

Terms of Reference

Short-Term Expert in GIS and Remote Sensing for GIS Software Training, Analysis and Utilization Hargeisa Water Agency

1. Background

The Somaliland Development Fund (SDF) was established in 2012 to provide a single vehicle through which development partners could support Somaliland's development goals. The first phase of the SDF was implemented in 2013-2017 and supported the Government of Somaliland (GoSL) filling a critical gap through funding projects that are fully aligned to the National Development Plan (NDP) while at the same time recognizing the role of GoSL in the delivery of basic services.

The Somaliland Development Fund – Phase 2 (SDF2) covers the period 2018-2024. SDF2 is conceived as an inclusive economic development programme. It supports the GoSL in delivering infrastructure that is relevant for inclusive economic development. It focuses on sustainable investments that spur job creation and fast growth, while at the same time laying the foundation for long-term resilience and development, leading to a more stable and peaceful Somaliland. SDF2's ambitions are fully aligned with the NDP2 and reflect the priorities set out in Somaliland Vision 2030. Like in SDF1, all support will be aligned with government priorities as defined in Somaliland's second National Development Plan (NDP2) 2017-2021. The Fund Manager is responsible for the day-to-day management and administration of the Fund.

The objectives of the SDF2 are threefold:

- Support increased inclusive economic growth through investment in productive, strategic infrastructure to enhance economic growth and revenue generation.
- Strengthen and maintain the capabilities of the government of Somaliland to prioritize and manage the sustainable and equitable development of Somaliland's infrastructure.
- Support strong government ownership of development priorities aligned with the National Development Plan.

2. SDF Funded Hargeisa Water Agency (HWA)

The SDF has allocated funds to Hargeisa Water Agency to implement the Increasing Water Production from Lasdhure Aquifer & Connecting to Existing System at NGDPS Project. The project contains four outputs as mentioned below:

Output 1: Capacity building

The first component involves capacity development for HWA to enhance its institutional ability to effectively initiate, deliver, and support the management of investments/projects. Crucial for economic development and value for money being realized as a result of the projects, will be the ability to select investments with comparative strategic economic and social advantage for diverse members of the population and which are resilient to current and future shocks (climate and otherwise).

Output 2: Community engagement

The second component involves community engagement through creation/enhancing or formation of community water committees in the areas directly affected by the project areas in Hargeisa. The purpose of the water committees will be for disseminating project information and dialogue on project issues, especially the use of the water supply among the different communities in Hargeisa.

Output 3: Increased water production through groundwater abstraction in Lasdhure aquifer and connecting to the existing system at Geed Deeble

The third component involves drilling of 4-6 boreholes, design of the wellfield collector system, supply and installation of pipes, fittings, valves, and electromechanical equipment to connect the boreholes to the NGDPS.

Output 4: Technical studies

The fourth component involves conducting three technical studies: (1) Comparative advantage of investing in rural versus urban water supply projects, based on clear VfM considerations, risk, results, need and other possible financing options; (2) Study on increased accountability on performance and pricing of water in urban water supply systems including pro-poor tariff study; (3) Study on sustainable water provision to Hargeisa looking at the present water demand vs water supply, future water demand and population and city growth prospects and updating of the 2007 HWA master plan.

As a part of Output one of the project, GIS training and its operationalisation in the day-to-day running of HWA business has been identified as one of the crucial components in the future planning of the city water supply and expansion plans. The success of expanding for city water supply will need hands-on application of the GIS training through spatial planning, and to this end, the project will use GIS to support the mapping of the Hargeisa water supply system. This will also enhance coordination and communication amongst the development partners. To achieve this, key staff should therefore be imparted with requisite GIS skills. HWA would therefore require the services of a GIS and Remote Sensing Expert to train the staff.

3. Scope of work

HWA seeks to strengthen the capacity of its staff in spatial information management by introducing them to the basics of Geographical Information Systems and Remote Sensing. The staff will be introduced to spatial data collection, validation and manipulation and visualisation in GIS environments and ensure practical integration of the learned tools in the day-to-day work of the agency.

