

UNITED NATIONS OFFICE FOR PROJECT SERVICES

(UNOPS)

YEMEN INTEGRATED URBAN SERVICES EMERGENCY PROJECT – PHASE II

(YIUSEP II AF)

COMPONENT 1

SERVICE RESTORATION

SUB-COMPONENT 1.4

ENERGY FOR CRITICAL SERVICES

**Supply and Installation of Soundproof Generator to 22 May Hospital in
Aden City**

Environmental and Social Management Plan (ESMP)

18 November 2022

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Abbreviations

AC	Alternating Current
CE	European Union's (EU) mandatory conformity
DC	Direct Current
EHS	Environmental, Health and Safety
ESF	Environmental and Social Framework of the World Bank
ESHS	Environment, Social (including labor), Health, and Safety
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard
FMFA	Financial Management Framework Agreement
FCV	Fragility, Conflict and Violence
GBV	Gender Based Violence
GHS	General Health and Safety guidelines
GIIP	Good International Industry Practice
GM	Grievance Mechanism
GSM	Global System for Mobile Communication
HSSE	Health, Safety, Social and Environment
IDA	International Development Association
IDP	Internally Displace Person
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LMP	Labor Management Procedures
MCB	Miniature Circuit Breakers
MCCB	Molded Case Circuit Breaker

PAP	Project Affected People
PV	Photovoltaic
PVC	Permanent virtual circuit
RF	Resettlement Framework
ROY	Republic of Yemen
SEA	Sexual Exploitation and Abuse
SH	Sexual Harassment
SEP	Stakeholder Engagement Plan
SMP	Security Management Plan
TPM	Third Party Monitoring
TUV	Technischer Überwachungsverein (Association for Technical Inspection)
UL	Underwriters' Laboratories
UNOPS	United Nations Office for Project Services
UV	Ultraviolet
XLPE	Cross linked polyethylene cable.
YIUSEP II AF	Second Yemen Integrated Urban Services Emergency Project Additional Financing

Summary Sheet

Yemen Integrated Urban Services Emergency Project (YIUSEP II AF). Component 1 Service Restoration
Sub-Component 1.4 Energy for Critical Services.

Sub-Project Name	Supply and Installation of Soundproof Generator to 22 May Hospital in Aden City
Sub-Project Location	Aden City
Implementing Partner	Directly implemented by UNOPS through Local Contractors
Risk level	Moderate
Estimated Sub-project Investment	
Estimated ESMP Cost	
Date of the field visit	October 2022
Date of consultation	October 2022
Implementation Period	
Observations/Comments:	Indicated below
Signature of ESSO:	
Date:	

EXECUTIVE SUMMARY

1. INTRODUCTION

After the success of YIUSEP I, UNOPS has received repeated requests from urban communities and the YIUSEP local implementation partners for additional support. This has led to the development of YIUSEP II AF. The overall objective of the YIUSEP II is to restore access to critical urban services in selected cities of Yemen where most of the conflict-related damage has occurred. The project is financed by the World Bank (grant from IDA), and implemented by UNOPS, with implementation support by local implementing partners.

The current ESMP for the Supply and Installation of Soundproof Generators to 22 May hospital in Aden City was prepared based on the Environmental and Social Management Framework (ESMF) for YIUSEP II. The ESMF was prepared by United Nations Office for Project Services (UNOPS) and the World Bank disclosed the YIUSEP II ESMF on November 2021 to meet the requirements of the World Bank's Environmental and Social Framework (ESF), UNOPS requirements and the national environmental laws and regulations requirements (<https://documents1.worldbank.org/curated/en/099854511242137276/pdf/FinalOESMF0YIUSEP0IIIOAF.pdf>)

The YIUSEP II ESMF will guide UNOPS to ensure that all sub-projects are prepared and implemented in accordance with the ESF requirements, including the preparation of sub-project specific Environmental and Social Management Plans (ESMPs). For this purpose, the ESMF details how UNOPS will screen each sub-project to assess its environmental and social risks and impacts, identify the mitigation measures, and monitor ESMP implementation, most particularly the environmental and social performance as well as the occupational health and safety of project contractors. UNOPS has in parallel prepared a Labor Management Procedures (LMP) to meet the requirements of ESS2, and a GBV/SEA/SH Plan and a Security Management Plan (SMP) to meet the requirements of ESS4, and a Resettlement Framework (RF) to meet the requirements of ESS5¹, and a Stakeholder Engagement Plan SEP, to meet the requirements of ESS10.

The only relevant ESSs for this subproject are ESS1, ESS2, ESS3, ESS4 and ESS10. As a result, this sub-project will follow the requirements of the LMP for labor working conditions and OHS, the GBV action plan for any GBV issues, SEP and the SMP to manage any potential security risks.

YIUSEP II Project Components:

YIUSEP II consists of the following components:

Component 1: Service Restoration.

This Component will finance the preparation and implementation of infrastructure investments.

¹ The temporary land that will be occupied during the crane lifting operation is inside the sub-project work site and it will take only a couple of hours to transport the generator to its designated installation area.

- Sub-Component 1.1: Tertiary Municipal Services and Solid Waste Management
- Sub-Component 1.2: Urban Water and Sanitation
- Sub-Component 1.3: Urban Roads
- Sub-Component 1.4: Energy for Critical Services

Component 2: Implementation Support and Capacity Development

- Sub-Component 2.1: Project Implementation and Management Support
- Sub-Component 2.2: Enhanced Capacity Building
- Sub-Component 2.3: Third Party Monitoring

Component 3: Contingent Emergency Response

- Providing immediate response to an Eligible Crisis of Emergency, as needed.

The project falls under component 1: Service Restoration sub-component 1.4: Energy for Critical Services.

Sub-component 1.4: Energy for Critical Services

The objective of this sub-component is to restore electricity supply to hospitals, clinics, and other medical facilities, in the targeted cities. The sub-component will be closely coordinated with relevant UN agencies, local partners, and sub-component 1.2 (which restores electricity for critical water and wastewater assets). To contribute to climate change mitigation, renewable and clean power generation will be encouraged as far as possible. This includes rooftop or ground-mounted solar photovoltaic (PV) based generation (with battery storage), diesel- solar PV hybrid systems. Wherever feasible, energy efficient LED lights in buildings and solar water heaters will be integrated with the electricity supply interventions. Although preference will be given to installation of solar PV and hybrid generation technologies, given the severity and urgency of the situation on the ground in Yemen, rehabilitation of existing conventional diesel generators may be unavoidable in some instances. For instance, diesel generation systems will be required for some hospital buildings and health facilities (and a small number of educational facilities). Notwithstanding, it is expected that renewable energy solutions under the project can showcase their feasibility and path the way forward for increased use of renewables in future private construction and energy efficiency in public buildings.

Project selection:

The selection of sub-projects under YIUSEP-II AF is based on technical and sustainability criteria, including: (a) ability to address the unmet needs in targeted cities; (b) impact on COVID-19 response; (c) potential to build resilience to urban flooding; (d) feasibility (considering access to goods and supply, conflict, capacities) and potential of integration with other activities; and (e) potential for local job creation. A core Project principle is to prioritize investments which offer the greatest value for money and maximize the number of beneficiaries, including vulnerable groups. Based on the lessons learned from YIUSEP, this is best achieved through a spatially targeted and integrated approach to investments, with multisectoral coordination and participatory identification and planning of interventions. To retain flexibility and adaptability, sub-project selection will occur on an incremental basis to respond to changing needs.

Notwithstanding the above, fair distribution of resources across the different cities and sectors during the two years of Project implementation, is also a key consideration in Project design.

2. SUB-PROJECTS DESCRIPTION

The sub-project will include supply, delivery, installing, testing, commissioning, operating, Soundproof Generator to 22 May Hospital in Aden City as indicated in the table 1 below:

The generator weight is around 13 tons, and its dimensions will be around 6 X 2.4 meters and height of 2.6 meter.

Table 1: Location and capacity of the 22 May Hospital

#	Location	Capacity KVA	Qty.
1	22 May Hospital in Aden City	1000	1

Due to the conflict in Yemen, which resulted in lack of power supply, it is difficult for health facilities to secure diesel fuel and provide regular maintenance services for operating the diesel generators. Therefore, it is planned to provide Soundproof Generator for 22 May Hospital in Aden City to be supplied and installed by local contractor. Sources for diesel will be supplied through WHO and local sources.

The sub-project will include supply, delivery, installing, testing, commissioning, operating, handing over and maintaining Soundproof Generator for 22 May Hospital in Aden City as indicated in the table 2 below:

Location

The targeted facility is located in urban area Aden City with the coordinates indicated in the following table 2:

Table 2: Location of the targeted facilities

#	Facility Name	Location Coordinates		City	District
		N	E		
1	22 May Hospital in Aden City	12°51'38.84"	44°59'26.93" "	Aden	Sheikh Othman

1- Map shows location of 22 May Hospital - Aden City, Sheikh Othman District



Planned Activities:

Before installing the soundproof generator in the facility, the following requirements will be considered:

1. Upon unpacking the generator from shipping cartons, first conduct a visual inspection to detect any damage that may have occurred during shipment.
2. Concrete base will be prepared as per the generator dimension.
3. Site clearance to get the generator on a concrete base.
4. Lifting equipment – typically an overhead crane will be needed to remove the generator from its delivery truck to its place.
5. Ensure the concrete base is well located to allow required maintenance of all parts of the generator and is compliant to all relevant regulations.
6. Generators should always be installed, serviced, and repaired only by authorized, competent and qualified technicians.
7. Installation, repair, and maintenance should always be in accordance with the manufacturer's guidelines, instructions, and recommendations.

The generator will be moved to its place by the overhead crane as per lifting safety instruction and rules and under a qualified lifting operator/supervisor.

The generator will be placed on an impermeable concrete base and isolated by metal chain-link fences without ceiling (Top Opened End). Diesel will be stored in an insulated area, well ventilated with an impermeable base to prevent leakage and ground contamination and will be properly labeled.

Excavation will be less than 50cm depth for the concrete base and cables. Excavation areas will be appropriately secured using barricades, fences and precaution tapes will be used to isolate the area. Reflective Safety signs to be placed continuously and the waste will be removed and transferred to the approved disposal site by the local district authorities.

Work arrangements

It was agreed with the health facility administration that there will be two different and separate entrances for workers and hospital visitors and the working site will be isolated, fenced and only authorized persons can have access. As well as an agreement on training, operation, and future maintenance of the diesel generator after the warranty period elapses.

3 LEGAL AND INSTITUTIONAL FRAMEWORK

4. ENVIRONMENTAL AND SOCIAL BASELINE

Climate and Weather

Aden

Aden is the largest city of southern Yemen. The hot season lasts for 4.0 months, from May 21 to September 22, with an average daily high temperature above 33°C. The hottest month of the year in Aden is June, with an average high of 35°C and low of 30°C.

The cool season lasts for 3.8 months, from November 27 to March 19, with an average daily high temperature below 28°C. The coldest month of the year in Aden is January, with an average low of 24°C and high of 27°C.

Precipitation

Aden does not experience significant seasonal variation in the frequency of wet days (i.e., those with greater than 0.04 inches of liquid or liquid-equivalent precipitation). The frequency ranges from 1% to 10%, with an average value of 5%.

Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. The month with the most days of rain alone in Aden is August, with an average of 2.5 days.

Aden experiences significant seasonal variation in the perceived humidity.

The most humid period of the year lasts for 10 months, from February 6 to December 21, during which time the comfort level is humid, at least 76% of the time. The month with the most humidity days in Aden is May, with 30.8 days that are muggy or worse. The month with the fewest humid days in Aden is January,

The average hourly wind speed in Aden experiences significant seasonal variation over the course of the year.

The *windier* part of the year lasts for 6.5 months, from October 13 to April 28, with average wind speeds of more than 16.1 Km *per hour*. The windiest month of the year in Aden is January, with an average hourly wind speed of 21.1 Km per hour.

The calmer time of year lasts for 5.5 months, from April 28 to October 13. The calmest month of the year in Aden is September, with an average hourly wind speed of 12.1 Km per hour.

Air Quality and Noise

Air pollution in Yemen is caused by a variety of factors, including emissions from transportation. The main source of air pollution. However, particularly in cities such as Aden, the source of emission is mainly from vehicles.

The pollutant concentrations are estimated to be several times higher than set standards for air quality as well as the noise level.

Socio-economic

Population

Aden is the second most populous city of Yemen, with approximately 1.14 million residents, of which 650 thousand are non-displaced, 290 thousand are returnees from displacement, 60 thousand are IDPs, and nearly 140 thousand are migrants and refugees. Those returnees and IDPs with family ties in Aden enjoy comparatively better opportunities for shelter and support. It is important to note that the 140 thousand are refugees and African migrants, mainly Somalis. In contrast, they keep to themselves and generally do not often interact socially with the local population. Despite the worsening conditions in Aden, immigration from the Horn of Africa continues unabated, though many choose to return when faced with the reality of Yemen. At the bottom of the social ladder are the Muhamasheen, an outcast and vilified social group, virtually segregated from the rest of Yemen's society. Having settled in the Dar Sad district in substantial numbers, they enjoy slightly better opportunities in Aden than elsewhere in Yemen. Until recently, Aden was home to a significant population of North Yemeni descent. After March 2018, that population declined sharply. Of the more than one (01) million inhabitants, 790 thousand are considered as people in need (PiN) with 57% in acute need of humanitarian assistance and the remaining 43% in moderate need. Despite being a major hub for coordination of humanitarian assistance, Aden is one of the most affected areas in terms of PiN and has one of the highest non-resident IDP and returnee population in Yemen. The number of families that received Rapid Response Mechanism (RRM) assistance stood at 37,016. In addition, a severely damaged infrastructure, malnutrition, food insecurity, and disputes over land or property ownership and use are all contributing factors to complicated social dynamics. With 72% younger than 34 years-old, Aden's population is young and restless.

