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INTEGRATED URBAN SERVICES EMERGENCY PROJECT II

Additional Financing

**(YIUSEP II AF)**

Environmental and Social Management Plan

(ESMP)

COMPONENT 1

SERVICE RESTORATION

SUB-COMPONENT 1.2

Urban Water and Sanitation

Supply, Installation and Construction of a Water Distribution Network and Elevated Tank for Al-Nahdeen Area

9 May, 2024

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**Abbreviations**

|  |  |
| --- | --- |
| ATS | Automatic Transfer Switch |
| C-ESMP | Contractor Environmental and Social Management Plan |
| Coc | Code of Conduct |
| CSO | Civil Society Organization |
| CT | Current Transformer |
| DC | Duration Curve |
| EHS | Environmental, Health and Safety |
| ESF | Environmental and Social Framework of the World Bank |
| ESHS | Environment, Social (including labor), Health, and Safety |
| ESIA | Environmental and Social Impact Assessment |
| ESMF | Environmental and Social Management Framework ‎ |
| ESMP | Environmental and Social Management Plan |
| ESS | Environmental and Social Standard |
| GBV | Gender Based Violence |
| GM | Grievance Mechanism |
| HQ | Head Quarter |
| HSSE | Health, Safety, Social and Environment |
| IDA | International Development Association |
| IDP | Internally Displaced Person |
| Km | Kilometer |
| kW | Kilowatt |
| LC | Local Corporation |
| LMP | Labor Management Procedures |
| MoWE | Ministry of Water and Environment |
| OHS | Occupational Health and Safety |
| PMU | Project Management Unit |
| PPE | Protective Personal Equipment |
| RF | Resettlement Framework |
| SWSLC | Sana’a Water and Sanitation Local Corporations |
| SCMCHA | Supreme Council For Management and Coordination of Humanitarian Affairs |
| SEA | Sexual Exploitation and Abuse |
| SEP | Stakeholder Engagement Plan |
| SH | Sexual Harassment |
| SMP | Security Management Plan |
| TPM | Third Party Monitoring |
| UNICEF | United Nations Children's Emergency Fund |
| UNOPS | United Nations Office for Project Services |
| UW-PMU | Urban Water Project Management Unit |
| UWSSP | Urban Water Supply and Sanitation project |
| VT | Voltage Transformer |
| WASH | Water, Sanitation and Hygiene |
| WWTP | Waste-Water Treatment Plant ‎ |
| YIUSEP I | First Yemen Integrated Urban Services Emergency Project |
| YIUSEP II AF | Second Yemen Integrated Urban Services Emergency Project Additional Financing |

**Summary Sheet:**

Table 1: Summary Sheet

|  |  |
| --- | --- |
| Subproject Name and ID | Supply, Installation and Construction of a Water Distribution Network and Elevated Tank for Al-Nahdeen Area IUS-AF-UWS-SAN-021 |
| Subproject Location | Sana’a, Bait Bous Al Sabeen District |
| Implementing Partner | Urban Water Supply and Sanitation Project (UWSSP) Sana’a |
| Name of consultant preparing the ESMP | Nabil Shams Alden and Rasheed Mohammed Al-Saidi |
| Risk level (low or moderate) | Moderate |
| Implementation Period | 6 months |
| Date of the field visit | 4 October, 2023 |
| Estimated ESMP Cost | 16,900 USD |
| Consultation dates and name of person conducting the consultations | Consultation conducted on 10 October 2023 by UWSSP Social Specialist |
| Signature of ESSO |  |
| Date |  |

# Introduction

After the success of the First Yemen Integrated Urban Services Emergency Project (YIUSEP I), United Nations Office for Project Services (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 Second Yemen Integrated Urban Services Emergency Project (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 UWSSP through Local Contractor.

The current Environmental and Social Management Plan (ESMP) Supply, Installation and Construction of a Water Distribution Network and Elevated Tank for Al-Nahdeen Area was prepared based on the Environmental and Social Management Framework (ESMF) for the Second Yemen Integrated Urban Services Emergency Project Additional Financing (YIUSEP II-AF) [[1]](#footnote-1) . The ESMF was prepared by UNOPS to meet the requirements of the World Bank’s Environmental and Social Framework (ESF), UNOPS requirements, and the national environmental laws and regulations requirements.

The YIUSEP II-AF ESMF will guide UNOPS and its implementing partner (Urban Water Supply and Sanitation Project -UWSSP) to ensure that all subprojects are prepared and implemented in accordance with the ESF requirements, including the preparation of subproject specific Environmental and Social Management Plans (ESMP). For this purpose, the ESMF details how UNOPS will screen each subproject 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 contractor. 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 ESS5, and a Stakeholder Engagement Plan SEP, to meet the requirements of ESS10.

The subproject involves civil works which means that the scope of work requires applying ESS1 (Assessment and Management of Environmental and Social Risks and Impacts). The work will involve contractor and workers which requires applying ESS2 (Labor and Working Conditions). The work activities generate waste which leads to the application ESS3 (Resource Efficiency and Pollution Prevention and Management). Moreover, the activities and equipment may increase community exposure to risks and impacts, thus, ESS4 (Community health and safety) should be applied to address the health and safety risks and impacts on the community. Furthermore, open and transparent engagement with the subproject’s stakeholder is an essential element of good international practices, therefore, ESS10 (Stakeholder Engagement and Information Disclosure) will be applied to ensure the environmental and social sustainability of the subprojects, enhance subprojects acceptance and make a significant contribution to successful design and implementation throughout the subproject life cycle.

The ESS5is not relevant because the subproject does not include any land acquisition, restrictions on land use, or involuntary resettlement. The water network will carry out in the ROW and the tank and the control room will carry out in public property (public park)and there are no encumbrances on the land; also the ESS6 is not relevant because the subproject does not include and will not impact any kind of biodiversity or living natural resources; in addition the ESS7, ESS8, and ESS9 are not relevant because there are no indigenous peoples, cultural heritage in the subprojects' area, and the subproject does not involve any financial intermediaries that may be affected and have relationships in the subproject. As a result, these subprojects must follow the requirements of the LMP for labor working conditions and OHS, the GBV action plan for any GBV issues, and SEP for consultation and information disclosure.

The security situation in Sana’a is stable. The subproject will not use of any ‎security arrangements during the ‎implementation and operation, so SMP is not required in this subproject

It is worth mentioning that this ESMP will be translated to Arabic and then distributed to stakeholders and published on UNOPS and WB websites.

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# Sub-Project Description

## Description of Sanaa’s water distribution system

Sana’a residents depend on two water distribution systems to meet their water needs, which are the public network water supply system, and water trucks from private wells water supply system. The public network water supply system covered only about half of the total area, where 30% of the total population lives.

The public network water supply system is managed and operated by Sana’a Local Water and Sanitation Corporation (SLWSC), and this system is characterized by the following:

* Closed and protected from any external pollutants or contaminants.
* Saves time and effort to the consumers, especially children and women, because the water supply service reaches to their facilities / houses
* lower water tariff per unit of water (explained below)

The water supplied by this system is through three water distribution paths lines. The first path, in which water is pumped from the well/s, is passing to the distribution network. The second path, in which water is pumped from the well/s to the water tank/s and then to the distribution network by gravity. The third path, in which water is pumped from the well/s to the water tank/s and then repumped the water by Water-Centrifugal Pumps Units to the distribution network.

The public water network serves approximately 1,160,928 people. The average days of service per month is three days, and the average per capita water consumption is thirty liters per person per day.

The water supply network does not reach all of Sana'a City. A large percentage of the city relies on private water venders (water tankers) to provide them with water, including the target area of this subproject. Water purchases from private well owners are available in various areas of the city. The water tanker system is susceptible to pollution, especially during transportation and unloading, and fetching water requires time and effort, especially from women and children.

Connecting target areas to public water network is critical to ensure access to safe and adequate water, mitigate health risk associated with the use of water trucks from the private well water supply system and Sabeel tanks, which is susceptible to pollution, especially during transportation and unloading, and requires time and effort, especially from women and children. In addition, the cost of water in water trucks from the private well water supply system is higher than in the public water network (1200 Yemeni riyals per cubic meter, versus 125 Yemeni riyals per cubic meter in the public network).

|  |  |
| --- | --- |
| Figure 1: supply system form water trucks from Sabeel tank | Figure 2: supply system form water trucks from the private well |

Under this subproject new Supplying and installing 150-, 110-, 63,32- and 25-mm pipes with all fittings with total length 18,950 m , the water network will carry out in ROW with distance not less than 1.2m of houses ,and implementation of elevated RC. elevated tank250 m3 – 25 m height. and connect to the new of water supply networks , The elevated tank’s position, height and capacity were determined to increase water pressure to reach the home. Also Supplying and installing of Pumping Units (Submersible Pump and cables ), Riser Pipes, Genset (350 KVA), and accessories. And implementation Control Room 4x4 m with 4 m height. The design procedure was completed by a UWSSP engineer. The total new connections in this subproject are 480 connections for 1900 households.

The tank and control room will be carried out next to the well , which serves as the main source of water for the tank and new network, with an area of 20 \* 22 meters only in the corner of the public park "May 22"

The contractor must rent warehouses in the subproject area in order to store the materials that will be used in the sub-project. The source of the asphalt stones is the local market so no OHS risks in working in quarries required

To mitigate any risks on water balance and water resources, SWSLC will regularly monitor and assess the water level in the well as contribute to encouraging water saving measures among stakeholders in reducing public water demand ,this can be achieved through awareness campaigns, incentives for efficient water use, and the adoption of water-saving technologies.

## Location

The subproject is located within the boundary of Sana’a Municipality in Bait Bous, Al-Nahdeen neighborhood area in Al-Sabeen District. The project covers around 152 hectares and an approximate population of about 32.000 capita. The area is located south of Sana’a. It is bounded from east by Al-Arbae’en St. (40 St.) and from south by Al-khamseen Street (50 St.) and from North and West by Al-Nahdeen Mountains.

## Scope of Work

### Nature of Work

### The Water Networks

The well will be connected to the tank, which will then be connected to the network in order to supply water to the beneficiaries.

The water pipes trenches will be excavated to maximum depth 160 cm and with maximum width 80cm Excavation areas will be appropriately secured with barricades, fences, and precaution tapes. The contractor will place safety signs, and the waste will be removed and transferred to an approved landfill. The excavation equipment (excavators, dumpers) will be used to finish the excavation works.

The new pipes will be lifted and installed to their places by the overhead crane as per lifting safety instruction and rules and under a qualified lifting operator. Electrofusion welding will be used to connect the pipes in each other and the fittings,

Electrofusion welding utilizes specially designed HDPE fittings with built-in heating elements. The process involves the following steps:

* The ends of the HDPE pipes or fittings to be joined are cleaned and inserted into the electrofusion fittings.
* The electrofusion machine is connected to the fitting, and the heating element is energized.
* The heating element transfers heat to the interface between the fitting and the pipe or between two pipes, causing the HDPE material to melt.
* After a specified fusion time, the heating element is turned off, and the molten HDPE material solidifies, creating a strong joint.

The activities will be conducted section by section, and the excavations will be executed with the installation of the pipes in the same day for every section to avoid any access restriction issues. Also reconnect the house connection in every section complete. Leveling and surveying should be conducted by the instrument of total station to guarantee the drainage of the stormwater and no flooding of water during the rainy season in the targeted areas.

The subproject does not require an asphalt plant. The asphalt will be brought from the local market .lt will be cut by using asphalt cutter machine with width 100 cm and the asphalt will be reinstated to match existing surface level , ensuring that it is reinstated to the same depth specified in the previous specifications. The exact method of reinstating the asphalt will depend on the specific process and techniques used by the construction team and the C-ESMP should provide it. Also the Reinstatement of trenches in sidewalks similar to existing in whatever material such as concrete tiles, concrete slabs, natural stone, etc. which wll be brought from the local market, if primary suppliers are used in the subproject the contractor should not employ child labor (be done by checking their labor logs, policies etc) and have to implement OHS procedures in place.

### The elevated tank and Control Room

The elevated tank and control room site will be leveled with shovels and mattocks, and waste will be carried to an authorized landfill. In addition to workers, excavators will be used for excavation. The concrete mixer will be used to mix the various components of the concrete (cement, sand, gravel, and water). The external components will be plastered and painted, while the internal parts of the tank will be painted using epoxy. Workers will use scaffolds to complete the woodworking and blacksmithing tasks, as well as put concrete into the tank's various sections. The stone will be brought from the local market, and we will not need OHS measures related to quarries.

The tank's capacity and elevation, as well as the excavation depths required to install the tank, are provided in the table 5

### Pumping Units, Riser Pipes, Genset, and accessories

The earthing system and cable trenches will be excavated to a depth of less than 100 cm. Excavation areas will be appropriately secured with barricades, fences, and precaution tapes. The contractor will place safety signs, and the waste will be removed and transferred to an approved landfill. The excavation equipment (excavators, dumpers) will be used to finish the excavation works, and manual excavation will be used.

Due to the well not being used since 2010, which is the year the well was drilled, the subproject activities will include supply and install pumping units, riser pipes , genset .

The Pumping Units, Riser Pipes, Genset will be lifted and installed to their places by the overhead crane as per lifting safety instruction and rules and under a qualified lifting operator.

The generator will be installed in the control room , which will be installed on concrete base , and the oil discharge pit will be implemented with dimension (1x1x1) m. Fuel storage will be stored in secondary containment and also on concrete base.

All the activities in the subproject will be done according to the BoQs, and HSSE regulations (WB guidelines, and UNOPS HSSE System)

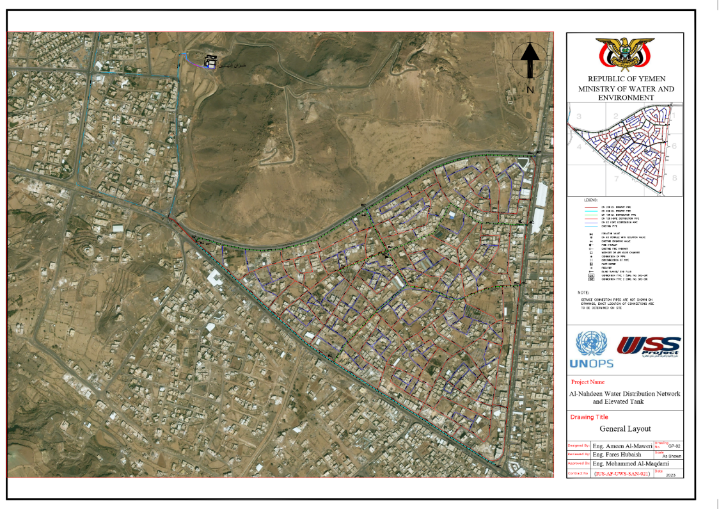
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Figure 4: satellite image of the Water Networks

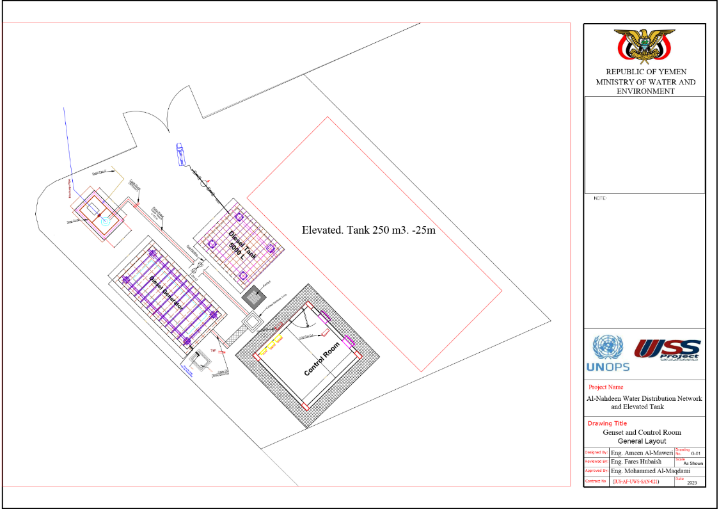
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Figure 5: Layout of the Elevated tank, Control Room and Well site

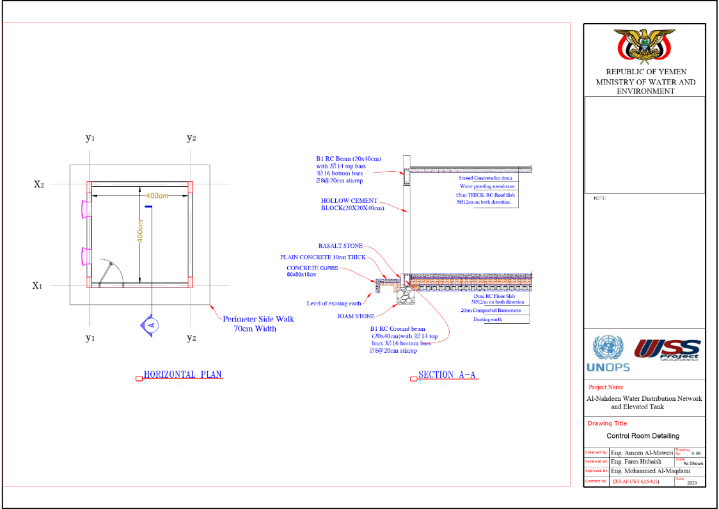
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Figure 6: The Control Room