To achieve the above, HWA is seeking the services of an individual Short-Term Expert (STE) in GIS and Remote Sensing. The STE will conduct a needs assessment of relevant HWA staff and provide a tailored intensive GIS training course, including feedback sessions and one-on-one coaching to HWA staff.

4. Key tasks

4.1 Staff skills needs assessment

- Conduct a desk review on HWA key documents related to use of GIS and information systems including mandates, plans, and aspirations.
- Identify key skills and competencies gaps among the identified staff in relation to GIS and remote sensing that requires to be addressed to enable the staff to manage and deliver the HWA mandate.

- Produce a summary of findings and comprehensive training needs assessment brief for approval.

4.2 Develop Training Programme

- Develop a training programme to enhance the technical knowledge and skills of the HWA team on GIS and remote sensing based on the skills needs assessment. A detailed programme outlining per training session *what* content will be covered and *how* (i.e. presentation by the trainer, sub-group work, individual exercise etc.). The programme needs to take into account breaks for prayer and refreshments/lunch. The programme should also indicate any homework to be assigned. They should be very practical in nature (e.g. assignments for which the trainee can draw on experience from his/her work) and avoid massive reading.
- The course should cover at minimum, but not limited to, the following:
 - QGIS, how to install and set it up
 - Basics of GIS
 - Maps and maps projections
 - Preparing to work in QGIS (Project preparation)
 - Vector (Point, Line and Polygon) and raster layers operations and integration of vector and raster layers
 - Watershed analysis with SAGA and GRASS
 - Map and map atlas preparation and basics of visualisation
 - Basics of remote sensing
 - Image processing in QGIS
 - Practical Data collection including collection of GPS coordinates using android phones, GPS machines and integration into the GIS environment
 - Introduction to Google earth and generation of kml files for points, lines and polygons and then using to QGIS
 - Using GPS utility software for managing and downloading data and working with data from different sources into QGIS
 - Practical work/exercises (classroom and field) with the ongoing projects, analysis of HWA GIS data needs and supporting integration of GIS tools in water supply system planning and management
- Prepare the materials to be used during the course, including PowerPoint presentations, practical assignments, hand-outs and any homework assignments
- Preparation and conducting of pre- and post-training assessment. This includes:
 - Preparing tailor-made test questions for a pre- and post-training assessment questionnaire
 - Ensuring that the questionnaires are filled in by the trainees, before and after the course
 - Testing the participants, which should be based on both theoretical and practical criteria to ensure all aspects are covered within the training

NB. Expert will provide three (3) weeks break once above two tasks are completed and report and training programme are delivered for review and approval.

4.3 Deliver Training Programme

Deliver the approved training programme in an interactive, practical, participatory and lively manner. This includes:

- Covering the subject matter theory (through lectures, hand-outs etc.) as well as the practice (through assignments, role-plays, work in smaller groups etc.);

- Any homework to be assigned in between classes, explaining it in one session and discussing it in the next one.
- Providing successful candidates with a certificate of completion.

4.4 Training report

- Consolidate materials and contributions which includes course materials and hand over both electronic and hard copies to the HWA Project Manager and SDF Secretariat DTL – Projects.
- Prepare and submit a Training Report which should include at minimum:
 - Introduction
 - Course objectives, programme and methodology (incl. material provided)
 - Pre- and post-course assessment
 - General observations, lessons learnt and recommendations for follow-up

4.5 Feedback, mentoring and coaching

- QGIS, installation and set up
- Following the training, conduct field visits to the project sites to exercise application of GIS
- Support the existing GIS systems and structure capacities/needs in HWA for water supply planning and management in order to kickstart utilisation of GIS related information

5. Duration and Locations

The activity will be performed at the Hargeisa Water Agency office in Hargeisa. The assignment is expected to last 40 days from the date of signing of the Contract.

7. Reporting Arrangements

The STE will work under the overall supervision of the SDF Deputy Team Leader – Projects or designate and, on a day-to-day basis, will work with the PMTs, especially with the Project Manager and Technical Advisor.

8. Expected deliverables.

The STE will prepare and submit to the client the following reports, including soft copies in editable formats (in Word, Excel, etc...). Submission shall be in draft form and final copy upon approval of the draft reports. The reports should include all the manuals, presentations and practical work used for the training. It should also include recommendations on how to operationalise GIS information management in HWA and further required resources, further trainings etc.

