properly maintain PPE, including cleaning when dirty and replacement when damaged or worn out;
- Determine requirements for standard and/or task-specific PPE based on of Job specific Safety Analysis (JSA)
- Consider the use of PPE as a last resort when it comes to hazard control and prevention, and always refer to the hierarchy of hazard controls when planning a safety process

Noise

The Contractor shall institute appropriate measures to reduce the exposure of workers to noise, including but not limited to:

- Avoid exposure to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C).
- Enforce the use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A).
- Provide hearing protective devices capable of reducing sound levels at the ear to at most 85 dB(A).
- Reduce the “allowed” exposure period or duration by 50 percent for every 3 dB(A) increase in in excess of 85 dB(A).
- Perform periodic medical hearing checks on workers exposed to high noise levels.
- Rotate staff to limit individual exposure to high levels.
- Install practical acoustical attenuation on equipment, such as mufflers.
- Use silenced air compressors and power generators
- Post signs in all area where the sound pressure level exceeds 85 dB(A).
- Shut down equipment when not directly in use
- Provide advance notice to occupants if an activity involving high level impact noise is in close proximity to buildings.

Slips and Falls

Slips and falls on the same elevation associated with poor housekeeping, such as excessive waste debris, loose materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground, are also among the most frequent cause of lost time accidents at construction and decommissioning sites. To prevent slips and falls from, or on, the same elevation, the Contractor shall

- Implement good house-keeping practices, such as the sorting and placing loose materials or debris in established areas away from foot paths
- Clean up excessive waste debris and liquid spills regularly
- Locate electrical cords and ropes in common areas and marked corridors
- Ensure that workers use slip retardant footwear

Working at Heights

The contractor shall implement fall prevention and protection measures whenever a worker is exposed to the hazard of falling more than two meters, or through an opening in a work surface. The Contractor shall:

- Install guardrails with mid-rails and toe boards at the edge of any fall hazard area
- Train workers on the proper use of ladders and scaffolds
- Install fall prevention devices, including safety belt and lanyard travel limiting devices to prevent access to fall hazard area, or fall protection devices such as full body harnesses used in conjunction with shock absorbing lanyards or selfretracting inertial fall arrest devices attached to fixed anchor point or horizontal life-lines
- Train workers in the use, serviceability, and integrity of the necessary PPE
- Include rescue and recovery plans, and equipment to respond to workers after an arrested fall

Struck By Objects

The Contractor shall:

- Use a designated and restricted waste drop or discharge zones, and/or a chute for safe movement of wastes from upper to lower levels
- Conduct sawing, cutting, grinding, sanding, chipping or chiseling with proper guards and anchoring as applicable
- Maintain clear traffic ways to avoid driving of heavy equipment over loose scrap
- Use temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as hand rails and toe boards to prevent materials from being dislodged
- As necessary, require workers to wear appropriate PPE, such as safety glasses with side shields, face shields, hard hats, and safety shoes

Welding/Hot Work

The contractor shall:

- Provide proper eye protection such as welder goggles and/or a full-face eye shield for all personnel involved in, or assisting, welding operations. Additional methods may include the use of welding barrier screens around the specific work station (a solid piece of light metal, canvas, or plywood)

Health

First Aid and Accidents

The Contractor shall:

- Ensure that qualified first-aid by qualified personnel is always available. Appropriately equipped first-aid stations should be easily accessible throughout the place of work.
- Provide workers with rescue and first-aid duties with dedicated training so as not to inadvertently aggravate exposures and health hazards to themselves or their co-workers. Training would include the risks of becoming infected with blood-borne pathogens through contact with bodily fluids and tissue.
- Provide eye-wash stations and/or emergency showers close to all workstations where immediate flushing with water is the recommended first-aid response.
- Provide dedicated and appropriately equipped first-aid room(s) where the scale of work or the type of activity being carried out so requires.

- Equip first aid stations and rooms with gloves, gowns, and masks for protection against direct contact with blood and other body fluids.
- Make widely available written emergency procedures for dealing with cases of trauma or serious illness, including procedures for transferring patient care to an appropriate medical facility.
- Immediately report all accidental occurrences with serious accident potential such as major equipment failures, contact with high-voltage lines, exposure to hazardous materials, slides, or cave-ins to UNOPS.
- Immediately investigate any serious or fatal injury or disease caused by the progress of work by the Contractor, and submit a comprehensive report to UNOPS.