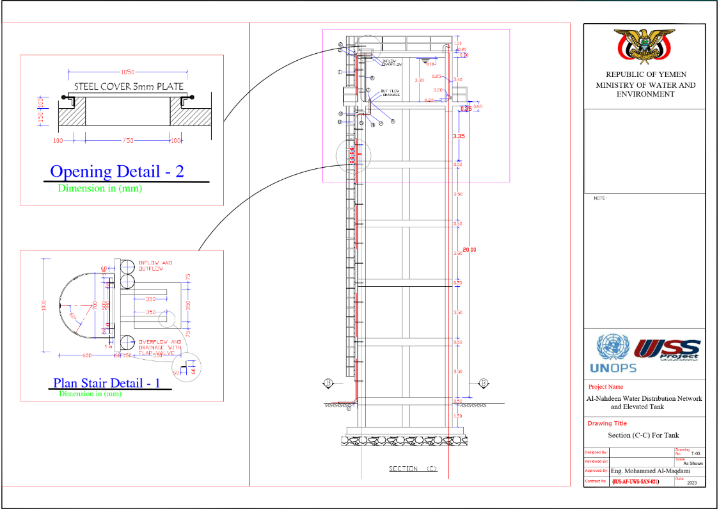
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Figure 7: The water tank

### The subproject activities

## Water network works

Table 2:1.Water Network Implementation Activities

| **#** | **Description** | **Unit** | **Qty** |
| --- | --- | --- | --- |
|
| **1** | **Water Distribution Network** |  |  |
| **1.1** | **PIPING AND APPURTENANCES** |  |  |
| **1.1.1** | **Ductile Iron Pipe** |  |  |
|  | Supply, install, test and commission DI pipe PN 16 as specified and shown on Drawings [[2]](#footnote-2)including excavation with depth 160 cm and width 80cm, cutting asphalt, trench backfill including pipe zone backfill (bedding and embedment), fittings and accessories. |  |  |
| **A** | DN 150 mm Dia. | **m** | **2350** |
| **1.1.2** | **HDPE Pipe** |  |  |
|  | Supply, install, test and commission HDPE pipe PN 16 as specified and shown on drawings including excavation with depth 150 cm and width 50cm, cutting asphalt, trench backfill including pipe zone backfill (bedding and embedment), fittings and accessories. |  |  |
| **A** | DN 125 mm Dia. | **m** | **5350** |
| **B** | DN 63 mm Dia. | **m** | **4250** |
| **1.2** | **VALVES AND ACCESSORIES** |  |  |
| **1.2.1** | **Isolation Valves** |  |  |
|  | Supply, install and test isolation valves including spindles and surface boxes for buried valves, and all fittings and accessories as specified and shown in the drawings. |  |  |
| **A** | DN 200, Gate Valve, PN16 | **No.** | **2** |
| **B** | DN 150, Gate Valve, PN16 | **No.** | **10** |
| **C** | DN 100, Gate Valve, PN16 | **No.** | **40** |
| **D** | DN 50, Gate Valve, PN16 | **No.** | **20** |
| **1.2.2** | **Air Valves** |  |  |
|  | Supply, install and test air valves including the isolation valves, and all fittings and accessories as specified and shown in the drawings that include the supply and installation of chambers including excavation, concrete work, reinforcement, cover, frame, GRP steps and backfilling all in accordance with the drawings and specifications. |  |  |
| **A** | DN 40 | **No.** | **2** |
| **1.2.3** | **Washouts** |  |  |
| **A** | Supply, install and test washout Type C (main line DN 150) including DN 100 gate valve and dismantling piece complete with surface box, and all fittings and accessories as specified and shown in the drawings that include the supply and installation of manholes Type C1(the dimension 2x2 m and depth 2.5m ) for washouts including excavation, concrete work, reinforcement, cover, frame, GRP steps and backfilling all in accordance with the drawings and specifications. | **No.** | **1** |
| **1.2.4** | **Fire Hydrants (Fire Filling Points)** |  |  |
|  | Supply, and install fire filling points including isolation valve, pipe from main line to isolation valve and all fitting and accessories as specified and shown in the drawings. |  |  |
| **A** | DN 100 mm Dia | **No.** | **1** |
| **1.2.5** | **Bulk Water Meters** |  |  |
|  | Supply, install and test propeller type bulk water meter fitted with totalizer including all fittings and accessories as specified and shown in the drawings. That include the supply and installation of manholes (the dimension 2x2 m and depth 2.5m ) for Meters including excavation, concrete work, reinforcement, cover, frame, GRP steps and bacackfilling all in accordance with the drawings and specifications. |  |  |
| **A** | DN 150 | **No.** | **1** |
| **1.2.6** | **Single Ferrule Outlet on DI mains** |  |  |
|  | Supply and install Single ferrule on DI mains including all fittings and accessories as specified and shown on drawings |  |  |
| **A** | DN 63 mm outlet off DN 150 mm DI main | **No.** | **2** |
| **B** | DN 32 mm outlet off DN 150 mm DI main | **No.** | **10** |
| **C** | DN 25 mm outlet off DN 150 mm DI main | **No.** | **7** |
| **1.2.7** | **Single Ferrule Outlet on PE Connections** |  |  |
|  | Supply and install Single ferrule on PE pipes including all fittings and accessories as specified and shown on drawings |  |  |
| **A** | DN 63 mm outlet off DN 125 mm HDPE main | **No.** | **25** |
| **B** | DN 32 mm outlet off DN 125 mm HDPE main | **No.** | **155** |
| **C** | DN 32 mm outlet off DN 63 mm HDPE main | **No.** | **114** |
| **D** | DN 25 mm outlet off DN 125 mm HDPE main | **No.** | **75** |
| **E** | DN 25 mm outlet off DN 63 mm HDPE main | **No.** | **70** |
|  | **Total Page (2)** |  |  |
| **1.3** | **SERVICE CONNECTIONS** |  |  |
| **1.3.1** | **Service Connection Assembly** |  |  |
|  | New Service Connection Meters |  |  |
|  | Supply and install new service connection water meter, including, Water Meter, stop valve, non-return stop cock, polyethylene coated galvanized iron pipe, Up Sleeve pipes, compression adaptor and all necessary pipe and fittings, excluding meter box, as shown on Drawings. |  |  |
| **A** | DN 1/2-inch meter (in one meter assembly) | **No.** | **210** |
| **B** | DN 3/4-inch meter (in one meter assembly) | **No.** | **150** |
| **C** | DN 1 inch meter (in one meter assembly) | **No.** | **120** |
| **1.3.2** | **Service connection HDPE pipelines** |  |  |
|  | Supply, install, test and commission HDPE pipe as specified and shown on Drawings including excavation with depth 1.1 cm and width 50cm, cutting asphalt, trench backfill including pipe zone backfill (bedding and embedment), fittings and accessories. |  |  |
| **A** | DN 32 mm Dia. | **M** | **3200** |
| **B** | DN 25 mm Dia. | **M** | **3800** |
| **1.4** | **RESTORATION OF HARD SURFACES** |  |  |
| **1.4.1** | Reinstatement of asphalt and trenches as specified and shown on Drawings and to the satisfaction of the Engineer. | **M²** | **9000** |
| **1.4.2** | Reinstatement of trenches in sidewalks similar to existing in whatever material such as concrete tiles, concrete slabs, natural stone, etc. | **M** | **370** |

**Control room works**

Table 3: . Control room construction Activities

| **#** | **Description** | **Unit** | **Qty** |
| --- | --- | --- | --- |
| **2.2** | **Control Room** |  |  |
| **2.2.1** | **Construction Works** |  |  |
| **A** | **Site Preparation** |  |  |
| **2.2.1.1** | Dismantling, Removing, and Reinstalling Swings and games that exist within the implementation site: The contractor must carefully dismantle and remove all existing equipment on the well site, and reinstall the games as directed by the engineer and the park admin. The work must also include all necessary equipment (crane, trucks, tools, etc.) to execute the task. The contractor will be expected to replace any item destroyed during the construction process with an equal one at no additional expense to the owner or UNOPS. All work should be completed in close collaboration with the customer (SWSLC) and the engineer. | **LS** | **1** |
| **2.2.1.2** | **Leveling works for well ( 400 m ) site:** Leveling and removing any obstacles present at the implementation site and get rid of all surpluses. All debris materials shall be disposed of at the approved site as directed by the Engineer in coordination with the local authority. The price includes cleaning the site from all dirt or any unwanted upper soil up to 25 cm and carrying out all appropriate tamping and filling works to obtain the appropriate soil bearing capacity within (20) tons per square meter. Works also include all that is necessary to finish the work according to the plans, specifications, technical confirmation, workmanship, general and special conditions, and the instructions of the supervising engineer. . | **m2** | **300** |
| **B** | **WELL, / HEAD CHAMBER WORKS** |  |  |
|  | **CONCRETE WORKS** |  |  |
| **2.2.1.3** | Re-install the wellhead and properly install the submersible cables through the wellhead cover, and the work is proceeding with the removal of the installation clamp | **LS** | **1** |
| **2.2.1.4** | Plain concrete works: supply and cast plain concrete (10 cm thick) B200 below ground level with all necessary to complete the work according to designs, specifications, technical assertion and workmanship, general and particular conditions, and supervision engineer's instructions. (The price includes earthwork and supply, as well as painting two coats of hot pure bitumen (minimum 2mm thick/layer for each subterranean foundation). | **m2** | **5** |
| **2.2.1.5** | Reinforcement concrete: Supply and construct rectangular RCC well head chamber, B250 kg/cm2, with internal dimension for its cross section (2.6 x1.6) m and sufficient total height (up to 1.5m) and 0.2m thick as shown in drawings and described in the Specifications and directed by the Engineer. The item includes anchored flange spools, three painting layers, one primer coat and two oil paints, with all needed to finish the work according to drawings, specifications, the technical assert & workmanship, general & specific conditions and instructions of the supervisor engineer. | **m3** | **3.5** |
| **2.2.1.6** | Reinforcement concrete: Supply and cast reinforced concrete RCC support for discharge pipe system (valves, water meter, pipe and fittings,etc.) B250 kg/cm2, with all needed to finish the work according to drawings, specifications, the technical assert & workmanship, general & specific conditions and instructions of the supervisor engineer. | **m3** | **0.3** |
| **C** | **CHAMBER WELL COVERING WORKS** |  |  |
|  | **General Notes:** • The well cover have to be lockable, and fit with wall chamber and size of well chamber opening, after putting in to consideration the thickness of plastering and frame. • The shown dimensions on details are the architectural dimensions of cover leaves without the frames. • All cover components have to be union type or equivalent approved type. • Cover should be fitted with handle taking into consideration the color and type all according to specifications and instructions of supervisor engineer. • Steel frames should be filled with fine aggregate, mortar concrete, for fixation all according to specifications and instructions of supervisor engineer. | | |
| **2.2.1.7** | Supply and install approved checkered galvanized steel cover (2.6 x1.6) m using Galvanized steel bars 16mm for the valves chamber, including hinges, hidden hands, lock, frame angels … etc., and paint at least one poly zinc coat and one prime coat and at least two coats of oil paint with all accessories for fixation. | **No.** | **1** |
| **D** | **TRENCHES WORKS FOR POWER CABLES OF PUMPS** |  |  |
|  | **General Notes:** 1. The price of blocks works should include supply, testing, placing of approved blocks, workmanship, mortar, and all other required materials, equipment and tools to complete the work according to specifications and directions of supervising engineer. 2. The solid blocks are used as load bearing units and shall have a block density not less than 1800 kg/ M3. These shall be manufactured for minimum average compressive strengths of 4.0 and 5.0 N/ mm2 respectively. 3.The price includes all works and materials to execute trenches (50cm width x30cm depth) for power cables of submersible pump unit from well head chamber to control Room according to drawings, specifications, the technical assert & workmanship, general & specific conditions and instructions of the supervisor engineer. | | |
| **2.2.1.7** | execute all associated earthworks (earthworks ( with water spray,..etc..) and installing drain points for cable trenches | **m** | **17** |
| **2.2.1.8** | Supply and cast plain concrete (10 cm thick and 50 cm width), Grade B200 kg/cm2. | **m2** | **8** |
| **2.2.1.9** | Supply and build a solid cement block (15\*20\*40 cm) | **m2** | **8** |
| **2.2.1.10** | Supply, cast and install approved RCC slab covers, B250kg/cm2, size 0.1m (thick)×x 0.5m (w)x L (L=as required) according to specifications, drawings and the engineer's direction. | **m** | **17** |
| **E** | **DIESEL GENERATOR and FUEL TANK RCC FOUNDATIONS in CONTROL ROOM** | | |
|  | **General Notes:** • The bidders are requested to refer General Notes, Pricing Preambles, Drawings, Specifications, Conditions of Contract, Special Conditions of Contract and all other relevant documents prior to pricing of the following items. • All Concrete Works shall comply to the specifications, • Contractor shall ensure that all contacting surfaces including reinforcement dowels left out for bonding purposes is free from any organic or artificial material which can be a hindrance to achieve specified properties in the Drawings and Specifications. • Rates for lean concrete shall include for preparation of bottom of excavation prior to pouring of lean concrete. • Rates for formwork shall include for control joints, isolation joints wherever specified and required according to the drawings and specifications. • Rate for concrete shall include for construction joint, isolation joint, expansion joint, with dowel bars, end cap and compressible filler with sealant on top as per drawing. • Rates for concrete shall include all necessary tests by an Authority acceptable to the Engineer. • Formwork for buried concrete may be of timber, for all other concrete, shall be 15mmthick plywood.  • Rates for concrete shall include all necessary equipment which are required for concreting. Rate shall include for continuous curing for 7 days. • The size of reinforcement bars comply BS 4449 described in the drawing or elsewhere shall be the minimum size and the rolling margin and any other tolerance shall be wholly above this size. Hooks and laps have been measured and included with the quantities for reinforcements. • All reinforcement shall be free from mill scale, dirt, oil, paint, grease or loose rust before fixing in position and shall be brushed with a stiff wire brush if so directed by the Engineer. • Reinforcement shall be bent cold by applying a slow even pressure on an approved type of bending apparatus. • Re-bending of incorrectly bends bars shall not be attempted. • Rates shall include for cutting, bending, fabricating, placing in position, holding and supporting including temporary fixing supports, hangers, binding wire spacers, laps and waste. •The price includes supply and laying insulation layer (Nailon sheet minimum 2mm thick) and Painting 2 layers with bitumen (Minimum 2mm thick/layer for all underground foundations. | | |
|  | Supply, Delevary, Iistalling, and Comissioning of Sound-Proof Prime Power ,silence inside container Diesel Generator for Water Well Station ,(2300 Mtr Altitude) including An Electro-Mechanical Tool Kit.  • **350 KVA**, 3 phase,4Wire, 380-415 V, 50 Hz, 1500 RPM,  • Diesel engine complete with its accessories.  • Alternator, self-excited.  • Steel base-plate complete with anti vibrators, bolts and nuts.  • Voltage regulator complete with adjusting rheostat.  • Control, instrument, meters and indicators panel board  • Speed governor.  • Water cooling system.  • Inlet air system.  • Exhaust system.  • hand operated oil drain pump 25L, 100 cc/cycle with all accessories.  • Operating and Service Manuals. | | |
| **2.2.1.10** | **Plain Concrete Works:** Supply and cast plain concrete (10 cm thick) B200 kg/cm² below G.L foundations of generator and diesel tank, as well as everything else required to complete the work according to drawings, specifications, technical assert and workmanship, general and specific conditions, and supervisor engineer's instructions. | **m²** | **38** |
| **2.2.1.11** | **RCC foundation** Supply, cast outside in open area - RCC foundation B300kg/cm2 for genset. Reinforcement shall be 60 degrees threaded with a yield strength of 420 MPa and a rebar diameter of 12mm @ 20cm as specified in the drawings. The height of this foundation should be 300mm above ground level, or as recommended by the generator set manufacturer, whichever is greater. The foundation's length and breadth must be at least 250mm greater on all sides than the enclosure's dimensions. For vibration within the box, the generator must be positioned on counter mounts. The price includes all necessary filling and compaction works to prevent settlement and to achieve the required soil bearing capacity (366 tons). | **m³** | **5.4** |
| **2.2.1.12** | **RCC foundation** Supply, cast outside in open area - a RCC B300 foundation and chamber for fuel tank. Reinforcement shall be 60 degrees threaded with a yield strength of 420 MPa and a rebar diameter of 12mm @ 20cm as specified in the drawings. The works include the adjustment of the tank chamber slope in the direction of the drain valve, and painting the fuel tank chamber with minimum 3 coats of approved epoxy paint, all according to the instructions of the Engineer. | **m³** | **7** |
| **2.2.1.13** | **Genset Shed** Supply, delivery, erection and installation of the generator steel structure shed. The pricing includes painting columns, sunshades, beams, and purlins, as well as applying two coats of exterior primer/sealer and two coats of weather protection paint following manufacturer instructions, all to the full satisfaction of the supervising engineer. | **m²** | **30** |
| **2.2.2** | **CONTROL ROOM** |  |  |
| 2.2.2.1 | **Earthwork Excavation Works** Earthwork excavation for isolated foundations and strip walls in any kind of soil to the dimensions and levels shown in drawings (at least 1m depth for isolated footing). Price to include backfilling with excavated soil if suitable or substituting same with selected approved imported soil, and removal of extra and unsuitable soil. Back filling shall be on layers of 200 mm thick with watering and compacting to (95%) of MDD. The item includes Disposing surplus excavated soils outside the site. | m³ | 14.9 |
| 2.2.2.2 | **Strip Joem Stone Works.** Supply and Laying, spreading and compacting well graded stone in layers not exceeding 25cm, including spreading in uniform thickness, hand picking, watering and compacting to the required density, leveling, and finish the surface. Payment shall be made for the measurement of the volume of the compacted fill. | m³ | 4.9 |
| 2.2.2.3 | **Base Stone Works.** Supply and Build base black "BASILTE" stone to cover the ground beams with cement mortar 1:3in first class and first. Texturing shall be in accordance with Engineer’s instructions and approval. Cutting, shaping and building of stone shall be in straight angles, no twisting, distortion or uneven sizes shall be allowed. The price included any work to finish work as per workmanship recommendations. | m² | 10.6 |
| 2.2.2.4 | **Cement Block Works.**  Supply and build concrete hollow blocks (40x20x20) cm (Automatic) for external walls with all required works. Prices of block works shall include supply of automatic solid concrete blocks from v. good and approved factory in perfect dimension and build it in good manner, cement sand mortar (1:3). Works shall include all materials, testing, scaffolds, placing of approval blocks, curing, racking out the joints, workmanship, all ducts, sleeves, opening areas, fiber board, protection concrete(B-200) around sleeve sand pipes for electrical tools and anywhere else, needed, all according to drawings, conditions and directed instructions by the Engineer. The price includes installing concrete R.C LINTEL with reinforcement above door and windows. Fu = 25 Mpa, the length shall extend 15cm on both sides. | m² | 82.0 |
|  | **CONCRETE WORKs** | **NOTE** |  |
| 2.2.2.5 | Supply and cast reinforced concrete class (C25) including formwork, placing, vibrating, shuttering, curing, complete as directed. The price includes Supplying reinforcement of (Grade 40), size and length as detailed in the drawings, storing on site including cutting, bending and fixing in position and providing all tying wires, spacers. Item include Preliminary installations for electrical pips and floor drainage in concrete beams, and any concrete elements wherever required. The price include surface leveling, making good the harmed surfaces and edges and all surface finishing as per workmanship recommendations. For the following elements |  |  |
| 2.2.2.6 | Isolated foundation and pedestal. item include 10 cm plain concrete under RC footing. The work includes painting two coats of water proofing bituminous for foundation surfaces. The reinforcement concrete surface should be covered using of three coats of bituminous protection (to all external surface of reinforcement concrete), in addition to that all surface of reinforcement concrete which are above the ground level should be painted with two layer of painting of grey or white color as per in the shop drawings. | m³ | 4.0 |
| 2.2.2.7 | Ground beams. | m³ | 2.6 |
| 2.2.2.8 | Internal room floor slab (must be levelled and smoothed by Troweling Machine). The item includes polyethylene sheet under RC floor. | m³ | 5.7 |
| 2.2.2.9 | Columns. | m³ | 1.7 |
| 2.2.2.10 | Roof solid slab. | m³ | 9.0 |
| 2.2.2.11 | **INSULATION WORKS.** Supply and install roof water proofing membrane of bitumen rolls 4mm thick covered with quartz granules for main roof, parapet walls and primer coat GS at rate 25 kg/m2 installation of 15x15cm angle fillet 474 groove, groove sealant, groove cover, joints over lapping, backing sheets or pieces all around external corners roof drains, and all necessary material to complete the works as shown in the drawings and as per manufacture instructions and codes of practice. | m² | 37.8 |
| 2.2.2.12 | **SCREED CONCRETE WORKS** Supply and cast concrete screed slab class (C25) 12 cm average thick including formwork, placing, vibrating, shuttering, curing, complete as directed. The price include surface leveling, making good the harmed surfaces and edges and all surface finishing according to workmanship recommendations. | m³ | 4.5 |
| 2.2.2.13 | **EXTERNAL PLASTERING WORKS** Supply and make external plastering 20 mm thick for walls with four faces: the first is the rough nail rendering (mix 1:1) cement: sand, the second is 5mm thick mortar (mix1: 2) cement: sand, the third is the undercoat 13mm (mix 1: 3) cement: sand, the fourth is make Finishing Coat, smooth surface with (1:1) cement: sand mortar. and all this is according to drawings and supervisor engineer's instructions | m² | 110.0 |
| 2.2.2.14 | **INTERNAL PLASTERING WORKS** Supply and make internal plastering 12 mm thick for internal walls and ceiling with two faces: the first is the rough nail rendering (mix 1:1) cement: sand second layer 13mm: Base‐Coat "Rendering" with (1:3) cement: sand mortar. Works include all materials needed to finish the works according to drawings and supervisor engineer's instructions. | m² | 115.5 |
| 2.2.2.15 | **PAINTING WORKs** Supply materials and make emulsion paint (Superdry) for external walls, sanding, priming, putty, under coat, and finishing coats, all according to Drawings, Specifications and instructions of the Engineer. The price should include preparing surface, clean, remove dust. | m² | 110.0 |
| 2.2.2.16 | Supply and apply two coats of oil paints on internal walls. Price shall include surface preparation, priming, and putty. All according to Drawings and instructions of the Engineer. | m² | 80.0 |
| 2.2.2.17 | Supply and apply two coats of water paints on celling. Price shall include surface preparation, and putty. | m² | 37.8 |
| 2.2.2.18 | **PERIMETER SIDE WALK WORKS** The Perimeter side walk shall have a minimum width of 70 cm and construct from concrete Curbs 50 cm height with buried 20 cm. filled in layers with good compacting. The top surface of side walk shall cover with plain concrete 10cm thick the surface of concrete must be levelled and smoothed. The price includes a layer of crushed stones under the plain concrete. All according to the instructions of the Engineer. | m | 35.0 |
| 2.2.2.19 | **Windows Works**  Aluminum sliding window (1.2 x 1 m) with 6 mm dark glass, complete with two sliding leaves complete, glazing, silicone sealant, Ironmonger and hardware, all and anywhere else, needed, all according to and all necessary related work according to the instructions of the supervising Engineer. | m² | 2.4 |
| 2.2.2.20 | **Window Steel Protection (Anti burglar bars)**  Supply and install Steel metal grille for window protection with all required works. 12mm di Steel bars decorative (standard shape), approx. spacing between bars about 12cm in the two directions, the window edges angle (L- section) 4cmx 4cmx3mm. Providing panting with primer paint and approved color, and all to the full satisfaction of Engineer. The price included any work and all accessories to finish work as directed by the engineer. | m² | 2.4 |
| 2.2.2.21 | **DOOR WORK** Supply, fix and install single external steel door size (2x1.2m) made out steel tubes adjoining vertically without space (tube 50x50x1.25 mm), complete with frame (L section 50x50x0.4), item includes all accessories, handles, locks, hinges and all required accessories according to the instructions of supervisor Engineer. | No | 1.0 |
| **2.2.3** | **EXTERNAL WALL** |  |  |
| 2.2.3.1 | **Earthwork Excavation Works** Earthwork excavation for isolated foundations and strip walls in any kind of soil to the dimensions and levels shown in drawings (at least 1m depth for isolated footing). Price to include backfilling with excavated soil if suitable or substituting same with selected approved imported soil, and removal of extra and unsuitable soil. Back filling shall be on layers of 200 mm thick with watering and compacting to (95%) of MDD. The item includes Disposing surplus excavated soils outside the site. | m³ | 14.5 |
| 2.2.3.2 | **Strip Joam Stone Works.** Supply and Laying, spreading and compacting well graded stone in layers not exceeding 25cm, including spreading in uniform thickness, hand picking, watering and compacting to the required density, leveling, and finish the surface. Payment shall be made for the measurement of the volume of the compacted fill. | m³ | 14.5 |
| 2.2.3.3 | **Base Stone Works.** Supply and Build base black "BASILTE" stone to cover the ground beams with cement mortar 1:3in first class and first. Texturing shall be in accordance with Engineer’s instructions and approval. Cutting, shaping and building of stone shall be in straight angles, no twisting, distortion or uneven sizes shall be allowed. The price included any work to finish work as per workmanship recommendations. | m² | 36.0 |
| 2.2.3.4 | **Cement Block Works.**  Supply and build concrete hollow blocks (40x20x20) cm (Automatic) for external walls with all required works. Prices of block works shall include supply of automatic solid concrete blocks from v. good and approved factory in perfect dimension and build it in good manner, cement sand mortar (1:3). Works shall include all materials, testing, scaffolds, placing of approval blocks, curing, racking out the joints, workmanship, all ducts, sleeves, opening areas, fiber board, protection concrete(B-200) around sleeve sand pipes for electrical tools and anywhere else, needed, all according to drawings, conditions and directed instructions by the Engineer. The price includes installing concrete R.C LINTEL with reinforcement above door and windows. Fcu = 25 Mpa, the length shall extend 15cm on both sides. | m² | 100.0 |
| 2.2.3.5 | Supply and cast reinforced concrete class (C25) including formwork, placing, vibrating, shuttering, curing, complete as directed. The price includes Supplying reinforcement of (Grade 40), size and length as detailed in the drawings, storing on site including cutting, bending and fixing in position and providing all tying wires, spacers. Item include Preliminary installations for electrical pips and floor drainage in concrete beams, and any concrete elements wherever required. The price include surface leveling, making good the harmed surfaces and edges and all surface finishing as per workmanship recommendations. For the following elements |  |  |
| 2.2.3.6 | Isolated foundation and pedestal. item include 10 cm plain concrete under RC footing. The work includes painting two coats of water proofing bituminous for foundation surfaces. The reinforcement concrete surface should be covered using of three coats of bituminous protection (to all external surface of reinforcement concrete), in addition to that all surface of reinforcement concrete which are above the ground level should be painted with two layers of painting of grey or white color as per in the shop drawings. | m³ | 1.4 |
| 2.2.3.7 | Ground beams. | m³ | 4.0 |
| 2.2.3.8 | Columns. | m³ | 5.0 |
| 2.2.3.9 | Upper Beams | m³ | 1.0 |
| 2.2.3.6 | **DOOR WORK** Supply, fix and install external checkered galvanized steel gate (3x4m) complete with frame, the price includes all accessories, handles, locks, hinges and all required accessories in addition to all civil works needed to install and fix the gate to finish the work according to drawings, specifications and the instructions of supervisor Engineer. | No | 1.0 |
| **2.2.4** | **OIL DISCHARGE PIT** |  |  |
| 2.2.4.1 | **OIL DISCHARGE PIT** The following tasks are included in the implementation of the OIL DISCHARGE PIT (1x1x1): - Backfilling, excavation, and compaction - Providing a 10 cm height of mixture concrete C18 with stones (1:1) at the bottom of the oil pit, and all other requirements as specified in the specifications and shop drawings. - Provide and construct a 15 centimeter solid cement block (40x20x15 cm), automatically made, 1.1 meters high, using a cement sand mortar of 1:5. Plastering from both sides, as well as two acrylic watercolor paints for both sides on the upper side of the wall (the Measure from one side). Supply and install an approved checkered galvanized steel cover 1.0x1.0 m using Galvanized steel bars 16mm, including hinges, concealed hands, lock, frame angels, and such., and paint at least one poly zinc coat, one prime coat, and at least two coats of oil paint, along with all fixing accessories. - Supply, deliver and install PVC PIPE, DN 40mm, for OIL DISCHARGE from Generator to OIL DISCHARGE PIT, with all accessories - All work is completed in accordance with the accompanying drawings and the supervisor's instructions. | **LS** | **1** |

