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PN-ACS-856

120083

**UNITED STATES AGENCY FOR  
INTERNATIONAL DEVELOPMENT**

Egypt Utilities Management/Alexandria Results Package

RP 263-0270.02

Preliminary Report  
on  
Private Sector Participation  
September 1999

Alexandria Water (AWGA)  
Master Plan

CONTRACT NO. 263-C-00-99-00009-00



Camp Dresser & McKee International Inc.

*in association with*

Engineering Consultants Group  
Environmental Quality International  
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# Contents

List of Tables	i
Abbreviations and Acronyms	ii
Executive Summary	E-1
Section 1.0 Introduction	1
1.1 Background	1
1.2 AWGA and PSP	2
1.3 Master Plan Project	3
1.4 Institutional Strengthening Contract	4
1.5 PSP Study Objectives	4
1.6 PSP Methods	5
1.7 Report Organization	6
Section 2.0 PSP Experience Outside Egypt	7
2.1 General	7
2.2 Management Contracts	7
2.2.1 Gaza Water and Wastewater System	7
2.2.2 Atlanta Water System	9
2.3 BOOT Contracts	9
2.3.1 Izmit Water Project	10
2.3.2 Sydney Water Treatment Projects	10
Section 3.0 PSP Experience In Egypt	13
3.1 Overview	13
3.2 Public Sector Companies	13
3.3 Telecommunications	14
3.4 Electrical Power	14
3.5 Transportation	15
3.6 Water Sector	16
3.7 Proposed Water Sector Reform	17
Section 4.0 Potential PSP Methods for AWGA	20
4.1 Summary of PSP Methods	20
4.2 Legal Constraints	20
4.3 Policy Considerations	25
4.4 High Priority Projects	25
4.5 Near-Term PSP Methods	27
4.6 Long-Term Methods	28
List of Tables	
4.1 Potential PSP Methods	21-23

## Abbreviations and Acronyms

AWGA :	Alexandria Water General Authority
BOO:	Build-Own-Operate
BOOT:	Build-Own-Operate-Transfer
CAD:	Central Authority for Development
CDM :	CDM International Inc.
CDPSP:	Central Department for Private Sector Projects
CM :	Construction Management
DBO:	Design-Build-Operate
ECG :	Engineering Consultants Group
EQI :	Environmental Quality International
GIS :	Geographic Information System
GOA:	Governorate of Alexandria
GOE :	Government of Egypt
HPP :	High Priority Projects
IPCC:	Inter-Ministerial Policy Coordination Committee
ISC :	Institutional Strengthening Contract
Km :	Kilometers
Kwh:	Kilowatt hour
LIRR:	Legal, Institutional and Regulatory Reform
M <sup>3</sup> :	Cubic Meters
mm :	Millimeters
MHUUC :	Ministry of Housing, Utilities and Urban Communities
MWRI :	Ministry of Water Resources and Irrigation
NOWASD:	National Organization for Water and Sanitary Drainage
O&M :	Operations & Maintenance
PEA:	Public Economic Authority
PIU :	Project Implementation Unit
PSP:	Private Sector Participation
RP :	Results Package
TOR :	Terms of Reference
USAID :	United States Agency for International Development
USD:	United States Dollar
WTP :	Water Treatment Plant

# Executive Summary

## Report Purpose

This Preliminary Report on Private Sector Participation (PSP) provides background information and reviews potential PSP methods for the Alexandria Water General Authority (AWGA). While both short- and long-term alternatives are included, emphasis is placed on identifying PSP methods that can be implemented by, and provide benefits to, AWGA in the near-term. Upon discussion, review, and comment by AWGA, this report will be finalized, an action plan for PSP will be developed, and PSP recommendations will be incorporated into the Master Plan report.

## PSP Benefits

In Egypt and throughout the world, PSP in public infrastructure and utilities is rapidly expanding. Management contracts for existing water systems and BOOT (build/own/operate/transfer) contracts for new water facilities are becoming commonplace. When carefully implemented, these PSP arrangements are providing substantial and tangible benefits to general governmental entities, to local public utilities, and to individual customers.

Such benefits include:

- gains in efficiency (including reductions in the costs of operations and improvements in the utilization of capital funds through more effective design, construction and long-term asset management practices)
- improvements in service delivery (including reductions in unaccounted-for water, pressure improvements, and expanded coverage)
- improvements in commercial operations (including more effective billing and collection of revenue)
- better management of performance and related costs risks (through contract provisions transferring certain risks to the private sector).

Given the complexity of PSP arrangements, however, AWGA's realization of these benefits in practice will require careful implementation -- both in the tendering stage and in the contract administration stage.

## PSP In Egypt

Recent accomplishments in Egypt regarding PSP in public infrastructure and utilities are considerable:

- Closing in May, 1999, of international and in-country financing for the nation's first major BOOT project, the US\$ 480 million, Sidi Krier power generation project.
- Bids taken in June, 1999, from six international consortia for the first water BOOT project in Egypt, the US\$ 200 million East of Cairo Area and North-West Suez Gulf Area Water Supply Project.
- Submission in August, 1999, to the Prime Minister of a proposed law and presidential decree to institute major reform of the national water sector, a key objective of which is to support increased PSP.

Taken together with PSP activities of the Government of Egypt in other areas, such as the privatization of some 140 state-owned companies, the two agreements for private telephone services, and the PSP plans adopted for new transportation facilities, the trend is now firmly established in Egypt for increasing PSP in the provision of public infrastructure and utilities, including water.

## **PSP Methods For AWGA**

AWGA is in a strong position to take advantage of GOE support for increased PSP in Egypt and of the international activity and experience in this area. The immediate challenge facing AWGA is to select from the wide range of potential PSP methods the one or more specific method(s) that will be beneficial and can be effectively implemented without undue risk to AWGA. Although substantial progress is being made concerning PSP in public infrastructure and utilities, experience with PSP in Egypt's water sector is limited for a system of AWGA's scale, and until the proposed water reform program is implemented, the regulatory framework in Egypt is not suitable for certain of the PSP methods. It would seem appropriate, therefore, for AWGA to divide its consideration of PSP methods into near-term and long-term options.

Near-term PSP methods that should be seriously considered by AWGA include:

1. Service contracts for private sector maintenance and periodic calibration of new instrumentation recommended for installation at AWGA water treatment plants (including on-line turbidimeters, chlorine analyzers, and flow measuring devices).
2. Service contract for maintenance and calibration by a private sector company of new (computerized) central monitoring and reporting systems recommended for the Siouf, Rond Point, and Manshia water treatment plants.
3. Service contract for private sector maintenance and calibration of a new SCADA system recommended by the ISC for selected water treatment plants and pumping stations.

4. Service contract for maintenance and calibration of the upgraded computer system recommended by the ISC for billing, collection and customer information at the AWGA branches.
5. PSP approaches suggested in Section 4.4 for the up-coming High Priority Projects.

Consideration by AWGA of each of the near-term PSP methods outlined above, even if not implemented, will help identify areas for potential improvement and can enhance AWGA's internal efficiency.

Long-term PSP methods will depend on, among other factors, the progress of implementing the proposed law and presidential decree to reform the national water sector, and will be addressed in the Master Plan report. Long-term PSP methods for AWGA should also be considered in connection with the ongoing Institutional Strengthening Contract.

# Section 1.0

## Introduction

This Preliminary Report on Private Sector Participation (PSP) is the initial deliverable under the Privatization Task (Task I) of the Water Master Plan for the Alexandria Water General Authority (AWGA). The overall master planning effort, being conducted under United States Agency for International Development (USAID) Contract No. 263-C-00-99-000099-00 for Egypt Utilities Management/Alexandria Results Package RP 263-0270.02, will produce a Master Plan report for AWGA through the year 2022. Upon AWGA's review and comment on this Preliminary Report, recommendations and an action plan for PSP implementation will be developed and incorporated into the Master Plan report.

