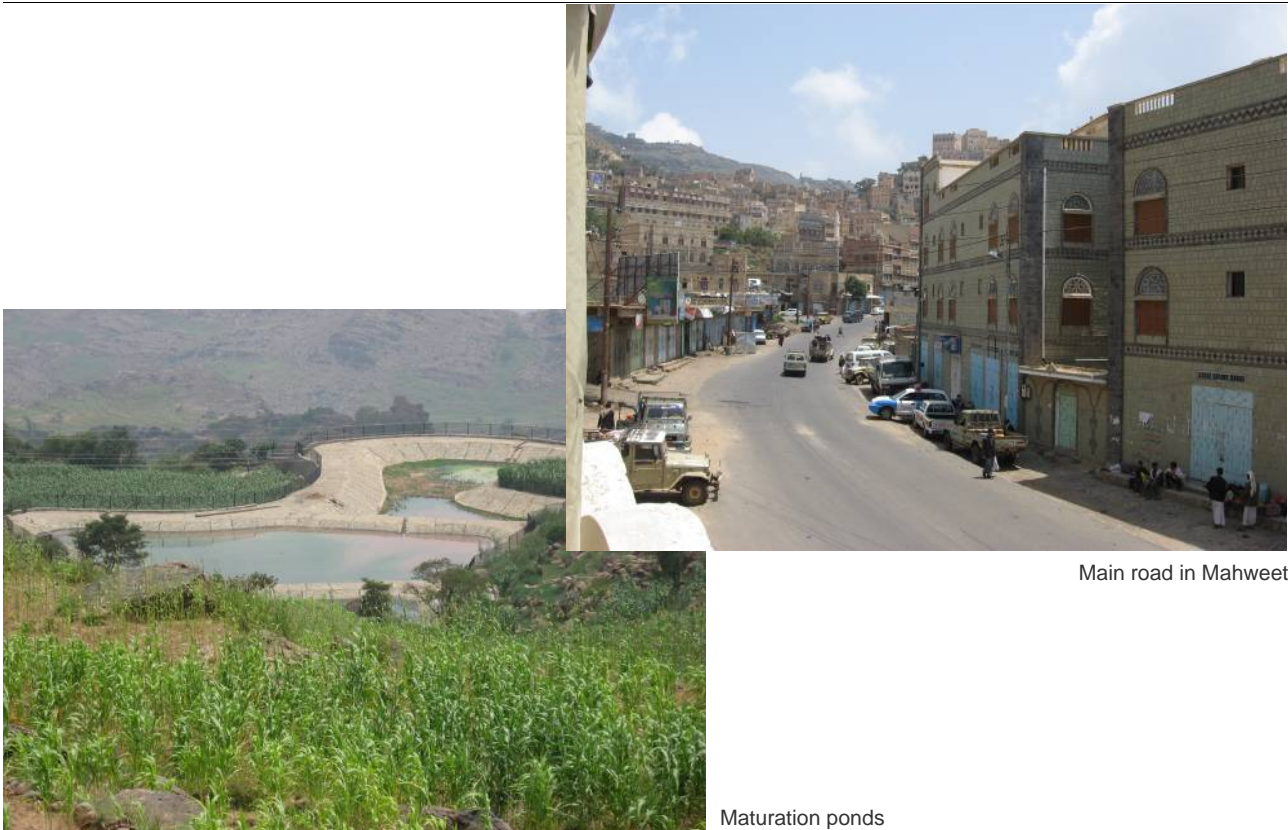




YEMEN

**CLIMATE CHANGE ADAPTATION
 EFFICIENT USE OF WATER RESOURCES
 PROVINCIAL TOWNS OPEN PROGRAM (PTOP)**



Main road in Mahweet

Maturation ponds

Client	Ministry of Water and Environment (MWE), Sana'a – Yemen
Financing	KfW Development Bank
Duration of Services	05/2009 - 04/2013
Cost of Implementation	14.7 Mio Euro
Consulting Fee	2.58 Mio EUR