The targeted Facility (Hospital) health serves Sheikh Othman District and other Districts which are urban areas within Aden City.

Targeted Facility Beneficiaries of Hospital

#	Facility Name	Number of Beneficiaries ² /Year
		Total
1	22 May Hospital in Aden City	180,000

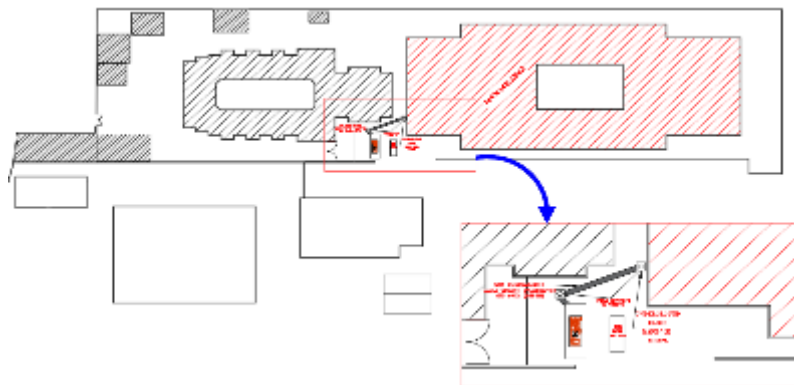
² Estimated number of people benefiting from Hospital (facility /year).

Layouts, drawings, and photos from field visits for inspecting existing situation of the 22May hospital:

1- 22 May Hospital - Aden City.



Building from inside



Generator Installation Diagram



GENERATOR INSTALLATION LOCATION

5. STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE

Concerning 22 May Hospital in Aden City, consultation was carried out during October 2022 for a total number of 13 persons (4 Females and 9 males).

Topics of the consultations are to:

1. Inform beneficiaries about the activities to be undertaken and the sub-project timetable;
2. Document and address the local beneficiaries' concerns, expectations and feedback;
3. Ensure participation of sub-project beneficiaries both females and males with awareness on their rights to participate and give feedback including GM contacts, anonymous complaints and escalation of grievances if not satisfied with the resolution and action taken;
4. Discuss the positive impacts that the sub-project will have and the sub-project potential negative impacts and proposed mitigation measures to avoid possible impacts.
5. Raise the awareness on the protective measures from COVID-19 Pandemic.
6. Provide awareness to the consulted persons both males and females on their rights to participate in all sub-project implementation phases, give their feedback and raise their concerns.
7. Provide GRM forms with contact information to the consulted persons and provide information on the GRM channels and awareness on the GRM system.

Consultation Findings and Feedback

Interviews were conducted by the Female Social Facilitators. The consultation process takes the form of semi-structured discussions by phone calls interviews with the staff of the targeted health facility both males and females where it was difficult to consult with hospital users other than medical staff, and feedback was updated and collected by questionnaire through WhatsApp communication. The interview started by a brief explanation of the nature and objective of the sub-project and potential impact with proposed mitigation measures.

The interviewed people both male and female medical staff of the targeted health facility have emphasized the importance of continuous operation and maintenance of health and educational services and appreciate the support of supplying and installing Soundproof Generator in hospital to ensure sustainable source of energy to be supplied for continuous operation of health care services and improvement of provided health services quality. All safety mitigation measures were discussed in details with the consulted persons.

Grievance Redress Mechanism (GRM)

UNOPS has established Grievance Redress Mechanism (GRM) with the following contact channels: UNOPS/Sana'a – Toll Free Number 8000190 - Tel: 01 504914/915 - SMS:739888388 Email: GRM.yemen@unops.org for Yemen Integrated Urban Service Emergency Project (YIUSEP II) with a new Toll-Free Phone Number 8000190 to enable beneficiaries to communicate their concerns regarding the

project activities. More specifically, the GRM details the procedures that communities and individuals, who believe they are adversely affected by the project or a specific sub-project, can use to submit their complaints, as well as the procedures used by UNOPS and its local partners to systematically register, track, investigate and promptly resolve complaints.

Accordingly, hard copies of the translated forms of GM (which attached in Annex 2) was provided to the interviewed people and they have been informed about the GM contact information that will be also posted at the sub-project site signboard to ensure any grievance can be addressed in an amicable manner. Resolving complaints at community level is always encouraged to address the problem that a person may have during implementation and/or operational phase.

Anonymous complaints can be allowed for both staff and local community and GRM can be used as a channel for any kind of complaints including GBV/SH, which will handle such complaints.

The survivor-centered approach is based on a set of principles and skills designed to guide professionals, regardless of their role, in their engagement with survivors (predominantly women and girls but also men and boys) who have experienced sexual or other forms of violence. The survivor- centered approach aims to create a supportive environment in which the survivor's interests are respected and prioritized, and in which the survivor is treated with dignity and respect. The approach helps to promote the survivor's recovery and ability to identify and express needs and wishes, as well as to reinforce the survivor's capacity to make decisions about possible interventions.

There will be Gender-sensitive communication channels. And in disclosure it will take into consideration women's safety when designing and dealing with information.

Reporting of ESMP

The ESSO will report on monthly basis the implementation of the ESMP and UNOPS will report the ESMP implementation to the WB. There will be also irregular reports based on the situation and updates. The Supervision Consultant will monitor and report monthly and irregularly on the level of mitigation measures implementation and environmental issues. As shown in Annex 1, the contractors shall monitor, keep records and report on the following environmental and social issues: safety, Environmental incidents and near misses, major works, ESHS requirements, ESHS inspections and audits: workers, training on ESHS issues, footprint management, external stakeholder engagement, details of any security risks, worker grievances, external stakeholder grievances, major changes to Contractors environmental and social practices, deficiency and performance management.

The following table 3 provides indicative reporting plan.

Table 3: Reporting plan

What	How	Who	When
1. Compliance level to the ESMP including environmental and social issues, OHS, GM, etc.	2. Based on monitoring and inspections, log, the consultant reports, GM log	Environmental Specialist	Monthly from ESSO and quarterly from UNOPS to WB.
3. Compliance level to the ESMP and environmental and social issues: safety, environmental incidents and near misses, major works, ESHS requirements, ESHS inspections and audits: workers, training on ESHS issues, footprint management, external stakeholder engagement, details of any security risks, worker grievances, external stakeholder grievances, major changes to Contractors environmental and social practices, deficiency, and performance management.	4. Consultant based on monitoring, inspection, records, logs, contractor reports.	Supervision Consultant.	Monthly and based on cases
Environmental and social issues: safety, environmental incidents and near misses, major works, ESHS requirements, ESHS inspections and audits: workers, training on ESHS issues, footprint management, external stakeholder engagement, details of any security risks, worker grievances, external stakeholder grievances, major changes to Contractors environmental and social practices, deficiency, and performance management.	Contractor ESSO based on monitoring, inspection, records, logs.	Contractor	Monthly and based on cases

6 ENVIRONMENTAL AND SOCIAL SCREENING PROCESS APPLICABILITY:

YIUSEP II AF ESMF applies because this sub-project may trigger some HSSE (Health, Safety, Social and Environment) impacts such as environmental and Occupational Health and Safety impacts.

Eligibility:

These sub-projects are eligible for support because they do not have any of the attributes in the following exclusion list:

Exclusion List

#	Question	Answer	
		Yes	No
1	Production or activities involving harmful or exploitative forms of forced labor/harmful child labor;		X
2	Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements;		X
3	Production or trade in weapons and munitions;		X
4	Gambling, casinos and equivalent enterprises;		X
5	Trade in wildlife or wildlife products regulated under CITES;		X
6	Production or trade in radioactive materials;		X
7	Production or trade in or use of un-bonded asbestos fibers;		X
8	Production or trade in wood or other forestry products from unmanaged forests;		X
9	Production or trade in products containing PCBs;		X
10	Production, trade, storage, or transport of significant volumes of hazardous chemicals, or commercial scale usage of hazardous chemicals;		X
11	Production or trade in pharmaceuticals subject to international phase outs or bans;		X
12	Production or trade in pesticides / herbicides subject to international phase outs or bans		X
13	Production or trade in ozone depleting substances subject to international phase out;		X

14	Production or activities that impinge on the lands owned, or claimed under adjudication, by indigenous peoples, without full documented consent of such people.		X
15	Landfills and waste transfer stations,		X
16	Power plants,		X
17	Large-scale transport infrastructure such as highways, expressways, urban metro-systems, railways, and ports,		X
18	Investments in extractive industries; commercial logging,		X
19	Dams, or projects involving allocation or conveyance of water, including inter-basin water transfers or activities resulting in significant changes to water quality or availability,		X
20	Activities that would convert natural habitats or significantly alter potentially important biodiversity and/or cultural resource areas,		X
21	Activities that would require the relocation of residential households and/or significant involuntary land acquisition,		X
22	Activities in disputed areas.		X

Environmental and social screening was conducted using the YIUSEP II AF ESMF screening form, the soundproof diesel generators will be installed within the same facility and do not need land acquisition and will not cause disturbance to the community, and the environmental and social impacts will be moderate, limited and controlled where the diesel generator engine chosen to meet Tier 4 final emission standards and the generator will be soundproof with silencer and will be mounted on a sound attenuated canopy, to reduce the noise level to a minimum.

Question	Answer		ESS relevance	Due diligence/ Actions
	Yes	No		
Does the sub-project involve civil works including new construction, expansion, upgrading or rehabilitation of existing infrastructure?	X		ESS1	ESMP, SEP
Does the sub-project involve land acquisition and/or restrictions on land use? The civil works are done within the footprint of the existing facilities.		X		SEP-ESMP

Is the sub-project associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant?	X		ESS3	ESMP, SEP
Does the sub-project use additional technically feasible water conservation measures?	X			
Does the sub-project consider additional strategies to adopt measures that avoid or minimize negative effects of emissions?	X		ESS3	ESMP
Does the sub-project have an adequate system in place (capacity, processes, and management) to address waste?	X			
Does the sub-project involve the recruitment of workers including direct, contracted, primary supply, and/or community workers?	X		ESS2	LMP, SEP
Does the sub-project have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	X		ESS2, ESS4	LMP
Does the sub-project have a GM in place, to which all workers have access, designed to respond quickly and effectively?	X		ESS10	SEP
Does the sub-project involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		X		
Does the sub-project establish and implement appropriate quality management systems to anticipate and minimize risks and impacts that services may have on community health and safety.	X		ESS4	ESMP, SEP

Does the sub-project apply the concept of universal access where technically and financially feasible?		X		
Is the sub-project located within or in the vicinity of any ecologically sensitive areas?		X		ESMP, SEP
Is the sub-project located within or in the vicinity of any known cultural heritage sites?		X		ESMP, SEP
Does the sub-project area present potential Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) or Sexual Harassment (SH) risk?	X		ESS1/ESS4	ESMP, SEP/GBV Action Plan

7 RISK LEVEL AND MITIGATION INSTRUMENTS

The sub-project assigned E&S risk level is moderate, thus, it requires the preparation of an Environmental and Social Management Plan ESMP as detailed in the Environmental and Social Management Framework ESMF for YIUSEP II AF. However, some environmental and OHS impacts may be triggered. Therefore, UNOPS will include environmental and social requirements for contractors including all OHS requirements, as well as Health and Safety prevention measures from COVID-19 in the contract and tender documents.

Environmental Risk and Impacts:

- Solid waste produced by work accumulated and pollutes the environment.
- Air pollution due to emissions from equipment/transportation trucks. that might result in:
 - Environment Pollution
- Environmental pressures on workers (heat strokes, dust storms)
- Soil contamination from Oil and Fuel
- GHG emissions from fuel burning by machineries

Social Risk and Impacts:

- Lack of worker's awareness and knowledge on social safeguard issues on gender, SEA and GBV.
- Child Labor
- Low aesthetic value
- Access of public into working site. Impacts:
- Public Exposure to high-risk activities (students and hospital patients) (Lifting, Excavation,)

OHS Risk and Impacts:

- Lifting Operations Impacts:
- Failure of lifting equipment;
- Falling loads; and
- Workers being crushed by a moving Load or lifting equipment which all might result in fatalities or injuries.
- Electricity Shock Impacts:
 - Thermal burns
 - Muscle, nerve, and tissues damage due to electrical shock
 - Fall from height due to sudden electric shock
 - Fatalities or injuries
- Manual Handling Impacts:

Manual Handling Injuries that include

- Fractures
- Damage to muscles, ligaments, and tendons
- Spinal disc injuries
- Trapped nerves
- Abrasions and cuts
- Burns
- Hernias
- Excavation Impacts:
 - Dust generated by excavation activities
 - Waste generated from the excavation
- Hazardous Substances and Wastes Impacts:
- Infection by Covid-19 Impacts:
 - Transmission of corona virus between site workers
 - Site workers lives could be at risk (illness / Death)
- Air pollution due to emissions from equipment/transportation trucks. that might result in:
 - Mortality caused by cardiovascular and respiratory disease
 - Chronic incidence caused by respiratory or cardiovascular disease
 - Decline in physiologic functions Intrauterine growth restriction

Operation and maintenance

- Operation and Maintenance (Staff Health and Safety) i.e., for risk of potential electric shock to the maintenance staff
- GHG emissions from the generator such as CO
- Lack of maintenance and inspection resulting in generator breakdown
- Accidental oil/fuel spills resulting in soil contamination

UNOPS will ensure that:

1. Relevant site specific OHS requirements that are incorporated within this ESMP are included in the tender documents and contract to ensure that the contractor fully avoids or mitigates environmental, social, occupational health and safety impacts that might arise from this activity. 'The supply and installation of the Soundproof Generator will be compliant to environmental, health and safety standards and specifications including electricity safety, soundproof, and low emission standards.
2. Safe installation of the sound-proof generator and mounting it in a safe place on an impermeable concrete base inside the generators area of the health facility.

