

Terms of Reference – Standby Partner-HYDROGEOLOGIST – KIBONDO (MTENDELI)

MISSION LOCATION

Kibondo

DURATION

1 month

OPERATIONAL CONTEXT

UNHCR operates 3 refugee camps in the Kigoma region of western Tanzania which generally receive Burundian and Congolese refugees, Nyarugusu, Nduta, and Mtendeli. Of particular concern is Mtendeli camp which has a population of approximately 51,000 refugees. Tanganyika Christian Relief Services (TCRS) is the WASH implementing partner of UNHCR at Mtendeli and operates the water supply facilities at the camp along with providing sanitation and hygiene promotion.

Thus far, 21 borehole drilling attempts have been made and only 6 have been successful. These 6 boreholes are understood to all be within the same aquifer. These boreholes have been experiencing decreasing yields and erratic pumping behavior. When these boreholes were initially installed their combined yields provided a total yield of 68 m³/hr, equivalent to 1,496,000 liters/day and currently the yield now ranges from 36 m³/hr to 38 m³/hr which is equivalent to 792,000 liters/day to 836,000 liters/day. As such, the crude water supply coverage of 15.3 liters/person/day to 16.1 liters/person/day is barely meeting Sphere standards of 15 L/person/day. In addition, current production is based upon an excessive pumping regime of the 6 boreholes for 22 hours out of 24 hours per day.

It is not clear whether the unpredictable drawdown and unusually rapid recharge which occurs at the boreholes may be a combination of factors such as interference/boundary effects between these boreholes which are apparently in the same aquifer or whether this might be due to improper borehole construction, improper pump installation, or a combination of factors.

Fritz Dirks is a hydrogeologist who has conducted several surveys in the past at Mtendeli on the behalf of UNHCR and as such knows the area and lithology quite intimately and is best placed to guide UNHCR and its partners in determining the root causes of the pumping problems being experienced and developing the most appropriate pumping regime for the existing 6 boreholes.

AIM OF THE MISSION

A Hydrogeologist expert is required to determine the cause of the decreasing yield and erratic behavior.

MISSION OBJECTIVES

- Assist UNHCR/TCRS in determining the root causes of the pumping problems being experienced and developing the most appropriate pumping regime for the existing 6 boreholes which presumably share the same aquifer.

RESPONSIBILITIES

Under the supervision of Nosakhare Boadi, the Hydrogeologist Officer will:

- Assist UNHCR/TCRS in determining the root causes of the pumping problems being experienced and developing the most appropriate pumping regime for the existing 6 boreholes which presumably share the same aquifer

PROFILE

Experience

- 10 to 15 years' international experience as a Hydrogeologist
- Experience providing consultancy in the context of Humanitarian response to displaced populations
- Knowledge of the hydrogeological context of the Kigoma region

Essential requirements

- At least Master's level studies of Hydrogeology

Personal Characteristics

- Ability to creatively problem solve and to provide practical and cost effective solutions to problems in the field
- Ability to endure rugged conditions in remote locations for an extended period of time