

Advertisement for a Call for Proposal

International Committee of the Red Cross

RO-ILGAZ15/10625

1. The ICRC is seeking a consultant to carry out a study on rainwater re-use for irrigation, in Gaza's Border Area.
2. The ICRC invites proposals to provide the following consulting services: "Study of rainwater re-use for irrigation in Al Qarrara & Wadi Al Salqa" (hereinafter called "Services"). More details on the Services are provided in the attached Call for Proposal.
3. A Joint Venture between a local and an international consultant will be selected based on quality-cost efficiency.
4. The Call for Proposal includes the following documents:
 - Section 1. Terms of Reference
 - Section 2. ICRC General Conditions for Consulting Contracts
 - Section 3. Code of Conduct for Employees of the ICRC
5. Please let us know by email (jer_logtender_services@icrc.org) by 31.01.2016 whether you intend to submit a proposal.



ICRC

SELECTION OF A CONSULTANT

CALL FOR PROPOSALS

For a comprehensive study to provide an actionable set of options/projects to collect and store rainwater for reuse in irrigated agriculture in Gaza border area – Al Qarrara & Wadi Al Salqa

SECTION 1. TERMS OF REFERENCE

I. Background

Problem Analysis

After decades of over-extraction, Gaza's coastal aquifer is in a troubling state. As abstraction (200 Mm³/year) far exceeds the recharge (80-100 Mm³/year), the cumulative depletion of the aquifer translated over the years into seawater intrusions, which have raised the groundwater salinity to unacceptably high levels. The situation continues to deteriorate, and in the absence of immediate remedial measures, the groundwater quality is expected to be entirely unfit for human consumption (without prior treatment) from next years, and irretrievably damaged by 2020.

The majority of groundwater supplies mostly greenhouses growing vegetables, one of the few food sources in which Gaza is self-sufficient. However, the most economically vulnerable are in fact the farming communities in Gaza's border area who are practicing small-scale, open field agriculture. Over the past ten years, as a result of the frequent rationing or disruption of water supply from Israel and the deterioration of groundwater quality, many farmers had to stop irrigated agriculture, and rely on rain-fed crops and other sources of income (which remain difficult with the economic slump in Gaza and high rate of unemployment). Access to more rainwater will facilitate resumption of salt sensitive crops such as cucumber and melon.

Rainwater harvesting practices are common in Gaza Strip but limited to collection from the roofs of greenhouses, while rainwater harvesting from the surface of land and/or valleys is not currently practiced.

Hence, the lack of water available for irrigation, and agricultural land, remain the main limiting factors for agriculture. If we consider that the size of agricultural land in Gaza Strip is around 116'000 donums¹ and around half of this is located in the 1km border area. This land is crucial for the agricultural sector in Gaza Strip (especially in the light of urbanization processes). It becomes therefore of utmost importance to look for innovative methods of sustainable rainwater harvesting in the border area. Approximately, 700 m³ of rainwater is required to cultivate 1 donum.

Alternative water resources for Agriculture

In mid-2011 the Palestinian Water Authority (PWA) developed a strategy to reduce overall abstraction of groundwater by 60% by 2032. The strategy includes the development of alternative water resources for agriculture, with a specific focus on wastewater, but also, in the yet to be enacted 2013 strategy, on rain water reuse.

Reuse of wastewater still faces many challenges: the inadequate level of wastewater pollution abatement during treatment, insufficient funding, restrictive standards for crops allowed to be irrigated with treated wastewater, and the absence of capacities to encourage farmers through the transition. It is likely that it will be several years before any significant progress is made.

In the meantime, focusing on an efficient reuse of rainwater could relieve pressure on the aquifer and reinvigorate the livelihoods of border area farming communities.

Almost every year, areas of the Gaza Strip flood during the rainy season. The current flood management system depends on collection ponds and evacuation of the overflow to the sea by pumps. In the rural border area, surface run off leads to heavy soil erosion and damages crops. Hardly any of this surface run off is captured upstream, or reused in agriculture and/or to replenish the aquifer.

Despite a promising topography, with natural gentle sloped micro basins and a major wadi crossing the middle area of the Strip, access restrictions and frequent security incidents in the sensitive border area have thus far discouraged local authorities and other actors from assessing the potential of harvesting rainwater for reuse in irrigation. The improvement in access following the 2014 conflict now

¹ Ministry of Agriculture, 2014

means that such options are on the table. Indeed, they seem to represent the only short and mid-term reasonable and actionable plan.

II. Objective

Specifically, the project aims to utilize the natural topography of the land and either no, or low-energy methods², to provide an integrated system for water management on rainfed land including, but not limited to: rainwater harvesting, water-saving and short-term storage techniques. The purpose is not to store rainwater for long periods, rather more to capture it for release within days / a week of initial downpour thereby ensuring a more even dispersal throughout the rainy season.

While easing the pressure on the aquifer by reducing the need for groundwater extraction, the reuse of storm water for irrigation would also allow farming communities to practice irrigated crop production and improve their livelihoods. This project would particularly benefit farmers in the middle and southern areas: harvested rainwater could be used to grow different types of vegetables currently not possible due to groundwater high salinity. It could also be used to wash salt residue out of the topsoil. Finally, controlling surface flows of storm water would lead to the reduction of soil erosion.

To achieve this vision, the present concept paper calls for **a comprehensive study to provide an actionable set of options/projects to collect and store rain water for reuse in irrigated agriculture in the border area³**, achieved by:

- (1) providing an holistic analysis on the direct impact and outputs (quantity and quality) of the captured rainwater on the irrigation system/irrigated agriculture (including a SWOT analysis of such projects and estimates of the potential increases in rainwater quantity, as well as, quality)
- (2) defining the hydrological potential of a 1500 donums (3kms wide strip) in the border area and mapping/identifying optimized catchment areas
- (3) defining the required SMART criteria for a successful project/optimized results (hydrology/pluviometry, topography, quality of agricultural land, geology/soils, pollutants and use of lands) and possibilities of duplication in others border areas of Gaza Strip.
- (4) producing a contour map for the targeted areas

III. The selected study area

The neighbouring villages of Al Qarara and Wadi Al Salqa (5km long) have similar topography.