3. The facility administration, guard and/or technician will receive proper training on the safe operation and maintenance of the sound-proof generator.

UNOPS will also require that contractor:

1. Inspect existing facility and apply all safety measures to reduce the risk of any injury to the workers during installation or the users during operation, subject to written approval by the UNOPS engineer provided before implementation of work.
2. Conduct risk assessment for the diesel sound-proof generator installation, evaluate the risk, and put the appropriate safety measures in place and submit it for review and approval.
3. Fully implement permit to work system, method of statement and job safety analysis to ensure all tasks are well prepared and follow all necessary safety mitigation and prevention measures.
4. Provide safety training to all workers including lifting operations, electrical safety, Fire Safety, and permit to work before commencing any work
5. Provide the required safety and health PPE and hygienic materials to workers to protect workers and ensure their safety and prevent them from COVID-19 infection.
6. Provide fully insulated PPE, isolated installation tools, instruments, and equipment.
7. Provide appropriate training on the use, serviceability, and integrity of the necessary PPE.
8. Prepare emergency response plan including contact numbers, evacuation plan and provide necessary first aid equipment on site and transportation and contracted nearest hospital in case of any emergency.

Follow the slip prevention measures in the same elevation by:

1. Use of slip resistant footwear and locating electrical cords, cables and ropes in common areas and marked corridors to prevent risk of slips and fall associated with uncontrolled use of electrical cords and cables on the ground.
2. Use of control zones and safety monitoring systems to warn workers of their proximity to fall hazard zones, as well as securing, marking, and labeling covers for openings in floors, roofs, or walking surfaces.

UNOPS has already taken the following steps in GBV/SEA/SH:

1. In the stakeholder consultation meetings UNOPS has presented the project GBV SEA/SH action plan and during the meetings we focused on female participants and ensure to explain about the GM mechanism and highlighted how it is transparent, secure and confidential to use any of the GM access point
2. UNOPS has developed visibility materials to promote awareness for PSEA/SH in local language (Arabic) the materials and messages used adapted to be suitable for Yemen context and sensitivity of the subject.
3. GM focal point received specialized training about SEA/SH cases and the way to deal with it using Victim centered approach

4. UNOPS developed (standard operational procedure) SOP and protocol for GM in how to deal with SEA/SH cases.
5. UNOPS has conducted refresh sessions for Project Personnel in GBV/SEA/SH and trained retainers sites engineers as well
6. UNOPS has prepared risk assessment tools for GBV and will require contractors to fill a checklist on GBV/SEA/SH and to prepare code of conduct for their workers/staff.
7. AS part of YIUSEPII GBV SEA/SH action plan UNOPS will roll out SEA/SH prevention and response plans for contractors , where the contractors need to prepare the action plan as part of the tender documents , UNOPS is supporting to enhance the contractors capacity in this area looking to the fact that almost they have zero knowledge and capacity , for that UNOPS developed contractors action plan template where it covers the most priority areas and UNOPS conducted induction session for contractors about this requirement and presented to contractors on how to prepare their own GBV SEA/SH prevention and response plans (GBV Action Plans) using the developed template , other in depth training sessions will follow and will continue during project life span
8. UNOPS will train contractors' PSEA/SH focal points
9. UNOPS will require contractors to employ at least 5% female staff to encourage gender mainstreaming.

Labor Management:

The estimated/planned number of laborers for sound-proof diesel generator installation is 8 skilled workers and 4 unskilled laborers in which the contractor is responsible for.

Child Labor and Forced Labor:

Ensure all workers are more than 18 Years old, and no child, forced, involuntary or unpaid labor will be used in any work.

The contractor shall protect the workers from any risk that may be encountered during the implementation including the exposure to the virus (COVID-19).

The contractor shall maintain occupational health and safety systems in the site to protect workers from hazards and risks and provide adequate health and safety training, required PPE, first aid box, and toilets and potable drinking water.

Grievance Mechanism for Workers

The Contractor shall put in place a Grievance Mechanism for workers and the workers of its sub-contractors that is proportionate to its workforce. The GM shall be distinct from the Project level Grievance Mechanism for affected individuals and communities, and shall adhere to the following principles:

1. *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 readily available, for example, included in worker documentation or on notice boards.

2. *Transparency of the process.* Workers must know to whom they can turn to 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.
3. *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.
4. *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.
5. *Non-retribution.* Procedures should guarantee that any worker raising a complaint will not be subject to any reprisal.
6. *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.
7. *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.
8. *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.
9. *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.
10. *Relationship with collective agreements.* Grievance procedures should be consistent with any collective agreements.
11. *Relationship with regulation.* Grievance processes should be compliant with the national employment code.

Information Dissemination and Disclosure

The World Bank requires that all documents provided to it by UNOPS meet the requirements of the World Bank Policy on Access to Information.

The World Bank will require UNOPS to provide sufficient information about the potential risks and impacts of the project for UNOPS' consultations with its stakeholders. Such information will be disclosed in a timely manner, in an accessible place, and in a form and language (Arabic) understandable to project-affected parties and other interested parties as set out in ESS10 through the project SEP, so they can provide meaningful input into project design and mitigation measures.

The World Bank will disclose documentation relating to the environmental and social risks and impacts of YIUSEP II-AF prior to project appraisal. This documentation will reflect the environmental and social assessment of the Project and be provided in draft or final form (if available). The documentation will address, in an adequate manner, the key risks and impacts of the Project, and will provide sufficient detail

to inform stakeholder engagement and World Bank decision making. Final or updated documentation will be disclosed when available.

Gender – based Violence (GBV)/Sexual Exploitation and Abuse (SEA)/Sexual Harassment (SH):

The contractor and workers should sign the Code of Conduct (CoC) and ensure workers respect and adhere to the said CoC to respect the local community cultures, and adhere to the social safeguard issues on Gender, SEA/SH and GBV. Raise awareness on the GM system and how it can be used to report any GBV cases.

Training of workers: UNOPS and Contactor should provide the workers with required training and daily toolbox talk in the OHS, GBV, SEA and GM.

The Contractor should provide the work site with a GM system for all workers including providing complaints box and complaint means.

COVID-19

UNOPS will require contractor to implement extra measures during COVID 19 Pandemic, including the following prevention measures to protect workers and will depend on emphasizing basic infection prevention measures and all contractors/suppliers should implement good hygiene and infection control practices, including but not limited to:

1. Promote frequent and thorough hand washing, including by providing workers, customers, and worksite visitors with a place to wash their hands. If soap and running water are not immediately available, provide alcohol-based hand rubs containing at least 70% alcohol.
2. Encourage workers to stay home if they are sick.
3. Encourage respiratory etiquette, including covering mouth during coughs and sneezes. Additionally, adhering to wearing masks and social distancing.
4. Provide customers and the public with single-use tissues and trash receptacles.
5. Provide flexible work hours (e.g., staggered shifts) if possible, to increase the physical distance among employees and between employees and others if state and local health authorities recommend the use of social distancing strategies.
6. Discourage workers from using other workers' phones, desks, offices and supplies, or other work tools and equipment, when possible.
7. Maintain regular housekeeping practices, including routine cleaning and disinfecting of surfaces, equipment, and other elements of the work environment. When choosing cleaning chemicals, employers should follow the manufacturer's instructions for use of all cleaning and disinfection products (e.g., concentration, application method and contact time, PPE).
8. Workers should wear masks, gloves, and goggles at all times on the site.

HSSE Impacts and Mitigation Measures

Potential Impact Factor	Mitigation Measure	Implementation Responsibility	Estimated cost
OHS impacts mitigation			
Lifting Operations: Failure of lifting equipment; Falling loads; and workers being crushed by a moving Load or lifting equipment Which all might result in fatalities or injuries.	<p>Close the lifting area with a fence to prevent access to the lifting area during lifting work.</p> <p>Install warning signs for lifting activities</p> <p>Carry out lifting work by a well-trained, qualified, and certified lifting team and with proper communication means and flagman.</p> <p>Provide workers with all necessary Personal Protective Equipment (PPEs) and safety materials.</p> <p>Use well-maintained equipment for lifting that are appropriate for the weight; well checked and tested by a third party.</p> <p>Secure loads when lifting and use strong and reliable fixation materials to make sure that the load is well tighten and no solid parts falls from the load during lifting.</p> <p>Protect the units against staining, discoloration, and other damage until they are installed in their final location.</p> <p>Lifting device capacity shall be 1.65 times the maximum calculated static load at that point.</p> <p>An ultimate load shall be ≥ 4 times the maximum static load.</p> <p>Prevent workers from standing close to the lifting area</p>	Contractor and UNOPS	
Work Injuries and Electricity Shock Thermal burns	Inspect existing facilities and apply all safety measures to prevent the risk of any injury to the	Contractor and UNOPS	NA

<p>Muscle, nerve, and tissues damage due to electrical shock</p> <p>Fatalities or injuries</p>	<p>workers by electricity shock during installation or the users during operation and apply Hot Work Permit and Electricity Isolation Certificate subject to written approval by the UNOPS engineer provided before implementation of work.</p> <p>Carefully design using appropriate technologies to minimize hazards.</p> <p>Build security fences around electricity areas.</p> <p>Contractor electricians should be well trained and provided with appropriate insulated PPE and work tools and should be aware of electricity shocks and avoidance techniques.</p> <p>Install danger signage in the electrical hazard areas and apply all safety measures to prevent exposures.</p> <p>Ensure skilled workers are hired for each work.</p> <p>Conduct regular awareness sessions and daily Toolbox Talks on OHS requirements before commencing any work.</p> <p>Periodic inspection to ensure that mitigation measures are implemented and stop any unsafe act or unsafe situation.</p> <p>Emergency response plan to be in place with details and contact of the nearest hospital or medical center, responsibilities are understood for all works, first aid boxes are available and a list of trained first aiders is posted and known by all workers with available transportation.</p> <p>Immediately report all accidental occurrences with serious accident potential such as major</p>		
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	<p>equipment failures, contact with high-voltage lines, and exposure to hazardous materials, slides, or cave-ins to UNOPS</p> <p>Contractors shall monitor, keep records and report on the following environmental and social issues:</p> <p><i>Safety:</i> 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).</p> <p><i>Environmental incidents and near misses:</i> environmental incidents and high potential near misses and how they have been addressed, what is outstanding, and lessons learned.</p> <p><i>Major works:</i> those undertaken and completed, progress against project schedule, and key work fronts (work areas).</p> <p><i>ESHS requirements:</i> noncompliance incidents with permits and national law (legal noncompliance), project commitments, or other ESHS requirements.</p> <p><i>ESHS inspections and audits:</i> by Project Company, Independent Engineer, UNOPS and its implementing partners, or others—to include date, inspector or auditor name, sites</p>		
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	<p>visited, and records reviewed, major findings, and actions taken.</p> <p><i>Maintaining a record of injuries and accidents specifying cause and location</i></p> <p><i>Provide a list of trained workers, whom will be checked for their training skills. Measures will be implemented onsite and followed by regular monitoring visits.</i></p> <p><i>Ensuring the contractor is taking care of the safety of workers while working in the site and give all necessary vaccines to workers to prevent any infection with epidemic and pandemic diseases.</i></p>		
Life and Fire safety prevention measures	<p>There are several fire prevention measures during the design preparation, design review, technical specification preparation, work implementation and operation.</p> <p>Fire Prevention measures during design stage:</p> <ul style="list-style-type: none"> -Selecting the proper size of cabling compatible with international standards to avoid overloading/overheating of the cables. -Include appropriate size of circuit breakers between the system components to prevent electrical surge. <p>Fire Prevention measures of the system specifications:</p> <ul style="list-style-type: none"> -Ensure high quality cables standard outdoor and indoor are applied. -Ensure high quality circuit breakers are provided. 	Contractor and UNOPS	

	<p>Fire Prevention measures during implementation and operations stage:</p> <ul style="list-style-type: none"> -Detection and fire alarm system - Presence of Foam fire-extinguishers - Presence of Powder fire-extinguishers -Compartmentation to prevent or slow the spread of fire and smoke will be applied in the batteries room. -Emergency Response plan -Provide Fire Safety training and drill for the facility operation staff and technicians. -The following fire extinguishers should be provided: -Powder extinguisher, according to BS EN 3 Parts 7 to 9 and SS EN3 &UL listed. -Wheeled Foam Extinguisher, Approved to EN1866, High Quality 3% Foam, Long throw foam nozzle with grip control, one-person operation, and movement with Refillable stored pressure unit. Working Pressure to be not less than 12 Bar, Test Pressure not less than 22 Bar, Temperature Range (-5/+60), 2 Year Warranty and testing check list of the extinguishers to be provided. -Training on fire safety and how to use fire extinguishers shall be provided to staff 		
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<p>Manual Handling: Manual Handling Injuries that include</p> <ul style="list-style-type: none"> -Fractures -Damage to muscles, ligaments, and tendons -Spinal disc injuries -Trapped nerves -Abrasions and cuts -Burns -Hernias 	<ul style="list-style-type: none"> -Provide required information and training on manual handling to the site workers. -Ensure applying safe handling techniques. -Remove space constraints, ensure good housekeeping and providing improved layouts -Keep manual handling to one level, improve floor conditions and improve the environmental conditions. The floor must be clean from any obstacles and should be open, clean, and well protected. -Ensure use of appropriate PPE and safety materials. -Addressing potential use of handling aids with matching safety measures. 	Contractor and UNOPS	NA
Infection by COVID-19	<ul style="list-style-type: none"> -UNOPS will ensure that contractor will provide health, safety and hygiene awareness and materials to staff, workers and visitors and provide proper training on health and hygiene issues. -Contractor to maintain routine cleaning and disinfecting of surfaces, equipment, and other elements of the work environment. When choosing cleaning chemicals, employers should follow the manufacturer's instructions for use of all cleaning and disinfection products (e.g., concentration, application method and contact time, PPE). -Workers should wear masks, gloves, and goggles at all times in the sites. -And social distancing will be applied 	Contractor and UNOPS	