**Electrical works**

Table 4: Electrical Works

| **#** | **Description** | **Unit** | **Qty** |
| --- | --- | --- | --- |
|
| **3** | **Pumping Units, Riser Pipes, Genset, and accessories** |  |  |
| **3.1** | **Submersible Pumping Unit** |  |  |
| **3.1.1** | Supply, install and operate a submersible pumping with all the accessories it needs to get a working system. The pump has to deliver 54 m3/hr. at Total Head =450m, and pump efficiency > 65% at design point. all required reducers or connection pieces between pumps and risers included. The materials of the fan, blows, Impellers, Shaft, suction strainer is stainless steel, all in accordance with specifications. | **Set** | **1** |
| **3.1.2** | Supply and install a submersible motor with all the accessories it needs to get a working system. The insulation class PE2/PA has to be (high temp windings) and The motor has to handle an ambient water temperature 50 degrees Celsius and motor efficiency > 83%,with thermal sensors –PT 100. The motor capacity = (1.15× the capacity of the pump), In addition, The The materials of motor shaft, motor housing, Bolts ,nuts ,washers ,etc has to be stainless steel. all in accordance with specifications. | **Set** | **1** |
| **3.1.3** | Supply, install, testing, and commissioning Electrical Pump Inverter (Controller)  Three phase ,380-420 V, 50Hz .Capacity (KW):not less than1.25× the capacity of the pump, V/F speed control , auto and manual start and stop . | **Set** | **1** |
| **3.1.4** | Supply and install of a 1x 120 mm2 AC Submersible cable ( H07RN-F Cable), with all termination kits and bonds, double insulated, all in accordance with specifications. | **m** | **1350** |
| **3.1.5** | supply and install Level Sensor Cable (2\*1.5mm2) | **m** | **450** |
| **3.1.6** | **Riser Pipes** |  |  |
| **3.1.6.1** | Supply and install GI CS heavy duty riser pipes (4 inches, diameter),(Pipe length of 6 meters), including all required accessories, all in accordance with specifications. | **PC** | **67** |
| **3.1.6.2** | Supply and install flanged Sockets joints to connect the pipes and all required accessories. | **PC** | **69** |
| **3.1.7** | **Pump Installation accessories** |  |  |
| **3.1.7.1** | Supply and installation of a non-return carbon steel flange valve (16 bar) (4-inch diameter) with all required accessories. | **NO** | **1** |
| **3.1.7.2** | Supply and installation of a pumping pipe (4 inches, diameter) with a 90-degree flanged elbow, including all accessories installation of a pressure gauge (manometer 100 bar) with all needed fittings and valves. | **NO** | **1** |
| **3.1.7.3** | Supply and installation of a carbon steel flanged gate valve (16 bar) (4 inches diameter) with all required accessories. | **NO** | **1** |
| **3.1.7.4** | Heavy duty approved Surface Plate (well Head Cap): The surface plate shall be fabricated of carbon steel with at least 500mm dia.and 32mm thick and totally coated by packed epoxy. The plate shall incorporate a long radius elbow with 4” diameter welded securely and enterally to a flange of PN16 and its dimensions to EN 1092-2, The plate shall incorporate a long heavy duty 4" riser pipe and/or joint which shall be welded security and enterally and according to the engineer's direction. The plate shall rigidly support the total weight of the motor, bowl assembly, riser pipes, cables, a column of water and shall bear all consequent vibrations during the pumping operation. The surface plates shall have heavy duty lifting eyes and two openings for piezo meters with 25mm diameter each. | **NO** | **1** |
| **3.1.7.5** | Supply and installation of a roll of wire (1 x 6 mm2) to connect the electric cable to the pipes | **NO** | **2** |
| **3.1.7.6** | Supply and install a non-return flanged valve (4 inches, diameter), to be installed above the pump, | **NO** | **2** |
| **3.2** | **Electrical Works** |  |  |
| **3.2.1** | Supply, Delivery, Installing, and Commissioning of Sound-Proof Prime Power ,silence inside container Diesel Generator for Water Well Station ,(2300 Mtr Altitude) including An Electro-Mechanical Tool Kit. • 350 KVA, 3 phase,4Wire, 380-415 V, 50 Hz, 1500 RPM,  • Diesel engine complete with its accessories. • Alternator, self-excited. • Steel base-plate complete with anti vibrators, bolts and nuts. • Voltage regulator complete with adjusting rheostat. • Control, instrument, meters and indicators panel board  • Speed governor. • Water cooling system. • Inlet air system. • Exhaust system. • hand operated oil drain pump 25L, 100 cc/cycle with all accessories.  • Operating and Service Manuals. | **Set** | **1** |
| **3.2.2** | **Fuel Tank:** Supply and delivery of a complete elevated outdoor daily Steel Fuel tank with a capacity of **5000 L** and a thickness **not less than 5 mm**, including a Sight Glass Level Measurement (Gauge) and all necessary fuel pipes, fittings, valves, filters, flow meter up to **4 ℓ/sec**, suitable for diesel service, instruments and all accessories for connection to the genset base fuel tank. The tank must be applied with two layers of epoxy outside and three layers inside. | **Set** | **1** |
| **3.2.3** | **ATS** Supply, Installing, testing, and Commissioning Complete Motorized and Auto-Transfer Switch (ATS) 630Amps, with all accessories vertical mounting outdoor type. It shall be dust & vermin proof with a degree of protection of IP-54, according to technical specification. | **Set** | **1** |
| **3.2.4** | **MDB**  Supply, install, test, and commissioning of main distribution board (MDB) unit as shown in the drawings, the price shall include all wires and conducts needed for proper installation  - Internal connection should be through busbars; - Ingress protection must be at least IP41; - Enclosure material should be galvanized steel sheets; - Fault level for the main breaker: At least 50 kA; - Warranty: at least 1 year. | **No.** | **1** |
| **3.2.5** | "Cables: Supply, laying, glanding, and termination of the following cables including excavation and backfilling of tranches in any kind of soil including conduits, warning tapes, cable glands, sealing boxes, termination, cable and all accessories. " Power Armored copper Cables (CU /XLPE / SWA /PVC) Size (4 x 1 x 150) mm2 | **m** | **30** |
| **3.2.6** | **Earthing System:** Supply and delivery of a complete earthing system for the Genset, ATS and Electrical Pump Inverter, including all conductors, copper bars tap-clamps, fixing, earthing pits, manhole …etc. The design of the system and all items shall be according to BS 7430 and ANSI IEEE Std 80 to obtain required earth resistance less than (3 Ω), all of which shall be according to the specifications, 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 earthling cable: copper bared **70 mm²** length 15 m and earthling cables for gensets, hanger frame and any other equipment: insulated cooper **35 mm²** length up to 30 m, Copper earthing bar, Earth pit with manhole cast iron cover plate complete as per standard, the cover of the manhole is preferred to be clearly stamped with grounding sign. c. Ground Enhancement Material (Bentonite). d. Earthing busbar shall be protected fixed inside sealed box. | **Set** | **1** |
| **3.2.7** | Supply, install, test and commissioning 5kg Carbon Dioxide (CO2) Extinguisher | **No.** | **2** |
| **3.2.8** | Supply, Install, test and commissioning 6kg Powder Extinguisher | **No.** | **2** |
| **3.2.9** | Supply, install and commissioning Smoke and Heat Detector:  Smoke and heat detector, stand-alone battery type including button for false alert. Battery for three years long life, warning sound delivers sounds of >85 dBs per related RFQ documents. | **No.** | **2** |
| **3.2.10** | Supply and delivery of a Repair Tool kit that is manufacturer-recommended and suited for use with any potential service and maintenance issues. | **Set** | **1** |
| **3.2.11** | **Spare Parts for One Year or 8000 Hours** |  |  |
| **3.2.11.1** | Set of Fuel Filter elements as specified and recommended by the manufacturer. | **Set** | **10** |
| **3.2.11.2** | Set of Oil Filter elements as specified and recommended by the manufacturer. | **Set** | **20** |
| **3.2.11.3** | Set of Air Filter elements as specified and recommended by the manufacturer. | **Set** | **10** |
| **3.2.11.4** | Generator's Oil as specified and recommended by the manufacturer. | **Liter** | **1000** |