### 1.1 Background

In the past five years or so, considerable expansion has occurred throughout the world in the private sector's participation in providing public infrastructure and utility services. Where carefully implemented, governments and consumers have gained through increased efficiency (e.g., cost reduction, service delivery improvement, and resource preservation), access to private capital, and improved risk allocation. The water sector, in particular, is currently experiencing rapid growth in private sector participation; and in many places, this growth has been preceded by increased private sector participation (PSP) in the power and telecommunication sectors.

With specific reference to AWGA, a number of international firms specializing in the operation of municipal water systems have approached the Ministry of Housing, Utilities, and Urban Communities and AWGA to express interest in PSP. These firms have been identified and will be interviewed as part of this PSP Study to ascertain the nature and level of PSP that might be of benefit to AWGA. The Master Plan Report will document the results of these interviews.

In Egypt, several developments in PSP during 1999 are noteworthy:

- Financing arrangements were concluded for the nation's first build-own-operate-transfer (BOOT) project for power generation (the US\$ 480 million Sidi Krier 650-mw gas-fired plant), and two additional BOOT power station contracts were awarded (650-mw plants in the Gulf of Suez and the Port Said industrial zones).
- The first private port operation contract, a 25-year contract for equipment and operation, was signed for the new Ain Sukna port on the Red Sea.
- Preliminary approval was given for the county's first BOOT road projects, which will be awarded as 75-year concessions and include a 210-km highway from Alexandria to the Fayoum oasis.

- A plan to sell 20% of the shares of the Greater Cairo Electricity Company was announced, which would be the nation's first utility stock flotation.

In Egypt's water sector, the following occurred in 1999:

- Bids were taken on 15 June from six consortia for the first BOOT water supply project in Egypt (the "East of Cairo Area and North-West Suez Gulf Area Water Supply Project"), and pre-qualification submissions were received for the second BOOT water supply project (the "Port Said East Area Water Supply Works" project).
- A new law and decree were drafted to implement major reform of the national water sector, a key purpose of which is to provide a legal and regulatory framework to facilitate increased PSP.

This study of PSP methods for AWGA is timely -- both in terms of the recent increase in worldwide activity with various forms of PSP in the water sector and in terms of the aggressive steps being taken by the Government of Egypt to expand PSP in the provision of public infrastructure and utilities.

## 1.2 AWGA and PSP

The Alexandria General Water Authority (AWGA), once a private water company, was established by Presidential Decree No. 1639 of 1968. The 1968 decree transformed the Alexandria Water Company to a General Authority, and under a 1979 decree (Prime Minister Decree No. 1039 of 1979), AWGA became an "economic authority" and therefore responsible for generating sufficient revenue to cover its costs. AWGA currently provides potable water to a year-round population of some 4.0 million in an area extending over 300 km along the Mediterranean from Abou Kir to Mersa Matrouh. This area includes the city of Alexandria and the population served increases to approximately 4.7 million during the summer months. Projections indicate that in 2022, the year-round population served will be nearly 7.0 million, with summer migration adding over one million more.

It is important to note that AWGA originally started as a private company and that municipal water service in Alexandria dates back to about 1820. In fact, for most of its history, the water system in Alexandria has been operated as a private entity. Certain treatment, pumping, and storage facilities were constructed in the 1850's by private French interests, and for some 30 years, the system was jointly owned by Egyptian and French entities. In 1879, the company was sold to British interests, and it remained a private British company until 1954 when it was converted to an Egyptian joint stock company. The enterprise was nationalized in 1961 and the Governor of Alexandria became its chairman. In 1973, ownership was assigned to the Alexandria governorate and the current organization subsequently developed.

AWGA's powers and legal structure under Presidential Decree No. 1639 of 1968 can be summarized as follows:

- must operate in accordance with the provisions of the law concerning general authorities (Law No. 61 for 1963, as amended)
- exclusively responsible for potable water service in the area covered by the Alexandria Water Company, the Al-Nobaria and Mariout water operations, and the Western Desert water line
- directly responsible for programming, tendering, awarding contracts, designing, and supervising the construction of its projects
- its Board of Director is in charge of its affairs and can exercise the following powers: (a) set general policy within the scope of state general policy; (b) propose projects and implementation programs; (c) establish by-laws without being restricted to government rules; (d) conclude loans and establish a reserve fund; and (e) propose the tariff for selling water.
- the Minister of Housing, Utilities, and Urban Communities must be advised of resolutions of the Board of Directors, and such resolutions do not take effect until ratified by the Minister or 30 days have passed
- resources include revenue from water sales, credits allocated to AWGA in the state budget, loans and grants
- AWGA personnel are subject to the public sector system, until its Board of Directors establishes a specific system (an area being examined under the ISC and which might involve the adoption of incentive-based compensation).

With its designation under the 1968 decree as a general authority, AWGA was transformed from a private company (Alexandria Water Company) to a public or state-owned company.

With this study of private sector participation methods, AWGA will be considering various courses of action that could bring the organization back to its roots in the private sector. The ultimate course of action regarding increased private sector participation will, of course, be decided by AWGA. And, as these important decisions are taken, AWGA's history with the private sector will no doubt serve it well.

### **1.3 Master Plan Project**

As indicated in the Project Inception Report (May 1999), a study of private sector participation (PSP) is included as a work element under the AWGA Master Plan project. While the master planning effort is concentrated on AWGA's long-term needs for physical systems and facilities, the PSP study element will identify areas where AWGA might benefit through increased participation by the private sector. An intermediate output of the PSP study, presented in section 4.4 of this Preliminary Report, is the identification of PSP methods for the High Priority Projects. The final PSP study output will be a chapter in the

Master Plan report summarizing the results and including recommendations for short-term and long-term PSP implementation actions by AWGA.

## 1.4 Institutional Strengthening Contract

Commencing in July, 1999, a USAID-funded contract is being implemented to provide technical assistance aimed at strengthening the institutional capacity of AWGA. Referred to as the "Institutional Strengthening Contract (ISC)," it recognizes the generally well-developed institutional capacity of AWGA and includes services to address specific areas identified as in need of strengthening. These areas include accounts receivable, organizational structure, personnel practices, management procedures, and information systems. The basic elements of the ISC include (a) an assessment of AWGA's current institutional capacity, (b) development of a long-term program for overcoming institutional weaknesses (which is to include a priority program to address six particular areas), and (c) assistance with implementation of the priority program.

Given that the ISC's goal is to strengthen the internal institutional capacity of AWGA, it does not explicitly provide for assistance in the area of PSP. However, close coordination of this PSP study effort with the ISC effort is needed and will be accomplished through the exchange of report and other outputs from each effort and periodic meetings. A key output of the ISC, scheduled for delivery in six months, is the assessment of AWGA's current institutional capacity along with recommendations for strengthening programs. This ISC output will provide timely input to the development of recommendations for PSP as part of this study.

In certain instances, AWGA may be faced with the choice of PSP or internal strengthening avenues (e.g., the collection of accounts receivables could be outsourced via service contracts with the private sector or could be improved through changes in internal practices and procedures). In other instances, PSP and internal strengthening may be able to work together in achieving institutional-building objectives (e.g., training services could be included in a service or management contract with the private sector).

## 1.5 PSP Study Objectives

The objective of this report is to provide a framework for AWGA's consideration of potential PSP methods and to obtain AWGA's views and comments so that PSP methods can be selected for implementation, both in the short- and long-term. From the standpoint of the Master Plan, PSP is being studied as a potential avenue to support AWGA's efforts to meet the facility and system long-term needs in its growing service area.