The selection of these areas (see map in Annex) was based on the following criteria:

- Rainfall is around average for the Gaza Strip
- The water in this area is more expensive and the quality is not as good as in the northern area
- Initial observations of the topography showed high possibility to harvest rainwater (existence of several valleys, steep slope from East towards West and vice versa)
- Majority of farmers practice irrigated agriculture, and showed motivation for the project

² As Gaza is exposed to a high risk of power/fuel shortages, any system is likely to only be sustainable if it is based on either no, or very low, energy consumption.

³ However, the study should consider at least a 3km wide strip to make sure it includes the rain water catchment areas.

- These communities are relatively small and ideal to start a pilot project.

IV. Key steps in the elaboration process

The proposed study considers the following key components:

1 - Data gathering

The consultant provides the ICRC with a draft Methodology in he/she lists all the information/data he/she expects the ICRC to provide for the study.

2 - Hydrology study

This first step aims to analyse the rainwater catchment area of Gaza's border area from South Qarara to North Wadi Salqa. The methodology will include the physical description of the study area (topography, slopes, soils occupation, infiltration rates), spatial analysis of the rain catchment limits (local water basins, streams, outlets), and the study of rainfall patterns (frequency, duration, intensity). The use of a Geographical Information System (GIS) will be highly encouraged.

Key outputs: a short report documenting the methodology applied, the stakeholders consulted, the findings of the analysis, a map of the watersheds identified/studied, the next steps of the project

3 - Technical solutions

The consultant will provide a detailed proposal of infrastructure required to capture, store and use the rainwater (ponds, ditches, irrigation networks, etc.), and rank solutions in order of priority (quantity and energy consumption)

The consultant should determine the quantity of rainwater which could be harvested in the selected areas and make recommendations on the most appropriate catchment systems, whilst taking into account, the agricultural recommendations provided by the ICRC team.

Key outputs: a short report documenting the methodology applied, the stakeholders met, the findings of the project, the water storage capacity of the infrastructures proposed, detailed list of infrastructure and their specifications.

4- Report

The consultant will conclude on the most effective collection, storage, pumping and distribution system, taking into consideration local constraints and practices.

Key outputs: a report on the long-term, sustainable management of the collection, storage, pumping and distribution system, i.e. how it can be handed over to the official institutions, private sector, farmers cooperatives, etc.

5 – Complete design of infrastructure (optional)

The consultant will prepare the drawings, technical specifications and Bill of Quantities (BoQ) for tendering. It would be expected to cover a minimum distribution of :

- rainwater in Al Qarara to irrigate approximately 500 donums for the duration of the cultivation season.
- rainwater in Wadi Al Salqa, to irrigate approximately 200 donums for the duration of the cultivation season.

If confirmed that needed quantities of rainwater can be harvested, then a complete design for an intervention should be prepared, including:

- Identification of the location and the exact size of collection pools
- Quality of rainwater to be collected (existence of potential pollutants)
- Proposal for the most effective pumping and distribution systems (taking into consideration energy constraints in these areas)
- Identification of the optimal sustainable management system of the proposed intervention, i.e. private sector, farmers cooperatives, MoA engagement, ...etc
- SWOT analysis for the intervention
- Preparation of project's documents for tendering (BoQs, drawings, technical specifications, etc.)

Bidders to provide a detailed methodology for the project.

V. Timing of the assignment and budget

The entire process is expected to be completed within a maximum of four months. Bidders to provide a detailed timeline in their proposal and budgetary estimate.

VI. Eligibility

- The proposed study being rather innovative for Gaza, the consultant would lead a team of Gaza-based experts.
- Available to start the consultancy immediately (February 2016)

Competences required for the project:

The international consultant shall have:

- Proven experience in similar studies (at least 2 – certificates to be provided)
- Expertise in hydrogeology study (minimum 3-5 years experience)
- Expertise in rainwater infrastructures design (minimum 3-5 years experience)
- Proven capacity to produce high quality research and ability to absorb, analyse and synthesize large amounts of complex information
- Good knowledge of the Gaza context
- Excellent writing, presentation, communication and facilitation skills in English

- Optional : Knowledge in agricultural and community-based processes, Arabic language

VII. Selection of consultant and proposal

The procurement will be made in two stages:

Stage 1 – Expression of Initial Interest

Interested consultants submit their CV to the ICRC with a Covering Letter. ICRC reviews the CV and Covering Letter & makes an initial selection.

Deadline: 31 January 2016

Stage 2 – Candidates Produce Technical Evaluation + Consultancy Budget

ICRC contacts consultants/experts to request for a complete methodology proposal to be sent to the ICRC

ICRC reviews, comments & makes a final selection of acceptable offers.
ICRC contacts the selected consultant/expert.

The proposal shall include:

- Consultant CV & legal references
- Consultant past & similar proven experiences
- Project rationale & approach
- Detailed methodology, including outputs, deliverables, and expectations from the ICRC to provide data, staff and any other support)
- Detailed budget and timeline:
 - The breakdown of remuneration per position of each consultant involved in the study
 - The breakdown of other expenses (per diem, transportation, communication costs, office, insurance...)

Deadline: 15 February 2016

VIII. Submission details

The CV and Covering letter should be submitted by email in a pdf format to jer_logtender_services@icrc.org no later than the 31.01.2016 at 16:00hrs.