**Elevated RC Water Tank - 250 m3**

Table 5: The Elevated RC Water Tank construction activities

| **Item** | **Item Description** | **Unit** | **Qty.** |
| --- | --- | --- | --- |
|
|
| 1 | Preparing the site for starting excavation and backfilling at any type of soil or rock and remove any obstacles and cleaning the site after completion the work, the price includes all necessaries for the completion of the works, according to the specifications, drawings and instructions of the Engineer. | L.S | 1 |
| 2 | Excavation (with dimensions 1x0.8 m and depth 1 m) and backfilling from natural ground level in any kind of rock to the required depths and dimensions. Price to include support, remove the extra or / and unsuitable materials to approved dump-areas. As per specifications (Sec. 02220), drawings and instructions of the Engineer. | m3 | 265 |
| 3 | Supply and construct Plain concrete under the footing thickness of 10 cm with strength 200 kg/cm2 (Class 20) with cement content 250 kg/m3. The price includes all necessaries for the completion of the works, according to the specifications, drawings and instructions of the Engineer | m3 | 18.9 |
| 4 | Supply and place reinforced cast in place concrete, Class 30, including steel reinforcement Grade 60 (400 MPa), formwork, joint materials and water stops, admixtures, placing, vibration, curing, sampling, testing, cleaning, and finishing (Fair Face) and as specified including waterproofing of under ground concrete surfaces and all necessary accessories complete as per drawings, specifications and instructions of the Engineer | m3 | 244 |
| 5 | Supply and construct plastering works for (floor, walls and roof of the tank) with mortar (1:3) for inside and outside and add Sica material (2kg/cement bag). The price includes all necessaries for the completion of the works, according to the specifications, drawings and instructions of the Engineer | m2 | 630 |
| 6 | Supply and construct plastering works for (staging frame) with mortar (1:3) for inside and outside and add Sica material (2kg/cement bag). The price includes all necessaries for the completion of the works, according to the specifications, drawings and instructions of the Engineer | m2 | 580 |
| 7 | Supply and construct non toxic Epoxy paint of water tanks to inside wall and floor of the tank in three layers. The price includes all necessaries for the completion of the works, according to the specifications, drawings and instructions of the Engineer. | m2 | 375 |
| 8 | Supply and construct two coats of a color emulsion paint to the external walls, columns and beams of the tank frame. The price includes all necessaries for the completion of the works, according to the specifications, drawings and instructions of the Engineer | m2 | 835 |
| 9 | Supply and install ductile valve (flange type) with DN 8 inch, 25 bar. The price includes all necessaries for the completion of the works according to the specifications, drawings and instructions of the Engineer. | No | 2 |
| 10 | Supply and installation of medium pressure pipe (GI, DN 8 inch) connected to the tank for the Inlet, outlet, overflow and washout as shown on drawings. The price shall includes all requirement to complete the work as per drawings, specifications and instruction of the Engineer | M.L | 80 |
| 11 | Supply and installation of DI ventilation pipes (DN 4 inch) including galvanized steel bird/ insects screen and clamps. The price includes all necessaries for the completion of the works according to the specifications, drawings and instructions of the Engineer. | No | 12 |
| 12 | Supply and installation of a steel cover (1x1m) for the tank opening, thickness (3 mm) fixed with two hinges. The price includes the angled steel frame (1 inch x 1 inch) and 5mm thickness, painting with anti-rust paint. | No | 2 |
| 13 | Supply and Implementation of Valves inspection chamber with dimensions of (1.5x1.5x1 m) from reinforced concrete (Class 35 - Fare Face), provided with rugged iron cover (3 mm thick) as per the details shown on standard drawings. The price includes all requirements for the work completion, according to the specifications, drawings and instructions of the Engineer. | No | 2 |
| 14 | Supply and install Aluminum Ladders inside the tank with width of 50cm and 4.0 m height. The price includes all necessaries for the completion of the works according to the specifications, drawings and instructions of the Engineer. | No | 2 |
| 15 | Supply and Fix galvanized steel Ladder of 50 cm width and 20 meter height with protection cage on the tank frame from outside. The price includes all necessaries for the completion of the works according to the specifications, drawings and instructions of the Engineer. | No | 1 |
| 16 | Safety Rails  Supply and install galvanized steel safety railing to the elevated tankroof with height of 1 meter. The price includes all necessaries for the completion of the works according to the specifications, drawings and instructions of the Engineer. | M.L | 84 |
| 17 | Water meter  Supply and install water meter DN 8 inch/ PN 16, with all needed fittings (flanges, bolts, gaskets….etc.) as indicated in the specifications and according to the manufacturer & engineer's instructions. | No | 2 |
| 18 | Supply and installation of measurement scale to show the level of water in the tank. The price includes all necessaries for the completion of the works according to the specifications, drawings and instructions of the Engineer. | No | 1 |

# Environmental and Social Baseline

Sanaa is located on a plain of the same name, the Haql Sana’a, which is over 2,200m above sea level. The plain is roughly 50–60 km long north–south and about 25 km wide, east–west, in the area north of Sanaa, and somewhat narrower further south. To the east and west, the Sanaa plain is bordered by cliffs and mountains, with wadis coming down from them.

## Hydrology:

The aquifers in the subproject are represented by three main aquifer units: The Quaternary alluvium (Quaternary Age), the tertiary Volcanic (Tertiary Age) and the Tawillah Sandstone (Cretaceous Period) aquifers. The groundwater depths and location depend on the aquifer where the layer of the Quaternary Deposits is large enough to reach a thickness of 300 meters in the middle of the lowland area of the basin. This layer is followed by either the Tertiary volcanic aquifer or Tawillah Sandstone aquifer that reach depths up to 400 m.

The average depth of the groundwater is 400-500 meters and there is no surface water in the subproject area.

Leveling and surveying will be conducted by the instrument of total station to guarantee the drainage of the stormwater and no flooding of water during the rainy season in the targeted areas.

## Cultural Heritage:

The districts where sub-projects are located do not encompass any archaeological sites as well as there is no site within the cultural heritage areas in the city. The subprojects are located at a limited scope which is away from any heritage sites**.**

## Biodiversity

Endemic , near-endemic or threatened species of plants and animals are not present in the sub-project area. The sub-project activities will be implemented within AWSLC property‎, so there is no impact on Biodiversity in the sub-project area during the implementation

## Climate and Weather

The climate in the sub-project's area is mild in summer and cold in winter, the average temperature in summer at night is 12.4 °C while during the day it goes up to 28.2°C. However, in winter the average day temperature is 22.5° C while the average minimum temperature is around 3.5° C.

The average yearly relative humidity is 36.5 %, the month with highest relative humidity is July (45.5%), and the month with the lowest relative humidity is June (27.2%)

The month with the most sunshine are April, May, October and November (Average sunshine: 9h). And months with the least sunshine are January, February, March, June, July, August, September and December (Average sunshine: 8h).

The average yearly wind speed is 8.83 km/hr. the month with highest wind speed is September (10.2 km/hr), and the month with the lowest wind speed is May (8km/hr)

The wettest month (with the highest rainfall) is August (77 mm), and the driest month (with the least rainfall) is October (2mm)., The average yearly rainfall is 265mm

Table 6:Climate data for Sana'a

| **Month** | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** | **Year** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Record high °C (°F) | 30 (86) | 31 (88) | 32 (90) | 32 (90) | 37 (99) | 39 (102) | 41 (106) | 38 (100) | 40 (104) | 34 (93) | 33 (91) | 31 (88) | 41 (106) |
| Average high °C (°F) | 22.3 (72.1) | 24.7 (76.5) | 25.6 (78.1) | 24.8 (76.6) | 25.7 (78.3) | 28.2 (82.8) | 26.6 (79.9) | 25.9 (78.6) | 25.1 (77.2) | 22.2 (72.0) | 20.3 (68.5) | 20.5 (68.9) | 24.3 (75.8) |
| Daily mean °C (°F) | 12.6 (54.7) | 14.1 (57.4) | 16.3 (61.3) | 16.6 (61.9) | 18.0 (64.4) | 19.3 (66.7) | 20.0 (68.0) | 19.6 (67.3) | 17.8 (64.0) | 15.0 (59.0) | 12.9 (55.2) | 12.4 (54.3) | 16.2 (61.2) |
| Average low °C (°F) | 3.0 (37.4) | 3.6 (38.5) | 7.0 (44.6) | 8.5 (47.3) | 10.4 (50.7) | 10.5 (50.9) | 13.4 (56.1) | 13.3 (55.9) | 10.6 (51.1) | 7.9 (46.2) | 5.5 (41.9) | 4.4 (39.9) | 8.2 (46.7) |
| Record low °C (°F) | −4 (25) | −1 (30) | 1 (34) | 4 (39) | 1 (34) | 9 (48) | 5 (41) | 0 (32) | 3 (37) | 1 (34) | −1 (30) | −2 (28) | −4 (25) |
| Average [precipitation](https://en.wikipedia.org/wiki/Precipitation) mm (inches) | 5 (0.2) | 5 (0.2) | 17 (0.7) | 48 (1.9) | 29 (1.1) | 6 (0.2) | 50 (2.0) | 77 (3.0) | 13 (0.5) | 2 (0.1) | 8 (0.3) | 5 (0.2) | 265 (10.4) |
| Average rainy days | 2 | 3 | 4 | 5 | 5 | 4 | 4 | 5 | 3 | 3 | 2 | 1 | 41 |
| Average [relative humidity](https://en.wikipedia.org/wiki/Relative_humidity) (%) | 39.3 | 35.8 | 38.5 | 41.1 | 36.0 | 27.2 | 40.1 | 45.5 | 29.9 | 29.0 | 38.1 | 37.7 | 36.5 |
| Mean daily [sunshine hours](https://en.wikipedia.org/wiki/Sunshine_duration) | 8 | 8 | 8 | 9 | 9 | 8 | 8 | 8 | 8 | 9 | 9 | 8 | 8 |
| Wind Speed km/hr | 8.4 | 9.4 | 8.2 | 8.2 | 8.0 | 8.7 | 9.5 | 8.9 | 10.2 | 9.1 | 8.8 | 8.6 | 8.83 |

## Air Quality and Noises

There is a severe lack of information on the state of the air quality in Yemen in general and in the sub-project area in particular. There was no air quality monitoring data for the sub-project area found. During the field visit, numerous sources of air pollution have been observed, which are diesel generators and vehicles, additionally dust generation as result of vehicles passing on un-asphalted roads.

Vehicles traffic and diesel generators are a source of noise in the sub-project location**.**

## Socioeconomic aspects:

## Economy

As the capital city of Yemen, nearly 40% of jobs in Sana'a are in the public sector. The city is also an important center for commerce and industry in Yemen. Sana'a has a large informal sector that is estimated to constitute 32% of nongovernmental employment.

By far the largest area of the economy, both in terms of number of businesses and in jobs, is in commerce and small services. As of 2004, 58.9% of all establishments and 31.3% of all jobs in Sana'a belong to this category. Another major category is general administration, which only makes up 0.8% of employers but has 18.0% of workers, making it the second largest in that regard. Manufacturing is the third-largest category by both measures, with about 12% for both. Sana'a also has a higher concentration of hotels and restaurants than elsewhere in the country.

About 62% of jobs in Sana'a are working for private, locally owned enterprises, followed by state-owned enterprises which employ 31%. Waqfs, private foreign-owned companies, and private joint ventures make up the rest in that order, with none employing more than 2%.

Sanaa's economy is large compared to its population: as of 2004, it was home to only 9% of Yemen's population but 16% of the country's businesses and 22% of its formal-sector jobs. The average size of a business establishment in Sana'a is small, at 3.88 employees on average; however, this is higher than the national average of 2.87 and only Aden has a higher average at 6.88 employees. Between 1992 and 2006, 39% of all new formal-sector jobs in Yemen were created in Sana'a, along with 33% of new business establishments. In terms of jobs created, Sana'a is ahead of all other governorates in Yemen by a factor of three.

While Sana'a has a vibrant, diverse economy with more jobs being created than anywhere else in Yemen, it also has the highest concentration of poverty in the country. It is home to 6.5% of the country's total poor population and 23% of the poor urban population. About 15% of the city's population lives below the national poverty line as of 2007.There are also many people living just above the poverty line that are still in a relatively precarious financial position. High unemployment is another problem; by some estimates, as much as 25% of Sanaa's potential workforce is unemployed.

The sub-project will be implemented on public properties (streets) with a width of 8 to 16 meters. The target area is a planned urban region. There are subsidiary streets of the targeted street that can be used as alternative roads during subproject implementation. The majority of the buildings are residential built of reinforced concrete structures occupied by low-income residents, the majority of whom work in the public sector and others in the private sector.

There are government-provided electricity services, as well as electricity from a private-sector-supplied, as well as There are telephone service.

The subproject will improve the environment and living conditions for new 1900 households, for more than 32,000 persons in the target area.

The area targeted by the project is an urban area ,and its activity is residential, with low-income residents. There are several essential services available. Electricity services are provided, Telecommunication services are available, promoting connectivity within the community.

Regarding education facilities, there are functional basic education schools that can accommodate up to 630 students. Additionally, secondary education schools are present, catering to the educational needs of approximately 200 students.

## Population

Sana'a has a population of approximately 4,621,132 (2022), about 9% of Yemen's total population. Women represent 30% of Sana'a 's population.

## Subproject sustainability:

The water and sanitation project will engage stakeholders during project implementation through holding meetings with beneficiaries and local authorities to discuss any issues raised, aspects of implementation, as well as listen to stakeholders’ concerns and feedback. Monthly meetings will be held with the stakeholders about four to six times during implementation to coordinate with them on implementation and protection issues, and conduct awareness and training regarding protection requirements and their monitoring roles. The resident engineers will also be in continuous cooperation and coordination when needed. Moreover, various meetings can be held with the local authorities to cooperate and facilitate the implementation. In addition, at the end of the implementation, a meeting will be held with the beneficiaries and local authorities to prepare for the operation process and training beneficiaries on maintenance and operation to ensure the sustainability of projects.

## Targeted Beneficiaries:

The Project is located within the boundary of Sana’a Municipality in Bait Bous, Al-Nahdeen neighborhood area in Al-Sabeen District. The project covers around 152 hectares. The targeted Beneficiaries are about 32,000 persons, and 1,900 houses.

# Environmental and Social Risks and Impacts

## Environment and Social Responsiveness

The sub-project is responsive to the environment and social criteria according to YIUSEP II AF ESMF, and all the potential environmental and social impacts and risks are limited to the scope of the sub- project area /activities and can be mitigated.

## Applicability of Implementation:

The World Bank Environmental and Social Framework ESF has been applied because these subprojects may trigger some environmental and social impacts such as residual wastes and occupational health and safety (OHS).

## Eligibility

The subproject is eligible for support because it does not have any of the attributes in the following exclusion list.

Table 7:Exclusion List

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Statement** | **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 | Power plants; |  | X |
| 16 | Large-scale transport infrastructure such as highways, expressways, urban metro-systems, railways, and ports; |  | X |
| 17 | Investments in extractive industries; commercial logging; |  | X |
| 18 | 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 |
| 19 | Activities that would significantly convert natural habitats or significantly alter potentially important biodiversity and/or cultural resource areas; |  | X |
| 20 | Activities that would require the relocation of residential households and/or significant involuntary land acquisition; or |  | X |
| 21 | Activities in disputed areas. |  | X |

# Environmental and Social Screening:

UNOPS used the following form to screen for the potential environmental and social risks and impacts for the selected subproject under ESMF of the YIUSP II. The risk level of this subproject is moderate which requires preparation of ESMP. It does not require the preparation of ESIA as a detailed in the ESMF or RAP as detailed in the RF. However, site specific impacts that may be triggered are noise, dust emission, waste disposal and safety risks for workers and community including occupational health and safety. Minor, short term and localized air pollutions may be caused due to excavation works. Little noise from subproject rehabilitation is expected during implementation due to the use of heavy equipment. The project is expected to maximize the manual works which will minimize noise. The impact on air quality and noise is limited and they are seen as minor concerns. The corresponding mitigation measures for potential impacts are included in this ESMP and the environmental and social requirements for contractor will be included in the tender documents and contract. All environment, social, health and safety mitigation measures will be included in the contract. In addition, BoQs priced items for environmental and social safeguards including OHS will be included in the tender documents and contract.