In general, the objectives of PSP include one or more of the following:

- improved efficiency in technical operations (with cost reduction, better results, or both)
- mobilization of capital and risk-sharing in the construction of new facilities

- improved results in revenue capture
- implementation of private sector management practices
- more efficient utilization of raw water supplies

## 1.6 PSP Methods

A wide range of methods to increase the scope of the private sector's participation is available to AWGA – although current laws restrict this range somewhat. While the last three PSP methods listed below (lease, concession, and privatization) would be outside of AWGA's existing legal framework, the first three PSP methods (service contract, management contract, and BOOT) are well within its legal authority and these alone offer many possibilities for PSP. As for the long-term, however, the GOE is planning to reform its water sector (in large part to facilitate PSP), and the lease and concession PSP methods are expected to become legally available to AWGA.

In practice, various PSP methods are tailored to the specific needs and conditions of the particular water project or utility, whereby aspects of several "methods" are oftentimes blended together. As a result, the generalized labels or terms used to describe PSP frequently do not accurately portray many actual PSP arrangements. Nevertheless, it is helpful for the purposes of this report to discuss and analyze certain generic approaches or methods for PSP, as follows:

- Service Contract – a relatively limited scope of services by private sector to support utility or project operations (e.g., meter reading)
- Management Contract – broad operational responsibility and related services by private sector for an individual facility, several facilities, or an entire utility system (e.g., operation and maintenance of existing water treatment plant)
- BOOT – private sector implementation and long-term operation of a new facility, where BOOT stands for build/own/operate/transfer (e.g., permitting, financing, design, construction, and operation and maintenance of a new water treatment plant, which is transferred to the utility upon expiration of a 20 to 30 year term)
- Lease – long-term responsibility for asset management and commercial operations, excluding capital expansion, for an existing facility or utility system by private sector (e.g., operation and revenue generation for all or a portion of water utility assets)
- Concession – full private sector responsibility for providing and expanding service to present and future customers (e.g., assignment of exclusive right to provide potable water services in a designated geographical area for a fixed period of time)

- Privatization – same as Concession, except the period of time is not limited or fixed and the ownership of assets is transferred to private sector

In all of the PSP Methods, the government retains authority for the approval of tariff levels and for the monitoring of service quality.

## 1.7 Report Organization

The remainder of this report is organized as follows:

- 2.0 PSP Experience Outside Egypt
- 3.0 PSP Experience In Egypt
- 4.0 Potential PSP Methods for AWGA

## **Section 2.0**

### **PSP Experience Outside Egypt**

#### **2.1 General**

Private sector participation (PSP) in the delivery of public infrastructure and utility projects and services is expanding rapidly throughout the world. A wide range of PSP methods are being implemented, both in developing and developed countries. The full gamut of PSP methods (generally described in section 1.6) has been undertaken -- from the privatization of ten water/wastewater companies in England and Wales, to a management contract for the city of Atlanta water system in the United States, to a water concession in Buenos Aires, Argentina, to a BOOT water project in Izmit, Turkey.

This section 2.0 is intended as a brief introduction to a limited number of PSP arrangements in the water sector outside of Egypt. Due to the highly complex nature of these arrangements, the relevant contractual documentation needs to be reviewed if a complete understanding of a particular PSP arrangement is desired. The PSP arrangements selected for review in this section 2.0 concentrate on management contracts and BOOT contracts. Although offering a potentially beneficial method for AWGA, service contract examples are not included. This is due to the relatively straightforward nature of the service contract method as well as the wide variation in the scope of services encountered. Concession and privatization examples are not presented in this section 2.0 (since these methods are not currently legally available to AWGA), but will be included in the Master Plan report where additional discussion will be provided on long-term PSP options for AWGA.

#### **2.2 Management Contracts**

Two examples of management contracts are presented. First is the management contract for the water and wastewater systems in Gaza entered into by the Palestine Water Authority, and second is the management contract for the water system of the city of Atlanta, United States. The Gaza example provides experience with a relatively small system in the region, while the Atlanta example is indicative of a large-scale water system management contract.

##### **2.2.1 Gaza Water and Wastewater System**

Although with a service area population of some 900,000 the Gaza system is less extensive than AWGA's, the Gaza management contract experience may provide some valuable insights to the application of this method to AWGA. Implementation of this PSP method in Gaza began in mid-1996 and is intended as the first step in a long-term reform program for water and wastewater services in this area. Several advantages are provided to the Palestine Water Authority under the management contract method: (a) it is highly flexible, enabling the unique characteristics and needs of the service area to be addressed, (b) it is of limited duration (4 years), so that the Authority and the public could judge the results of private sector management without having to make a long-term commitment, and (c) it ensured that a wide range of options would be available to the Authority at the end of the 5-year contract

term. From the private sector perspective, the management contract for Gaza enabled a substantial level of private sector participation to be carried out under a set of risk conditions appropriate to the situation. The fragmentation of the local governmental responsibilities and the unavailability of accurate information on the system conditions and the customer base would present too many risks for greater private sector participation.

The Gaza management contract was tendered in 1995-96 under a World Bank-funded process. In mid-1996, the four-year agreement was awarded to a joint company contractor, comprising a Palestinian firm and a French firm. The selection method was designed to be transparent; it included two steps: (a) qualifications and technical approach, based upon comprehensive documents (technical specifications and agreement terms and conditions were spelled out in detail), and (b) price bids. Upon evaluation of the qualifications and technical approach, each of the firms were rated evenly and final selection was based on the prices submitted.

The first two years of the Gaza management contract (mid-1996 to mid-1998) have produced the following results:

- unaccounted-for water was reduced by 35%
- metered water consumption was increased by 50%
- revenue collections were increased by 100%
- more than 11,000 illegal connections were identified
- more than 2,000 leaks were repaired
- a complete database of service connections was prepared
- 80% of the system was mapped
- more than 7,000 meters were repaired and 8,000 replaced

Compensation to the private management contractor, funded by a World Bank loan, is structured so that a major portion (up to 50%) is based on performance. In this regard, the contract may be more complicated than need be, as 31 performance targets are included (e.g., number of meters repaired or replaced, reduction in unaccounted-for water, and implementation of maintenance management system), but nevertheless demonstrates the value of performance-based compensation. More recent performance-based management contracts for Amman, Jordan, and for the Bethlehem and Hebron areas have fewer and better-defined performance indicators.

## 2.2.2 Atlanta Water System

Serving a population of approximately 1.5 million in the Atlanta metropolitan area, the Atlanta water system includes three treatment plants (870,000 cubic meters per day total capacity) and some 3,900 kilometers of distribution piping. Faced with large needs for capital investment and looking to reduce annual operations and maintenance costs, the city in 1998 received management contract proposals from five private companies. At the end of 1998, the city entered into a 20-year management contract with a US-based company (100% owned by a French firm) with substantial participation by local Atlanta-based companies, delegating to the private sector complete responsibility for operation and maintenance of its water system. Responsibility for capital improvements and for setting tariffs, however, remain with the city.

Based on the city's experience with operation of its water systems and on the terms of the management contract, it is anticipated that the annual cost to the city will be reduced by some 40%. The total 1999 cost for continued city operations was estimated at approximately \$50.0 million, and the total cost to the city under the management contract is estimated at \$30.0 million.

A brief summary of the management contract's key provisions follows:

- 20-year term, but may be terminated at any time at the city's discretion upon payment of a termination fee or by either party in the case of default
- compensation based on fixed monthly fee, which is adjusted each year based on inflation and effects of new capital projects implemented by the city
- all city employees offered employment by the private company and no elimination of jobs through layoffs or redundancies
- city is responsible for the cost of major repairs and replacements
- new computer-based billing, collection, and maintenance systems to be installed by private management contractor

The city's annual cost savings in operations are being used to offset the debt service costs for needed capital improvements, thus avoiding major tariff increases.