Communicable Diseases

Sexually-transmitted diseases (STDs), such as HIV/AIDS, are the communicable diseases of most concern because of labor mobility. Recognizing that no single measure is likely to be effective in the long term, the Contractor shall implement a combination of behavioral and environmental modifications to mitigate communicable diseases:

- Conduct Information, Education and Consultation Communication (IEC) campaigns, at least every other month, addressed to all workers (including all the Contractor's employees, all subcontractors of any tier, consultants' employees working on the site, and truck drivers and crew making deliveries to the site for Works and Services executed under the Contract, concerning the risks, dangers and impact, and appropriate avoidance behavior of communicable diseases.
- Provide for active screening, diagnosis, counselling and referral of workers to a dedicated national STD and HIV/AIDS program, (unless otherwise agreed) for all site staff and labor.
- Provide male or female condoms to all Site staff and workers, as appropriate.
- Provide treatment through standard case management in on-site or community health care facilities.
- Ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers.
- Promote collaboration with local authorities to enhance access of workers families and the community to public health services and ensure the immunization of workers against common and locally prevalent diseases.
- Provide basic education on the conditions that allow the spread of other diseases such as COVID-19 and Cholera. The training should cover sanitary hygiene education.
- Prevent illness in immediate local communities by:
 - Implementing an information strategy to reinforce person-to-person counselling addressing systemic factors that can influence individual behavior as well as promoting individual protection, and protecting others from infection, by encouraging condom use
 - Training health workers in disease treatment
 - Conducting immunization programs for workers in local communities to improve health and guard against infection
 - Providing health services
 - Contracting an HIV service provider to be available on-site

COVID-19³⁶

In the context of the COVID-19 pandemic, Contractors shall develop and implement measures to prevent or minimize an outbreak of COVID-19, and develop procedures indicating what should be done if a worker gets sick. The Contractor shall:

³⁶ Based on the World Bank COVID-19 LMP Template, April 16, 2020

- Assess the characteristics of the workforce, including those with underlying health issues or who may be otherwise at risk
- Confirm that workers are fit for work, including temperature testing and refusing entry to sick workers
- Consider ways to minimize entry/exit to site or the workplace, and limit contact between workers and the community/general public
- Train workers on hygiene and other preventative measures, and implement a communication strategy for regular updates on COVID-19 related issues and the status of affected workers
- Treat workers who are or should be self-isolating and/or are displaying symptoms
- Assess risks to continuity of supplies of medicine, water, fuel, food and PPE, taking into account international, national and local supply chains
- Reduce, store and dispose of medical waste
- Adjust work practices to reduce the number of workers and increase social distancing
- Expand health facilities on-site compared to usual levels, develop relationships with local health care facilities and organize for the treatment of sick workers
- Build worker accommodations further apart, or have one worker accommodation in a more isolated area, which may be easily converted to quarantine and treatment facilities, if needed
- Establish a procedure to follow if a worker becomes sick (following WHO guidelines)
- Implement a communication strategy with the community, community leaders and local government in relation to COVID-19 issues on the site.

Vector-Borne Diseases

Reducing the impact of vector-borne disease on the long-term health of workers is best accomplished by implementing diverse interventions aimed at eliminating the factors that lead to disease. The Contractor, in close collaboration with community health authorities, shall implement an integrated control strategy for mosquito and other arthropod-borne diseases that includes the following measures:

- Prevent larval and adult propagation through sanitary improvements and elimination of breeding habitats close to human settlements
- Eliminate unusable impounded water
- Increase water velocity in natural and artificial channels
- Consider the application of residual insecticide to dormitory walls
- Implement integrated vector control programs
- Promote the use of repellents, clothing, netting, and other barriers to prevent insect bites
- Use chemoprophylaxis drugs by non-immune workers and collaborating with public health officials to help eradicate disease reservoirs
- Monitor and treat circulating and migrating populations to prevent disease reservoir spread
- Collaborate and exchange in-kind services with other control programs in the project area to maximize beneficial effects
- Educate project personnel and area residents on risks, prevention, and available treatment
- Monitor communities during high-risk seasons to detect and treat cases
- Distribute appropriate education materials
- Follow safety guidelines for the storage, transport, and distribution of pesticides to minimize the potential for misuse, spills, and accidental human exposure