Table 8:Environmental and Social Screening Form

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Question** | **Answer** | | **ESS relevance** | **Due diligence/**  **Actions** |
| **Yes** | **No** |
| Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of existing infrastructure? | X |  | ESS1 | ESMP, SEP |
| Does the subproject involve land acquisition and/or restrictions on land use? |  | X |  | SEP, ESMF |
| Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant? |  | X | ESS3 | ESMP, SEP |
| Does the subproject have an adequate system in place (capacity, processes and management) to address waste? | X |  | ESS1, ESS3 | ESMP |
| Does the subproject involve the recruitment of workers including direct, **contracted**, primary supply, and/or community workers? | X |  | ESS2 | LMP, SEP |
| Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)? | X |  | ESS2 | LMP |
| Does the subproject have a GM in place, to which all workers have access, designed to respond quickly and effectively? | X |  | ESS10 | SEP |
| Does the subproject involve use of security or military personnel during construction and related activities? |  | X |  | ESMP, SMP |
| Does the Sub-project establish and implement an appropriate quality management system to anticipate and minimize risks and impact that services may have on community health and safety? | X |  | ESS2, ESS4 | ESMP, LMP |
| Does the sub-project apply the concept of universal access where technically and financially feasible? | X |  | ESS4 | ESMP, SEP |
| Is the subproject located within or in the vicinity of any ecologically sensitive areas? |  | X |  | ESMP, SEP |
| Is the subproject located within or in the vicinity of any known cultural heritage sites? |  | X |  | ESMP, SEP |
| Does the project area present potential Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk? | X |  | ESS1, ESS4 | ESMP, SEP |

# Risk Level and Mitigation Instruments

An initial evaluation of potential impacts associated with the subproject activities implementation were identified based on the nature of the activities and location characteristics, screening checklist and the expected intervention

The project will improve management and operational capability within the Local Water Supply and Sanitation Corporations, leading to improved institutional sustainability and improved service provision.

The improved services will decrease women work load especially the girl child (women and girl child are most affected they are carrying water to supply houses). In general, inhabitants of these targeted cities will enjoy enhanced socio-economic, health, and environmental benefits.

The subprojects activities are small to medium scale activities, therefore, the expected potential negative environmental and social impacts associated will be minor, localized, and reversible. These negative impacts related with the rehabilitation civil work implementation could be air quality and dust arising, noise & vibration, debris and reconstruction material generation and disposal, temporary traffic, temporary disturbance of economic activities and access to homes and safety. These potential negative impacts are addressed by mitigation measures detailed out in the environmental and social management plan (Table 8).

**Potential Occupational Health and Safety risks and Impacts**

* Working at Height and risk of falling
* Lifting Operations :Impacts from

- Failure of lifting machines such as cranes and falling loads on workers; and workers being crushed by a moving Load or lifting equipment which all might result in fatalities or injuries.

* Manual Handling :Injuries that include

- Fractures

- Damage to muscles, ligaments, and tendons

- Spinal disc injuries

- Trapped nerves

- Abrasions and cuts

- Burns

- Hernias

* Excavation

- Falling in excavated areas and breathing dust during excavation

* Collapse of excavated trenches, soil on unstable ground.
* Risks from accidental electrical shocks from electrical poles
* Accidents and injuries and handling hazardous materials/chemicals and waste (including skin burns from concrete mixing and epoxy, berating difficulty/hazards from epoxy usage and asphalt and lung damage from concrete mixing particles etc.).
* Road accidents while transporting equipment and materials
* Dust and noise emissions during excavation and while using machineries and equipment (OHS)
* ‘Environmental pressures on workers (heat strokes, dust storms) and working during bad weather conditions
* Gas emissions from generator and risks on workers
* Risk of working activities involving entry into confined spaces, including tank,
* Poor onsite sanitation or water supply, leading to illness and disease.
* Risks from electrocution
* Fire risks from hazardous chemicals used such as fuel for generator
* Risks from welding activities such as skin burns
* Vehicles running into workers while laying out pipelines

**Social Risk and Impacts:**

* Lack of workers awareness and knowledge on ESF requirements on gender, SEA/SH and GBV.
* Child Labor
* Damage to the utilities and services located underground (electricity, water, telephone, etc.)
* Inadequate slope of the road after the excavation for the water network.
* Temporary disruption of access to the home/ economic activities and school due implementation process
* Risks to community health and safety

**Potential Environmental Risks and Impacts**

* Noise generation from machineries used
* Solid waste produced by work
* Hazardous Substances and wastes such as asphalt causing environmental pollution and soil and groundwater contamination
* Ambient Air pollution due to

- Emissions from lifting equipment/ transportation equipment.

- Dust generation during excavation

- Asphalt pollution/emissions to the air

* Soil, surface and ground water contamination from generator and fuel and from using chemicals and asphalt and latrines for workers.

**Risks and impacts during operation and maintenance**

* OHS risks from drowning in the tank during maintenance work
* OHS risks from working in confined areas and risks of low oxygen in the tank and risk of asphyxiation
* Risks of falling from height
* Water cuts to the community during maintenance work
* Other Operation and Maintenance (Staff Health and Safety) risks including gas emissions from generator
* Water abstraction risks which may result in groundwater depletion and water contamination from generator and fuel
* Air emissions and soil spills from generator and fuel storage area

## Resources and Services' access restrictions:

The water network will be implemented on the streets which will cause temporary restrictions on the services and resources. the activities will be conducted section by section, and alternative roads will be available for road users during implementation. And side route with a width of at least 1.2 meters will be provided to allow inhabitants to access their homes.

## Labor Management:

Estimated number of contractor workers the subproject that will between 25 to 30 workers and the estimated total number of working days in subproject is 3900 to 4680, which is calculated by the number of working days (156 days) X number of workers (25-30 workers). There will be no need for accommodations because the contractor will hire skilled and unskilled labor from the available labor in Sana ‎ city. Work will be done throughout the week except Friday and the daily working hours must not exceed 8 hours

**The contractor shall:**

* Ensure all workers are older than 18 Years old.
* Maintain occupational health and safety system in the site to protect workers from hazards and risks and provide adequate health and safety training, required PPE, first aid box,
* OHS training should include trainings on dealing with chemicals and handling machines and tools and first aid training
* Provide the workers with potable drinking water, and shade during hottest hours
* Avoid all forms of forced, involuntary, unpaid or compulsory labor
* Provide insurance(Health and life) for all employees involved in onsite activities
* The daily working hours must not exceed 8 hours.
* The contractor has to construct mobile latrines, which must contain wash hands and soap, that will be connected to cesspits . The cesspits will be dismantled immediately by filling them with gravelly soil after the activities are completed,

## Gender:

The sub-projects are a priority to all community’s groups, men and women, and will serve all families living in the targeted areas without exclusion. It will contribute to ensure the access of water to the beneficiaries and improving the health and environment in the area. As well as, prevent beneficiaries from using alternative systems that are susceptible to pollution and help consumers, especially women and children, save time and effort

# Consultations

Public consultation process takes the form of semi-structured and direct interviews with local communities and group discussions with other stakeholders in the selected Sub-project area: AlNahdeen, Bait Bous. The consultations were conducted in the subproject areas with total of 19 persons. The consultations with beneficiaries, that utilize water, such as housewives the old and young, as well as the educated and illiterate and WSLC staff as shown in table 9 , were conducted on 10 of October 2023 by UWSSP social specialist with 15 males (2 IDPs), and 4 female. Consultation questionnaire was distributed to the interviewees.

Table 9:Consultants by gender.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Males | Female | Total |
| WSLC Staff | 4 | 0 | 4 |
| Beneficiaries | 11 | 4 | 15 |
| Total | 15 | 4 | 19 |

|  |  |
| --- | --- |
|  |  |

Figure 8:Photos of Public Consultation

## Consultation topics

The consultations with men and women covered several issues and topics including:

* Ensure communities' needs and confirm the selection priority;
* Inform local communities about the subproject and its activities to be undertaken, its timetable;
* Inform them about their rights to have a job opportunity during implementation.
* Raise their awareness about subprojects' potential risks such as safety, health,
* Environmental, and social risks and required control measures.
* Document and address the local communities’ concerns, expectations, and feedback.
* Ensure the participation of subproject beneficiaries both females and males.
* Discuss the positive impacts that the subprojects will have such as improved sanitation services and accessibility to cleaner water.
* Discuss subprojects' possible negative impacts such as odors and safety of workers and
* proposed mitigation measures and how to avoid and mitigate them.
* Raise awareness regarding social safeguards such as GBV, SH, and abuse that may occur
* during the implementation and the required measures that should be taken in case of occurrence.
* Inform them about how to use the GM to give their opinions regarding social safeguard,
* OHS, and any complaints and concerns without fear.

## Consultation Findings and Feedback

The various concerns raised related with their responses are given in table 10:

Table 10:Public consultations concerns raised and their Responses

|  |  |
| --- | --- |
| **Concerns Raised** | **Responses** |
| Minimize the effects of noise, dust, vibration, traffic associated with excavation and other work activities on the nearby communities living along the subprojects’ areas. | If the contractor encounters a solid, challenging rock, he may use a variety of machineries to speed up the process, but he will keep them in good working order, properly tuned, and maintained to reduce exhaust emissions and vibration issues. The Contractor will also ensure that the suggestions made in this ESMP are implemented. |
| The Contractor shall dispose solid waste on regular basis. | It was briefed that the Contractor will be bound to  safely dispose all the solid waste generated in demarcated waste disposal sites. |
| Temporary disruption of access to the home/ economic activities | It was briefed that the Contractor will be providing alternative access to residences and roadside businesses. and the activities are to be conducted section by section |
| Inadequate slope of the road after the excavation | It was briefed that the Contractor will be leveling and surveying should be conducted by the instrument of total station to guarantee the drainage of the stormwater and no flooding of water during the rainy season in the targeted areas |
| Temporary disruption of access to t businesses due to implementation process | It was briefed that to prevent income loss for roadside businesses by providing alternative access to residences and businesses, conducting activities section by section, coordinating with the public, and ensuring citizens' access to homes, markets, and daily subsistence zones without disruption. |
| Damage to the utilities and services located underground (electricity, water, telephone, etc.) | * It was briefed that the process involves coordination with local authorities, obtaining detailed underground service drawings, manual excavation, scanning the area, ensuring contractor repairs, and installing shoring and support systems to prevent soil collapse and maintain stability during excavation, ensuring protection for workers and houses. |
| Poor materials in implementation | * It was briefed that ,when the tender is announced, the contractor will be requested to describe the type and brand of materials he will use, as well as attach the catalogs to the technical offer. During the tender analysis, a UNOPS team will select the best technical offer. During implementation, the UWSSP will confirm that the materials utilized are the same as those provided by the contractor and approved by UNOPS. |

# Grievance Mechanism GM:

Bank procedures require that Grievance Mechanisms (GMs) be established and operational prior to commencement of the sub-projects, and that they continue to operate for one year following completion of the works for third party settlement of disputes arising from resettlement. This GM should take into account the availability of judicial recourse as well as traditional and community dispute resolution mechanisms.

UNOPS has established Grievance Redress Mechanism (GM) for Yemen Integrated Urban Services Emergency Project (YIUSEP) 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 application of the GM (which attached in Annex 1) was provided to interviewed people and they have been informed that the GM contact information will be posted at the sub-project site 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 operation phase.

In any case, the project implementing partners must maintain records of grievances and complaints, including minutes of discussions, recommendations and resolutions made.

## GM Procedures for Complaints:

### Registering Complaints:

UNOPS is providing multiple access points to the UNOPS GM focal point for beneficiaries to voice their concerns. These access points will be advertised at sub-project level and put on the sign boards on each sub-project site, and include GM contact information including hotline, landline, mobile SMS, email and website:

Address: Haddah Street, former European Union Office Building, Sana’a

Tel: +967 1 504914 and +967 1 504915

SMS: +967 739888388

Email [grm-yemen@unops.org](mailto:grm-yemen@unops.org)

Website: [www.unops.org](http://www.unops.org)

The GM contact information will be posted in Arabic and be communicated through multiple channels to ensure all groups can easily access contact information and relevant mechanisms to provide feedback.

Grievances can be brought up by affected people in case of: (i) non-fulfillment of contracts or agreements; (ii) disputes related to destruction of assets or livelihoods; (iii) disturbances caused by rehabilitation activities; (iv) concerns around safety and protection related to project’s activities.

Anonymous complaints will be admissible to their attention verbally or in writing by sub-projects affected communities or individuals, and will relay these concerns in writing to UNOPS on a next day basis. UNOPS will determine if these concerns rise to the level of a complaint.

UNOPS will register the complaint in a dedicated log by gender, age, and location, and include a copy of the complaint and supporting documents. A draft template for registering grievances is annexed.

UNOPS will record and document complaints received in the sub-project file and the sub-project progress reports, including the number and type of complaints and the results of their resolution.

**Tracking, Investigating and Resolving Complaints**

The GM log maintained by UNOPS will track the date the complaint was received, date responded to, the type of response, and if the complaint was resolved to the satisfaction of the plaintiff.

The ESSO will coordinate with local partners, local field staff and local government officials to ensure prompt follow up action in response to each complaint. More specifically, the GM focal point wills forename complaints:

Inform the plaintiff if the complaint is accepted or rejected within 3 days from receiving the complaint; any technical input from project engineers; if necessary the response will require input from project engineers.

If the complaint is accepted, send the plaintiff an officially stamped review card indicating:

plaintiff name or legal representative

plaintiff address

complaint title

review date

list of annexes submitted with the complaint

Work with engineers, local partners, and contractors to resolve the complaint within 28 days of its submission.

**Grievance Categories**

The grievance could be among but not limited to the following categories:

* Access to project benefits (e.g., no or insufficient jobs created for local communities);
* Non-equal distribution of project services among target beneficiaries;
* Disputes (e.g. matters raised by/related to beneficiaries.

Disturbance (e.g. noise, traffic road access and public safety etc.).

**Steps to handle GM**

* Publicizing: stakeholder’s consultation, printed materials;
* Receiving and registering complaints: staff at local and central level who will be responsible for receiving registering and tracking complaints;
* Acknowledging: The GRM staff (team) acknowledges receipt of the complaint within 2-3 working days. Inform the complainant on the eligibility of his/her complaint;
* Anonymous complaints: To be studied as well;
* Reviewing and investigating, collect, review and analyze related documents;
* Conducting interviews of the involved persons, officers and staff;
* Analyzing the related national legislations & regulations, World Bank Policies & Guidelines and UNOPS standards;
* Summarizing the facts and findings;
* Developing resolution options: based on the collected evidence, the GRM staff (team) will draw conclusions, make recommendations for solutions, and present it to the complainant;
* If the solution is not accepted, complaint will be presented to the Program Manager as a second level to appeal who can make the resolution and/or can delegate an arbitrary to investigate on the complaint and propose recommendations for resolution;
* Implementing resolution: If the solution is accepted, then will be implemented;
* Monitoring and closing: the complaint should be monitored for a reasonable period of time to make sure that the complainant does not express additional concerns, and then complaint could be closed.
* Reporting (recording): prepare concise summary reports of the complaints received, with the resolutions taken and status of resolutions implementation, and filled in the database with detailed record. Table 10 summarizes the complaints management review process.

Table 11:Summary of Complaints Management Review Process

|  |  |  |  |
| --- | --- | --- | --- |
| **­­**  **Summary of Complaints Management Review Process** | | | |
| **Time frame** | **Responsibility** | **Action** | **#** |
| Any time when there is a complaint | Complainant | Complaint is submitted | **1** |
| 1 day | GRM assigned staff | Complaint logged into the YIUSEP/UNOPS registration system with index number | **2** |
| Within 3 days | GRM Assigned staff | Confirm a receipt of complaint and notify complainant whether complaint is eligible or not. | **3** |
| Within 10 days | GRM appointed staff/team including ESSO (at central level and local focal points | Gather evidence on the complaint and conduct interviews as necessary, analyze information and develop resolution on grievance. | **4** |
| Within 14 days from the process start | GRM assigned staff and ESSO | Send notification letter to the complainant in case the investigation of the case is going to take longer than two weeks. | **5** |
| Within 18 days | Project Manager | Review and approve resolutions | **6** |
| Within 21 days | GRM assigned staff | Produce grievance summary report | **7** |
| Within 21 days | GRM assigned staff and ESSO | Inform the complainant on the resolutions (correction actions) | **8** |
| Agreement for implementation | Implementing Partners with contractors | Implement resolutions and report on the progress (monitoring) | **9** |
| 3 days after sending response | GRM staff, ESSO and Project Manager | Close the complaint file and fill it in the system for documentation. | **10** |
| Quarterly basis | GRM assigned staff, ESSO and Project Manager. | Provide record of complaints, requests or inquires per month to the WB showing number of resolved and pending issues, for review and comments. | **11** |

# Environmental and Social Risks Impact and Mitigation Measures

Mitigation measures have been determined to reduce the impact of potential environmental and social risks during the sub-project implementation, which are provided in Table 12.

