**Practical Action – Sudan**

**North Darfur Programme**

**Terms of Reference (TOR)-PR001**

**Construction of (3)Water Wells**

1. **Background**

The Wadi El Ku Catchment Management Project-Phase II (WEK-II) seeks to achieve sustainable improvements in agricultural and related livelihoods through the improved management of natural resources – mainly water, but also soils and forests.

Following the successful implementation of the first phase of the Wadi El Ku Catchment Management Project with financial support from the European Union, the second phase of UNEP’s Wadi El Ku Catchment Management Project will continue to demonstrate how effective and inclusive natural resource management, based on UNEP’s experience in Sudan in Integrated Water Resources Management (IWRM) and in catchment based natural resources management, can improve relationships over natural resources, therefore contributing to peace in a conflict affected region. The project will also improve livelihoods through enabling sustainable increases in agriculture and related value chain productivity. Participating communities will achieve sustainable increases in agricultural and related value-chain production through the rehabilitation and improved management of land, forest and water resources. UNEP and Practical Action convening power will continue to bring communities and disparate sectoral institutions together to rebuild relationships over natural resources, thereby contributing to peace. The intent is to refine and strengthen the model for inclusive and effective catchment management developed under Phase 1, which demonstrated a positive impact on the environment and livelihoods, as well as on relationships over resources. This model can be scaled up and replicated elsewhere in Darfur and Sudan.

Thus, UNEP and Practical Action Sudan has received additional funding from the European Union to continue the catchment management and livelihoods project in the Wadi El Ku catchment in North Darfur. The project will continue to strengthen livelihoods and achieve sustainable increases in agricultural and related value-chain production in a wider area of the Wadi from Umsayala upstream to Wada’a downstream (about 180 km) through the rehabilitation and improved management of its land, forest and water resources.

The project will achieve this outcome by applying UNEP and Practical Action knowledge and experience with environmental governance and integrated water resource management to the natural resource management challenges of Wadi El Ku. Concretely, the project will continue to grow and refine a catchment management system in the project area, which brings government and communities together for joint decision making over natural resources. The project will also take actions that open up and improve livelihood options and practices for farmers, agro-pastoralists and pastoralists living in or migrating through Wadi El Ku. It will help these communities to better manage their soil, water and forest resources, and to address the growing soil erosion and land degradation problem in the area. In addition, the project will use these activities to strengthen community-based decision-making and peacebuilding around natural resource management issues, and to promote community participation in an improved system of integrated catchment management and governance. Another area of emphasis will be to strengthen data driven decision-making, through focusing on generating the data and science needed to improve decision-making around water resources in the wadi. Finally, state government’s involvement will continue to be promoted, building on the capacity building programme implemented under Phase 1, to better support, scale up and replicate integrated and inclusive catchment management, at both the technical and policy levels. The project will continue to pay attention to the documentation of successes and lessons learned during implementation, with a view to informing the development of a general model of catchment management that will have wider application in the region and the country.

The WEK-II objectives are: Improve natural resource use and management in Wadi El Ku. As well as communities apply improved techniques in natural resources management and agriculture. With an overall impactof establishing climate resilient livelihoods and reducing natural resource conflicts as well as displacement due to loss of livelihoods in North Darfur.

The system of catchment management will be underpinned by UNEP and Practical Action understanding and experience of integrated water resource management. IWRM demands a holistic approach to water resource management, which takes account of the views and needs of all stakeholders, while being well informed by good science and considerations of environmental sustainability. In other words, IWRM is essentially an inclusive decision-making process built on a foundation of good science.

1. **Objectives**

The services to be rendered by the contractor under this TOR are aimed at providing functional water points in WEK II areas. Specifically, the objectives are;

1. To establish 3 water well :

One water well in the upstream area (Helat Goz village , in Elfasher locality North Darfur

Two water well in the downstream Wadcoata and Eddelebeida villages of Kalemendo Locality North Darfur State.)

1. **Scope of Service**

The scope of work under this TOR consists of geophysical studies necessary to locate the water points in WEK II area and construct these water points.

