JORDAN
REUSE OF TREATED WASTE WATER IN IRRIGATED AGRICULTURE IN THE JORDAN VALLEY

Location	Northern Jordan Valley and Greater Irbid Area
Client	Water Authority of Jordan (WAJ), Amman
Financing	German Financial Cooperation / KfW
Duration	2003 - 2006
Value of Services	1.717 million US$

Project Description

Water resources in Jordan are extremely limited. At present, the largest water consumption is used for irrigated agriculture, taking about 70 % of the national water budget. The use of treated waste water for irrigation is a national objective to reduce the overall freshwater consumption. The current use of the treated effluent is inadequate in terms of environment and health and inefficient in terms of irrigation. Future effluent volumes are expected to increase substantially, hence could replace - when used properly - large amounts of fresh water to the benefit of drinking water supply.

The irrigation area under study is located in the northern Jordan Valley. The Greater Irbid Area is the catchment of effluent of the Waste Water Treatment Plants (WWTP) of Wadi Arab, Wadi Hassan, Central Irbid and, in future, Wadi Shallala. An unrestricted use in irrigated agriculture requires upgrading and improvement measures at the existing WWTP, especially at Central Irbid.

A major technical solution comprises Direct Injection of blended Treated Waste Water with and without Retention Reservoir (injection into the existing pressurized JVA pipeline network blended with freshwater at a fixed ratio and distributed to all users in the irrigation area selected).

Scope of Services

Feasibility Study comprising three phases:

Phase I: Evaluation/Analysis of Baseline Data

- Review and determination of the essential baseline data realistically reflecting the present conditions of waste water treatment and reuse
- Analysis of the experiences of the Jordan Valley Authority (JVA) and of the farmers using blended treated waste water from the Greater Irbid Area

Phase II: Conceptual Planning and Design

- Preparation of technical concepts and designs, covering rehabilitation and investment needs of network infrastructure, operation programmes, and support services for the reuse of treated waste water
- Assessment of the environmental implications and their compliance with national regulations / standards

Phase III: Feasibility Analysis

- Determination and evaluation of the social, economic, environmental and financial feasibility of alternative solutions for waste water reuse including feasibility level design, project implementation schedules, and cost estimates
- Identification of the most appropriate project layout