## 2.3 BOOT Contracts

Utilized extensively in the power generation sector, BOOT (build-own-operate-transfer) contracts are currently being used for water sector projects in many parts of the world. They can be particularly attractive in countries where the avoidance of national government debt is a priority. Two BOOT projects, one in Izmit, Turkey, and the other in Sydney, Australia, are briefly summarized in this section 2.3.

### 2.3.1 Izmit Water Project

The country's first BOOT water project is with a British water company. The 15-year, \$933 million project in Izmit, Turkey, involved a 3-year construction period, a 15-year operating concession, and a variety of financing sources. Three principal factors supported the private sector participation approach to this project: (a) the national government desired to establish Izmit as an industrial city with sufficient infrastructure to support growth, (b) the city lacked reliable potable water supplies for its population, and (c) the government wanted to achieve World Health Organization standards for water quality. The scope of the BOOT contract is for several new facilities, including completion of a dam, a 480,000 cubic meter/day water treatment plant, two pumping stations, and water trunk and distribution pipelines. The contract also includes consulting services to the local water utility regarding asset management, leakage control, and billing and collection.

Key features of the Izmit BOOT arrangement include:

- the municipality (city of Izmit) is designated as the regulatory body and is also an equity holder in the project company
- payments to the private project company are in dollars
- the national government guarantees the "take-or-pay" payment obligations of the city
- the contract term covers a relatively short period (i.e., 15 years )
- the debt portion of the project's financing (86%) is divided into five tranches supported by credit facilities from three different countries (United Kingdom, France, and Japan)

In addition to the payment guarantee by the national government, the success in arranging finances for this almost \$1.0 billion project (under a PSP method which had not yet been used for a water project in Turkey) can be attributed to the national government's economic reform program, the participation of several export credit agencies, and the BOOT agreement structure allocating construction and operations risks to the parties in the best position to mitigate those risks.

### 2.3.2 Sydney Water Treatment Projects

In 1991, the Sydney Water Board (corporatised in 1995 as the Sydney Water Corporation) decided to seek private sector participation in the form of BOO (build-own-operate) arrangements for a series of four new water treatment plants needed for its metropolitan service area in Australia. This decision was taken largely due to the extensive demands being placed on its financial resources by major capital projects needed in both the potable water and wastewater management systems. Use of the BOO arrangements with multiple private parties was also seen as a way of introducing competition into the water market in

the Sydney area. And, studies indicated that the BOO approach would save an estimated 16% compared to the traditional method of delivering these new capital projects.

Sydney Water instituted a task force for implementing the BOO contracts, including the development of selection procedures, commissioning of pilot studies for alternative plant designs, completion of environmental impact assessments, and preparation of a commercial principles document outlining the intended risk profile and key terms of the proposed contract. A total of seventeen consortia initially responded to the call for expression of interest, thirteen of which were pre-qualified to bid on the contracts. By the time bids were submitted in October of 1991, the field was narrowed to five competitors.

The Prospect plant, the largest of four water treatment plants included under three separate BOO contracts, involved total financing of \$150 million and financial close for this project occurred in September of 1993. Some important terms of the final BOO contract for the Prospect plant, entered into with a French company, include:

- interest rate and inflation rate fluctuations during the construction period are the responsibility of the project company
- liquidated damages would apply for failure of the project company to meet the commissioning deadline
- facilities needed to interconnect the new plant with water transmission pipelines are the project company's responsibility
- a minimum of 10% of the total project costs was required to be provided by project sponsors in the form of equity
- upon completion of commissioning of the treatment plant, the project company is required to treat a minimum quantity of water per day meeting the national water quality standards
- compensation to the project company is based on a two-part tariff, an availability charge to cover fixed costs and a usage charge based on the actual volume of water treated
- a state guarantee of Sydney Water's payment obligations to the project company would apply if Sydney Water is privatized or its credit rating drops below a certain point
- instead of automatic transfer at the end of the 20-year contract term, three options are provided for Sydney Water: (1) the contract term may be extended, (2) the contract could expire with no further payments to the project company, or (3) the plant may be purchased at an independently determined valuation.

The options at the end of the BOO contract term are designed as incentives to the project company to maintain the plant assets in good working condition through the end of the initial term.

It should be noted that a number of apparent water contamination events occurred in Sydney in 1997 (July, August, and September), and initially there was concern that these events may have been related to improper design or operation of the Prospect plant. However, a comprehensive investigation into the cause of these events, which was conducted during 1998 and included the preparation of four reports based on interviews with more than 150 people and over 200 document submissions, concluded that the plant was not at fault for such events and that the inclusion of requirements in the plant's original design for these events would not have been justified in light of the large increase in costs involved. The investigation also concluded that the tender process for the Prospect plant was undertaken with integrity, honesty, and without influence from any inappropriate source.

## Section 3.0 PSP Experience In Egypt

### 3.1 Overview

With adoption by the Government of Egypt (GOE) in 1991 of a comprehensive reform and restructuring program to transition into a market-based economy, the role of the private sector in the Egyptian economy has expanded considerably. Privatization of state-owned companies in the industrial, agricultural, commercial, and service sectors is a key element of the GOE's economic reform program. Although implementation was somewhat gradual during 1991-1995, it was accelerated in 1996, with some 65 public companies sold in 1996-97 and approximately 90 state companies scheduled to be sold in 1999-2000. Current (September, 1999) conditions in the Egyptian stock market, however, including a lack of liquidity and major declines in share prices, may delay near-term progress in the further privatization of state-owned companies.

The expansion of private sector participation (PSP) in public utilities and infrastructure in Egypt, by design, has lagged the privatization of state-owned companies. Referred to as the second phase of privatization, GOE activity in public utilities and infrastructure was delayed due to the critical nature of public utilities and infrastructure, but has recently begun in earnest. In the last 12 months alone, major steps have been taken to expand PSP in the telecommunications, transportation, electrical power, and water sectors. The drafting of a new law and presidential decree to reform the Egyptian water sector was completed in January, 2000, a primary objective of which is to provide the institutional and regulatory framework needed for increased PSP in the water sector (see section 3.7).

### 3.2 Public Sector Companies

Law 203 of 1991 (Public Business Sector Law) established the legal basis for privatization of state-owned or public sector companies (but does not address PSP in public utilities and infrastructure). Prior to this law, there were only isolated cases of privatization in Egypt, such as the sale of the Meridian hotel in Cairo and the unsuccessful sale of Alexandria's San Stefano hotel in the late 1980s. Under Law 203 of 1991, some 300 public (state-owned) companies are subject to privatization through a variety of methods: (a) sale of entire company to an investor, (b) sale of a majority of the company to its employees, (c) offering of a portion of the company to the public in the stock exchange or to a strategic investor (or both), (d) sale of an operating asset to an investor, (e) liquidation of a company and sale of its non-operating assets, and (f) lease of some operating assets to a private company. Implementation of the GOE's privatization program for public sector companies is carried out by the Ministry of Public Enterprises and supervised by the Ministerial Committee for Privatization and the Cabinet Privatization Committee.

During the past six years, ownership of 131 public sector companies was transferred, either fully or partially, to the private sector. A total of LE 10 billion was paid for these companies, with LE 4.2 billion going to the state treasury, LE 3.6 billion to pay debts, and

LE 2.2 billion to fund the workers' early retirement program. Currently (November, 1999), tenders are being evaluated for the purchase of 12 public sector companies, including companies in internal trade, automotive, fertilizers, and cinema totaling an estimated market value of LE 2.8 billion. The GOE objectives in transferring ownership relate to a number of deficiencies experienced with the operation of public sector companies, including recurring financial losses, bureaucratic management, dependence on the state's balance sheet, and redundant labor.

