



### Improving Water Management in the Sana'a Basin

The World Bank approved a US\$ 24 million credit in June 2003 to assist the Government of Yemen in improving water management in the Sana'a Basin.

The Sana'a Basin Water Management Project is the first phase of a 15-year program seeking to extend the useful life of the available water resources within the basin, by modernizing irrigation methods and by accelerating the recharge of aquifers. This is expected to slow down groundwater depletion in the basin, thus, gaining time for the Government to convert the Sana'a Basin economy to less water-intensive activities.

Yemen, at the southern tip of the Arabian Peninsula, is one of the world's most water scarce countries. Annual water abstraction is about one and a half times the rate of recharge. It is even higher in the Sana'a Basin, where the economically exploitable water may be depleted in about 20 years time. The Sana'a Basin is a center-highland area of about 3,200 km<sup>2</sup>, with 1.8 million people. About 1.5 million – growing at an annual rate of 7% - live in Sana'a City, the nation's capital.

## SECTOR BRIEF

### WATER RESOURCE MANAGEMENT IN MENA

It is widely recognized that the Middle East and North Africa (MENA) region is by far the driest and most water scarce region in the world, and that this is increasingly affecting the economic and social development of most countries of the Region. MENA has 5% of the world population with less than 1% of the available world's freshwater resources. Despite these characteristics many countries are still using up considerable amounts of scarce resources in supporting inefficient public sector institutions for both irrigation and water supply.

Today, average per capita water availability in the region is about 1,200 cubic meters per year (world average is close to 7,000). The annual water availability in the region ranges from a high of about 1,800 cubic meters per person in Iran to less than 200 cubic meters per person in Jordan, West Bank/Gaza, and Yemen. By 2025, the regional average water availability is projected to be just over 500 cubic meters/person/year.

While conventional water availability (within country and regionally) remains relatively constant, the absence of adequate pricing policy reforms, population growth, increases in household incomes have resulted in water demand increasing sharply beyond sustainable levels.

To meet this increasing demand, groundwater is being extracted well beyond the renewal rate of the resource in many countries. In some cases, governments are tapping into the fossil groundwater resources, and in many countries subsidized energy prices are aggravating the problem. Absence of treatment of wastewater (from both urban and agricultural sectors) further reduces the availability of freshwater water suitable for domestic and agriculture use without costly downstream treatment. This increased water contamination is also affecting public health, particularly of children. The problem is most acute in rural areas, where access to clean water and sanitation is still lacking in most MENA countries.

Irrigated agriculture claims about 90% of the available water resources of the region and contributes to somewhere between 5 – 20% of the GDP, depending on the country. The water resource situation in the region is becoming progressively bleaker due to droughts of higher frequency and longer duration.

#### Key Water-related Challenges in the Region

##### Water and Finance:

- Financing Operation and Maintenance and progressively investments through user payments is essential for sustainability of water infrastructure investments
- High cost of next best options for supply augmentation (e.g., treated wastewater reuse, inter-basin water transfer, desalination of sea water) makes pricing policy reform essential
- Targeted programs for low income communities also requires to be formulated

### **Water Resources Planning and Management:**

- Resource: supply augmentation to manage scarcity, variability, and quality.
- Demand: improving efficiency and cost recovery in complex and politically sensitive atmosphere.
- Allocation: among irrigated agriculture, urban, and environment uses. A complex challenge requiring addressing rights, trade, incentives, economics.

### **Water and Institutions:**

- Policy, legal, institutional, and regulatory frameworks to manage resources at the lowest appropriate levels is required.
- Involving stakeholders in key decision making suggests the need for community participation in all stages of the project cycle
- Tapping into the enterprise of the private sector could help improve performance in the sector.

Driven by these challenges and consistent with the worldwide movement towards integrated water resources management, several countries have embarked on reforming their water sector (e.g., Tunisia, Jordan, Yemen) and some others have made a good start. Many countries, in partnership with donors and financial institutions, are taking steps in water sector reforms. A shift in thinking and action in water management is slowly taking place in the region. The World Bank is in a unique position to participate in this process through creative country and regional engagement.

All dollar figures are in US dollar equivalents.

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