Table 12:Potential Environmental and Social Risks Impact ‎and Mitigation Measures

| **Potential Impact** | **Mitigation Measure** | **Implementation Responsibility** | **Estimated cost (USD)** |
| --- | --- | --- | --- |
| **Occupational Health & Safety Impacts** | | | |
| Working at Height and risks from falling including from the elevated water tank. | * Ensure proper use of ladders by trained workers and ‎inspected, tested regularly by competent inspectors, ‎use of fall prevention devices, including safety belt ‎and lanyard to prevent access to fall hazard area, or ‎fall protection devices such as full body harnesses ‎and head helmet used in conjunction with shock ‎absorbing lanyards.‎ * Do not move ladders when workers are actually ‎standing on them.‎ * Installation of guardrails with mid-rails and toe ‎boards at the edge of any fall hazard area.‎ * Inclusion of rescue and/or recovery plans, and ‎equipment to respond to workers after an arrested ‎fall and a fall protection plan should be in place ‎which includes the following aspects:‎   + Training and use of temporary fall prevention ‎devices.‎   + Training and use of personal fall arrest systems, ‎such as full body harnesses and energy absorbing ‎lanyards able to support 5000 pounds. ‎Ensure scaffolds are well established and well grounded/fixed.   + Ensure scaffolds for working at height have fall protection barriers * Always supervise workers at height and ensure only trained workers are working from height and are aware of risks and proper measures. * No worker is allowed to work from height without the safety equipment | Contractor and UNOPS | 2000$ |
| Risk of working activities involving entry into confined spaces | * Maintain insurance for workers in sub-project site according to the requirements and conditions of insurance in the bidding documents which should comply with labor law, UNOPS, and the World Bank regulations. * Provide occupational health and safety training to all employees involved in works. * Provide protective masks Half Face Mask Respirator with EN140 with P3 filters, oxygen breathing tank. , safety helmets, goggles, shoes, and overall safety materials as appropriate. * Ensure selected PPEs are suitable to mitigate health and safety impacts related to the sub-project’s activities. * Provide workers in high noise areas with earplugs or earmuffs. * Ensure availability of first aid box. * The contractors should submit daily report on the movement of workers, approved and trained workers list, for workers working on the tank. * The contractors should protect workers and public by covering openings and establishing protected fencing, barricaded and guardrails around worksite locations, and overall use with appropriate awareness and/or warning signage where appropriate on the worksite. * Following driving safety instructions i.e., trained drivers, following speed limits, using well maintained trucks and having a valid driving license in place. * Maintain insurance for workers in the sub-project site according to the requirements and conditions of insurance in the bidding documents which should comply with labor law, UNOPS and the World Bank regulations. * The contractors should ensure the safety of workers (appropriate collective protection equipment as well as PPEs) while working on the tank. * The contractors should provide suitable lighting inside the tank during work hours. * Contractors shall prepare and submit method of statement and OHS risk assessment for high-risk work activities including deep excavations, lifting operations and confined spaces work * Provide self-contained breathing apparatus (oxygen cylinders) to all workers working in confined spaces and provide full body harness and lifelines for workers when working in confined spaces. Apply Permit to Work to ensure full compliance with OHS system and that all the measures are in place to ensure safety of public and workers. The contractors should conduct all works using trained workers using appropriate PPEs, including full face respiratory cartridge, disposable coverall/overall, and safety footwear with disposable boat cover for upper groundwork and for underground work. Other PPEs for Eye Protection (Safety Goggles), Hard Hat/Helmet, Gloves, Disposable Overalls and Boot Cover and all required PPEs, should be provided. * The contractors should provide necessary PPEs, including self-contained breathing apparatus (SCBA) provided to workers inside tank with proper training on how to use them properly. * Workers should spend limited time in confined spaces. * Ensure presence of extra oxygen tanks. * The contractor must ventilated the confined areas properly using a fan, before any worker enters the area * Ensure workers are attached to safety ropes in case of dizziness in confined places. * All workers entering confined spaces must be well trained and wearing all PPEs and supervised by other workers. * Full body coverups shall be provided * Wash stations and washing machines should be present on site for workers * Provide OHS awareness everyday * All workers in confined areas must be supervised. * All workers in confined areas must adhere to safety equipment and PPEs before entering | Contractor, UWSSP ESSO and UNOPS | 1000$ |
| Lifting Operations  Impacts from  Failure of lifting  Falling loads; and  workers being crushed by a moving Load or lifting equipment  which all might result in fatalities or injuries. | * Provide required information and training on the lifting operations to the site workers. * Ensure applying safe lifting operations. * Ensure existence of a flag man and use of proper communication means for him/her to manage site movements. * Ensure testing and checking the lifting equipment and license of trained operator. * Ensure use of proper PPE safety materials and tools. * Prevent workers from standing close to the lifting area and add barriers around the lifting zone * A safe distance from the davit lifting device or any other lifting device has to be maintained between workers or pedestrians and lifting area. * Close the lifting area with fence to prevent access to the lifting area during lifting work. * Install warning signs for lifting activities * Carry out lifting work by well trained, qualified, and certified lifting team and with proper communication means and flagman. * Secure loads when lifting and use strong and reliable fixation materials to make sure that the load is well tighten * Inspect the lifted loads prior lifting to ensure they are properly fixed and tightened. | Contractor, UNOPS and UWSSP ESSO | $2000 |
| Risks from accidental electrical shocks from electrical poles | * Continuous communication with the electricity network operator to ensure safe clearance * Vehicles, plant, machinery, equipment, or materials that could reach beyond the safe clearance distance should not be taken near the electrical line * Operators should be instructed not to carry out any work on top of the machinery near overhead electrical lines; * The working should be under the direct supervision appointed to ensure that safety precautions are observed. * The contractors should ensure the safety of workers ‎‎(appropriate collective protection equipment as well as PPEs) ‎while working near the electrical poles * Provide occupational health and safety training to all workers.‎ * Avoid working during wet weather conditions * The contractors should submit daily report on the movement of ‎workers, approved and trained workers list, for workers ‎working near the electrical poles * Provide warning systems such as mobile equipment, ‎barricades, hand or mechanical signals, or stop logs, to alert ‎workers of the edge of an electrical pole . If possible, keep the ‎grade away from the electrical poles . * Never touch an overhead line that has been brought down by machinery, or has fallen, until confirmation has been received that the electrical line has been de-energized and made safe‎ | Contractor, UNOPS and UWSSP ESSO | NA |
| Manual Handling  Injuries that include  Fractures  Damage to muscles, ligaments, and tendons  Spinal disc injuries  Trapped nerves  Abrasions and cuts  Burns  Hernias | * Provide required information and training on manual handling to the site workers including excavation and lifting methods to prevent muscle and abck injuries. * 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. * Ensure workers are aware of correct lifting techniques or physical work to avoid injuries including back injuries * Ensure regular breaks are maintained and the presence of potable drinking water | Contractor, UNOPS and UWSSP ESSO | NA |
| Excavation  Falling in excavated areas and breathing dust during excavation/ Collapse of excavated trenches, soil on unstable ground. | **Protection from falls, Falling Loads, and Equipment**   * Install barricades around excavated zones or open zones * Use hand / mechanical signals * Grade soil away from the excavation * Fence or barricade trenches left overnight * Use a flagger during the excavation work * Keep materials or equipment that might fall or roll into an excavation at least two (02) feet from the edge of excavations, or have retaining devices, or both. * Provide warning systems such as mobile equipment, barricades, hand or mechanical signals, or stop logs, to alert operators of the edge of an excavation. If possible, keep the grade away from the excavation. * Provide scaling to remove loose rock or soil or install protective barricades and other equivalent protection to protect employees against falling rock, soil, or materials. * Prohibit employees from working on faces of sloped or benched excavations at levels above other employees unless employees at lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment. * Prohibit employees under loads that are handled by lifting or digging equipment. To avoid being struck by any spillage or falling materials, require employees to stand away from vehicles being loaded or unloaded. . * A competent person must make daily inspections of excavations, areas around them and protective systems: * Before work starts and as needed, * After rainstorms, high winds or other occurrences which may increase hazards. * When reasonably anticipated that an employee will be exposed to any hazard * Ensure workers are wearing dust masks while working near and in excavation areas * Ensure applying dust suppression methods such as using greywater, rainwater and dust sweeping method | Contractor, UNOPS and UWSSP ESSO | 2000$ |
| Work related accidents and injuries and handling hazardous materials and wastes and gas emissions from generator | * Store, handle and dispose chemicals according to their Material Safety Data Sheets (MSDSs). * Only trained workers are allowed to work with, handle and dispose chemicals and hazardous materials and wastes. * Ensure workers wear masks, gloves, eye googles, and safety boots and overalls while dealing with chemcials including epoxy, asphalt and cement to prevent skin burns and eye injuries and lung injuries. * Chemicals are handled, stored and diposed by trained workers only and according to their MSDSs and manufacturer’s guidelines * Ensure the disposal of chemical containers according to the MSDS and manufacturer requirements. * Ensure all chemicals and fuel are stored in secondary containers away from groundwater wells and water sources. * Latrines and cesspits for workers are installed away from groundwater wells. * Fuel and chemicals and generator are stored on concrete bases and regularily inspected * Ensure the presence of spill prevention kits. * Ensure the presence of proper PPEs including a respirator for epoxy, goggles and gloves. * Proper label for chemicals on containers should be present. * Presence of a wash facility with water and soap at project site. * Proper and regular maintenance to the generator and tank shall be performed to reduce harmful chemicals emissions by trained workers with suitable PPEs including gloves and masks. | Contractor, UNOPS and UWSSP ESSO | NA |
| The emergency response and accidents | * Contractor has to prepare emergency response plan and 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 sub-project to be financed; (ii) the need to protect the health and safety of sub-project workers; (iii) the need to protect the health and safety of the affected people and Affected communities. * The emergency preparedness and response system shall include (i) identification of the emergency scenarios, specific emergency response procedures, and training of emergency response teams, (ii) emergency contacts and communication systems/protocols (including communication with affected communities), (iii) procedures for interaction with government authorities (emergency, health, environmental authorities), (iv) permanently stationed emergency equipment and facilities (e.g., first aid stations, firefighting equipment, spill response equipment, personal protection equipment for the emergency response teams), (v) protocols for the use of the emergency equipment and facilities with clear identification of evacuation routes and muster points emergency drills and their periodicity based on assigned emergency levels or tiers, (vi) decontamination procedures and means to proceed with urgent remedial measures to contain, (vii) limit and reduce pollution within the physical boundaries of the project sites, property and assets to the extent possible. * The emergency preparedness will include both the construction and the operation phases, and a dedicated, trained, and competent contractor team will be trained to handle the emergency response responsibilities. * 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 body 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, 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 and within 48 hours to the WB. * Details of the nearest hospital should be present on site. * Presence of a car/ambulance to transfer injured worker to the nearest hospital * Maintain insurance for workers in sub-project site according to the requirements and conditions of insurance in the bidding documents which should comply with labor law, UNOPS | Contractor, UNOPS and UWSSP ESSO | 500$ |
| Road accidents while transporting equipment and materials | * Ensure drivers received awareness sessions on good driving practices such as maintaining speed limits and wearing seat belts * Conduct drug checkups on drivers. * Ensure all drivers have valid driving license. | Contractor, UNOPS and UWSSP ESSO | NA |
| Dust and noise emissions during excavation and while using machineries and equipment (OHS) | * Provide dust masks to workers * Provide ear mufflers to workers working with or near noisy equipment and machines * Ensure proper maintenance of equipment and machineries * Use dust sweeping methods and limited water for dust suppression | Contractor, UNOPS and UWSSP ESSO | NA |
| ‘Environmental pressures on workers (heat strokes, dust storms) | * Allow resting breaks in shaded areas and provide workers with enough water * Raise awareness on the importance of drinking enough water * Provide proper PPEs against heat and dust * Do not allow working during bad weather, rain, dust storms * Check weather conditions prior conducting any work | Contractor, UNOPS and UWSSP ESSO | 500$ |
| Risks from electrocution/ welding activities | * Personal Protective Equipment (PPE): Ensure workers wear fire-resistant clothing, welding gloves, and a welding helmet with a face shield or goggles. * Training and Education: Provide proper training on safe work practices, hazard recognition, and equipment usage. * Engineering Controls: Use welding screens or curtains to create a physical barrier between the welding operation and nearby workers. * Proper Ventilation: Implement adequate ventilation systems to remove fumes and gases. * Fire Safety Measures: Keep fire extinguishers readily available and train workers in fire prevention and response. * Safe Work Practices: Maintain a clean and organized work area, properly ground welding equipment, and follow established welding procedures. * Regular Equipment Maintenance: Conduct routine inspections and maintenance to ensure equipment is in proper working condition. | Contractor, UNOPS and UWSSP ESSO | 800$ |
| Life and Fire safety prevention measures and Fire risks from hazardous chemicals used such as fuel for generator | * There are several fire prevention measures during the design preparation, design review, technical specification preparation, work implementation and operation. * Fire Prevention measures during design stage: * 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. * Fire Prevention measures of the system specifications: * Ensure high quality cables standard outdoor and indoor are applied. * Ensure high quality circuit breakers are provided. * Fire Prevention measures during implementation and operations stage: * 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 generators room. * Batteries are stored in well ventilated rooms to prevent the buildup of hydrogen gas * 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. * Storage: Store hazardous chemicals, including fuel, in well-ventilated, fire-resistant areas with proper containment measures. * Separation: Keep flammable chemicals, like fuel, away from ignition sources, heat, and open flames. * Fire Prevention: Regularly inspect and maintain fuel storage containers and equipment to address leaks or potential fire hazards. * Good Housekeeping: Maintain a clean and clutter-free environment to minimize the risk of ignition sources coming into contact with fuel. * Fire Suppression Equipment: Install and maintain fire extinguishers, sprinkler systems, and alarms near the fuel storage area and generator. * Training and Emergency Preparedness: Provide training on handling, storage, and emergency response procedures for hazardous chemicals. Conduct regular drills and ensure familiarity with evacuation routes. * Training on fire safety and how to use fire extinguishers shall be provided to staff | Contractor, LWSC, Environmental  Specialist, ESSO  and UNOPS | 1200$ |
| Vehicles running into workers while laying out pipelines | * Carry the work in one road section and leave the other section for road users and vice versa.. * Avoid traffic routes passing close to any open edge. * Ensure that there are safe areas for loading and unloading * Make entrances and gateways wide enough. * Set sensible speed limits and clearly signpost them. Where necessary, use suitable speed reduction measures, for example road humps to restrict the width of road. * Use a flagman, signals, barricades, and ‎ cones at safe distances from project area to alert road users of work ahead and not to run into workers * Stop the movement of vehicles in worksite in bad weather conditions to avoid collision * Worksite entrance and exits, and not allow unauthorized person or vehicles enter the worksite. * Prohibit workers to climb on the vehicles during movement to avoid falling. * Organizing awareness sessions on occupational health and safety before starting the work * Set speed limits in work sites | Contractor, UNOPS and UWSSP ESSO | NA |
| Other OHS impacts during implementation of subproject | * Maintain insurance for workers in sub-project site according to the requirements and conditions of insurance in the bidding documents which should comply with labor law, UNOPS, and the World Bank regulations. * Ensure skilled workers are hired for each work. * Conduct regular awareness sessions and daily Toolbox Talks on OHS requirements before commencing any work. * Periodic inspection to ensure that mitigation measures are implemented and stop any unsafe act or unsafe situation. * 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. * 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 * Contractor shall monitor, keep records and report on the following environmental and social issues: * Safety: hours worked, lost time injury (LTI), lost workdays, recordable incidents and corresponding Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required (for example, revised job safety analysis, new or different equipment, skills training, and so forth). * Environmental incidents and near misses: environmental incidents and high potential near misses and how they have been addressed, what is outstanding, and lessons learned. * Major 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. * Maintaining a record of injuries and accidents specifying cause and location * 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. * 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 | Contractor, UNOPS and UWSSP ESSO | 1000$ |
| Poor onsite sanitation or water supply, leading to illness and disease. | * Provide adequate supplies of potable drinking water with a sanitary means of collecting the water for the purposes of drinking such as bottles * Ensure that water supplied to areas of food preparation or for the purpose of personal hygiene (washing or bathing) meets drinking water quality standards * provide mobile latrines, which must contain wash hands and soap, that will be connected to cesspits that he will construct. The cesspits will be dismantled immediately after the activities are completed, discharged to the nearest manhole in the public network, and filled with gravelly soil. | Contractor, UNOPS and UWSSP ESSO | 800$ |
| **Social Impacts** | | | |
| Lack of workers awareness and knowledge on ESF requirements on gender, SEA/SH and GBV. | * Contractor and workers must 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/SH and GBV. * Ensure GM is functional and workers aware of its existence and processes that need to be followed to register complaints. * GM system for all workers including providing complaints box and complaint means.   Link:  https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct | Contractor, UNOPS and UWSSP ESSO | $700 |
| Child Labor | * All workers must be more than 18 years old. * Verifying age of workers by checking IDs and official documents should be mandatory. * Ensure a worker log is available, and all workers are registered. | Contractor, UNOPS and UWSSP ESSO | NA |
| Damage to the utilities and services located underground (electricity, water, telephone, etc.) | * Coordination with local authorities and locating service lines before starting work. * Get detailed drawings of underground services. * Before starting excavation, manual excavation is applied to avoid damaging the underground infrastructure. * The area that will be scanned for underground services needs to be obtained from the relevant government institutions before starting work. * Ensure contractor repairs any services that were destroyed during implementation. * Install shoring and support systems, such as trench boxes, or sheet piling, to prevent soil collapse and maintain stability during excavation. These systems provide protection for workers and houses and prevent cave-ins. | Contractor, UNOPS and UWSSP ESSO | NA |
| Inadequate slope of the road after the excavation for the water network. | * Leveling and surveying should be conducted by the instrument of total station to guarantee the drainage of the stormwater and no flooding of water during the rainy season in the targeted areas. | Contractor, UNOPS and UWSSP ESSO | NA |
| Temporary disruption of access to the home/ economic activities due implementation process | * Ensure closure of street sections will not cause income loss to roadside businesses by providing alternative access to residences and roadside businesses. * Activities are to be conducted section by section in a manner to avoid any disruption to people's daily routines. * Coordinate with the public on the activities implementation time and inform them well in advance to avoid any delay or disruption. * Never disturb citizens from access to homes, markets, and daily subsistence zones by: * Providing alternative temporary access roads to homes, markets, and daily subsistence zones. * In residential areas where dust and odor are emitted, inform locals to close their windows | Contractor, UNOPS and UWSSP ESSO | 1000$ |
| Risks to community health and safety | * Communication and Public Outreach: Establish effective communication channels with the community to inform them about the construction activities, potential disruptions, and safety precautions. Regularly update the community on the progress and address any concerns or questions they may have. * Traffic Management: Implement comprehensive traffic management plans to minimize disruptions and ensure the safety of pedestrians, cyclists, and motorists. This may include temporary road closures, detours, and clear signage to guide traffic safely around the construction site. Separate pathways for pedestrians may also be provided where necessary. * Dust and Air Quality Control: Implement measures to control dust and maintain good air quality. This can involve using water suppression systems, covering materials, and employing dust control measures such as regular watering * Noise Mitigation: Implement noise control measures to minimize construction-related noise, particularly in areas near schools and residential areas. This may involve scheduling noisy activities during off-peak hours. * Safety Signage and Barriers: Clearly mark construction zones with appropriate signage and barriers to prevent unauthorized access and ensure the safety of pedestrians and motorists. * School Safety Measures: If construction activities are near schools, additional safety measures should be implemented to protect children. This include establishing safe routes to school, providing temporary barriers or fencing, and ensuring that construction vehicles have restricted access to school zones during the student arrive and leave the school * Worker Safety and Training: Ensure that all workers involved in the construction activities receive appropriate safety training and are equipped with personal protective equipment (PPE) . Regular safety inspections and audits should be conducted to identify and address any potential hazards. * Emergency Preparedness: Develop and communicate emergency response plans to address potential incidents or accidents during construction. This includes having procedures in place to handle medical emergencies, fires, or other unexpected events promptly. | Contractor, UNOPS and UWSSP ESSO | 1000 $ |
| **Environmental Impacts** | | | |
| Noise impacts from machineries | * Noise should be minimum (Max 84 dB(A) during lifting operation and installation * Ensure using well maintained equipment and regularly inspect equipment and machines used * Ensure work is carried out during daytime. | Contractor, UNOPS and UWSSP ESSO | 600 $ |
| Solid waste produced by work | * Ensure that work wastes are properly stored at designated waste zones and regularly collected and transported by an approved contractor to an authorized disposal site. * Ensure proper housekeeping practices are maintained * Wastes should be properly labelled and stored away from water areas and sensitive zones | Contractor, UNOPS and UWSSP ESSO | 300 $ |
| Hazardous Substances and wastes | * Ensure all chemicals including oil, epoxy, paint are stored and handled according to their MSDSs (i.e., oil, epoxy used PPEs, etc.) and at insulated zones from the ground to avoid contamination. * Ensure hazardous materials are labelled * Ensure oil is stored at an inaccessible ventilated area, away from heat and unattainable by animals and pedestrians * Ensure all workers handling hazardous materials and wastes are properly trained and wearing suitable PPEs. * Store, handle and dispose chemicals according to their Material Safety Data Sheets (MSDSs). * Only trained workers are allowed to work with, handle and dispose chemicals and hazardous materials and wastes. * Ensure the disposal of chemical containers according to the MSDS and manufacturer requirements. * Ensure all chemicals and fuel are stored in secondary containers away from groundwater wells and water sources. * Latrines and cesspits for workers are installed away from groundwater wells. * Fuel and chemicals and generator are stored on concrete bases and regularily inspected * Ensure the presence of spill prevention kits. * Proper label for chemicals on containers should be present. | Contractor, UNOPS and UWSSP ESSO | 500 $ |
| Air pollution due to emissions from lifting equipment/ transportation equipment.  Dust generation during excavation | * Visual observation and applying equipment checklist for inspection to ensure low emission and well-maintained equipment will be the only ones used. * Ensure using dust sweeping methods to reduce water used in dust suppression * Use water in dust suppression in limited amount, preferably using grey water. | Contractor, UNOPS and UWSSP ESSO | 500 $ |
| Soil, surface and ground water | * Ensure any chemicals and wastes are stored at insulated areas from the ground and away from runoffs and areas with potential surface and ground water presence and according to their material safety data sheet (MSDSs) * Only trained workers can deal with chemicals and wastes * Ensure the presence of spill prevention kit and train workers on how to use them * Ensure if mobile latrines will be provided or constructed they are located away from groundwater and surface water resources including the well and ensure they are properly insulated from the soil * Ensure proper latrine maintenance is kept * Follow hazardous chemicals and wastes mitigation measures above. | Contractor, UNOPS and UWSSP ESSO | 500 $ |
| **Operation and maintenance** | | | |
| OHS risks from drowning in the tank during maintenance work | * Provide a lock on the tank cover so that it can only be opened by an authorized a person. * Not open the tank cover for whatever purpose (cleanliness, inspection) unless it's empty * Ensure workers are attached to safety ropes to be pulled away in case of dizziness in confined places. * Ensure the presence of lifejackets and drowning mitigation tools adhered by worker in tank * Ensure worker is adhering to oxygen breathing device. Inspect the device prior usage. * Spend limited time in confined area * Ensure worker in confined area is always supervised. | LWSC, Facility administration | NA |
| Air emissions and soil spills from generator | * Monitor emissions from generator regularly * Conduct regular maintenance to the generator * Inspect soil around the generator area and storage fuel * Ensure the presence of spill prevention kit on site * Remove any spills right away. * Ensure fuel storage tank area is inspected and maintained regularily to prevent spills | LWSC, Facility administration | NA |
| OHS risks from working in confined areas and risks of low oxygen in the tank and risk of asphyxiation | * Provide self-contained breathing apparatus (oxygen cylinders) to all workers working in confined spaces and provide full body harness and lifelines for workers when working in confined spaces. * Apply Permit to Work to ensure full compliance with OHS system and that all the measures are in place to ensure safety of workers. * Using trained workers * provide necessary PPEs, including self-contained breathing apparatus (SCBA) provided to workers inside tank with proper training on how to use them properly. * Workers should spend limited time in confined spaces. * Ensure presence of extra oxygen tanks. * Ensure workers are attached to safety ropes in case of dizziness in confined places. * Ensure presence of life jacket for inspection workers along with safety rope /harness etc. * Ensure worker in confined area is always supervised | LWSC, Facility administration | NA |
| Risks of falling from height | * Maintaining the safety of the protection steel fence installed above the tank * Ensure workers are attached to safety ropes in case of dizziness in high places. * Inspect the steel fence prior conducting any work from height. | LWSC, Facility administration | NA |
| Water cuts to the community during maintenance work | * Ensure regular maintenance of the tank * Respond to complaints in timely manner * Ensure communicating the maintenance time/periods to the local community | LWSC, Facility administration | NA |
| Operation and Maintenance (Staff Health and Safety) | * Same mitigation measures for installation will apply for inspection and maintenance as well for relevant risks. * The contractor to offer a training to the facility workers on OHS measures during maintenance of the water network ,generator ,tank and fuel storage areas * Proper and regular maintenance to the generator and tank shall be performed to reduce harmful chemicals emissions by trained workers with suitable PPEs. | LWSC , ESSO  UNOPS and well Administration | NA |
| Water abstraction risks and risks of contamination from generator and fuel | * Monitor and manage groundwater levels: regularly monitor groundwater levels. * Monitor groundwater quality regularily * Conduct awareness campaigns and educational programs to inform the local community about the importance of sustainable water management. * Encourage responsible water usage practices, such as avoiding wastage of water and promoting water-efficient technologies. * Engage with stakeholders to foster a sense of ownership and collective responsibility towards groundwater conservation. * Develop Emergency Response Plan: LWSC to work with NWRA on charge to develop contingency plans for addressing groundwater emergencies, such as droughts or contamination events, to safeguard the aquifer * Artificial Recharge: LWSC to work with NWRA and local authority on charge to explore possibilities for artificial recharge methods to increase the rate of groundwater recharge. This can include practices such as recharge ponds that capture and direct surface water into the aquifer. | Facility Administration, NWRA, local authority | NA |
| **Estimated Total cost** | | | 16,900$ |