### **3.3 Telecommunications**

Upon passage of a new law, privatization in the public utilities sector started with telecommunications. This step was prompted in large part by the need to introduce the mobile telephone in Egypt. The National Authority of Communication was converted into a joint stock company, then offered a portion of its shares to investors. The Authority subsequently signed two agreements under which separate private sector companies provide mobile telephone service throughout Egypt. The agreements specify the investments required to be made over certain time frames by the private companies. In May, 1998, the Egyptian Company for Mobile Services (MobiNil), an international consortium, was awarded a license to become Egypt's first private phone operator. Under the 15-year license, the private company will design, supply, and install a digital cellular network to provide service to nearly 85% of the country within four years. The US\$ 1.0 billion capital costs are being financed through a combination of international funds denominated in US\$ and local funds in Egyptian Pounds, the closing of which took place in July, 1999.

Most cities in Egypt are currently included in the mobile telephone service area, although service difficulties were encountered in mid-1999 due to demand in excess of service capabilities. The GOE is planning to sell an additional 20% of the shares of the joint stock company, National Authority of Communication, to small investors through an offering in the Egyptian Stock Exchange. A regulator has been appointed by the GOE to oversee the telecommunications sector and an advisory team has been retained to advise on the law, decrees, and the issuance of licenses for telecommunication services and future privatizations in the telecommunications sector. An offering of some 10-20% of the shares in the state-owned company, Telecom Egypt, is being planned.

### **3.4 Electrical Power**

The build-own-operate-transfer (BOOT) approach has become the primary vehicle for implementation of new power generation facilities in Egypt and steps are being taken to privatize minority shares (20%) in three government-owned electricity distribution companies. The US\$ 450 million, 650 megawatt, gas-fired power generation facility to be constructed in Sidi Krier, located some 20 kilometers west of Alexandria, is Egypt's first major infrastructure project to be implemented as a BOOT contract with the private sector. Signed in August 1998, the 2.6 cents per kilowatt price for output, at some 50 percent below worldwide prices for similar projects, is one of the lowest prices in the world. Financing was closed in August 1999 and operation is scheduled to begin in July 2002.

Two additional BOOT contracts were recently signed (May 1999) for power generation plants, one to be located at the Gulf of Suez and the other at Port Said East. Each of these contracts are for 650 megawatt capacity plants, and like the Sidi Krier project, are to be implemented by international companies with a combination of in-country and international finance. Total investment for these two plants is estimated at USD 850 million, and the base price for electricity output is set at 2.37 cents per KWh. Financing is currently being arranged and operation is scheduled for the year 2002. The GOE has announced plans to issue tenders for approximately 4,000 megawatts of additional private power projects by 2001 and some 6,400 megawatts by 2005. Included among these projects are ones at Cairo North and Safaga, each in the range of 650 to 750 megawatts, for which the Egyptian Electricity Authority in September, 1999, issued a BOOT pre-qualification invitation to international companies.

Advisors have been retained by the GOE with regard to the eventual privatization of seven state-owned power companies. And in July, 1999, the GOE authorized the process of valuation for three state-owned electrical power generation and distribution companies in preparation for the offering of 20% of their shares on the Egyptian Stock Exchange. These companies include Greater Cairo Electricity Company, Canal Zone Electricity Company, and Middle Egypt Electricity Company. Originally scheduled for issuance of a public stock offering in August, 1999, but delayed due to lack of liquidity in the Egyptian Stock Exchange, the expected offering of 20% of the shares in the Greater Cairo Electricity Company was to have been the first public services company offered on the stock market. In order to protect consumers, the GOE in 1997 by Presidential decree established an office to monitor public utilities in the electric sector with a board comprising four consumer representatives and three non-government experts.

### **3.5 Transportation**

The construction of new airports, highways, railroads, and port facilities is increasingly being implemented in Egypt through the BOOT approach. With facilities in the transportation sector, the GOE has generally been willing to guarantee usage thus offering the private sector a foundation of guaranteed minimum revenue for arranging the necessary financing. With regard to airports, BOOT contract awards have been made for new airports in the tourist areas of Mersa Alam on the Red Sea, Ras Sidr on the Gulf of Suez, and El-Alamein on the Mediterranean; and several international consortia have recently been pre-qualified by the Egyptian Civil Aviation Authority for the US\$ 100 million airport passenger terminal project at Hurghada. A third terminal for the Cairo airport is also planned for implementation via a BOOT tender, as well as extensions of the Assuit and Borg-Al Arab airports.

Several new highway projects are being planned for implementation under 75-year toll-road concession agreements with the private sector. The need for a new road tunnel under the Suez Canal has been identified by the GOE and its construction is expected as a BOOT scheme. Three subterranean garages (car parks) in Cairo are being carried out by the private sector under BOOT contracts. Several new railroad lines are being formulated by the

Ministry of Transportation as BOOT projects, including the US\$ 75 million, 225 kilometer (km) Cairo-Tebbein line, the US\$ 268 million, 260 km Ismailia-Rafah line, the US\$ 230 million, Samal-Saloum line, US\$ 400 million, 270 km Dairout Farah line, and the US\$ 520 million, 510 km Saloum-Natroon line.

A 30-year BOOT contract for private development of a new container station at East Port Said, referred to as the East Port Said Container Station, was signed in mid-1999. At an estimated capital cost of US\$ 480 million, this facility will have a platform size of 2,300 meters and handle some 3 million containers annually. Financing is based on 40% local Egyptian investors and the remaining 60% from outside of Egypt. In addition, the new port of Ain El-Sokhna, south of Suez, will be constructed and operated by a local/international consortium under a BOOT contract.

### 3.6 Water Sector

Although PSP activity in the water sector has lagged other public utilities, during 1999 two large water BOOT projects were tendered and important steps were taken towards reform of Egypt's legal and institutional framework to enable increased PSP in the water sector (see section 3.7). In June, 1999, bids were submitted by six international consortia in response to a tender invitation issued by the Central Authority for Development (CAD) of the Ministry of Housing, Utilities, and Urban Communities for the US\$ 150-200 million, 35-year BOOT contract for the East of Cairo and North-West Suez Gulf Area Water Supply Project. Representing the first BOOT project in Egypt's water sector, it will include the operation of three water treatment plants, the construction of a 125 kilometer treated water pipeline/pumping system, and the construction of a 200,000 cubic meter/day water treatment plant to serve the new industrial zone near the city of Suez. The technical evaluation of the six tenders has been completed, and the financial evaluation of proposed tariffs was initiated in mid-November, 1999.

Egypt's second BOOT project in the water sector was formally announced in July, 1999, with an invitation issued by CAD for the submission of pre-qualifications by private consortia to tender, on a BOOT contract basis, a new 600,000 cubic meter/day water supply system for the Port Said East Area. This project will include new raw water intake, transmission, pumping, underground reservoirs, and treatment facilities. Preparation of a pre-feasibility study of the Port Said BOOT project was to be initiated in November, 1999.

On a smaller scale than the Suez and Port Said BOOT projects, but an example of a management contract, is the Nuweiba wastewater treatment plant operations and maintenance and effluent reuse project. A request for proposals was issued in October, 1999, by The National Organization For Potable Water and Sanitary Drainage (NOPWASD), on behalf of the South Sinai Governorate, to four pre-qualified consortia. Proposals are scheduled for submission to NOPWASD in early 2000. The project involves the private sector operation and maintenance of two new secondary wastewater treatment facilities to be constructed by NOPWASD in the city of Nuweiba and the development of an agricultural program based on irrigation with treatment plant effluent. An important feature

of this project is the need to protect the waters of the Gulf of Aqaba from the harmful effects of nutrients contained in the secondary plant effluent.

