Trends in the Desalination Market in the Middle East and Central Asia (Project #012)

Background
Desalination is now a well-established technology for urban water supply, with most of the desalination capacity concentrated in the Middle East region. In the oil-rich Gulf countries, desalination accounts for 40 percent of the water used for municipal and industrial uses. In Central Asia, a large number of small-scale brackish water desalination units exist, mainly for village-level water supply. On a global scale, 39 percent of the world’s population lives in coastal areas, where desalinated water can generally be supplied at an acceptable cost.

The desalination industry is undergoing rapid changes. The relative cost of desalination has decreased substantially over the past decade, and the private sector plays an increasingly important role in the operation and sometimes the funding of desalination plants.

Little information is available on institutional aspects of desalination, including how they are to be best integrated with energy policies, which options for private sector participation are most appropriate, how desalinated water is best distributed, and how desalinated water should be charged for in order to avoid placing an undue burden on poorer segments of society.

This project (a) analyzed the status and recent developments in the seawater and brackish water desalination market in the Middle East and Central Asia regions, and (b) evaluated the institutional, financial, economic, and social implications of these developments. The study also sought to clarify the conditions under which desalination can help in reaching the United Nation’s Millennium Development Goals (MDGs) for water supply and sanitation. The study included case studies of Algeria, Cyprus, Jordan, Malta, Tunisia and Uzbekistan. The results from the study are expected to contribute to better institutional and financial arrangements for desalination schemes.

Objectives
The study sought to improve the understanding among World Bank clients in the Middle East and Central Asia, as well as among World Bank staff, of recent changes in the desalination industry. This understanding was intended to contribute to better institutional and financial arrangements for desalination schemes.

Activities
The study was conducted in three phases:

Phase 1 - Review of current knowledge regarding the institutional aspects of desalination; development of methodology for study.

Phase 2 - Field visits to key countries in the Middle East and Central Asia as well as key private sector companies and research centers inside and outside these regions.

Phase 3 - Production of main report, subsequently to be presented in a World Bank workshop.

Partners
The project was implemented in cooperation with the European Desalination Society; the International Desalination Association (IDA); and IHE Delft.

Key Project Results
The project was finalized in January, 2005, with the completion of the study report.

The findings bode well for coastal countries, many of which face water shortages and have so far had limited experience with desalination. In particular, desalination can help to alleviate the pressure on coastal aquifers suffering from seawater intrusion. It can also provide an alternative to inter-basin transfers of surface water or
the reallocation of water from agriculture to municipal uses whose economic and social costs have to be assessed on a case-by-case basis.

Among the study’s key conclusions is that desalination alone cannot deliver the promise of improved water supply. The ability to make the best use of desalination is subject to a series of wider water sector related conditions. In some countries weak water utilities, politically determined low tariffs, high water losses and poor sector policies mean that desalinated water, just like any other new source of bulk water, may not be used wisely or that plants are at risk of falling into disrepair. Under these conditions, there is a risk that substantial amounts of money will be used inefficiently, and that desalination cannot deliver its promise to alleviate water scarcity and contribute to the achievement of the MDGs. It may be preferable not to engage on desalination on a large scale unless the underlying weaknesses of the water sector are addressed. A program to address these weaknesses should include a reduction of non-revenue water; appropriate cost recovery; limited use of targeted subsidies; sound investment planning; integrated water resources management; proper environmental impact assessments; and capacity building in desalination as well as in water resources management and utility management. In any case, desalination should remain the last resort, and should only be applied after having carefully considered cheaper alternatives in terms of supply and demand management.

A second conclusion is that the private sector can play a useful and important role in funding and operating desalination plants, but only if the above conditions are met. If these conditions are absent, there is a risk that excessive investments in desalination become a drain to the national budget, either directly under public financing or indirectly through implicit or explicit guarantees under private financing.

A third conclusion is that desalination technology itself has evolved substantially, making it significantly cheaper, more reliable, less energy-intensive and more environmentally friendly than it was a few decades ago. This is especially true for reverse osmosis, which is gaining a large share of the market outside the Gulf countries which continue to use mainly distillation technologies.

The study report Seawater and Brackish Water Desalination in the Middle East, North Africa and Central Asia. A Review of Key issues and Experience in Six Countries is available on the BNWP website at www.worldbank.org/watsan/bnwp

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