<p>Hazardous Substances and Wastes</p> <p>Injuries or fatalities that result from:</p> <p>Electric shock</p> <p>Fire</p> <p>Flash burns</p> <p>Explosion</p> <p>Exposure to hazardous chemicals</p>	<p>-Ensure the generator batteries are maintenance-free type and ensure proper recycling and disposal paths exist for end life batteries.</p> <p>-Empty diesel/oil containers are stored in safe areas that are insulated and disposed of by certified contractors.</p> <p>-Handling and storing any type of chemicals should be according to their MSDSs and handled by trained workers.</p> <p>-Ensure proper PPEs are adhered to by workers</p> <p>-Ensure that hazardous substances are stored at designated areas inaccessible to the community</p>	<p>Contractor and UNOPS</p>	
<p>Environmental Impacts mitigation</p>			
<p>Air quality impacts from Excavation</p> <p>Dust generated by excavation activities, transport trucks</p> <p>Waste generated from the excavation</p>	<p>Excavation will be less than 50cm depth for the concrete base and cables. Excavation area to be appropriately secured using barricades, fences, and precaution tapes Reflective Safety signs to be placed</p> <p>Continuously remove the waste and store it at designated areas and transfer it to the approved disposal site by the local district authorities</p> <p>Apply dust suppression methods such as using grey water to control dust</p> <p>Use sweeping methods to avoid wasting water in dust suppression.</p> <p>Cover any waste material including soil that will be transported to designated landfills</p>	<p>UNOPS and Contractor</p>	

Ambient Noise impacts from machineries	<ul style="list-style-type: none"> -The generator will be soundproof with a silencer. -The generator set should be mounted in a sound attenuated canopy, to reduce the noise level down to 84 dB(A) at a distance of one (01) meter. -Work will take place during daytime. -Provide ear mufflers to workers. -Properly maintain equipment 	UNOPS and Contractor	
Gaseous Emissions	<ul style="list-style-type: none"> -Ensure that the specification for soundproof and low emitting generator is included in the procurement document (e.g., the generator should be low emission standard with all required emission reduction filters) -The generator engine should meet Tier 4 final emission standards. -The generator will be installed on a permeable concrete base. -Monitoring and verification will be conducted periodically to ensure that supplied generator meet the safety specifications. 	UNOPS and Contractor	
Soil contamination from Oil and Fuel and hazardous chemicals	<ul style="list-style-type: none"> -Fuel Oil Drip - Nozzle drip lines, overflow shall not drain on the floor. Safe and proper means shall be provided for collecting these nozzle drip lines, 	UNOPS, Contractor and Facility Administration.	

	<p>and return of excess fuel to the day tank automatically.</p> <ul style="list-style-type: none"> -Fuel Oil Lines -Fuel oil lines shall be provided with solid connections between fuel piping and engine. -Spill prevention kit shall be available on site in case of oil/fuel/diesel spills -Store diesel/oil/fuel in insulated areas to avoid leakage and soil contamination and according to their Material Safety Data Sheet (MSDSs). -Two tanks/containers should be provided for used oil and ensure safe disposal. 		
Social impacts mitigation			
Lack of workers awareness and knowledge on social safeguard issues on gender, SEA and GBV.	<ul style="list-style-type: none"> -Contractor and workers to sign the code of conduct, and ensure workers respected and adhere to the code of conduct. -Conduct regular awareness sessions on site in GBV prevention. -GM system is in place to handle any issue on Gender SEA and GBV. -GM system for all workers including providing a complaint box and complaint means. 	Contractor and UNOPS	
Solid waste produced by work accumulated and may pollute the environment.	<ul style="list-style-type: none"> -Ensure that work-related wastes are properly stored and regularly collected and transported to authorized disposal sites and arranged for a safe path to the last destination of waste/E-waste. 	Contractor and UNOPS	

	-Expected waste is the Soil resulting from excavation of 50 cm depth for cabling and earthing.		
Air pollution due to emissions from equipment/transportation trucks.	Visual observation and applying equipment checklist for inspection to ensure low emission and well-maintained equipment will be only used.	Contractor and UNOPS	
Noise, nuisance	The section where the work will be conducted will not be in use during soundproof generator installation. Make sure there is a different entrance for workers in isolated and fenced sites. Make sure there is no noisy work will taking place (No welding or grinding allowed at site).	Contractor and UNOPS	
Child Labor	All workers should be more than 18 years old. Verifying age of workers by checking IDs and official documents. Ensure a worker log is available, and all workers are registered.	Contractor and UNOPS	
Operational phase			
GHG emissions from the generator such as CO	-Ensure that the generator is sought from energy efficient dealers. The requirements for goods supply include Tier 4 final emission standards. -The generator should be low emission standard with all required emission reduction filters. -The generator will be installed on permeable concrete base.	Contractor, Facility Administration and UNOPs	

Operation and Maintenance (Staff Health and Safety)	-Same mitigation measures for installation will apply for inspection and maintenance as well.	UNOPS, Contractor and Facility Administration.	
Total Mitigation Measures Cost Estimate.			

Environmental and Social Mitigation Measures Monitoring Plan

Impact action	Monitored Mitigation Measures	Measurements (incl. methods & equipment) and indicators	Frequency	Responsibility	
				Implementation	Monitoring
Community/Social- Health and Safety					
Public safety during the rehabilitation work.		Method: -Visual observation and photographic documentation of safety measures. -Visual observation for installing of warning signs, barricading of working area with safety tapes and fencing/barricades to prevent unauthorized access of public to the working site including workers entrance. Indicator: -Number of grievances, Number of recorded complaints.	Continuous/Daily	Contractor and UNOPS	

The risk of employing children for work activities.		Method: -Site inspection, checking and documentation of contractor employee records and checking/verifying age documents. Indicator: -Number of occurred cases of employing under 18 years old during the regular inspection through ID checks.	Weekly during site inspection and regularly by TPM	UNOPS and TPM	
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Poor coordination, planning and sequencing of work could lead to breakage of underground pipes (electric power cables, telephone lines, water distribution.	???	<p>Methodology:</p> <ul style="list-style-type: none"> -Inspection and photographic documentation. -The contractor and UNOPS engineers ensure that the site supervisor shall submit daily report on the movement of workers, approved and trained workers in place and conduct monitoring to ensure Permit to Work PTW and TBT applied and workers to be well informed about risks, mitigation measures and OHS requirements before commencing any work. <p>Indicators:</p> <ul style="list-style-type: none"> -Number of grievances -Number of electricity cuts/water cuts, etc. 	Continuous/Daily	Contractor and UNOPS	
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External stakeholder engagement:	???	Methodology: -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.). Indicators: -Number of engagement sessions -Number of stakeholders engaged and their type	Continuous/ Monthly	Contractor and UNOPS	
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External stakeholder grievances	???	<p>Methodology: , Submission of grievances, 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.</p> <p>Indicators: - Number of grievances and date submitted -Number of GRM and -Number of resolved grievances</p>	Continuous/ Monthly	Contractor, UNOPS and TPM	
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Low aesthetic value of landscape such as accumulation of waste and debris in the site.	???	Methodology: Site inspection and documentation of general landscape. Indicators: -Number of reported complaints related to landscape -Presence of waste at undesignated zones	Continuous/Monthly	Contractor and UNOPS	
GBV and SEA issues	???	Methodology: Indicators: -Number of reported and registered cases of SEA/SH through project GM -Number of reported cases of contractors' non-compliance to PSEA/SH obligations in work sites	Continuous/Monthly	Contractor, UNOPS and TPM	
General Environmental Impacts					

Dust generation during work implementation.	???	Method: -Visual observation/inspection -Photographic documentation of equipment induced dust clouds during work activities. Indicator: -visible dust emissions	Continuous/ Weekly	Contractor and UNOPS	
Increased level of noise and vibration.	???	Methodology: -Supplier guaranty and warranty on the soundproof generator manufacturing specification to be mounted in a sound attenuated canopy, to reduce the noise level down to 84 dB(A) at a distance of one (01) meter. -Noise from generator will be monitored regularly during warranty period and after that. Indicator: -Number of complaints GRM related to noise	Continuous/ Weekly	Contractor, UNOPS and Health Facility Administration . Soundproof specifications and attenuated canopy included in the specifications and noise will be monitored continuously in the warranty period.	

Gas Emissions	Supplier guaranty and warranty on the manufacturing specification is to meet Tire 4 final emission standards and the emission from generator will be monitored regularly during warranty period and after that.	Methodology: -Visual inspection of soundproof generator with manufacturing specifications to meet Tire 4 final emission standards -Photography documentation of soundproof generator delivery Indicator: -Number and records of maintenance performed on equipment used	Continuous	Contractor, UNOPS and Health Facility Administration . Soundproof specifications and attenuated canopy included in the specifications and noise will be monitored continuously in the warranty period.	
Air pollution due to emissions from equipment/transportation trucks.	???	Method: -Regular observation and photographic documentation of equipment induced emissions during implementation of activities. Indicators: -Visible dust cloud emissions	Continuous/ Weekly	Contractor and UNOPS	

		-Number of GRM regarding air emissions and dust			
Soil contamination from Oil and Fuel	Supplier guaranty and warranty on the manufacturing specifications are to be equipped with Fuel Oil Drip feature that allow safe and proper fuel filling and returning, and all Fuel /oil lines shall be provided with solid connections between fuel piping and engine. Oil discharge and safe disposal of lubricants will be monitored regularly during warranty period and after that.	Methodology: - Visual inspection on oil, fuel/diesel storage sites and spill inspection Indicator: - Presence of spills - Change in soil color	Continuous/Daily	Contractor, UNOPS and Health Facility Administration .	

Waste generation, proper disposal and disposal of work's debris and waste materials.	???	Methodology: -Inspection and photographic documentation. Indicators: -Presence of waste at undesignated zones -Presence of pests and flies	Continuous/Daily	Contractor and UNOPS	
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Environmental incidents and near misses	Avoid/limit environmental incidents and high potential near misses and address their incidents through lessons learned.	Methodology: -Records of environmental incidents and high potential near misses and how they have been addressed, how they have been reported, incidents review, and lessons learned. -Monitoring working in good weather conditions. Indicator: -Number of complaints on near misses -Number of incidents reported	Continuous/Daily	Contractor and UNOPS	
Occupational Health and Safety					
Lifting Operations	Ensure that all lifting activities in the work site are executed safely and as per the standard lifting safety rules	Methodology: Visual inspection to ensure that all lifting activities in the work site are executed safely and as per the standard lifting safety rules. Indicators:	Continuous/Daily	Contractor and UNOPS	

		<ul style="list-style-type: none"> -Number of injured workers -Number of specific activities requiring PPE worker adherence. -Number of lifting failures, fall of heavy equipment by accident 			
Electricity Work	Implement all electricity safety rules, follow them up, and communicate so that only skilled workers are authorized to perform any electrical operations.	<p>Methodology:</p> <ul style="list-style-type: none"> -Visual inspection to ensure that all electricity safety rules are implemented, followed, and communicated. -Ensure that only skilled workers are authorized to perform any electrical operations. <p>Indicator:</p> <ul style="list-style-type: none"> -Number of injured workers and the Number of specific activities requiring PPE worker adherence. 	Continuous/Daily	Contractor and UNOPS	

Fire	Implement all fire safety rules and practices and provide the appropriate extinguisher: Powder extinguisher, according to BS EN 3 Parts 7 to 9 and SS EN3 &UL listed.	Methodology: -Visual inspection to ensure that all fire safety rules and practices are implemented by providing the following extinguisher: Powder extinguisher, according to BS EN 3 Parts 7 to 9 and SS EN3 &UL listed. Indicator: -Number of injured workers and the specific activity required PPE worker adherence. -Number of fire accidents with details	Continuous/Daily	Contractor and UNOPS	
Manual Handling	Perform all manual handling activities according to the OSH manual handling safety rules and instructions. Implementation the safety techniques to control the manual	Methodology: -Visual inspection to ensure that all manual handling activities are performed according to the OSH manual handling safety rules and instructions. -Ensure that the implementation of the	Continuous/Daily	Contractor and UNOPS	

	handling risk monitoring.	<p>safety techniques to control the manual handling risk is monitored continuously.</p> <p>Indicator:</p> <ul style="list-style-type: none"> -Number of injured workers and the -Number of specific activities requiring PPE worker adherence. 			
Excavation	Implement all excavation activities and execute safely all safety rules.	<p>Methodology:</p> <ul style="list-style-type: none"> -Visual inspection to ensure that all excavation activities are executed safely and all safety rules are implemented. <p>Indicator:</p> <ul style="list-style-type: none"> -Number of persons tripping due to excavated areas and getting injured 	Continuous/Daily	Contractor and UNOPS	

Hazardous Substances and Wastes	Regular monitoring of the maintenance free batteries.	Methodology: -Visual inspection to ensure batteries are maintenance free and conduct regular monitoring. Indicators: -Presence of hazardous wastes in undesignated zones	Continuous/Daily	Contractor and UNOPS	
Operation and Maintenance (Staff Health and Safety)	Implement, follow and monitor all safety and maintenance operation procedures and awareness raising.	Methodology: Ensure that all operation and maintenance safety procedures and awareness are implemented, followed, and monitored. Indicator: Number of complaints about safety and maintenance operation procedures.	Continuous/Daily	Contractor and UNOPS	