### 3.7 Proposed Water Sector Reform

Under the supervision of the Ministry of Housing, Utilities, and Urban Communities (MHUUC), an executive steering committee has developed a plan for major reform and restructuring of Egypt's water sector. Referred to as the LIRR Program (Legal, Institutional, and Regulatory Reform Program), it is embodied in a proposed new law and presidential decree that are currently under review by the Prime Minister. Central themes of the reform proposal are to promote self-financing of local utilities and increased PSP in the water sector.

The proposed law governs the granting of concessions in the water sector and is patterned after laws recently adopted for public utility concessions concerning airports (Law No. 3 of 1997) and power generation (Law No. 100 of 1996). This new concession law is significant in that, until it is enacted, the award of public utility concession for water would have to be based on the general, and somewhat dated, law on public utilities concessions (Law No. 129 of 1947, as amended).

Major points of the proposed law on concessions for water and wastewater utilities include:

- selection of the concessionaire must be based on a public tender;
- concession term can be up to 99 years;
- no amendment can be made unilaterally to the concession agreement; and
- at the end of the concession, facilities are returned to the state without charge and in good condition.

Concessions are to be granted by the Cabinet based upon a recommendation of the Water/Wastewater Regulatory Agency, a new agency created under the proposed presidential decree.

The details of the MHUUC steering committee's proposal for water sector reform are contained in the draft presidential decree (which includes 25 pages). A number of new governmental units would be created and significant changes in the water and wastewater responsibilities of existing entities would be instituted. A summary of the national water sector in Egypt as it would be configured under the proposed presidential decree is as follows:

1. The new Inter-Ministerial Policy Coordination Committee (IPCC) would report to the Prime Minister and be headed by the Minister of MHUUC. IPCC would include some twenty members representing a wide cross-section of government entities

directly and indirectly involved in the water/wastewater sector. Its principal functions would be to develop and coordinate policies for the water/wastewater sector, including policies and strategies concerning PSP, and to specify target levels of water and wastewater service delivery in coordination with the national five-year economic plan.

2. The new Water/Wastewater Sector Regulatory Agency (Regulatory Agency) would report to the Prime Minister and its board of directors would be headed by the Minister of MHUUC and be formed by a decree from the Prime Minister. It would regulate water and wastewater service utilities throughout Egypt with the primary goal of enhancing their capacity for self-finance. Functions of the Regulatory Agency would include (a) review and approval of requests for tariff adjustments (which in turn would be reviewed and approved by the Prime Minister), (b) development of criteria and monitoring the technical and financial performance of utilities, (c) provision of technical assistance, (d) promotion of private sector participation in the water sector, and (e) issuance of operating licenses for water and wastewater facilities. The Regulatory Agency would be administered by an executive head and would have an independent budget with funding from charges for licenses and services, the Public Budget, and grants.
3. A new Central Department for Private Sector Projects (CDPSP) within MHUUC would facilitate private sector participation in project implementation and utility management in accordance with the policies adopted by the IPCC. The CDPSP would act as the national reference for private sector participation in the water sector and would develop standardized procedures for pre-feasibility studies, pre-qualification and tendering documents, and contract forms, as well as provide private sector investors with information and local utilities with technical assistance in implementing PSP.
4. A new Central Department for Utilities within MHUUC would collect and analyze data on the performance of utilities in the water sector and prepare reports and studies on sector problems.
5. The National Organization For Potable Water And Sanitary Drainage (NOPWASD) within MHUUC would manage the implementation (design and construction) of projects in the Public Budget and operate as the technical secretariat of the IPCC. [AWGA, however, would remain responsible for implementing its own projects, as NOPWASD implementation responsibilities would not be extended to AWGA.] NOPWASD would develop technical codes and specifications, perform research and development, operate training centers, provide consulting, and essentially operate as the center of technical expertise for water and wastewater utilities in Egypt. The board of directors of NOPWASD would include some twenty-one members, with its chairman appointed by the Prime Minister upon nomination by the Minister of MHUUC, and its decisions would be subject to approval by the concerned Minister.

6. Public Economic Authorities (PEAs) would be extended effectively to include all governorates in Egypt for delivering water and wastewater services within their respective geographical scope. These PEAs would be the public utilities in Egypt's water sector. Each PEA would itself, or through contracts with the private sector, manage, operate, and maintain all water and wastewater projects and facilities, and would supervise projects implemented by cities and villages. PEAs would prepare plans for water and wastewater services at the governorate level and prepare cost of service and pricing studies for submission to the Regulatory Agency to support requests for tariff adjustments. Each PEA would have an independent budget and its funds would be deposited in a special account. Necessary funds would be allocated from the Public Budget to cover any financial deficits of the PEAs, but such allocations are intended as a temporary measure to support a transition to self-financing by each PEA. The civil service system would apply to the employees of each PEA until its board of directors develops suitable systems; however, in this regard an issue needs to be analyzed in that the civil service laws may be senior to the LIRR program.

The reform proposal developed under the LIRR program clearly would institute major changes to the national legal and regulatory framework within which AWGA would operate. Changes such as the new Water/Wastewater Sector Regulatory Agency and the new Central Department for PSP would facilitate AWGA's implementation of increased PSP, as well as expand the range of PSP methods available. In other respects, however, AWGA would not undergo significant change. This is because the basic charter of AWGA as a general authority and the exclusion of its projects, like those of the utilities in the Cairo area, from implementation by NOPWASD remain unchanged.

To summarize, the LIRR program proposal's impacts on AWGA would basically include:

- tariff review and approval by the new Regulatory Agency before approval by the Prime Minister
- project plans would be reviewed by the IPCC for conformance to its policies and strategies
- the resources of the Central Department for PSP would be available to support AWGA's efforts to implement PSP

Given the time required for adoption of the proposed law and presidential decree, as well as the time needed to build and implement the new institutions, however, the near-term efforts of AWGA will probably be unaffected in any major way by the water sector reform proposal.

## Section 4.0

# Potential PSP Methods for AWGA

### 4.1 Summary of PSP Methods

A summary of various methods available to AWGA to increase the participation of the private sector in delivering facilities and services is provided on Table 4-1. While a number of discrete methods are presented on Table 4-1, a combination of features from several PSP methods is oftentimes utilized when PSP arrangements are put into practice. For example, a management contract might also include significant capital investment by the private sector, and a lease for an existing facility could also specify conditions under which the private party would undertake expansion of the facility.

The following points should be considered when reviewing the PSP methods for AWGA presented on Table 4-1:

1. A wide range of PSP methods is available; it is crucial, therefore, that specific goals and objectives be identified by AWGA before selection and implementation of any PSP arrangement.
2. Key distinguishing features of the alternative PSP methods include:
  - management control is either retained by AWGA staff or delegated to the private sector (although in each case, management is subject to oversight by AWGA's Board)
  - capital investment is either continued as AWGA's responsibility or is transferred to the private sector
  - customer service (including revenue collection) is either retained by AWGA or delegated to the private sector (in no case, however, are tariff levels set by the private sector alone)
3. Successful implementation of any of the PSP methods (except partial or full privatization) would require that AWGA have sufficient institutional capacity to oversee and coordinate the activities of the private sector.

### 4.2 Legal Constraints

Egypt's existing legal framework presents several constraints or obstacles to AWGA's implementation of certain of the potential PSP methods presented on Table 4-1.