Road safety and Traffic Safety

The Contractor shall ensure traffic safety by all project personnel during displacement to and from the workplace, and during the operation of project equipment on private or public roads. The Contractor shall

adopt best transport safety practices across all aspects of project operations with the goal of preventing traffic accidents and minimizing injuries suffered by project personnel and the public, including:

- Emphasize safety aspects among drivers
- Improve driving skills and requiring licensing of drivers
- Institute defensive driving training for all drivers prior to starting their job
- Avoid dangerous routes and times of day to reduce the risk of accidents
- Require that drivers and co-passengers wear seatbelts, and duly sanction defaulters.
- Regularly maintain vehicles and use manufacturer approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.

Where the project may contribute to significant changes in traffic along existing roads the Contractor shall:

- Coordinate with emergency responders to ensure that appropriate first aid is provided to all affected persons in the event of accidents

Emergency Preparedness and Response

The Contractor shall:

- Establish and maintain an emergency preparedness and response system, in collaboration with appropriate and relevant third parties including to cover: (i) the contingencies that could affect personnel and facilities of the project to be financed; (ii) the need to protect the health and safety of project workers; (iii) the need to protect the health and safety of the Affected Communities. The emergency preparedness and response system shall include:
 - Identification of the emergency scenarios
 - Specific emergency response procedures
 - Training of emergency response teams
 - Training of workers on the actions to be taken in emergency situations
 - Emergency contacts and communication systems/protocols (including communication with Affected Communities when necessary)
 - Procedures for interaction with government authorities (emergency, health, environmental authorities)
 - Permanently stationed emergency equipment and facilities (e.g., first aid stations, firefighting equipment, spill response equipment, personal protection equipment for the emergency response teams)
 - Protocols for the use of the emergency equipment and facilities
 - Clear identification of evacuation routes and muster points
 - Emergency drills and their periodicity based on assigned emergency levels or tiers
 - Decontamination procedures and means to proceed with urgent remedial measures to contain, limit and reduce pollution within the physical boundaries of the project property and assets to the extent possible.

Labor Force Management³⁷

Labor Conditions

The Contractor shall:

- Implement the measures and commitments defined in the Project Labor Management Procedures.
- Provide all workers with terms and conditions that comply with Yemeni labor legislation, and applicable International Labor Organization conventions on workplace conditions.

³⁷ See the Project's Labor Management Procedures (LMP)

- Hire workers through recruitment offices, and avoid hiring “at the gate” to discourage spontaneous influx of job seekers
- Put in place workplace processes for project workers to report work situations that they believe are not safe or healthy, and to remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to their life or health. Project workers who remove themselves from such situations will not be required to return to work until necessary remedial action to correct the situation has been taken. Project workers will not be retaliated against or otherwise subject to reprisal or negative action for such reporting or removal.
- Ensure that children and minors are not employed directly or indirectly on the project, and keep registration and proof of age for all employees on-site.
- Avoid all forms of forced or compulsory labor, i.e., all work or service which is exacted from any person under the threat of a penalty and for which the person has not offered himself or herself voluntarily.
- Develop and adopt a Gender Action Plan to promote the transfer of skills to local women, to facilitate their employment at the Project site, including training and recruitment targets.

Insurance

The Contractor shall:

- Protect the health of workers involved in onsite activities
- Compensate any employee for death or injury

Grievance Mechanism for Workers

The Contractor shall put in place a Grievance Mechanism for its workers and the workers of its subcontractors that is proportionate to its workforce. The GM for workers shall be distinct from the Project level Grievance Mechanism described in the Project Stakeholder Engagement Plan (SEP) for affected individuals and communities, and shall adhere to the following principles:

- *Provision of information.* All workers should be informed about the grievance mechanism at the time they are hired, and details about how it operates should be easily available, for example, included in worker documentation or on notice boards.
- *Transparency of the process.* Workers must know to whom they can turn in the event of a grievance and the support and sources of advice that are available to them. All line and senior managers must be familiar with their organization's grievance procedure.
- *Keeping it up to date.* The process should be regularly reviewed and kept up to date, for example, by referencing any new statutory guidelines, changes in contracts or representation.
- *Confidentiality.* The process should ensure that a complaint is dealt with confidentially. While procedures may specify that complaints should first be made to the workers' line manager, there should also be the option of raising a grievance first with an alternative manager, for example, a human resource (personnel) manager.
- *Non-retribution.* Procedures should guarantee that any worker raising a complaint will not be subject to any reprisal.
- *Reasonable timescales.* Procedures should allow for time to investigate grievances fully, but should aim for swift resolutions. The longer a grievance is allowed to continue, the harder it can be for both sides to get back to normal afterwards. Time limits should be set for each stage of the process, for example, a maximum time between a grievance being raised and the setting up of a meeting to investigate it.
- *Right of appeal.* A worker should have the right to appeal to the World Bank or national courts if he or she is not happy with the initial finding.