Activity	Deliverable	Working day
Inception report and presentation	Inception Report (maximum 5 pages including Annexes)	2 nd day
GIS Skills Needs Assessment	GIS skills needs assessment findings brief (max. 3 pages)	7 th day
Develop training programme/materials based on the training need assessment	Draft training programme/materials	14 th day
Expert will go for three (3) weeks break to allow the client to review skills needs assessment report and the training programme/materials		
Delivery of training (2 weeks)	Training report	28 th day
GIS set up, mentoring and coaching	Progress brief	35 th day
Development of Final Report	Approved final report	40 th day

9. Qualifications, Skills and Experience

The assignment will be delivered by a GIS and Remote Sensing Expert supported by a national counterpart seconded by the HWA. The GIS and Remote Sensing Expert is expected to have the following qualifications, skills, and experience:

Qualifications and skills

- BSc. in Computer Science, Surveying, GIS, Cartography, Geodesy, Water Supply, Engineering or related technical field
- Advanced degree in GIS or related spatial planning field
- Demonstrated excellent command of spoken and written English (fluency in Somali is added advantage)
- Excellent IT skills including MS Office, database applications, presentation software, etc.
- Excellent communication and presentation skills

General Professional experience

- Minimum of 8 years demonstrated experience and high level of proficiency in the use of GIS design and development experience in geodata collection and creation of geodata sets
- Minimum of 5 years demonstrated experience in providing technical instruction/training in QGIS for both non-advanced and advanced trainees

Specific professional experience

- Minimum of 5 years demonstrated experience in the design and use of GIS to enhance water supply systems management and planning using a wide range of tools and implementation and operation of GIS systems in water utilities
- Conducted a minimum of three similar QGIS trainings in the last three years
- Produced a minimum of three training manuals related to GIS trainings as team leader (proof of authorship will be submitted through links using dropbox or any other links)

10. Equipment

No equipment is to be purchased on behalf of the Client/Contracting Authority as part of this service contract or transferred to the Contracting Authority or local counterparts at the end of this contract. The Expert is expected to either rent or bring his/her equipment to complete the consultancy assignment with all the necessary software installed.

9. Fees and Allowances

- The successful candidate will be offered competitive daily fees.
- Fees will be paid on monthly basis based on agreed milestones and submission and approval of milestone report, timesheet and an invoice.
- Final payment will be made after the completion and approval of the final report.
- The SDF Secretariat shall organize and pay for the Expert's accommodation, travel within Somaliland, and DSA as per SDF guidelines.

10. Duty of care

- The Expert will work under the overall SDF Secretariat Health, Safety and Security protocols.
- The Expert will be expected to provide own insurance for health care (which must include Medevac provision which caters for COVID-19 related evacuation), accidents, and other risks associated to the assignment. The SDF Secretariat shall be free from any liabilities arising from the same.

11. Other provisions

- **Accountability:** The SDF Deputy Team Leader (Projects) maintains the overall supervision of this assignment. However, the Expert will technically report to the Senior Water Specialist at the SDF Secretariat and will work on day-to-day basis with the Project Management Team at HWA, specifically the Project Manager and Technical Advisor.
- **Duty post:** The work is to be performed in Hargeisa. Travel to the field if required will be arranged by the SDF/HWA.
- **Personal computers:** The Expert will be responsible for provision of his/her own computer.
- **Possession of sites:** SDF Secretariat/HWA project team may accompany the Expert to field missions and within Hargeisa or outside for the purpose of possession of sites/familiarization. In this case, the Project Management Team staff and other relevant technical staff will be available to work closely with the Expert.
- **Relevant documents:** The SDF Secretariat/HWA shall furnish all pertinent available data and information and give such assistance as shall be reasonably required by the Expert in carrying out provision of the contract.
- **Office Space:** HWA will provide office space for the Expert's team during their stay in Hargeisa.
- The SDF Secretariat will arrange all transport by road or air as needed.
- The SDF Secretariat will arrange accommodation.