Infection by Covid-19	Provide, communicate health, safety, and carry out hygiene awareness and provide appropriate safety materials.	Methodology: -Visual inspection to ensure that health, safety, and hygiene awareness are followed and communicated. -Visual inspection to ensure that all health, safety, and hygiene materials are provided. Indicators: -Number of workers exhibiting symptoms of COVID-19 -Presence of hygiene tools (soap, sanitizers, masks, etc.)	Continuous/Daily	Contractor and UNOPS	
Work related accidents and injuries.	???	Methodology: -Inspections and documentations of injuries Indicator: - Record the number of injured workers and activity leading to injury	Continuous daily	Contractor, UNOPS and TPM	

Poor onsite housekeeping, toilet, and water supply, leading to illness and disease.	???	Methodology: Site inspection. Indicators: -Presence of pests, domestic waste located outside designated bins, soap and sanitizer not observed	Weekly during site inspection and regularly by TPM	UNOPS and TPM	
Safety	???	Methodology: -Hours worked, recordable incidents and corresponding Root Cause Analysis (lost time incidents), medical treatment cases, first aid cases, high potential near misses, remedial and preventive measures required (for example, revised job safety analysis, new or different equipment, manual handling, and skills training, etc.	Continuous/ Daily	Contractor and UNOPS	
Complaints.		Number of GRM Reports and number of solved issues.	Continuous/weekly	Contractor and UNOPS	

Poor coordination, planning and sequencing of work could lead to breakage of underground pipes (electric power cables, telephone lines, water distribution.		Methodology: -Inspection and photographic documentation. -The contractor and UNOPS engineers should ensure that the site supervisor shall submit daily report on the movement of workers, approved and trained workers in place and conduct monitoring to ensure Permit to Work PTW and TBT applied and workers to be well informed about risks, mitigation measures and OHS requirements before commencing any work. Indicators: Number of grievances Number of electricity cuts/water cuts etc.	Continuous/Daily	Contractor and UNOPS	
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Major works:	???	Methodology: Inspection of work undertaken and completed, progress against project schedule, and key work fronts (work areas). Photographic documentation of worksite Indicator Number of activities completed	Continuous/ Daily	Contractor and UNOPS	
E&S and OHS requirements:	???	Methodology: Non-compliance with OHS requirements, national law (legal noncompliance), project commitments and E&S requirements. Indicator Number of OHS non-compliance recorded	Continuous/ Daily	Contractor and UNOPS	
E&S/OHS inspections and audits:	???	Methodology: By contractor, engineer, or others, including authorities to include date, inspector or auditor name, sites	Continuous/ Daily	Contractor and UNOPS	

		<p>visited and records reviewed, major findings, and actions taken.</p> <p>Indicator: Number of inspections and audits undertaken</p>			
Workers:		<p>Methodology: -Visual inspection on workers, indicating their origin (expatriate, local, nonlocal nationals), gender, age with evidence that no child labor is involved, and skill level (unskilled, skilled, supervisory, professional, management).</p> <p>Indicator: -Number of workers (expatriate, local, nonlocal nationals) recorded -Number of reports on child labor</p>	Continuous/ Daily	Contractor and UNOPS	

Training on E&S issues		Methodology: -Visual inspection, including dates, number of trainees, and topics. Indicator: Number of training session on E&S issues	Continuous / Weekly	Contractor and UNOPS	
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Footprint management:	???	Methodology: Visual inspection detailing any work outside boundaries or major off-site impacts caused by ongoing work—to include date, location, impact, and actions taken. Indicator: % of activities carried out outside boundaries	Continuous/ Monthly	Contractor and UNOPS	
Details of any security risks		Methodology: Visual inspection detailing the risks the contractor may be exposed to while performing its work—the threats may come from third parties external to the project Indicator: Number of complaints of contractor's risks	When occurred	Contractor and UNOPS	

Worker grievances:	Grievances should include actions taken and dates; resolution (if any) and date; and follow-up on all the grievances.	<p>Methodology: Inspection detailing grievances and actions taken and dates; Record resolution (if any) and date; and follow-up yet to be taken on grievances listed should include those received since the preceding report and those that were unresolved at the time of that report.</p> <p>Indicator: -Number of grievances with details on their occurrence date and date submitted -Number of resolved and unresolved grievances</p>	Continuous/Monthly	Contractor, UNOPS and TPM	
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Major changes to contractor's environmental and social practices.	Monitor and record contractor's environmental and social practices and non-compliance	Methodology: Visual inspection that monitors and records contractor's environmental and social practices and non-compliance . Indicator: Number of non-compliances on E&S practices	Continuous/ Monthly	Contractor, UNOPS and TPM	
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Deficiency and performance management	Take action in response to deficiency or observations on E&S performance; plan for actions or continue on reporting until UNOPS determines the issue is resolved.	Methodology: Take actions in response to previous notices of deficiency or observations regarding E&S performance and/or plans for actions to be taken—these should continue to be reported until UNOPS determines the issue is resolved satisfactorily. Indicators: -Number of deficiency on E&S performance recorded -Number of issues resolved satisfactorily	Continuous/ Monthly	Contractor, UNOPS and TPM	
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Complaints Handling		<p>Methodology: Complaints' register will be kept on site, and this will feed into the GRM. -Details of complaints received will be incorporated into the audits as part of the monitoring process.</p> <p>Indicator Number of complaints received and registered</p>	Continuous/ Monthly	Contractor and UNOPS	
Operation and maintenance					

Training to facility staff on diesel generator system and OHS measures		<p>Methodology: Visual inspection photographic documentation on diesel fuel spilled, and training session on OHS measures</p> <p>Indicators: -Number of trainings received by facility workers. -Number of OHS injuries received during operations and maintenance -Number of oil spills</p>	Prior to handing the operation of the d generators	Contractor, UNOPS and TPM	
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Maintenance work	Provide measures related to OHS during construction and maintenance for relevant works.	Methodology: Follow same monitoring measures related to OHS during construction for relevant works. Indicators: -Number of maintenances performed -Number of times the diesel generator broke down/electricity cuts	Follow same frequency for related OHS during construction of relevant works.	Facility Administration	
All costs will be under the responsibility of each party including the contractor and will be included in the contract BoQ.					

Capacity Building

ESMP Budget

Annex 1: Design Requirements and Guidelines:

Design Requirements and Guidelines:

UNOPS will carry out the detailed design work for soundproof and low emission generator as per the following requirements:

- **Technical Assessment Report:** Preparation of the technical assessment report should be in consultation with stakeholders and should serve to identify user needs, requirements and quality expectations. Relevant codes, standards, and minimum requirements must be clearly identified, and all site surveys, structural integrity check, testing the existing network and wiring and collection of additional data as necessary, environmental and risk assessments should be considered in preparation of the technical assessment report. This report should include but not limited to the following information for the facility:

Site information based on site investigations and surveys, which should include:

As built schematic diagram for the main supply network and apply electrical isolation certificate to ensure all power sources are dis energized.

As built layout for the place where the soundproof generator is proposed to be installed, includes safe area, impermeable and solid grounding, ventilations, and extinguishers, etc.

Verification of the existing utilities and total connected load for each facility.

Generator Unit (Set):

Diesel Engine:

General

- The diesel engine shall be of the turbocharger, after cooled type with the following characteristics:
- The engine shall be of the vertical, four strokes, cold starting.
- The engine shall be capable of running satisfactorily with fuel oil and lubricating oil of grades and standards used in Aden Yemen. The engine speed regulation shall not exceed $\pm 10\%$ for the momentary and $\pm 6\%$ for the permanent change when the full load on the engine is suddenly thrown off or put on, respectively.
- Provision shall be made for varying the engine speed within 6% above or below the normal speed at all loads.

- The engine shall be provided with a control panel as mentioned hereafter.
 - **Engine Rating**
- The engine when running at 90% of its continuous rated output at site shall be capable of driving the alternator when delivering its full load output, i.e., the power of the engine shall be nearly 10% in excess of the power of the alternator.
 - **Supercharging**
- The supercharging of the diesel engine shall be achieved by means of charging blowers utilizing the energy of exhaust gases. An after cooler must be fitted in the air manifold for cooling air before entering the engine cylinders.
 - **Cylinders, Liners, and Cylinder Cover**
- The engine shall be multi-cylinder type provided with removable cylinder covers and renewable liners, furnished with water jacket of ample size, avoiding any pockets, which may cause accumulation of deposits from the cooling water.
 - **Duplex Fuel Oil Strainer and Filter**
- Fuel-flow strainers shall be provided ahead of the engine fuel pump. The fuel-flow filters shall be provided after the engine fuel pump. Strainers shall be of the metal edge or screen type as recommended by the engine manufacturer. The filter case shall have inlet and outlet connections plainly marked. The case shall be mounted in an accessible location, which will permit changing strainers and filter elements without disconnecting the piping or other engine-mounted equipment.
 - **Engine Fuel Pumps**
- Engine fuel pumps shall be of the positive-displacement, engine-driven type and capable of supplying the necessary quantity of fuel under all conditions of operation. Relief valves shall be provided to prevent equipment damage due to buildup of excessive pressures, which might result from restrictions in the discharge lines. In addition, a hand-operated fuel oil priming pump shall be provided.

- **Fuel Oil Drip**

- Nozzle drip lines, overflow etc., shall not drain on the floor. Proper means shall be provided for collecting these lines and return of excess fuel to the day tank automatically.

- **Fuel Oil Lines**

- Fuel oil lines shall be provided with solid connections between fuel piping and engine.

- **Lubricating System**

- The engine lubricating system shall operate and be maintained at a predetermined constant pressure by means of an engine-driven positive-displacement lubricating oil pump. Relief valves, a pressure gauge, and automatic safety feature, to sound an alarm and shut down the engine at a predetermined lubrication oil pressure by closing contact, shall be supplied. To maintain proper oil temperature, if deemed necessary, lubrication system shall be provided with water cooler.

- **Oil Cooler**

- One shell type or plate type cooler arranged to utilize engine-cooling water as the oil-cooling medium, shall be furnished with the engine. The capacity and construction of the unit shall be as recommended by the engine manufacturer. Suitable connections shall be furnished for connections between the engine, radiator, and oil cooler as required.

- **Lubrication Oil Strainers and Filters**

- Duplex full-flow filters shall be provided in the lubrication. Oil line. The filters shall be of the cartridge type.

- **Lubrication Oil Priming Pump**

- An electrically operated priming pump shall be provided for priming the engine lubricating system prior to starting. The pump shall be of suitable capacity. The pump shall be mounted on the engine and shall be factory completed. A manual pump shall also be provided as stand-by. Starting of engine without priming can be accepted if the engines' manufacturer recommends it.

- **Exhaust System**

- The exhaust system shall include a flexible section, condensate drain, muffler-silencer, weather cap and all necessary accessories.
- Exhaust piping shall be of the diameter recommended by the diesel manufacturer. The flexible exhaust connection shall be stainless steel. The exhaust silencer shall be of heavy duty, side inlet

and end outlet, designed for vertical installation. It shall be of size and design that will ensure durability, prevent back-pressure, and provide medium degree silencing. Flanged connections shall be provided at each end of the silencer. All companion flanges shall be furnished, installed, and securely attached to the housing. Exhaust system components shall be painted with high temperature aluminized paint. Each flanged joint shall be provided with 1/16" asbestos, full-face gaskets.

- **Air Intake System**

- The engine shall be equipped with heavy-duty oil bath or dry type air cleaner (S) of sufficient capacity to protect working parts of the engine from dirt or grit. The air-cleaner shall be equipped with a pre-cleaner and a restriction indication. A crankcase breather shall be included. In-line air inlet silencer shall be provided between the turbocharger and air inlet.

- **Speed Control Governor**

- The engine shall be equipped with a full hydraulic isochroous governor, which shall be mechanically driven by the engine, and which shall hold engine speed to within $\pm 5\%$ of any selected speed at any constant load from no-load to full load.
- The governor shall control speed smoothly but positively and shall be fitted with stabilizing or compensating device to preclude hunting or over travel. The governor shall prevent variation in speed of the sustained periodic type (Hunting) and shall limit variation in speed.

- **Flywheel**

- The flywheel shall be adequately protected by means of removable guards. An appropriate means shall be provided for barring.

- **Emissions standards**

- The engine shall meet Tier 4 final emission standards.

- **Alternator**

- **Design Data**

- The alternator shall be directly connected to the engine flywheel through a coupling designed and supplied in accordance with alternator manufacturer requirements.
- The alternator shall be of three phase, synchronous, drip proof, self-excited with built in exciter machine and voltage setting rheostat, provided with special windings for reduced harmonics and arranged for parallel operation with similar unit.

- Insulation shall be of tropical and moisture proof type, class (F).
- The alternator shall be of the following technical data:

Power	As mentioned in B.O.Q
Power factor	0.8 – 0.85
Efficiency	Minimum 92%
Voltage	400 V
Frequency	50 Hz
Speed does not exceed	1500 r.p.m
Voltage dip at starting not to exceed	15%
Overload rating	10% for two hours
Short circuit rating	300% of alternator capacity symmetrical for 10 seconds.
Temperature rises over ambient temperature.	65°C
Maximum harmonic content	1.10
Ambient temperature	50°C.

- **Exciter**

- The exciter shall be brush less and its armature shall be directly connected to the alternator shaft. It shall be of the alternator type and have a solid-state, hermetically sealed rectifiers mounted directly on its armature. The rectified exciter output shall be directly connected to the revolving alternator field windings without brushes, slip ring or commutators. The excitation system shall be equipped with a series of boots transformers or permanent magnet generator for field forcing capabilities.

- **Automatic Voltage Regulator**

- The AVR shall be of a solid state electronic. The AVR shall be manufactured such that it will maintain electrical properties, even under severe overload, under/over voltage, and under/over frequency conditions. Input correction range shall be -30% to +20% of nominal input voltage. The system design shall be capable of operating at an input frequency range of -15% to +10% of nominal, without clearing protective devices or causing component failure within the AVR. When generator or utility power is restored, the AVR shall automatically restart. Upon turn on or restart, the output of the AVR shall not exceed the specified output regulation limits.