- *Right to be accompanied.* In any meetings or hearings, the worker should have the right to be accompanied by a colleague, friend or union representative.
- *Keeping records.* Written records should be kept at all stages. The initial complaint should be in writing, if possible, along with the response, notes of any meetings and the findings and the reasons for the findings. Any records on SEA shall be registered separately and under the strictest confidentiality.
- *Relationship with collective agreements.* Grievance procedures should be consistent with any collective agreements.
- *Relationship with regulation.* Grievance processes should be compliant with the national employment code.

Protection from Child Labor

The Contractor shall:

- Verify that workers are older than 18 when hiring
- Exclude all persons under the age of 18.
- Review and retain copies of verifiable documentation concerning the age of workers

Protection from Sexual Exploitation and Abuse

The Contractor shall:

- Provide repeated training and awareness raising to the workforce about refraining from unacceptable conduct toward local community members, specifically women
- Inform workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted
- Prohibit its employees from exchanging any money, goods, services, or other things of value, for sexual favors or activities, or from engaging any sexual activities that are exploitive or degrading to any person.
- Develop a system to capture gender-based violence, sexual exploitation and workplace sexual harassment related complaints/issues.
- Adopt a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence.

Code of Conduct

The Contractor shall ensure that all employees, including those of subcontractors, are informed about and sign the following Code of Conduct:

CODE OF CONDUCT FOR CONTRACTOR'S PERSONNEL

We the Contractor [enter name of Contractor] have signed a contract with UNOPS [enter description of the activities]. These activities will be carried out at [enter the Site and other locations where the activities will be carried out]. Our contract requires us to implement measures to address environmental and social risks related to the activities, including the risks of sexual exploitation and assault and gender-based violence.

This Code of Conduct is part of our measures to deal with environmental and social risks related to the activities. It applies to all our staff, including laborers and other employees at the at all the places where the activities are being carried out. It also applies to the personnel of every subcontractor and any other personnel assisting us in the execution of the activities. All such persons are referred to as "Contractor's Personnel" and are subject to this Code of Conduct.

This Code of Conduct identifies the behavior that we require from all Contractor's Personnel

Our workplace is an environment where unsafe, offensive, abusive or violent behavior will not be tolerated and where all persons should feel comfortable raising issues or concerns without fear of retaliation.

Required Conduct

Contractor's Personnel shall:

1. carry out his/her duties competently and diligently;
2. comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Personnel and any other person;
3. maintain a safe working environment including by:
4. ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health;
5. wearing required personal protective equipment;
6. using appropriate measures relating to chemical, physical and biological substances and agents; and
7. following applicable emergency operating procedures.
8. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
9. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
10. not engage in any form of sexual harassment including unwelcome sexual advances, requests for sexual favors, and other unwanted verbal or physical conduct of a sexual nature with other Contractor's or Employer's Personnel;
11. not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another. In Bank financed projects, sexual exploitation occurs when access to or benefit from Bank financed Goods, Works, Consulting or Non-consulting services is used to extract sexual gain;
12. not engage in Sexual Assault, which means sexual activity with another person who does not consent. It is a violation of bodily integrity and sexual autonomy and is broader than narrower conceptions of "rape", especially because (a) it may be committed by other means than force or violence, and (b) it does not necessarily entail penetration.
13. not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
14. complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, and Sexual Exploitation and Assault (SEA);
15. report violations of this Code of Conduct; and
16. Not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Employer, or who makes use of the Grievance mechanism for Contractor's Personnel or the project's Grievance Mechanism.

Raising Concerns

If any person observes behavior that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly. This can be done in either of the following ways:

1. Contacting the Individual designated by the Contractor [enter name of Contact]
2. In writing at this address []
3. By telephone at []
4. In person at []
5. Calling [] to reach the Contractor's hotline and leave a message (if available)

The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.