# Environmental and Social Monitoring Plan

The Environmental and Social Monitoring Plan (table 13) aims at ensuring effective and timely implementation of environmental and social mitigation measures. The monitoring plan include all sensitive environmental and social parameters; should be performed by well trained personnel; within a pre-defined timeline; and by utilizing available management resources and systems. This would include for instance, records of incidents, complaints, traffic, health and safety, water quality, etc.

The Contractor holds responsibility for monitoring pollutant releases to the on-site and off-site environments. These include air pollutants, noise/vibration levels, ground and surface water quality, and waste quantities, etc. the Contractor is also responsible for adherence to working site and labor safety measures and transportation measures, by analyzing and responding to incident and complaining records and reports.

WASH team including ESS consultant, PMU team, will conduct regular site visits. Related stakeholders such as Water supply and Sanitation Local Corporation (WSSLC) and Environment Protection Authority (EPA) including participation from the contractor’s side also could join the site visits. The site visit would be supplied with PMU consultant and supervisors’ reports, contractors’ records and reports. The grievance records should be part of the visit report as well. Feedback from local communities on environmental and social related issues should also be considered and either received through community representatives or by direct consultation with surrounding beneficiaries.

Table 13:Environmental and Social Monitoring Plan

| **Aspect to be monitored** | **Measurements (incl. methods & equipment) and indicators** | **Frequency** | **Implementation responsibility** |
| --- | --- | --- | --- |
| **Community Health and Safety** | | | |
| Public safety during the 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 worker’s entrance. * Visual observations and records of any construction or storage areas without fencing * Visual observations of any non-allowed public access   **Indicators**   * Number of recorded injuries and types of injuries and accidents * Number of grievances, number of recorded complaints | Daily | Contractor ,UWSSP 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 recorded workers below the age of 18 by checking IDs and labor logs | Daily | Contractor ,UWSSP and UNOPS |
| Low aesthetic value of landscape such as accumulation of waste and debris in the site. | **Method:**   * Site inspection and documentation of general landscape   **Indicators:**   * Presence of waste stored in undesignated zones * Number of complaints regarding wastes | Monthly | Contractor ,UWSSP and UNOPS |
| Complaints Handling | **Method:**   * Complaints register will be kept on site and this will feed into the GM. Details of complaints received will be incorporated into the audits as part of the monitoring process   **Indicators:**   * Number of Reported Grievances | Weekly | Contractor ,UWSSP and UNOPS |
| GBV and SEA issues | **Method**   * GBV and SEA Complaints’ register will be kept on site, and this will feed into the GM. Details of complaints received will be incorporated into the audits as part of the monitoring process   **Indicators**   * Number of reported and registered cases of SEA/SH through project GM * Number of reported cases of contractors noncompliance to PSEA/SH obligations in work sites | Monthly | Contractor ,UWSSP and UNOPS |
| 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.). | Monthly | Contractor ,UWSSP and UNOPS |
| **General Environmental Impacts** | | | |
| Dust generation during work and gaseous emissions from machineries and equipment. | **Method:**   * Visual observation and photographic documentation of equipment induced dust clouds during work activities.   **Indicator:**   * visible dust emissions/visible dust cloud * Number of received complaints regarding dust and air emissions | Weekly | Contractor ,UWSSP and UNOPS |
| Increased level of noise and vibration. | **Method:**   * Site supervision/inspection and documentation to ensure compliance with the noise mitigation measures.   **Indicators:**   * Number of received complaints regarding noise * Number of GM and complaints related to noise. * Equipment condition and Number of maintenance | Weekly | Contractor ,UWSSP and UNOPS |
| Production, proper disposal and disposal of work’s debris and waste materials. | **Method:**   * Inspection and photographic documentation.   **Indicators:**   * Records of presence of waste stored in open areas or near drainage areas and increase in waste pollution * Number of complaints received regarding waste mismanagement * Visible records of pests (insect vectors and rodents) * Presence of waste collection receipt | Daily | Contractor ,UWSSP and UNOPS |
| Soil and groundwater contamination from hazardous chemicals and wastes | **Method:**   * Inspection and photographic documentation.   **Indicators:**   * Visible change in soil color * Presence of chemicals and containers at undesignated zones * Chemicals not properly labelled and stored according to their MSDSs * Chemicals stored directly on ground * Groundwater tests shows presence of hydrocarbons and water contaminants above safety limits * Presence of visible leaks of chemicals * Chemicals and wastes are not properly labeled | Daily for chemicals storage and spills  Monthly for groundwater testing | Contractor ,UWSSP and UNOPS |
| Air pollution due to emissions from equipment/transportation trucks. | **Method:**   * Visual observation and photographic documentation of equipment induced emissions from vehicles and transport trucks and excavation work during implementation of activities.   **Indicators**   * Quantity of consumed fuel. * Visible dust cloud * Number of complaints regarding dust and air emissions | Daily |  |
| **Occupational Health and Safety** | | | |
| Working at Height Activities | **Method:**   * Visual inspection to ensure that all working at height activities are monitored and all safety associated instructions are implemented according to OSH requirements.   **Indicators:**   * Number of workers injured from working at height and action taken * Documentation of availability of specific personal protective equipment and training needed to respond to an emergency * Presence of safety equipment such as barricades, lifelines and fall prevention devices on site | Daily | Contractor ,UWSSP and UNOPS |
| Lifting Operations | **Method:**   * Visual inspection to ensure that all lifting activities in the work site are executed safely and as per the standard lifting safety rules.   **Indicators:**   * Number of injured workers from lifting activities * Number of workers not wearing proper PPEs * Records of non-compliances such as standing under lifting zone | Daily | Contractor ,UWSSP and UNOPS |
| Manual Handling | **Method:**   * Visual inspection to ensure that all manual handling activities are performed according to the OSH manual handling safety rules and instructions. Record any noncompliance. * Ensure that the implementation of the safety techniques to control the manual handling risk is monitored continuously.   **Indicators:**   * Number of injured workers * Number of workers not wearing proper PPEs. | Daily | Contractor ,UWSSP and UNOPS |
| Hazardous materials, chemicals and wastes | **Method:**   * Visual inspection * Record any noncompliance and take photographic proof.   **Indicators:**   * Hazardous materials and chemicals storage is unlabeled * Presence of hazardous material at undesignated zones * Empty chemical bins are stored inappropriately * Number of workers not wearing proper PPEs and number of injured workers from chemicals such as skin blister from cement * Chemicals, wastes and hazardous substances are not labelled * Presence of washing facilities and water and soap for workers * Documentation of availability of spill response equipment sufficient to handle at least initial stages of a spill | Daily | Contractor ,UWSSP and UNOPS |
| Excavation | **Method:**   * Visual inspection to ensure that all excavation activities are executed safely and all safety rules are implemented. Record any noncompliance.   **Indicators:**   * Number of falling into excavated zones cases * Number of workers grievance regarding excavated zones * Number of workers wearing proper PPEs/ mask * Presence of visible dust cloud | Daily | Contractor ,UWSSP and UNOPS |
| Work related accidents and injuries. | **Method:**   * Inspection and photographic documentation * Ensure the following aspect are applied: * Maintaining a record of injuries and accidents specifying cause and location. * 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.   **Indicator:**   * The record of injuries and accidents in project reports specifying cause and location. * Corrective actions recorded | Daily | Contractor ,UWSSP and UNOPS |
| Poor onsite housekeeping, toilet and water supply, leading to illness and disease. | **Method:**   * Visual site inspection and photographic proof   **Indicators:**   * Presence of clean water and soap * Presence of pests and flies * Reports on illness and diseases * Presence of waste outside designated bins | Weekly | Contractor ,UWSSP and UNOPS |
| Complaints. | * Number of GRM Reports and number of solved issues | Weekly | Contractor ,UWSSP and UNOPS |
| Safety | **Method:**   * Visual inspection * Site inspection   **Indicators:**   * 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. | Daily | Contractor ,UWSSP and UNOPS |
| Environmental incidents and near misses | **Method: :**   * Environmental incidents and high potential near misses and how they have been addressed, what is outstanding, and lessons learned.   **Indicators:**   * 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. | Daily | Contractor ,UWSSP and UNOPS |
| Major works: | **Indicators:**   * Work undertaken and completed, progress against project schedule, and key work fronts (work areas). | Daily | Contractor ,UWSSP and UNOPS |
| E&S and OHS requirements: | **Indicators:**   * Non-compliance with OHS requirements, national law (legal noncompliance), project commitments and E&S requirements. | Daily | Contractor ,UWSSP and UNOPS |
| E&S/OHS inspections and audits: | * By contractor, engineer, or others, including authorities to include date, inspector or auditor name, sites visited and records reviewed, major findings, and actions taken. | Daily | Contractor ,UWSSP and UNOPS |
| Workers: | **Indicators:**   * Number of workers, 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). * Number of grievances raised by workers and number of solved grievances | Daily | Contractor ,UWSSP and UNOPS |
| Training on E&S issues | **Method:**   * Including dates, number of trainees, and topics.   **Indicator:**   * Number and type of trainings performed including dates, number of trainees, and topics. * Training records and number of training sessions on OHS risks and Environmental & Social issues and attendances | Weekly | Contractor ,UWSSP and UNOPS |
| Footprint management: | * Details of any work outside boundaries or major off-site impacts caused by ongoing work—to include date, location, impact, and actions taken. | Monthly | Contractor ,UWSSP and UNOPS |
| Worker grievances: | * Number of grievances and 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. | Weekly | Contractor ,UWSSP and UNOPS |
| Major changes to contractor’s environmental and social practices. | * Monitor and record contractor’s environmental and social practices noncompliance through visual inspections. | Monthly | Contractor ,UWSSP and UNOPS |
| Deficiency and performance management | * Actions taken 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. | Monthly | Contractor ,UWSSP and UNOPS |
| Complaints Handling | * 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. | Monthly | Contractor ,UWSSP and UNOPS |
| Workers are not wearing full PPEs | **Method:**   * Visual inspection and photographic documentation   **Indicators:**   * Number of workers not wearing PPEs or correct PPEs * Documentation of availability of specific personal protective equipment | Daily | Contractor ,UWSSP and UNOPS |
| Working in confined areas (tank) | **Method**:   * Visual inspection and tests   **Indicators**:   * Test on oxygen level in confined areas is below health limit * Presence of light source * Proper PPEs observed * Number of workers are wearing overalls, oxygen tanks and all needed PPEs and attached with safety ropes before entering confined area * Records of confined area workers and their qualifications including trainings received * Records of workers show that they spent limited time (less than 10 minutes in confined spaces) * Number and type of accidents/injuries and corrective actions taken * Gas tests shows safe gas emissions and presence of enough oxygen * Presence of life jacket and drowning mitigation equipment | Daily | Contractor ,UWSSP and UNOPS |
| Accidents from transporting equipment | **Method:**   * Inspection and photographic documentation   **Indicators**   * Number of injured workers and individuals in society * Number of accidents * Qualifications and licenses of drivers Drivers adhere to speed limits at work sites * The presence of communication means (complaints) on vehicles * Drug tests shows positive or negative results | Daily | Contractor, UWSSP and UNOPS |
| Vehicles running into workers | **Method:**   * Inspection and photographic documentation   **Indicators**   * Number of injured workers * Number of workers committed to wearing personal protective equipment * The presence of safe areas for loading and unloading * The presence of flags, signals, barricades and cones and flagman to raise awareness of vehicles and road users of the work ahead * Number of awareness sessions on occupational health and safety before starting work * Drivers adhere to speed limits at work sites | Daily | Contractor, UWSSP and UNOPS |
| **Operation and maintenance** | | | |
| Training to facility workers by contractor before project handover | **Indicators:**   * Number of trainings including OHS trainings and social trainings and environmental trainings provided | Before project handing over | Contractor ,UWSSP and UNOPS |
| operation and maintenance (lack of maintenance) | **Indicator:**   * Number and type and details on maintenance performed * Number of times water was cut * Number of times presence of deterioration, leaks in the system was recorded * Number of complaints received on water quality or availability | Daily | Facility administration |
| Emissions from generator and storage fuel area and spills | **Method:**   * Inspection (visual) * Gas emissions tests on generator   **Indicators:**   * Change in soil color * Parameter for gas emissions are above legal limits | Daily | Facility administration |
| Operation and maintenance (OHS) | **Method:**   * Ensure same monitoring measures are implemented during operation and maintenance for relevant risks   **Indicator:**   * Number of workers injured * Number of trainings on OHS health and safety measures and on maintenance received by facility workers | Daily | Facility administration |
| Operation and maintenance (risks on groundwater) | **Method:**   * Water tests   **Indicator:**   * Measuring the drop in the groundwater level decrease/increase * Results of the parameters to measure GW quality are above the legal limit * Water quality parameters above national and WHO limits | Monthly | Facility administration |