- **Main Line Circuit Breaker, Control and Instrument Panel:**

- The main line circuit breaker shall be mounted and connected in a guarded drip-proof enclosure meeting IP 22 and IEC 144.
- For generating unit, a main line circuit breaker with shunt trip to protect generator set from accidental faults and to disconnect it from its load shall be supplied. (Shall be with min. rating Amps as specified at BOQs).
- The control and instrument panel shall be provided. This panel shall be mounted on to the alternator and shall be provided with vibration isolators of adequate size to protect the instruments and control from vibrations. The following minimum instruments and control shall be provided.

- **Engine Oil**

- Lubrication oil from engine.
- Engine water temperature, high-shut down of the engine.
- Engine, over speed and visual alarm.

- **Starting of the Generating Units**

- **Electric Starting System**

- The engine shall be equipped with a 12/24 VDC solenoid shift electric starter capable of withstanding four, 30 second consecutive cranking periods.
- The starting battery shall be lead acid maintenance free battery , especially designed for diesel engine cranking service and of a capacity as recommended by the battery manufacturer for cranking the engine being furnished, for the necessary break-away current as required and spinning current for four consecutive starts of thirty seconds of cranking on each start, or for 60 seconds of continuous cranking without being recharged and with the ambient temperature of both the engine and battery of 45°C. Steel battery rack shall be secured to the mounting skid and the battery shall be secured to this rack.
- A complete automatic battery charger shall be furnished for charging the lead acid battery being supplied. The charger shall be the static type, magnetic amplifier control with direct current voltmeter, direct current ammeter and potentiometer for voltage adjustment and shall have float and high charge rate, with a 0 to 24 hours high-rate charge timer. Charge rate shall be automatically determined by the state of the battery and reducing to milliamp. Current to fully charged battery. Charger shall be for 220 volts, single phase, and 50 Hz alternating current input, with an output of not less than 6 percent of the nominal ampere-hour rating of the battery. A time delay under voltage relay shall be provided within the charger for remote alarms. The charger shall be for the correct voltage for the battery. The charger shall be mounted inside the pump housing.
- Required battery cables shall be installed for connecting the battery to electric starter.

- **Cooling System**

- The engine shall be water-cooled of a closed type of system, with liquid to air radiator supplied with blower fan(s) to maintain desired operation conditions. The radiator unit shall be of the indoor or outdoor type designed for operating 10% continuous overload at 50°C ambient temperature.
- All connections to the engine and its mounted accessories shall be solid. The radiator shall have an engine driven fan of adequate size.
- The system shall not be susceptible to the formation of deposit of rust and scale within the engine and shall circulate the coolant through the engine at a regulated temperature and flow rate as recommended by the manufacturer.
- A jacket water temperature control valve shall be provided. It shall be of thermostatic type with 3-way body and flanged connections. The thermostatic element shall be designed to maintain the jacket water temperature within the requirements at stated by the engine manufacturer.
- The system shall also include a separate path of lubrication oil cooling.
- Similar approved type can be taken into consideration.
- Gen sets shall be equipped with a cooling system having sufficient capacity to effectively cool the engine when delivering full rated horsepower at the conditions stated above. A radiator and engine-driven fan of a type and capacity recommended by the engine manufacturer shall be included.
- The radiator shall be sized in accordance with the engine manufacturer's recommendation for use with 50 percent aqueous ethylene glycol. Air flow shall be controlled by a power inlet damper and a gravity discharge damper, Design ambient air temperature shall be 50 Degree Celsius at sea level.
- Generator sets shall have an engine-driven, gear driven centrifugal type water circulating pump for circulating water through the cooling system.

- **DG built in fuel tank**

- The DG built in fuel tank capacity should not be less than below:

DG built in fuel tank		
#	DG Capacity in KVA	Build-in Fuel Tank Capacity in liter
1	1000KVA	500-600

- **Canopy:**

- The generator set mounted in a sound attenuated and weather protective canopy, to reduce the noise level down to 84 dB(A) at a distance of one (01) meter.

- **Manual Transfer Switch (M.T.S)**

- The Manual transfer switch shall have an electrical rating on the normal power source side of 400 volts, not less than the specified value at BOQs, 50 Hz frequency, 4 poles, and on the alternator power source side of 400 volts, not less than the specified value at BOQs, 50 Hz frequency, 4 poles.
- **Earthing System:**
 - The Contractor shall Supply, installing, testing, and commission-earthing installation in accordance design of the system and all items shall be according to BS 7430, with the IEE Wiring regulations BS 7671. The system of PVC conduits and trunking, metallic sheaths of cables, cases and enclosures of switchgear and electrical apparatus shall be connect to the earth point, according to the current rules and regulations. The Contractor is reminded that the resistance of the earth conductor from the earth-electrode to any point in the earthing system shall not exceed one ohms as per ANSI IEEE Standard 80.
 - Codes of practice and highest prevailing engineering standards for the following main system component:
 - a. Extendible copper electrodes, (suggested length: 1.6~2.4 m),
 - b. Main earthing cable: copper bared as per BOQ and the length as required. And earthing cables for Gen. sets, hanger frame, fuel tank and any other equipment: insulated copper as per BOQ, Copper earthing bar, Earth pit with manhole cast iron cover plate complete as per standard, the cover of the manhole will be preferred clearly stamped with grounding sign.
 - c. Ground Enhancement Material (Bentonite/(Salt & Coal) 50kg.
 - d. Earthing bus bar shall be protected fixed inside sealed box.
- **Cables**
 - Cables shall be supplied by an approved manufacturer and where possible the same manufacturer shall be used for all cables and according to IEC 60228, IEC 61537, ISO, IEC 60227/IS 694, IEC 60502/151554 standards. In addition, the calculations of the current rating of the cables should be according to IEC 60287.
 - (i) Rating:
 - The Contractor shall ensure that each cable is adequately rate for its duty under normal and possible fault conditions.
 - The rated voltage of the cable shall not less than the operating voltage and when assessing the rating and cross section of each cable the following factors shall be considered:
 - a) Maximum voltage drops permissible.
 - b) Type and magnitude of load.
 - c) Fault level and duration related to circuit protection relays and fuse gear.
 - d) Over current setting of relays and circuit breakers.
 - e) Route length and disposition of cables.
 - f) Ambient temperature.
 - g) Method of laying.
 - (ii) Type :
 - Cables complying with VDE or approve equivalent standards will be accepted provided all cables, which are supplied for a specified operating voltage, are to the same national standard. Standards specified in the following clauses indicated the type of cables used in the design: if the contractor

wishes to use cables to alternative standard, then details of current carrying capacity, de-rating factors etc., shall be submitted to UNOPS Engineer for approval.

a) XLPE/SWA/PVC:

- Power cables specified as cross-linked polyethylene insulated steel wire armored and PVC sheathed are hereafter refer to as XLPE/SWA/PVC.
- All such cables shall be terminated with mechanical glands, which shall be of a type as to provide adequate mechanical support by positively locking on the armor and shall at the same time give a high level of earth continuity.

b) PVC/SWA/PVC:

- Power and control cables specified as PVC insulated and sheathed, galvanized single wire armored cable with an overall PVC sheath are hereinafter referred to as PVC/SWA/PVC.

c) MICC/PVC:

- Certain control and miscellaneous circuits shall be carried out in mineral insulated copper clad cable with an overall extruded PVC sheath, hereinafter referred to as MICC/PVC cable.
- For the purposes of core phase identification colored PVC core sleeves or colored PVC extension sleeves shall be use. Core sleeves and extension sleeves to be use on the core sizes for which they are intend.

- **Fire extinguishers**

- Powder extinguisher, according to BS EN 3 Parts 7 to 9 and SS EN3 & UL listed.
- Wheeled Foam Extinguisher, Approved to EN1866, High Quality 3% Foam, Long throw foam nozzle with grip control, one-person operation, and movement with Refillable stored pressure unit. Working Pressure to be not less than 12 Bar, Test Pressure not less than 22 Bar, Temperature Range (-5/+60), 2 Year Warranty and testing check list of the Extinguishers to be provided.

- **System Accessories**

- **Cable Tray**

- Perforated type Galvanized steel cable trays, cable tray covers, clamping bolts and other cable tray accessories such as coupler plates, bends, tees, reducers, vertical elbows in manufactured accordance with ASTM A653 SS, Grade 33, coating designation G90.
- Hot-dip Galvanized Steel: Straight section and fitting side rails and rungs shall be made from steel meeting the minimum mechanical properties of ASTM A1011 SS, Grade 33 for 14 gauge and heavier, ASTM A1008, Grade 33, Type 2 for 16 gauge and lighter, and shall be hot-dip galvanized after fabrication in accordance with ASTM A123.
- Perforated cable trays must conform to IEC 61537 and EN ISO 1461 standard.

- **DG Room**

The unit rate shall include all required material types, fabrication, welding, painting, erection, and workmanship, sand-bags, lighting with its wiring and switches, and any others required to complete the work as per drawing, specification, and engineers' instructions.

- **Recommended Spare Parts for the Warranty Period**

- Recommended Spare Parts for the Warranty period and continuous operating for one year by separate list.

- **Recommended Maintenance Spare Parts for the Whole Maintenance Period**

- Recommended maintenance spare parts complete set one time during the whole maintenance period by separate list (include piston rings, main bearing, rod bearing, valve rotators and crankshaft seals turbocharger oil pump water pump and all other important parts).

-

- **Tools**

- Recommended tools set of system tools by separate list.

- **Applicable standards**

IEC 60364-1, IEC 60364-4-41, IEC 502, IEC 811, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG.

- **Inspection and Testing**

- **Inspection**

The generating set shall be subject to inspection by the owner, or owner's appointed representative.

Approval by any of the above inspectors shall not relieve the manufacturer of his commitments under the terms of the purchase order and this specification.

Purchaser shall be given fifteen (15) days' notice before shipment to arrange for formal inspection.

- **Testing**

The generating set shall be subject to witness tests in accordance with the current Standards referenced herein and manufacturer's standards carried out at the manufacturer's works.

The owner or its appointed representative at the Vendor's works shall witness these tests, either during site installation or during erection. The vendor shall give the owner a' notice before the start of any test. The tests shall include the following:

Full functional testing to ensure proper operation of all components.

Full load heat run for a period of 1-hour test to determine temperature rise, and to demonstrate engine and generator performance. Heating effects based on maximum design ambient shall be simulated to confirm the adequacy of the cooling system. Engine generator controls shall be use during testing. The heat run test shall be carried out in accordance with the following:

- **Test Program**

- Generator control tests to demonstrate all generator trips, alarms, and changeovers from duty to standby equipment.
 - Rejection of full load current at the design power factor. Voltage, frequency, and load current should be record on chart recorders.
 - Trip of main auxiliaries from generator fully loaded condition to demonstrate ability of emergency run down equipment.
 - One hour running at 110% load Cool down
 - oil temperature test and emergency test
 - After acceptance, the engine water-cooling system shall be drain prior to packing for shipment.
 - The test certificates shall be approved by the owner before the machines are dispatch from the manufacturer's works.
- **Materials and Equipment**
- Materials and equipment to be supply shall be as per standards, and the manufacturer also well-known and equipment is commonly used.
- **Safety Protection for Personnel**
- Belts, pulleys, chains, flywheels, couplings, projecting set screws, shaft keys, and other rotating parts, so located that any person can come in close proximity thereto, shall be fully enclosed or otherwise properly guarded. Engine local control panels shall be "dead format" and shall have suitable barriers or screens, wherever necessary, to protect personnel from contacting live electrical.
 - Parts during normal routine use. Removable panels that, when removed will expose live electrical parts, shall have warning declare thereto.
 -
- **General Requirements**
- The diesel engine shall be directly couple to the alternator. The diesel engine, alternator, lubrication Oil filters, fuel oil filters, lubrication Oil strainers, fuel oil strainers, and lubrication Oil coolers and other accessories deemed necessary by the manufacturer shall be mounted on a common steel fabricated base plate of sufficient strength to adequately support all equipment mounted on it, without distortion, either during operation or shipment.
 - The steel base plate shall be support on steel springs, working as vibration isolators specifically designed for the weights involved. The isolators shall be furnished as a part of the equipment. All pipes' connections between the engine and accessories such as air intake and exhaust: shall be flexible connections. These flexible shall be furnished as a part of the equipment. Owing to elastic suspension, the set should always have the possibility to move freely surrounding structures.

- The diesel engine exhaust pipe shall be complete with silencer to eliminate noise and flexible joints to eliminate transport of vibration.

- **Submittals**

Submittals for approval shall be include but not be limited following:

- Component List - A breakdown of all components and options.
- Technical Data - Manufacturer produced generator set specification or data sheet identifying make and model of engine and generator and including relevant component design and performance data.
- Auxiliary Equipment - Specification or data sheets, including, transfer switch, battery charger, jacket water heater, main circuit breaker etc.
- Drawings - General dimensions drawings showing overall generator set measurements, mounting location, and interconnect points for load leads, fuel, exhaust, cooling and drain lines.
- Warranty Statements - Warranty verification published by the manufacturer.
- Service - Location and description of supplier's parts and service facility including parts inventory and number of qualified generators set service personnel.

- **Warranty**

The manufacturer shall have a local authorized dealer who can provide factory-trained service members, the required stock of replacement parts, technical assistance, and warranty administration. One year factory warranty shall be provided.

- **Technical support**

- **Training**

1. The supplier shall detail their capacity for delivering training courses in installation, commissioning, operation, and maintenance of al equipment across their local service centers and/or requested locations. (The provision of these training courses is not to be included in this offer).
2. The supplier shall also outline the content, and various levels, of their training courses.