There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct. Such retaliation would be a violation of this Code of Conduct.

Consequences of Violating the Code of Conduct

Any violation of this Code of Conduct by Contractor's Personnel may result in serious consequences, up to and including termination and possible referral to legal authorities.

For Contractor's Personnel

I have received a copy of this Code of Conduct written in a language that I comprehend. I understand that if I have any questions about this Code of Conduct, I can contact [enter name of Contractor's contact person with relevant experience in handling gender-based violence] requesting an explanation.

Name of Contractor's Personnel: [insert name]

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Contractor:

Signature: _____

Date: (day month year): _____

A copy of the code shall be displayed in a location easily accessible to the community and project affected people. It shall be provided in languages comprehensible to the local community, Contractor's personnel (including sub-contractors and day workers), and affected persons.

Stakeholder Engagement

As part of the overall Project Stakeholder Engagement³⁸, the Contractor will undertake a process of stakeholder engagement with representative persons and communities directly affected by the activities it undertakes, including, if necessary, the public disclosure of its C-ESMP. The Contractor shall also maintain throughout the Project good relations with local communities and will give these communities prior notice of plans and schedules as they might affect local people.

The stakeholder engagement process will also be applicable in the event of land acquisition associated with changes in the footprint of activities.

Contractor Environmental and Social Reporting

The Contractor shall report major work-related incidents, accidents or loss of life to UNOPS **within 24 hours** of their occurrence.

The Contractor shall monitor, keep records and report on the following environmental and social issues:

- *Safety*: hours worked, lost time injury (LTI), lost workdays, recordable incidents and corresponding Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required (for example, revised job safety analysis, new or different equipment, skills training, and so forth).
- *Environmental incidents and near misses*: environmental incidents and high potential near misses and how they have been addressed, what is outstanding, and lessons learned.
- *Major activities*: those undertaken and completed, progress against project schedule, and key work fronts (work areas).
- *ESHS requirements*: noncompliance incidents with permits and national law (legal noncompliance), project commitments, or other ESHS requirements.

³⁸ The overall process of stakeholder engagement is described in the Project Stakeholder Engagement Plan (SEP)

- *ESHS inspections and audits*: by the Contractor, UNOPS, or others—to include date, inspector or auditor name, sites visited and records reviewed, major findings, and actions taken.
- *Workers*: list of workers at each site, confirmation of ESHS training, indication of origin (expatriate, local, nonlocal nationals), gender, age with evidence that no child labor is involved, and skill level (unskilled, skilled, supervisory, professional, management).
- *Training on ESHS issues*: including dates, number of trainees, and topics.
- *Footprint management*: details of any work outside boundaries or major off-site impacts caused by ongoing activities—to include date, location, impacts, and actions taken.
- *External stakeholder engagement*: highlights, including formal and informal meetings, and information disclosure and dissemination—to include a breakdown of women and men consulted and themes coming from various stakeholder groups, including vulnerable groups (e.g., disabled, elderly, children, etc.).
- *Details of any security risks*: details of risks the Contractor may be exposed to while performing its work—the threats may come from third parties external to the project.
- *Worker grievances*: details including occurrence date, grievance, and date submitted; actions taken and dates; resolution (if any) and date; and follow-up yet to be taken—grievances listed should include those received since the preceding report and those that were unresolved at the time of that report.
- *External stakeholder grievances*: grievance and date submitted, action(s) taken and date(s), resolution (if any) and date, and follow-up yet to be taken—grievances listed should include those received since the preceding report and those that were unresolved at the time of that report. Grievance data should be gender-disaggregated.
- Major changes to Contractors environmental and social practices
- *Deficiency and performance management*: actions taken in response to previous notices of deficiency or observations regarding ESHS performance and/or plans for actions to be taken should continue to be reported to UNOPS until it determines the issue is resolved satisfactorily

Solar PV Systems (Code of Practice)

Installation

The contractor shall:

- Ensure that solar PV systems are installed by qualified and experienced trades people, in order to avoid or minimize electrocution and other health and safety issues associated with working with hazardous materials

Life and Fire Safety

The Contractor shall install life and fire safety measures as instructed by UNOPS