**ANNEX 1: Schedule of Requirements**

1. **Water Wells**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item** | **Description** | **unit** | **Quantity** | **Price (SDG)** | **Amount (SDG)** |
| water wells | Conduct necessary geophysical studies and Drill borehole of 8 5/8-inch dia, through all types of strata including disposal of excavated materials, taking any remedial measures to overcome caving in, or over drilling to accommodate sloughed material and keeping drilling records as specified. | job | 3 |  |  |
| a) Plain casing, either threaded or welded should be according to Ap1/ASTM standard, with dia 6 ½ inch (165 mm) with wall thickness (6.40-7.04 mm) collapse resistance (1,220 PSI). |  | 3 |  |  |
| b) Screen, dia 6 1/2 " (165 mm) with openings (0.040 mm) 15 Bar. |  | 3 |  |  |
| Allow for taking samples of drill cutting at (2 m) two meters interval |  | 3 |  |  |
| Pumping Test step draw down and constant discharge test including installation, removal of test pumping equipment, water level observation and draw down measurements. |  | 3 |  |  |
| Undertake water level observation and record on recovery. |  | 3 |  |  |
| Water analysis, should carry out bacteriological, physical and chemical analysis of the borehole water. |  | 3 |  |  |
| Provision and installation of electric submersible pumping set complete with motor, starter, sensor, cable, rising main, valving system, gauges, clamps, control panel and all necessary accessories as per specifications; capacity = 5 - 10 m3/h, Total head = 60-100 m, Pump setting depth = 35m, Borehole casing = 8⅝" |  | 3 |  |  |
| Provision and construction of pumping house (6x4 m2) comprising  - Excavation for the foundation of the generator room 0.6 m width x 0.7 m depth.  - Supply and build stone strip foundation under the walls 0.6 m widthx0.4 m depth, in c/s mortar 1:6 mix,  - Supply and build red bricks plinth under the grade beam, 0.4 m thick in c/s mortar of 1:4 mix  - Supply and build red bricks walls, 0.3 m thick in c/s mortar of 1:4 mix  - Supply and cast reinforced concrete of mix 1:2:4, in the grade beam.  - Supply and cast 10 cm thick plain concrete for the plinth around the room of mix 1:3:6.  - Supply material and apply cement sand plaster to the internal and external surfaces of the walls, of mix 1:7 cement sand mortar  - Supply and install steel 3 window size 1.5x1.0 m made of steel angles 2.5x2.5x1.5 mm and steel plate of 1.0 mm thick, including steel mesh protection grill  - Supply and fix steel door TYPE D1sizw (2000 x 1200) mm, coated with red oxide base and oil paint and all the necessary fittings for fixture and lock  - Supply and install roof from 0.35 mm corrugated iron sheets including, 80x40x4 mm steel rectangular rafters and 60x30x3 mm purlins. The price is inclusive of, bolts, nuts and fixing accessories. |  | 3 |  |  |
| Provision and installation of continuous rating diesel engine driven generator according to specifications. The unit should have access power of at least 25% above the optimum power required by the pump test: power = 22 KVA; power factor = 0.3; voltage = 415V; frequency = 50 HZ |  | 3 |  |  |
| Supervision of borehole drilling process and completion, should be done by specialized geologist. |  | 3 |  |  |
| Preparing of final report, including: - |  | 3 |  |  |
| a) Data analysis. |  |  |  |  |
| b) Drilling report. |  |  |  |  |
| c) Borehole completion report. |  |  |  |  |
| d) Pump test report. |  |  |  |  |
| e) Well development and disinfection report. |  |  |  |  |
|  | f) Water fitness certificate (water suitability for human and livestock consumption). |  |  |  |  |
|  | Provision and installation of piping system, including delivery and discharge pipe lines 3" from well to the existing elevated storage water tank ( As inlet pipe ) and from the storage water tank ( As outlet ) to the internal distribution facilities such as distribution platform tap stand with 5 No. , 1" taps, and two animal water troughs, beside one stand pipe for filling tankers and carts. |  | 3 |  |  |

1. **Annex 2**

**Evaluation criteria**

Consultant will be awarded the services contract based on the criteria based below if he scores at least 70% and offers the lowest offer.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Company** | **Mandatory requirements for required expertise** | **Weight** |
| 1 | Experience | A record of at least 5 projects where the company conducted geotechnical investigations as follows:   * Completed consulting services of size, complexity and technical specialty comparable to job under consideration, including quality of performance * Other completed consulting services related to the job under consideration * Known cases of prior performance, including quality of work conforming to obligations and cost of services | 30% |
| 2 | Qualification of Personnel | Qualification of key personnel that may be assigned to the job   * University degree in Civil/Geotechnical, Surveying Engineering and Social Studies * At least 7 years of professional experience in the respective field * Previous experience from at least 4 relevant projects which include the relevant field * At least 7 years of experience in design of dams and other relevant hydraulic structures | 50% |
| 3 | List of equipment | List of equipment for geo-technical and surveying investigations | 20% |

**Annex 3**

**FORM FOR SUBMITTING SUPPLIER’S QUOTATION**

***(This Form must be submitted only using the Supplier’s Official Letterhead***

We, the undersigned, hereby accept in full the ~~UNEP~~ General Terms and Conditions, and hereby offer to deliver the required services in conformity with TOR and RFQ Reference No. ###

**Offer to Supply services Compliant with TOR**

All other information that we have not provided automatically implies our full compliance with the requirements, terms and conditions of the RFQ.

*[Name and Signature of the Supplier’s Authorized Person]*

*[Designation]*

*[Date]*

**Stamp**