- **Guarantee**

The Supplier shall state and guarantee of following:

- Fuel usage rates at 110%, 100%. 75% and 50% prime rated output (g/kWe) and corrected values as noted.
- Maximum net output (kWe) of each diesel generator
- Prime net output (kWe) of each diesel generator .

- **Manuals, Catalogues and Electrical Drawings**

Manuals, catalogues and drawings and any other documentation supplied shall be available in English, the following manuals and catalogues shall be supplied with each generating set:

- Engine and alternator Manuals.
- Generating set operation Manual.
- Control installation and operation manual
- Maintenance Manual.
- Troubleshooting Manual.
- Workshop and Spare Parts Manuals and catalogues. g) Electric diagram.

In particular, the appended manuals should contain the following information:

- **Operating Instructions:**

The Instruction Manual shall include detailed Operating Instructions and, as a minimum, should cover starting, stopping, protection of circuits, automatic controls, battery charging, safety considerations, method of adjustment of speed, output voltage, control timers, etc.

Performance parameters of the generator set shall be detailed for the operator's guidance and as a minimum should cover output voltage, frequency, load, engine temperature and oil pressure nominal values and acceptable limits. Circuit drawings with component identifications shall be included for reference purposes.

- **Maintenance Recommendations:**

The supplier shall provide complete maintenance procedures for all the equipment supplied. Schedules for maintenance to be effected on a daily, weekly, monthly, etc. or on hourly run basis should be included.

Guidelines for the selection of fuel oil, lubricating oil, use of water treatment additives and anti-freeze if applicable.

- **Troubleshooting:**

Troubleshooting procedures shall be available to enable the timely diagnosis of a defect considered likely to occur in service. Reference outputs and conditions shall be quoted to facilitate diagnosis.

Note: It is mandatory that one set of above manuals, catalogues, and electrical drawing/diagram for each category of the offered generating sets is supplied with the bid (electronic versions). Bids shall not be acceptable unless the offer includes these items.

1.1 Nature and Scope of Activities

Due to the conflict in Yemen, which resulted in lack of power supply from the national grid and the heavy use of mobile diesel generators by service facilities including health facility to secure power supply, it becomes difficult for targeted health facility to secure needed spare parts and provide continuous maintenance service to their diesel generators. Consequently, targeted health facility has ended up with broken and old generators that are unreliable and fuel inefficient with extreme noise level. Targeted health facilities need to replace their broken and old generator with new generators that are fuel efficient and soundproofed.

1.2 *Scope of Work*

The general scope of work includes supply, install, test, and commission new soundproof (Canopy Prime) Power Diesel Generator for 22 May Hospital, including construction of generator room, electrical reticulation/ cabling and manual transfer switch panel between the new diesel generator and existing public network include all devices and equipment specified herein or required for the service and as per the BOQs for the following hospital in Aden City:

Lot NO	Location	Capacity KVA	Qty.
1	22 May Hospital in Aden City	1000KVA	1

The scope of the work will include any other works as well required to ensure a well-functioning Diesel Generator but not explicitly mentioned shall be the responsibility of the bidder:

1. Supply of adequately rated cables, lugs, connectors, screws, nut bolts etc. required for retrofitting and other accessories, which are necessary for satisfactory operation of the DG though not individually or specifically mentioned herein.
2. All Civil and electromechanical works required for correct mounting and installation of DG, taking in consideration the existing generator is place on paved ground and concrete blocks.
3. The unit shall be automatically and manually start and stop. The power supply system shall be complete in all respect for supply, installation and should be deliver ready for operation, complete with necessary fuel, coolant, and lubricant to run the unit for 72 hours.
4. Any other works and supply, which could not be specified above but are necessary to complete.

The old DG shall be stored in a safe and well-ventilated place equipped with fire extinguishers within the same location of the facility vicinity.

Final Completion

- The contractor shall complete any required document or list, clean up the construction site and remove any temporary structures, equipment or services, and construction debris;
- Copies of all final approvals and certifications shall be provided to UNOPS.

- The contractor shall provide three (3) hard copy sets and one soft copy of the final Project as-built documentation.

Annex 2: GM Complaint and Suggestion Form

Yemen Integrated Urban Services
Emergency Project
YIUSEP II AF
Sample of GM
Complaint and Suggestion Form

ستمارة توثيق ومتابعة شكاوى المستفيدين
من المشروع الطارئ للخدمات الحضرية
المتكاملة – المرحلة الثانية

المشروع الطارئ للخدمات الحضرية المتكاملة
المرحلة الثانية – التمويل الإضافي
نموذج لألية التظلمات والشكاوى

"Documenting and Monitoring Complaints Form of

Beneficiaries of Yemen Integrated Urban Services Emergency Project YIUSEP II AF"

	الاسم الثلاثي للمستفيد: Beneficiary Name
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رقم البطاقة الشخصية: ID No.		رقم الهاتف للمتابعة Number for follow up	
العنوان الدائم: Permanent Address			
اسم النشاط المنفذ (مركز/وحدة) Name of Activity under implementation			
مكان تنفيذ النشاط: Place of activity under implementation	القرية: Village	المديرية: District	المحافظة: Governorate

نوع الشكوى Complaint Type	إدارية Administrative	فنية Technical	مالية Financial	أخرى Other

موضوع الشكوى:

Complaint Subject

الوضع الحالي: Current Situation			
أسباب المشكلة: Reason of the problem			
التاريخ: Date	توقيع صاحب الشكوى: Complainant Signature		

UNOPS – Tool Free No 8000190 Tel: 01 504914/915 - SMS: 739888388 Email: ...: الجهة التي يجب أن يقدم لها الشكوى:

.....GRM.yemen@unops.org

The entity, which the complaint should be forwarded to:

.....-الرأي في جدية الشكوى:

Opinion on the seriousness of the complaint

.....-الجهة المحول لها الشكوى:

The complaint transferred to

.....- المدة الزمنية اللازمة للبت في الشكوى:

Time required for response

.....-مدى رضى المستفيد عن الاستجابة لحل شكواه:

Satisfaction of beneficiary in responding to his/her complaint

الإجراءات المتخذة: Action taken			
ما ترتب عليها من نتائج: The results of the action taken	التاريخ: Date		

.....اسم مستلم الشكوى ووظيفته:

Name of person received the complaint and his/her position

...../ التاريخ Date :

...../ توقيع الموظف المختص Signature :

Annex 3: Environmental and Social Requirements for Contractors

These requirements for contractors are generic and clauses applied as relevant to each sub-project.

Contractors shall meet the following Environmental, Health, Safety and Social (including labor) requirements – thereafter called ESHS requirements³.

The ESHS requirements include 10 sections

1. Contractor Environmental and Social Management Plan (C-ESMP)
2. ESHS Training
3. Construction Site Management

³ The ESHS requirements build on the General EHS Guidelines of the World Bank Group, but also consider other World Bank guidelines, and good practice notes

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. Code of Conduct
10. Contractor Environmental and Social Reporting

Contractor Environmental and Social Management Plan (C-ESMP)

Prepare and submit to UNOPS for approval a Contractor Environmental and Social and Social Management Plan (C-ESMP).

Include in the C-ESMP a detailed explanation of how the contractor's performance will meet the ESHS requirements.

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.

Get prior written approval from UNOPS Engineers before starting construction or rehabilitation activities.

ESHS Training

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 aspect of work assignment) that specifies which tasks can be undertaken by which key personnel.

Orientation Training

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.

Visitor Orientation

Establish an orientation program for visitors, including vendors that could access areas where hazardous conditions or substances may be present.

Visitors shall not enter hazard areas unescorted.

Ensure that visitors shall always be accompanied by an authorized member of the contractor, or a representative of UNOPS or of its implementing partners, who has successfully fulfilled the ESHS orientation training, and who is familiar with the project site construction hazards, layout, and restricted working areas.

New Task Employee and Contractor Training

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.

Construction Site Management

Vegetation

Prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the construction site.

Protect all trees and vegetation from damage by construction operations and equipment, except where clearing is required for permanent works, approved construction roads, or excavation operations.

Revegetate damaged areas on completion of the Works, and for areas that cannot be re vegetated, scarifying the work area to a condition that will facilitate natural re vegetation, provide for proper drainage, and prevent erosion.

Use, as much as possible, local species for replanting and species that are not listed as a noxious weed or invasive species.

Repair, replant, reseed or otherwise correct, as directed by UNOPS or its representative, and at the Contractor's own expense, all unnecessary destruction, scarring, damage, or defacing of the landscape resulting from the Contractors operations.

Transport labor and equipment in a manner to avoid as much as possible damage to grazing land, crops, and property.

Protection of the Existing Installations

Safeguard all existing buildings, structures, works, pipes, cables, sewers, or other services or installations from harm, disturbance, or deterioration during construction 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 to the construction activities, and more generally to the public.

Maintain safe access to public and private properties that might be affected by construction activities. If necessary, provide acceptable alternative means of passage or access to the satisfaction of the persons affected.

Avoid working during night hours.

Waste from Construction Activities

Collect and properly store and manage all solid wastes and hazardous wastes resulting from the construction activities, including construction debris and spoils, to prevent the contamination of soil and groundwater. Hazardous E-waste should be managed, stored, and disposed according to widely accepted guidelines. In case chemicals are present they should be stored and disposed according to their Material Safety Data Sheets (MSDSs)

Remove unneeded excavation material from construction sites as soon as possible.

Agree with relevant municipalities about solid waste disposal during construction.

Carefully select waste disposal sites, to be approved by UNOPS or its implementing partner.

Minimize littering of roads by ensuring that vehicles are licensed and loaded in such a manner as to prevent falling off or spilling of construction materials, and by sheeting the sides and tops of all vehicles carrying mud, sand, other materials, or debris.

Transfer construction waste to assigned places in the selected waste disposal sites with documented confirmation.

Properly dispose of solid waste and hazardous wastes 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.

Air Quality

The Contractor shall:

Use dust control methods, such as covers, water suppression, or increased moisture content for open materials storage piles, or controls, including air extraction and treatment through a bag house or cyclone for material handling sources, such as conveyors and bins.

Use water suppression for control of loose materials on paved or unpaved road surfaces. Oil and oil by-products is not a recommended method to control road dust.

Use wheel washes at quarries, ready-mix plants, construction sites, and other facilities to prevent track-out of mud, dust, and dirt on to public road.

Regularly clean road surfaces within the construction sites to remove accumulated fine material, and regularly clean transportation vehicles.

Cover open bodied trucks handling sand, gravel, or earth.

Minimize smoke from diesel engines by regular and proper maintenance, in particular by ensuring that the engine, injection system and air cleaners are in good condition.

Hazardous and Toxic Materials

The Contractor shall take precautions relative to the conditions specified herein.

Train workers regarding the handling of hazardous materials.

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.

Provide adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids.

Use impervious surfaces for refueling areas and other fluid transfer areas.

Train workers on the correct transfer and handling of fuels and chemicals and the response to spills.

Provide portable spill containment and cleanup equipment on site and training in the equipment deployment.

Deposit or discharge toxic liquids, chemicals, fuels, lubricants, and bitumen into containers for salvage or subsequent removal to off-site locations.

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.

Locate landfill pits for the disposal of solid waste at least 100 m from water courses and fencing them off from local populations.

Ensure adequate primary treatment of sanitation effluents and installing septic tanks away from village watering points.

Area Signage

Appropriately mark hazardous areas.

Install warning signs

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 construction sites

Safeguard public safety by covering holes and by installing guardrails along temporary pathways.

Health and Safety

Severe Weather and Facility Shutdown

Design and build workplace 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 shutdown, including an evacuation plan.

Lavatories and Showers

Provide adequate lavatory facilities (toilets and washing areas) for the number of people expected to work at the construction 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.

Where workers may be exposed to substances poisonous by ingestion and skin contamination may occur, provide facilities for showering and changing into and out of street and work clothes.

Potable Water Supply

Provide adequate supplies of potable drinking water from a fountain with an upward jet or with a sanitary means of collecting the water for the purposes of drinking
Ensure that water supplied to areas of food preparation or for the purpose of personal hygiene (washing or bathing) meets drinking water quality standards

Clean Eating Area

Where there is potential for exposure to substances poisonous by ingestion, make suitable arrangements to provide clean eating areas where workers are not exposed to the hazardous or noxious substances.

Personal Protective Equipment (PPE)

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.

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 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

Institute appropriate measures to reduce the exposure of workers to construction 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).

Enforced 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 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 construction equipment, such as mufflers.

Use silenced air compressors and power generators

Keep all machinery in good conditions.

Install exhaust silencing equipment on bulldozers, compactors, crane, dump trucks, excavators, graders, loaders, scrapers, and shovels.

Post signs in all areas 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.

First Aid and Accidents

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, and 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

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 construction sites staff (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 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, Lassa fever, Cholera and Ebola. The training should cover sanitary hygiene education.

Prevent illness in immediate local communities by:

Implementing an information strategy to reinforce person-to-person counseling addressing systemic factors that can influence individual behavior as well as promoting individual protection and protecting others from infection.

Training by health workers in disease treatment.

Conducting immunization programs for workers in local communities to improve health and guard against infection.
Providing health services.

COVID-19⁴

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 measures shall include:

Assessing the characteristics of the workforce, including those with underlying health issues or who may be otherwise at risk.

Confirming that workers are fit for work, including temperature testing, and refusing entry to sick workers.

Considering ways to minimize entry/exit to site or the workplace, and limiting contact between workers and the community/general public

Training workers on hygiene and other preventative measures and implementing a communication strategy for regular updates on COVID-19 related issues and the status of affected workers.

