



## **Palestinian Wastewater Engineers Group**

### **Potable Water for Poor Families in Al Zaitunah**

#### **Brief Statement of Need**

Many communities living in the rural areas of the West Bank are unable to access sufficient quantities of water to adequately meet their daily needs. Rural water networks supplied by Mekorot (the Israeli water carrier) are old and are interrupted for consecutive months; particularly during the seven months summer dry period. Rain water which is collected in winter and stored in wells usually finishes within few weeks, which requires the population (especially the poor families) to completely rely on tankers, agricultural wells and on spring water.

Al-Zaitunah city is considered as one of the most marginalized towns in the central area of the West Bank, which suffered from a continuous deterioration in economic conditions in recent years. This is evidenced in the very low quality of public services provided and the lack of infrastructure development projects especially during the last four years. Currently, Al Zaitunah municipality depends mainly on funds allocated by the Ministry of Local Government, which in turn depends on irregular external funding sources, to sustain the minimal provision of public services. Water provided by tanker trucks may cost up to NIS180 per 5m<sup>3</sup> or NIS 35 per cubic meter , a price that more than 90% of Al-Zaitunah residents cannot afford.

A large number (about 90%) of Al-Zaitunah residents who cannot afford buying tanked water have to depend on two contaminated springs (Krekeh & Al-Balad) as their main source of free of charge drinking water, ignoring the health hazards that may result from these contaminated springs. The two springs are heavily polluted by wastewater infiltrated from the neighboring household cesspits and the surrounding environment, causing an urgent public health problem that requires prompt intervention.

#### **Brief Project Background**

There are 297 natural springs in the West Bank which provides around 60 million cubic meters (mcm)/year (PWA). Given the severity of water shortage in the area, springs serve a dual purpose of domestic and irrigation use. Springs are a natural water source where groundwater levels intersect with the earth's surface and the water flows out.

Al- Zaitunatah city with 6,500 inhabitants reported shortage of water resources, especially in summertime. They rely on two main springs (Krekeh & Al Balad) water in summertime, which are highly polluted by the improper use of livestock and animals for drinking, and by sewage leakage of three improperly constructed cesspits to the higher Krekeh spring contaminating the water and the down stream of Al Balad spring, threatening the health of the community and the environment.

The need was first identified by the local community and was then reported to the Palestinian Wastewater Engineers Group (PWEG), who are specialized in contributing to the alleviation of environmental pollution and health risks, PWEG has verified the situation and visited the two polluted springs several times, made water analyses and interviewed people.

The results showed a high contamination with total fecal coliforms, which required urgent intervention.

The protection and rehabilitation of the two polluted springs will provide Al-Zaitunah residents with a clean water source in summertime for domestic and irrigation use.

## Project Objectives

The project aims at addressing the water consumption needs of Al Zaituneh City with a population of 6,500 residents, reducing health risks caused by interrupted water supply, protecting the free of charge drinking water source from septage infiltration and creating jobs through the following activities:

- Construction of three low cost household wastewater treatment systems.
- Rehabilitation of the two access roads leading to the springs and the reservoir.
- Cleaning and rehabilitation of the surrounding environment of the springs.
- Connecting the springs to the reservoir through a 750m of pipelines
- Construction of a 150m<sup>3</sup> reinforced concrete reservoir.
- Provision of eight awareness and training sessions to the targeted beneficiaries, and the Municipal Council.
- Provision of part time jobs to the Al-Zaituneh City Workers.

## Project Description

**A. Wastewater treatment Plants Construction.** The three neighboring improperly constructed cesspits will be demolished, and three small wastewater treatment plants will be built instead. Each wastewater plant will consist of two treatment systems; one for the black wastewater, and another for the grey wastewater.

**B. Access Roads Rehabilitation.** A 50m long road which leads to the upper ( Krekeh Spring) and a second 360m road leading to the second spring.

**C. Krekeh & Al Balad Springs' Rehabilitation and Water Pipeline laying.** To provide a better quality and quantity of water; Debris and solid waste covering the outlet of the springs and around the springs and in the surrounding area will be removed, old springs outlet's protections will be demolished and new ones will be constructed.

750 m of 4 inches black steel pipelines, with cement in lining and polyethylene outer coating will be laid and connected to the reservoir.

**D. Storage Reservoir Construction.** Water flows down from the higher Krekeh spring towards Al-Balad spring by gravity. The flowing water of the two springs will be transferred through 4 inches pipes to a 150m<sup>3</sup> water storage reservoir, which will be

constructed, in the joining point of the down streams of the two springs, and taps will be installed for public withdrawal.

- E. Awareness and training campaign.** Eight training sessions will be held by PWEG Staff, and will be divided into two parts; a theoretical part at each step of the project, and a practical part at the closing of the project.

## Household Wastewater Treatment System