Table 4.1  
Potential PSP Methods  
(1 of 3)

PSP Method	AWGA/GOE Responsibilities	Private Sector Responsibilities
Service Contract	<p>No significant change in AWGA or GOE responsibilities. AWGA management to monitor performance, cooperate, and make payments when due. Can implement under existing law.</p>	<p>Perform technical or other services for a particular area of AWGA operations. Examples: customer billing and/or collection; leak detection and repair; fleet management; laboratory services; treatment plant operations; engineering design services; metering; mapping. Capital investment: working capital only. Duration: 1 to 5 years.</p>
Management Contract	<p>AWGA delegates day-to-day management and undergoes major changes in its operational, technical, financial, and management practices. No significant change in GOE responsibilities. AWGA Board to monitor performance, cooperate, plan and finance capital improvements, set tariffs, and make payments when due. Can implement under existing law.</p>	<p>Assume management control over all AWGA operations and provide training to AWGA personnel. Examples: fixed fee compensation; combination of fixed fee plus performance-based fee incentives. Can be for AWGA's entire service area or for one or more regional service areas. Capital investment: working capital only. Duration: 3 to 5 years.</p>
Lease (system)	<p>AWGA delegates all management, operational, asset maintenance, and customer service functions for utility. No significant change in GOE responsibilities. AWGA Board to monitor performance, set tariff, and fund system expansion. Cannot implement under existing law.</p>	<p>Assume full management and operational control (including maintenance) of utility assets, personnel, and other resources, and responsibility for services to existing customers. Capital investment: rehabilitation and working capital. Duration: 10 to 20 years.</p>

Table 4.1  
Potential PSP Methods  
(2 of 3)

PSP Method	AWGA/GOE Responsibilities	Private Sector Responsibilities
Concession (system)	<p>AWGA transfers all responsibility for its utility, including management, operations, customer service, and capital investment.</p> <p>AWGA Board and GOE to monitor performance and approve tariffs.</p> <p>Cannot implement under existing law.</p>	<p>Assume control of all utility assets and functions, and responsibility for service to new and existing customers.</p> <p>Capital investment: all necessary funding, including system expansion and upgrading, and working capital.</p> <p>Duration: 20 to 30 years.</p>
Lease (existing facility)	<p>AWGA delegates responsibility for operation, maintenance, renewal and replacement for an existing facility (e.g., treatment plant).</p> <p>No significant change in GOE responsibilities.</p> <p>AWGA management to monitor performance, finance improvements, and make payments for output.</p> <p>Can implement under existing law.</p>	<p>Assume control of an existing asset (e.g., treatment facility) and responsibility for operation, maintenance, renewal and replacement, and possibly expansion.</p> <p>Capital investment: rehabilitation, possibly expansion, and working capital.</p> <p>Duration: 10 to 20 years.</p>
BOOT (new facility)	<p>AWGA delegates responsibility for design, construction, financing, operation, maintenance, and capital improvements for a new facility (e.g., treatment plant).</p> <p>No significant change in GOE responsibilities.</p> <p>AWGA management to monitor performance, supply raw water, and make payments for output.</p> <p>Can implement under existing law.</p>	<p>Assume responsibility for building and financing new facility, meeting output requirements, and transferring facility to AWGA at end of concession term.</p> <p>Capital investment: initial construction, rehabilitation, upgrading, expansion, and working capital.</p> <p>Duration: 20 to 30 years.</p> <p>[Alternatively, financing could be provided by AWGA with design, construction, and long-term operations by the private sector under a design-build-operate (DBO) arrangement.]</p>

Table 4.1  
Potential PSP Methods  
(3 of 3)

PSP Method	AWGA/GOE Responsibilities	Private Sector Responsibilities
Partial Privatization	<p>AWGA reorganized as a private company, 49% or less of its shares are sold to the private sector, and major changes are made in its ownership, management control, and capitalization.</p> <p>GOE would have to establish regulatory body to oversee service and tariffs, as per the national water sector reform proposal (see report section 3.7).</p> <p>Cannot implement under existing law.</p>	<p>Assume share of ownership and management control of AWGA.</p> <p>Examples: shares sold to AWGA employees, public, strategic investor, or some combination.</p> <p>Capital investment: proceeds from sale of shares provide equity capital for AWGA.</p> <p>Duration: in perpetuity.</p>
Full Privatization	<p>AWGA transfers ownership of all utility assets and no longer has any responsibility for water services.</p> <p>GOE would have to establish regulatory body to oversee service and tariffs, as per the national water sector reform proposal (see report section 3.7).</p> <p>Cannot implement under existing law.</p>	<p>Obtain ownership of all water system assets and assume full responsibility for management, operations, customer service, and capital investment.</p> <p>Duration: in perpetuity.</p>

The absence of a regulatory body (and related set of laws and regulations) to oversee the private sector's provision of water utility services to the public prohibits any serious consideration by AWGA, at this time, of the partial or full privatization methods. Upon enactment and implementation of the proposed law and presidential decree for reform of the national water sector (see section 3.7), however, this constraint would be removed. Given that it is likely to require several years to develop the institutional capacity necessary to provide regulation in the form that would allow for privatization of AWGA's water utility services, this method would be a long-term PSP candidate for AWGA.

Unlike other public infrastructure facilities in Egypt (such as electric, roads, and airports) where specific laws have recently been adopted, the water sector currently is without a specific law for concessions. As a result, the general law on public utility concessions would have to be utilized if a concession is to be awarded by AWGA. This law (Law No. 129 of 1947), as amended by Law 61 of 1958, requires that any concession be awarded by Presidential decree upon approval by the People's Assembly. Such a concession is considered an "administrative contract" which entitles the awarding entity to (a) unilaterally amend its terms whenever the public interest requires, provided that damages are indemnified to the extent necessary to avoid disturbing the financial equilibrium, and (b) terminate the concession even if the concessionaire has committed no violations of the contract. Articles 668 through 673 of the Civil Code are applicable to the concession contract. Furthermore, under Law No. 129 of 1947 the net profits derived from the concession may not exceed ten percent of the capital invested.

The service contract and management contract methods would be considered "government contracts" and fall under Law No. 89 of 1998 (and the Executive Regulations issued by Minister of Finance Decree No. 1367 of 1998). Referred to as the Law on Organizing Tenders and Bids, Part I governs the process of entering into contracts for services. Such contracts can be made by AWGA and a private sector company either by public tendering or by public negotiation (or in urgent and exceptional cases, by direct agreement).

The legal framework regarding AWGA's entering into a lease of its assets to the private sector is somewhat unclear, and its authority to do so may be questioned. However, depending on the nature of the lease, this PSP method might be treated as a public utility concession or as a government contract. If the lease is for the entire system (or for a service area) and delegates certain responsibilities for customer services to the private sector (such as expansion of the customer base), then it would most likely be treated as a public utility concession and subject to the concession law discussed above. On the other hand, if the lease is limited to a particular asset and does not involve retail services to the public, then it would likely be governed by the above law relating to government contracts.

The BOOT method for AWGA also is somewhat unclear as to how it fits within the existing legal framework. If a BOOT arrangement includes services to the general public, then it could be considered a "concession" and the constraints noted above would apply. If, on the other hand, the BOOT contract with AWGA is in the nature of a wholesale service or facility (where the private sector obligations run directly and exclusively to AWGA and not to the general public), then such an arrangement would most likely be treated as a government contract.

### 4.3 Policy Considerations

Several matters or issues which are of a policy nature need to be considered by AWGA in any decision to implement one or more of the PSP methods. One of the most important of these policy issues is the level of tariffs paid by users of the AWGA system and how the tariff-generated revenue relates to the costs of AWGA services. Any of the PSP methods where the private sector takes on the risk or responsibility of revenue generation (i.e., partial or full privatization, system concession, and variations of BOOT and lease involving service to the general public) would require strong commitments from both AWGA and the GOE in support of a policy of full cost recovery. Alternatively, a revenue subsidy, guaranteed by the GOE over the contract term to make up the shortfalls in tariff levels, might be workable. As a practical matter, these PSP methods would be best implemented after a period of time (two or more years) where full cost recovery is accomplished by AWGA through tariffs paid by its customer base and should not be seriously considered until then.