Treating workers who are or should be self-isolating and/or are displaying symptoms

Assessing risks to continuity of supplies of medicine, water, fuel, food, and PPE, considering international, national, and local supply chains

Reducing, storing, and disposing of medical waste

Adjusting work practices, to reduce the number of workers and increase social distancing

Expanding health facilities on-site compared to usual levels, developing relationships with local health care facilities and organize for the treatment of sick workers

Building worker accommodations further apart, or having one worker accommodation in a more isolated area, which may be easily converted to quarantine and treatment facilities, if needed

Establishing a procedure to follow if a worker becomes sick (following WHO guidelines)

Implementing 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 of 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

⁴ Based on the World Bank COVID-19 LMP Template, April 16, 2020

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 require licensing of drivers.
- Institute defensive driving training for all drivers prior to starting their job.
- Adopt limits for trip duration and arranging driver rosters to avoid overtiredness.
- Avoid dangerous routes and times of day to reduce the risk of accidents.
- Use speed control devices (governors) on trucks, and remote monitoring of driver actions.
- 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:

- Commence activities that affect public motorways and highways, only after all traffic safety measures necessitated by the activities are fully operational.
- Arrange diversions for providing alternative routes for transport and/or pedestrians.
- Minimize pedestrian interaction with construction vehicles, particularly at crossing points to schools, markets, and any animal crossing points of significance, through appropriate signage, engineered footpaths or traffic slowing devices.
- Organize meaningful road accident awareness events at all roadside schools and communities within 150 meters of the road centerline, covering safe road crossing, road accident hazards from weather conditions and vehicle roadworthiness, overloading and driver alertness, dangers posed by parked and broken-down vehicles, etc.
- Collaborate with local communities and responsible authorities to improve signage, visibility and overall safety of roads, particularly along stretches located near schools or other locations where children may be present.
- Collaborate with local communities on education about traffic and pedestrian safety (e.g. school education campaigns).
- Coordinate with emergency responders to ensure that appropriate first aid is provided to all affected persons in the event of accidents.

Use locally sourced materials, whenever possible, to minimize transport distances, and locate associated facilities such as worker camps close to project sites.

Employ safe traffic control measures, including road signs, traffic cones, removable barriers, and flag persons to warn of dangerous conditions.

Emergencies

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.

- 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.

Stakeholder Engagement

The Project Company will be required to 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 Project Company 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.

Labor Force Management

Labor Conditions

Implement the measures and commitments defined in the Labor Management Procedures.

A copy of the LMP can be found in the Project ESMF

Provide all workers with terms and conditions that comply with Yemeni Labor Legislation, most particularly Decree 5/1995) and applicable International Labor Organization conventions on workplace conditions.

Insurance

Provide insurance for call employees involved in onsite activities, as indicated by Yemen's Labor Law

Compensate any employee for death or injury, except to the extent that liability arises from the

Grievance Mechanism for Workers

The Contractor shall put in place a Grievance Mechanism for workers and the workers of its subcontractors that is proportionate to its workforce. The GM shall be distinct from the Project level Grievance Mechanism 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 confidentiality. 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 Sexual Exploitation and Abuse

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.

Protection from Child Labor

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.

Code of Conduct

Contractors 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 for [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 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:

- carry out his/her duties competently and diligently.

- 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.

- maintain a safe working environment including by:

 - ensuring that workplaces, machinery, equipment, and processes under each person's control are safe and without risk to health.

 - wearing required personal protective equipment.

using appropriate measures relating to chemical, physical and biological substances, and agents; and

following applicable emergency operating procedures.

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.

treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers, or children.

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.

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.

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.

not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage.

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).

report violations of this Code of Conduct; and

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 [Project Grievance [Redress] 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 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 subcontractors and day workers), Project Company's and Project Manager's Personnel, and affected persons.]

Contractor Environmental and Social Reporting

Contractors 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 works: 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.

ESHS inspections and audits: by Project Company, Independent Engineer, UNOPS and its implementing partners, 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 construction—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 Project Company 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.

Annex 4 Consultation Questionnaires (Samples)

استبيان حول تزويد المستشفيات بمولد ديزل

الفرض

مرحباً ، اسمي [] وقد تم اختيار هذا المرفق لتزويده بمولد يعمل بالديزل . ينبغي أن يعالج تشغيل المولد احتياجات كهربية المرفق وتحسين تقديم الخدمات . كجزء من هذه العملية ، نود أن تطرح عليك بعض الأسئلة :

	٢٠١٩/١١/٢٠	تاريخ المقابلة:
	سهر محمد خالد	اسم الباحث/الباحث
	مستشفى ٢٢ هابو	اسم المنشأة:
(اختياري)	فيروز النخيل	اسم (أسماء) الشخص الذي تتم مقابلته
	أنثى	نوع المستفيد / المستفيد
	ضع دائرة حول واحدة مما يلي : أقل من (١٥) ، (١٥ - ٢٥) ، (٢٥ - ٤٥) ، (٤٥ - ٦٥)	الفئة العمرية
	لا نعم إذا نعم ، إلى أي درجة تعاني المستشفى من النقص في الكهرباء؟ كبير	1
نفس	<p>في رأيك ، ما هي أكبر عقبة يواجهها المستشفى نتيجة للنقص في الكهرباء؟</p> <ul style="list-style-type: none"> • عدم توفير الخدمات الآمنة صحياً نتيجة التعقيم المستمر للأدوات الطبية . • صعوبة تحسين الجودة وتقديم خدمات صحية . • صعوبة استقبال المرضى في مختلف الأوقات . • صعوبة تبريد لقاحات الأطفال . • صعوبة الاستمرار في العمل للطواقم الطبي • عدم توفير الأمان في المستشفى خاصة في الليل . • الكلفة المادية لتوفير الديزل والزيوت للمولدات . <p>ملاحظات أخرى :</p>	2
نفس	<p>في رأيك ، ما هي أكبر عقبة في استخدام المولد</p> <ul style="list-style-type: none"> • تلوث البيئة نتيجة انبعاث الدخان الناتج عن الاحتراق . • بسبب إزعاج وضوضاء نتيجة صوته المرتفع . • يمكن ان يتسبب في أضرار في حال اقتراب الأطفال منه . • صعوبة في التشغيل والصيانة . <p>ملاحظات أخرى :</p>	3
نفس	<p>في رأيك هل سيساهم المولد في تحسين عمل الحضانات / التعقيم / غرف العمليات .</p>	4
	ملاحظات أخرى : بحاجة كبيرة لها	5

استبيان حول تزويد المستشفيات بمولد ديزل

الغرض

مرحباً ، اسمي [] . وقد تم اختيار هذا المرفق لتزويده بمولد يعمل بالديزل . ينبغي أن يعالج تشغيل المولد احتياجات كهربية المرفق وتحسين تقديم الخدمات . كجزء من هذه العملية ، نود أن نطرح عليك بعض الأسئلة :

		٢٠١١/١٢/٢٠	تاريخ المقابلة:
		م. محمد خالد	اسم الباحث/الباحث
		مستشفى ٢٢ مايو	اسم المنشأة:
(اختياري)		رشاء عبده القادر	اسم (أسماء) الشخص الذي تتم مقابلاته
		أنثى	نوع المستفيد / المستفدين
		ضع دائرة حول واحدة مما يلي : أقل من (١٥) ، (١٥ - ٢٥) ، (٢٥ - ٤٥) ، (٤٥ - ٦٥)	الفئة العمرية
		هل تعاني المنشأة من النقص في الكهرباء؟ <u>نعم</u> لا إذا نعم ، إلى أي درجة . تعاني المستشفى من النقص في الكهرباء؟ <u>كبيرة</u>	1
	نعم نعم نعم نعم نعم	في رأيك ، ما هي أكبر عقبة يواجهها المستشفى نتيجة للنقص في الكهرباء؟ <ul style="list-style-type: none"> • عدم توفير الخدمات الآمنة صحياً نتيجة التعقيم المستمر للأدوات الطبية . • صعوبة تحسين الجودة وتقديم خدمات صحية . • صعوبة استقبال المرضى في مختلف الأوقات . • صعوبة توريد لقاحات الأطفال . • صعوبة الاستمرار في العمل للطواقم الطبي • عدم توفير الأمان في المستشفى خاصة في الليل . • الكلفة المادية لتوفير الديزل والزيوت للمولدات . ملاحظات أخرى :	2
	نعم نعم نعم نعم	في رأيك ، ما هي أكبر عقبة في استخدام المولد <ul style="list-style-type: none"> • تلوث البيئة نتيجة انبعاث الدخان الناتج عن الاحتراق . • بسبب إزعاج وضوضاء نتيجة صوته المرتفع . • يمكن أن يتسبب في أضرار في حال اقتراب الأطفال منه . • صعوبة في التشغيل والصيانة . ملاحظات أخرى :	3
	نعم	في رأيك هل سيساهم المولد في تحسين عمل الحضانات / التعقيم / غرف العمليات .	4
		ملاحظات أخرى : المستشفى بحاجة مأسا	5

استبيان حول تزويد المستشفيات بمولد ديزل

الغرض

مرحباً ، اسمي [] وقد تم اختيار هذا المرفق لتزويده بمولد يعمل بالديزل . ينبغي أن يعالج تشغيل المولد احتياجات كهربية المرفق وتحسين تقديم الخدمات . كجزء من هذه العملية ، نود أن نطرح عليك بعض الأسئلة :

	٢٠٢٢/١١/٢٠	تاريخ المقابلة:
	اسم محمد خالد	اسم الباحث/الباحث
	مستشفى ٢٢ مايو	اسم المنشأة:
(اختياري)	ناصر أحمد عبد الله هرهرة	اسم (أسماء) الشخص الذي تتم مقابلته
	أنثى ذكر	نوع المستفيد / المستفيدين
	ضع دائرة حول واحدة مما يلي : أقل من (١٥) ، (١٥ - ٢٥) ، (٢٥ - ٢٦) ، (٢٦ - ٤٥) ، (٤٥ - ٦٥)	الفئة العمرية
1	هل تعاني المنشأة من النقص في الكهرباء؟ <u>نعم</u> لا <u>كبير</u> إذا نعم ، إلى أي درجة تعاني المستشفى من النقص في الكهرباء؟	
2	<p>في رأيك ، ما هي أكبر عقبة يواجهها المستشفى نتيجة للنقص في الكهرباء؟</p> <ul style="list-style-type: none"> • عدم توفير الخدمات الآمنة صحياً نتيجة التعقيم المستمر للأدوات الطبية . • صعوبة تحسين الجودة وتقديم خدمات صحية . • صعوبة استقبال المرضى في مختلف الأوقات . • صعوبة تبريد لقاحات الأطفال . • صعوبة الاستمرار في العمل للطواقم الطبي • عدم توفير الأمان في المستشفى خاصة في الليل . • الكلفة المادية لتوفير الديزل والزيوت للمولدات . <p>ملاحظات أخرى :</p>	
3	<p>في رأيك ، ما هي أكبر عقبة في استخدام المولد</p> <ul style="list-style-type: none"> • يلوث البيئة نتيجة انبعاث الدخان الناتج عن الاحتراق . • يسبب إزعاج وضوضاء نتيجة صوته المرتفع . • يمكن أن يتسبب في أضرار في حال اقتراب الأطفال منه . • صعوبة في التشغيل والصيانة . <p>ملاحظات أخرى :</p>	
4	في رأيك هل يساهم المولد في تحسين عمل الحضانات / التعقيم / غرف العمليات .	
5	<p>ملاحظات أخرى :</p> <p style="text-align: center;">بإحترام</p>	

استبيان حول تزويد المستشفيات بمولد ديزل

الغرض

مرحباً ، اسمي [] وقد تم اختيار هذا المرفق لتزويده بمولد يعمل بالديزل . ينبغي أن يعالج تشغيل المولد احتياجات كهربية المرفق وتحسين تقديم الخدمات. كجزء من هذه العملية ، نود أن نطرح عليك بعض الأسئلة :

	٢٠١٠/١٠/٢٠	تاريخ المقابلة:
	سمر محمد خالد	اسم الباحث/الباحثة
	مستشفى ٢٢ مايو	اسم المنشأة:
(اختياري)	سعيد صالح	اسم (أسماء) الشخص الذي تتم مقابلته
	ذكر أنثى	نوع المستفيد / المستفيدين
	ضع دائرة حول واحدة مما يلي : أقل من (١٥) ، (١٥ - ٢٥) ، (٢٥ - ٤٥) ، (٤٥ - ٦٥)	الفئة العمرية
1	هل تعاني المنشأة من النقص في الكهرباء؟ <u>نعم</u> لا <u>كبير</u> إذا نعم ، إلى أي درجة تعاني المستشفى من النقص في الكهرباء؟	
2	في رأيك ، ما هي أكبر عقبة يواجهها المستشفى نتيجة للنقص في الكهرباء؟ <ul style="list-style-type: none"> • عدم توفير الخدمات الآمنة صحياً نتيجة التعقيم المستمر للأدوات الطبية . • صعوبة تحسين الجودة وتقديم خدمات صحية . • صعوبة استقبال المرضى في مختلف الأوقات . • صعوبة تبريد لقاحات الأطفال . • صعوبة الاستمرار في العمل للطواقم الطبي • عدم توفير الأمان في المستشفى خاصة في الليل . • الكلفة المادية لتوفير الديزل والزيوت للمولدات . ملاحظات أخرى :	ملاحظة: لا يمكن إجراء المقابلة في المستشفى
3	في رأيك ، ما هي أكبر عقبة في استخدام المولد <ul style="list-style-type: none"> • يلوث البيئة نتيجة انبعاث الدخان الناتج عن الاحتراق . • يسبب إزعاج وضوضاء نتيجة صوته المرتفع . • يمكن أن يتسبب في أضرار في حال اقتراب الأطفال منه . • صعوبة في التشغيل والصيانة . ملاحظات أخرى:	ملاحظة: لا يمكن إجراء المقابلة في المستشفى
4	في رأيك هل سيساهم المولد في تحسين عمل الحضانات / التعقيم / غرف العمليات .	نعم
5	ملاحظات أخرى : كما ملاحظ	