Beneficiary and User Awareness

The Contractor shall build awareness and provide training to beneficiaries and users of facilities with the aim of improving their understanding of the environmental and health issues associated with the battery lifecycle, including end-of-life management; most particularly:

- The safe handling of batteries including installation, removal, transport, storage and disposal
- The environmental and health aspects of poor battery disposal
- Information on the environmental and health issues associated with the highly toxic content of batteries and explanation as to why they must be stored, transported and disposed of in specific ways

Safe Handling of Batteries

The Contractor shall train beneficiaries on the following measures before they handle batteries:

- Prohibit unauthorized access to battery areas
- Consult battery owners' manuals for instructions on battery handling and hazard identification
- Wear personal protective equipment (PPE) such as chemical splash goggles and a face shield
- Wear acid-resistant equipment such as gauntlet style gloves, an apron, and boots
- Do not tuck pant legs into boots because spilled acid can pool in the bottom of your boots and burn your feet
- Place protective rubber boots on battery cable connections to prevent sparking on impact if a tool does accidentally hit a terminal
- Ensure that all metal tools (spanners, socket wrench drivers, etc.) that will come in contact with the battery terminals have metal handles taped with electrical tape or are protected by other means to help prevent inadvertent short circuits
- Clean the battery terminals with a plastic brush because wire brushes can create static and sparks
- Always remove watches and jewellery before working on a battery. A short-circuit current can weld a ring or strap to metal and cause severe burns.
- Cover maintenance tools with several layers of electrical tape to avoid sparking
- Replace batteries with a new one if they show signs of damage to the terminals, case or cover

Chemical Hazards

155. Lead Acid: Sulfuric acid (electrolyte) in lead-acid batteries³⁹ is highly corrosive and acid exposure can lead to skin irritation, eye damage, respiratory irritation, and tooth enamel erosion. The Contractor shall train beneficiaries to follow the following measures to minimize risk:

- Never lean over a battery while boosting, testing or charging it
- If acid splashes on your skin or eyes, immediately flood the area with cool running water for at least 15 minutes and seek medical attention immediately
- Always practice good hygiene and wash your hands after handling a battery and before eating
- Wash your hands properly if you handle the lead plates in a battery to avoid exposure to lead. Signs of lead exposure include mood swings, loss of appetite, abdominal pain, difficulty sleeping, fatigue, headaches and loss of motor coordination.
- The chemical reaction by-products from a battery include oxygen and hydrogen gas. These can be explosive at high levels. Overcharging batteries can also create flammable gases. For this reason, it is very important to store and maintain batteries in a well-ventilated work area away from all ignition sources and incompatible materials. Cigarettes, flames or sparks could cause a battery to explode.
- Disconnect the battery cables before working on a battery. Be careful with flammable fluids when working on a battery-powered system. The electrical voltage created by batteries can ignite flammable materials and cause severe burns. Workers have been injured and killed when loose or sparking battery connections ignited gasoline and solvent fumes during system maintenance.

³⁹ UNOPS will use gel lead-acid batteries, which are significantly safer than traditional lead-acid batteries, because they are sealed in a plastic encasement with a valve that removes excess pressure.

- Before making wiring changes to the system, disconnect the battery, either through opening the circuit breaker or over-current device, or by disconnecting the cables. Adding distilled water or cleaning terminals can be done without disconnecting.

Safe Movement of Batteries

156. The Contractor shall inform beneficiaries of the following measures regarding the safe movement of batteries:

- Lifting and moving batteries must be undertaken with care to avoid personal and environmental harm
- Proper lifting techniques must be used to avoid back injuries
- Because battery casings can be brittle and break easily, they must be handled carefully to avoid an acid spill
- Batteries must be properly secured and upright when handled or transported in a vehicle

Management and Disposal of Used Batteries

The Contractor shall prepare and submit to UNOPS a Battery Management Plan that details how batteries will be collected, transported, stored, recycled or disposed of. More specifically the Battery Management Plan shall:

- Define arrangements made with after sales service centers for the maintenance and reconditioning of batteries
- Identify centers or dealers authorized by local authorities to safely collect, store, transport and reexport used and end-of life batteries from beneficiary facilities.
- Ensure that these centers or dealers implement the relevant Project ESHS requirements, including the use of PPE, the use of proper drums for storing acid, the containment of spills during battery maintenance and collection, and adequate ventilation
- Outline how the contractor will include the end-user in the reverse-supply-chain management through training.