# Reporting of ESMP

The ESSO will report on monthly basis the implementation of the ESMP to UNOPS, and UNOPS will report the ESMP implementation to the WB. There may be additional reports based on the situation and updates. The Supervision Consultant will monitor and report weekly and monthly on the level of mitigation measures implementation and environmental issues to UWSSP. The contractor 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 Contractor environmental and social practices, deficiency and performance management.

Reports must be submitted on a weekly and monthly basis in order to meet the needs of specialists in UNOPS and UWSSP to follow up and keep up with any imbalances in the environmental and social aspects. The weekly report must be detailed and address current developments and urgent issues that need immediate follow-up. While the monthly report is a summary that reviews events and progress throughout the month and provides an overview of the overall status of implementation and compliance with the ESMP.

The following table (14) provides an indicative reporting plan.

Table 14:Reporting Plan

|  |  |  |  |
| --- | --- | --- | --- |
| What | How | Who | When |
| Compliance level to the ESMP including environmental and social issues, OHS, GM, etc. | Based on monitoring and inspections, log, the consultant reports, GM log | ESSO (UNOPS) | Weekly and monthly from ESSO and quarterly from UNOPS to WB. |
| 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, stakeholder engagement, details of any security risks, worker grievances, stakeholder grievances, major changes to Contractor environmental and social practices, deficiency and performance management. | Consultant based on monitoring, inspection, records, logs, contractor reports. | Supervision Consultant.  (appointed by the implementing partner). | Weekly and monthly |

**The roles and responsibilities of Supervision Consultant and ESSO are given in the table below:**

Table 15:Roles and Responsibilities

|  |  |  |
| --- | --- | --- |
| **Position** | **Responsibility** | **The organization** |
| Supervision Consultant | * Ensure ESMP Implementation; * Supervise procurement and hiring of staff; and * Overall supervision of project. * Assist UNOPS ESSO in managing and monitoring all HSSE related activities on the ground | * Implementing Partner (UWSSP) |
| Environment and Social Safeguards Officer  (assisted by Implementing Partner supervision consultant (Supervisor) and contractor HSSE officer) | **Environmental Aspects**   * Ensure that the contracts include clauses for ESMP implementation; * Ensure implementation of the ESMP during various phases of design and implementation; * Certify timely and robust environmental monitoring in the field by local facilitators and technical resource persons; * Ensure that environmental trainings are planned and implemented; * Overall monitoring and reporting of environmental impacts; * Coordinate and ensure development of awareness material; * Prepare environmental Progress Reports including monitoring reports for the project. * Monitor and check the proper implementation of all occupational health and safety mitigation measures as suggested in ESMP through field visits as well as site records; * Ensure that environmental trainings regarding occupational health and safety are planned and implemented; * Overall monitoring and reporting of occupational health and safety issues; and * Prepare Progress reports regarding compliance of   mitigation measures for occupational health and safety for the project. | * UNOPS |
| **Social Aspects**   * Monitor and check the proper implementation of all social mitigation measures as suggested in ESMP; * Monitoring and evaluation of social related matters of the project and maintain a social complaint register to document social issues; * Certify timely and robust social monitoring in the field by local facilitators and technical resource persons * Ensure inclusion of ESMP requirements in project designs; * Remain the focal point for managing the project GM, and maintain analysis and reports on types of complaints received, resolved, time taken to action, etc.   Provide technical lead to the field teams regarding gender mainstreaming activities of the project;   * Linkages development with NGOs and public-sector entities working on empowerment of women and marginalized segments of society; * Ensure the GM is gender friendly; * Provide assistance and advice to field staff for resolving grievances related to gender arising on account of project implementation; and * Prepare Grievance Reports as and when required * basis. |  |
| GM Focal Point | * Regularly review and assess the implementation of the GM plan to ensure that gender considerations are integrated into project or organizational activities. * Monitor the progress of gender-related initiatives and actions outlined in the GM plan. * Collect and analyze gender-disaggregated data to evaluate the effectiveness of gender mainstreaming efforts. * Identify gaps or challenges in achieving gender equality goals and propose corrective measures. * Monitor the inclusion of gender perspectives in policies, programs, and decision-making processes. * Collaborate with relevant stakeholders to collect feedback and insights on gender mainstreaming efforts | **UNOPS** |
| GBV Focal Point | * Monitor the implementation of the GBV plan to prevent and respond to gender-based violence incidents. * Regularly review and assess the effectiveness of prevention and response mechanisms for gender-based violence within the project or organization. * Monitor the training and awareness-raising activities conducted to educate staff members, contractors, and stakeholders about GBV prevention and response. * Track and document incidents of gender-based violence and the corresponding actions taken to address them. * Evaluate the accessibility and effectiveness of support services for survivors of gender-based violence. * Collaborate with relevant partners and service providers to monitor and improve the support system for survivors. * Report on the progress and outcomes of GBV prevention and response efforts to management and relevant authorities. | UNOPS |
| Contractor | * Compliance with ESMP: The contractor is responsible for familiarizing themselves with the ESMP and ensuring that all activities carried out during the project adhere to the plan's environmental and social guidelines and requirements. * Implementation of mitigation measures: The contractor is responsible for implementing the mitigation measures outlined in the ESMP to minimize and manage potential environmental and social impacts associated with project activities. * Monitoring and reporting: The contractor required to conduct regular monitoring of environmental and social parameters and report the findings to UWSSP. * Stakeholder engagement: Contractor has a role in engaging with stakeholders, including local communities, during project implementation. and address concerns, and ensure that the project's activities are conducted in a manner that respects the rights and interests of affected stakeholders. * Training and capacity building: Contractor responsible for providing training and capacity building to their staff regarding environmental and social management practices. This can include raising awareness about environmental regulations, promoting good practices, and ensuring that workers are equipped with the necessary skills to carry out their tasks while minimizing impacts. * Emergency response and incident management: Contractor should be prepared to respond to emergencies or incidents that may occur during project implementation. This involves having contingency plans in place, training staff on emergency response procedures, and promptly reporting and addressing any incidents that may have environmental or social implications. * Collaboration with other stakeholders: The contractor need to collaborate with other stakeholders involved in the project, such as environmental consultants, regulatory agencies, and community representatives. This collaboration ensures effective coordination and communication among all parties involved in the ESMP implementation. | Contractor |

# Annex:1 Environmental and Social Requirements for Contractors

Contractors shall meet the following Environmental, Health, Safety and Social (including labor) requirements – thereafter called ESHS requirements .The ESHS requirements include 10 sections

1. Contractor Environmental and Social Management Plan (C-ESMP)
2. ESHS Training
3. Site Management
4. Occupational Health and Safety (OHS)
5. Chance Find Procedures
6. Emergency Preparedness and Response
7. Stakeholder Engagement
8. Code of Conduct
9. Contractor Environmental and Social Reporting
10. GBV Action Plan based on UNOPS template

Contractor Environmental and Social Management Plan (C-ESMP)

* + Prepare and submit to UWS-PMU / UNOPS for approval a Contractor Environmental 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 UWS-PMU Engineers before starting construction or rehabilitation activities.

ESHS Training

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

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

* + 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 UWS-PMU, 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 revegetated, scarifying the work area to a condition that will facilitate natural revegetation, 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
  + Repair, replant, reseed or otherwise correct, as directed by UNOPS or UWS-PMU, 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. 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 construction waste disposal
  + Carefully select waste disposal sites, to be approved by UNOPS or UWS-PMU.
  + 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 debris and hazardous waste at designated permitted sites waste disposal sites allocated by the local authorities, and obtain a receipt of waste from the authorized landfill authority.

Hazardous and Toxic Materials

Toxic and deleterious wastes resulting from the Project Company's activities require special attention in order to forestall their introduction into the natural environment which could result in harm to people, aquatic life or natural growth of the area. The Contractor shall take precautions relative to the conditions specified herein.

* + Train workers regarding the handling of hazardous materials
  + Store , handle and dispose hazardous materials according to their MSDSs
  + 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

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.

Decommissioning of Worksites and Plant

* + Clear construction sites of any equipment or waste, and ensuring that the sites are free from contamination.
  + Dispose of or recycle any equipment or waste in an appropriate and environmentally sound manner.
  + Hand construction sites over to the original owners, taking into account his/her wishes and national legislation.

Health and Safety

Severe Weather and Facility Shutdown

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

Lavatories 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 of Job specific Safety Analysis (JSA);
* Consider the use of PPE as a last resort when it comes to hazard control and prevention, and always refer to the hierarchy of hazard controls when planning a safety process.

Noise

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).
* Enforce the use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A).
* Provide hearing protective devices capable of reducing sound levels at the ear to at most 85 dB(A).
* Reduce the “allowed” exposure period or duration by 50 percent for every 3 dB(A) increase in in excess of 85 dB(A).
* Perform periodic medical hearing checks on workers exposed to high noise levels.
* Rotate staff to limit individual exposure to high levels.
* Install practical acoustical attenuation on construction equipment, such as mufflers.
* Use silenced air compressors and power generators
* Keep all machinery in good condition
* Install exhaust silencing equipment on bulldozers, compactors, crane, dump trucks, excavators, graders, loaders, scrapers and shovels.
* Post signs in all area where the sound pressure level exceeds 85 dB(A).
* Shut down equipment when not directly in use
* Provide advance notice to occupants if an activity involving high level impact noise is in close proximity to buildings.

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 and UWS-PMU.
* 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 and UWS-PMU.

Communicable Diseases

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

* Conduct Information, Education and Consultation Communication (IEC) campaigns, at least every other month, addressed to all construction site 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.
* 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:
  + Conducting immunization programs for workers in local communities to improve health and guard against infection.
  + Providing health services.

COVID-19

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, taking into account 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.

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.

Labour Force Management

Labour Influx

* Avoid contamination of fresh water sources
* Provide opportunities for workers to regularly return to their families
* Provide opportunities for workers to take advantage of entertainment opportunities away from rural host communities
* Ensure that children and minors are not employed directly or indirectly on the project, and keep registration and proof of age for all employees on-site.
* Pay adequate salaries for workers to reduce incentive for theft
* Pay salaries into workers’ bank accounts rather than in cash
* Get an appropriate mix of locally and non- locally procured goods to allow local project benefits while reducing risk of crowding out of and price hikes for local consumers
* Establish substance abuse prevention and management programs
* Hire workers through recruitment offices, and avoid hiring “at the gate” to discourage spontaneous influx of job seekers
* Identify authorized water supply source and prohibiting use from other community sources;
* Put in place measures to reduce water and electricity consumption;
* Employ locals to the extent possible;
* Develop and adopt a Gender Action Plan to promote the transfer of construction skills to local women, to facilitate their employment at the Project site, including training and recruitment targets.

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 Labour 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.

Grievance Mechanism for Workers

The Contractor will put in place a Grievance Mechanism for its 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 confidentially. While procedures may specify that complaints should first be made to the workers’ line manager, there should also be the option of raising a grievance first with an alternative manager, for example, a human resource (personnel) manager.
* Non-retribution. Procedures should guarantee that any worker raising a complaint will not be subject to any reprisal.
* Reasonable timescales. Procedures should allow for time to investigate grievances fully, but should aim for swift resolutions. The longer a grievance is allowed to continue, the harder it can be for both sides to get back to normal afterwards. Time limits should be set for each stage of the process, for example, a maximum time between a grievance being raised and the setting up of a meeting to investigate it.
* Right of appeal. A worker should have the right to appeal to the World Bank or national courts if he or she is not happy with the initial finding.
* Right to be accompanied. In any meetings or hearings, the worker should have the right to be accompanied by a colleague, friend or union representative.
* Keeping records. Written records should be kept at all stages. The initial complaint should be in writing if possible, along with the response, notes of any meetings and the findings and the reasons for the findings. Any records on SEA shall be registered separately and under the strictest confidentiality.
* Relationship with collective agreements. Grievance procedures should be consistent with any collective agreements.
* Relationship with regulation. Grievance processes should be compliant with the national employment code

Protection from 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 Code of Conduct:

**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 2: GM Complaint and Suggestion Form

**Yemen Integrated Urban Services Emergency Project - Additional Financing**

**Sample of GRM**

**Complaint and Suggestion Form**

**المشروع الطارئ للخدمات الحضرية المتكاملة**

**نموذج لألية التظلمات والشكاوى**

**استمارة توثيق ومتابعة شكاوى المستفيدين من المشروع الطارئ للخدمات الحضرية المتكاملة**

**"Documenting and Monitoring Complaints Form of**

**Beneficiaries of Yemen Integrated Urban Services Emergency Project "**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **الاسم الثلاثي للمستفيد**:  Beneficiary Name |  | | | | |
| **رقم البطاقة الشخصية**:  ID No. |  | | **رقم الهاتف للمتابعة** Tel No. 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 |  |

**- الجهة التي يجب أن يقدم لها الشكوى:..UNOPS/Sana’a – Tel: 01 504914/915 - SMS:739888388 Email: 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

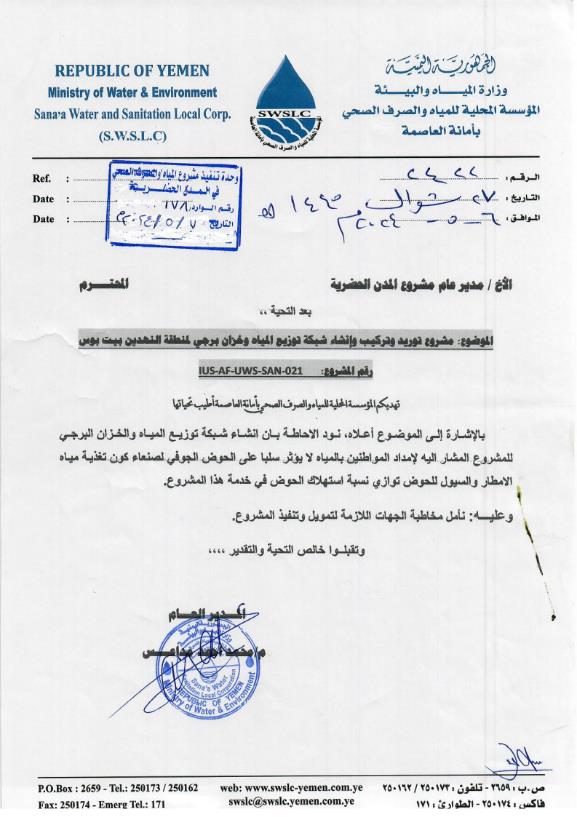
|  |  |  |  |
| --- | --- | --- | --- |
| **الإجراءات المتخذة :**  Action taken |  | | |
| **ما ترتب عليها من نتائج:**  The results of the action taken |  | **التاريخ:**  Date |  |

**اسم مستلم الشكوى ووظيفته: ................................................**

Name of person received the complaint and his/her position

**التاريخ** Date **: .................................. توقيع الموظف المختص/** Signature

# Annex 3: SWSLC Letter

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1. https://documents1.worldbank.org/curated/en/099854511242137276/Final0ESMF0YIUSEP0II0AF.docx [↑](#footnote-ref-1)
2. Drawings are referred to the technical drawings [↑](#footnote-ref-2)