Another important policy issue has to do with AWGA's labor force. It is common for private sector operators, through the application of training, incentives, technology, and other efficiency-gains, to substantially reduce the number of employees required for providing an equal or better level of services. The alternatives for transition of AWGA's large employee base would require careful consideration. This would be especially true for the partial and full privatization, and the system concession and system lease methods for PSP. The labor force issue would be less of a consideration with the service contract, management contract, and BOOT methods.

The impact on AWGA customers, in terms of quality and reliability of water services, is a policy consideration for implementation of any of the PSP methods. While the expectation or goal would be to improve the level of service provided to customers, the risk of inferior service needs to be taken into account and should be mitigated through careful implementation of the contracting process and effective administration and monitoring of the private contractor's performance. Selection of a contractor without appropriate experience and capabilities, ambiguous or incomplete drafting of the contractual terms of the PSP arrangement, or AWGA's inadequate monitoring of contractor performance are examples of reasons that could contribute to a deterioration of service under a PSP arrangement.

### 4.4 High Priority Projects

The nature and scope of the High Priority Projects (see High Priority Projects, Volume I, September, 1999), for the most part, do not lend themselves to implementation through increased PSP via the methods described in Table 4-1. Many of the projects will likely involve service contracts, but in a manner that is consistent with past practices of AWGA (e.g., construction via a contract with a private sector construction firm). However, AWGA may want to consider the following PSP methods for certain of the

High Priority Projects or for facilities to be implemented as a result of HPP alternative analyses and feasibility studies:

1. The central laboratory (with or without the sampling function) could be turned over to the private sector through a combination of the service contract and lease methods. The water treatment plant on-site laboratories could also be included, but it may be more efficient to leave these laboratories with AWGA plant operations. Any such private laboratory operations would have to be licensed and monitored by the GOE. Private sector capabilities and interest would need to be verified, if AWGA is interested in this approach. Contracting out the central laboratory function could address several of the individual High Priority Projects.
2. The centralization of chlorine storage, handling, and supply could be implemented via a BOOT contract.
3. New mapping and extension of GIS could be accomplished under a service contract with the private sector.
4. The Nozha water treatment plant could be rehabilitated and placed in service, inclusive of an upgraded or new raw water intake, through a lease/BOOT contract. This could theoretically be done under a retail (concession) or a wholesale arrangement, although AWGA's current one-zone approach to its service area would preclude a retail concession. With the retail approach, the service area of this plant would be delineated and the private contractor would have exclusive responsibility for the sale of treated in the area based on tariffs approved by AWGA in the contract. The wholesale approach, which may be more logical for AWGA, would have the contractor provide the treated water to AWGA which in turn would sell it to individual customers.
5. The management or residuals generated by AWGA's water treatment plants could be delegated to a private company under the service contract method.
6. The system selected for augmentation of AWGA's water supply to the North Coast (water treatment plant, brackish water treatment, and/or aquifer storage) could be carried out under a BOOT or DBO arrangement.
7. Instrumentation installation could be done on a design/build/maintain basis.

With each of the above PSP methods, the goal would be to attain effective performance of the particular function or service at a cost to AWGA that would be less than AWGA doing it in-house or otherwise in a traditional manner. The degree to which such cost-efficiencies could actually be achieved would require further study, and would depend to a large extent on the interest and capacity of the private sector.

## 4.5 Near-Term PSP Methods

The PSP methods available to AWGA in the short-term (next three to five years) are limited by a number of factors, including the existing legal framework in Egypt (i.e., lack of a regulatory body), the fiscal condition of AWGA where until very recently its annual operating and debt costs exceeded annual revenue, and policy considerations. Partial or full privatization, or a system concession, should not seriously be considered for implementation by AWGA in the short-term. PSP methods that could be beneficial and should be considered by AWGA for implementation in the short-term include the following:

1. Service contracts for private sector maintenance and periodic calibration of new instrumentation recommended for installation at AWGA water treatment plants (including on-line turbidimeters, chlorine analyzers, and flow measuring devices).
2. Service contract for maintenance and calibration by a private sector company of new (computerized) central monitoring and reporting systems recommended for the Siouf, Rond Point, and Manshia water treatment plants.
3. Service contract for private sector maintenance and calibration of a new SCADA system recommended by the ISC for selected water treatment plants and pumping stations.
4. Service contract for maintenance and calibration of the upgraded computer system recommended by the ISC for billing, collection and customer information at the AWGA branches.
6. One or more service contracts could be implemented by AWGA under existing law to delegate or outsource to the private sector responsibility for performing certain specific areas, such as:
  - metering, billing, and collection
  - operation and maintenance of one or more water treatment plants
  - leak detection
  - operation and maintenance of booster stations
  - collection of arrearage
6. Methods outlined in section 4.4 for HPP.

## 4.6 Long -Term Methods

Assuming that reform of Egypt's water sector proceeds along the lines currently proposed (see section 3.7) and that AWGA's fiscal condition attains full cost recovery, it might be desirable in the mid- to long-term to consider greater levels of private sector participation, as follows:

1. A management contract for AWGA's entire system or for a portion (region) of its system, such as the North Coast or areas served in Beheira. While Table 4-1 provides a brief description of the management contract method, in actuality the scope and nature of a management contract for AWGA could vary considerably. Implementing a management contract for a portion of AWGA's system could, in effect, test the benefits of this method without undertaking the risk and uncertainty of applying a new method of operation across the entire system. Some key aspects of the scope of private sector responsibility that would be decided by AWGA before any such arrangement is tendered and entered into include:
  - What management powers and decisions would be entrusted to the private contractor and which would remain with AWGA management staff? The contract could be structured, on the one hand, so that the private contractor replaces AWGA management staff and reports to AWGA's Board of Directors or, alternatively, as a management support service under which the private contractor assists and reports to AWGA management.
  - What would be the relationship between AWGA's employees and the private management contractor? AWGA employees could be transferred to the employ of the private contractor or could remain as AWGA employees and be subject to direct or indirect management by the private contractor.
  - What compensation method would be provided for the management contractor? Such compensation could be a combination of fixed and performance-based (incentive) fees or could simply be on a fixed fee or cost-plus basis. There is a strong argument in favor of performance-based fees to reflect a substantial share of the compensation paid to the management contractor.
  - What would be the scope of services provided to AWGA by the management contractor? The specific scope can be tailored to AWGA's needs and could include operation and maintenance of facilities, capital improvement programming, training (technical, management, financial, customer service, etc.), implementation of best practices, leakage detection and correction, reorganization and redeployment of labor (including a new

personnel system), implementation of computer-based financial accounting systems and billing systems, collection of revenue (including accounts receivable), and others.

- What capital investments in AWGA's system, if any, would be required of the management contractor? Although not necessarily a part of the management contract approach, it may be beneficial to identify (AWGA could do this, or the private sector could be asked to do it during the tender process) areas where an investment of capital could generate immediate efficiencies (e.g., new instrumentation and controls) and include these in the management contract scope.
2. Partial privatization, whereby AWGA would be reorganized as a private company and less than 50% of its shares sold to a strategic investor, employees, the public, or some combination, could prove beneficial in the long-run to users, the GOE, and the governorates in AWGA's service area. The commercial, technical, and fiscal orientation and discipline brought to AWGA through the process of investing private capital and GOE regulation of tariffs and service quality would foster efficiency in both technical and financial operations and in capital asset preservation and investment. Customer responsiveness would also stand to benefit under this arrangement.

The question of long-term PSP options for AWGA will be further addressed in the Master Plan report.