- Scope of Services**
- Technical assistance, capacity building and training for project management unit (PMU)
 - Processing and evaluation of project applications
 - Preparation of ToR for local consultants
 - Monitoring of local supervision consultants and supervision of design preparation
 - Disposition fund management

Context and Challenge

Already today Yemen belongs to the countries with the highest water scarcity level of the world. Yemen's water resources are rainfall-dependent and according to some modelling studies, the quickly depleting groundwater resources will be exhausted by 2025-2030. The effects of climate change are extremely salient considering Yemen's high vulnerability due to food insecurity, poverty and political unrest. Yemen submitted its National Adaptation Program of Action in 2009 and the water sector is considered as the key sector for adaptation. The main challenge is to increase water use efficiency - as it is either not feasible or too expensive to mobilize additional water resources (by e.g. desalination technologies). Thus, water conservation, reuse of wastewater and leak reduction are obligatory climate change adaptation measures. Many urban water systems offer considerable efficiency potentials, as water losses (non-revenue water) is estimated up to 60 %.

Project Description

In order to increase the water use efficiency, the Ministry of Water and Environment (MWE) and the German financial cooperation (FC) have undertaken an the Provincial Towns Open Program (PTOP). Cost-efficient adaptation options such as rehabilitation and repair programs of water supply systems in combination of reuse of waster water offer shall serve the population of provincial towns with a minimum size of 10,000 inhabitants.

PTOP is conceived of as a flexible open program financing a range of projects with focus on the optimization of existing water supply infrastructure and the corresponding sanitary systems with the overall objective of improving the health and environmental conditions of provincial towns in Yemen.

Based on a pre-defined set of selection criteria, eligible provincial towns can prepare and submit investment projects. The consultant is responsible for the screening and selection of the projects and subsequently for the monitoring of the implementation. The selection criteria were defined in special with regard to an increased water use efficiency. Just in exceptional cases the development of additional water resources is allowed.

This approach is reflected in PTOp's objectives and outcomes which can be summarized as follows:

Water Supply

- Reduction of physical and administrative water losses to at least 30%
- Non-scheduled supply interruptions affecting at least 25% of customers and which are due to technical malfunctions are reduced to less 20 days/year and average repair time is less than 48 hours per incident
- Water quality is in accordance with Yemeni drinking water standards
- For network extensions and the development of additional source the connection rate exceeds 75% in the extended area

Waste Water

- Central Sewerage Systems: At least 80% connection rate in town areas served by centralized wastewater collection systems
- Decentralized Sewage Systems: 85% of households in town areas not served by the centralized system have access to fully functioning decentralized wastewater disposal facilities which are environmentally and hygienically acceptable
- Wastewater Treatment: Effluent quality reaches 50 mg/l BOD5 and faecal coliforms are below 3,000 Nos/100 ml.



Project measures: The individual projects comprise the planning, final design, tendering, procurement of material, construction works, commissioning and initial operation of mainly rehabilitation and strengthening measures for water supply and wastewater facilities to serve the inhabitants of the selected towns. The Project measures comprise:

- Rehabilitation and optimization of existing water supply systems
- Extension of existing water supply systems
- Monitoring of groundwater resources
- Optimization and extension of existing wastewater systems (centralized and decentralized)
- Construction of new wastewater systems

Capacity building measures: According to their respective tasks stakeholders are to be trained in the following fields:

PMU Staff

- Project Cycle Management
- Project selection by means of screening and evaluation
- Risk assessment of projects
- General contract management
- Procurement procedures
- Public relations
- Project Monitoring and reporting requirements
- Financial Management

Local Consultants

- Project cycle management
- Participatory design
- Requirements and quality of consulting services, reports & documents
- Preparation of tender documents according to FIDIC
- Supervision and contract administration of the works and supply contracts

Utilities

- PTOp objectives and application requirements
- Preparation of project applications
- Project Cycle Management
- Procurement procedures
- General and specific contract management (incl. FIDIC)
- Supervision of Consultants
- O+M Training for sustainable project operation