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WATER AND WASTEWATER SECTOR STRATEGY

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Water and Wastewater Sector Strategy

I. Executive Summary

The importance of potable water and sanitary drainage to the Egyptian economy and quality of life can not be overstated. The Nile is the source of 80 percent of Egyptian drinking water and it is to the Nile that the wastewater effluent eventually drains. Pollutants in this closed system have significant environmental impact. Productivity, economic growth and the quality of life are diminished by inadequate water and wastewater services. The incidence of diarrheal and gastrointestinal disease in Egypt is higher than in countries of similar economic status. **Approximately 25 percent of the population have no source of treated water and 70 percent do not have access to sewage collection systems.** The Mission's Draft Environmental Strategy singles out degradation of water quality and inadequate disposal of untreated wastewater as major environmental threats.

USAID has invested approximately \$2 billion over the past fourteen years to help people in urban areas have better access to potable water and have sewerage removed from the streets. By 1995 eight recipient cities, with combined populations of 17 million people, will receive improved water and wastewater services through USAID funded projects. The Mission sees continued assistance in urban areas as critical to Egyptian health, environment, quality of life and productivity.

As the first generation of water and wastewater projects nears completion, the safeguards we have put in place to support operation and maintenance (O&M) will insure sustainability only over the short term. Our investments are threatened by chronic GOE underfunding and by the weakness of the local entities which are responsible for operations, management and maintenance of water and wastewater facilities. Funding is controlled by an inflexible central government process which is not responsive to local needs. Utilities have the responsibility for providing water and wastewater services, but with little authority over or control of their financial and organizational circumstances. They retain no revenues; they have no voice in setting tariffs or rate structures; and they are inappropriately overstaffed with an underpaid workforce because of restrictive civil service laws.

In conjunction with a second generation of urban water and wastewater projects, the Mission will pursue structural changes to utilities and will assist the GOE in establishing locally funded, locally controlled water/wastewater utilities, supported by adequate tariffs.

In order to implement changes, the GOE will have to muster more political will than it has demonstrated in the past. There is strong evidence that the Egyptian people are able and willing to pay for water/wastewater services if the organizations can provide them efficiently. Utility organizations must be developed which can deliver these services. Financial viability, appropriate infrastructure and institutional development are closely linked-- none can be attained without attention to the others.

USAID and other donors working in the sector are convinced that institutional changes must take place. Project assistance will underpin the reform program. In practical terms, total reform throughout the sector will take time to implement. The World Bank, should its assessment recommendations be accepted, will assist the GOE in creating appropriate policy setting, financial and regulatory bodies at the national level. On a smaller scale, USAID will assist reform by making future investments conditional on specific institutional and financial changes in the recipient organizations. USAID will also integrate reforms into each of its ongoing projects.

In summary, USAID's goal is to continue to assist the urban population of Egypt in gaining greater access to reliable water and wastewater services through constructing and rehabilitating infrastructure. However, this must be balanced with assisting the GOE to establish regulated public utilities which can effectively operate and maintain the infrastructure over the long term.

USAID's rationale for remaining involved in the sector is basically the same as it was in 1979 when work first began in water and wastewater. Adequate potable water and sanitary drainage in highly concentrated urban areas are important to USAID's present mission goals to increase macroeconomic stability, and improve health, productivity and economic growth. The mission has now set specific strategic objectives to increase access to, efficiency of, and reliability of public utilities in large urban areas and to improve their cost recovery. Large urban areas are singled out because of the magnitude of health hazards in densely populated areas which would result if the problems of adequate water and sanitary drainage were not addressed. Constructing infrastructure in urban areas entails sophisticated systems requiring foreign exchange and expatriate technical expertise. We have a comparative advantage in these situations.

II OVERVIEW

A. USAID'S ENTRY INTO THE SECTOR

From 1956 to 1979 the Government of Egypt was unable to finance major improvements in urban water and wastewater infrastructure. In Cairo, sewerage collection systems were 70 years old. By 1979, the sewerage system which was built to serve 2 million people had virtually broken down under the pressure of a population approaching 6 million. The Alexandria wastewater system had been similarly neglected. With respect to water supply, insufficient pumping capacities threatened the commercially important center of Cairo; there were no reserves to fight fires and intermittent supply, particularly in the summer, presented health hazards. Water and wastewater facilities in the Canal Cities had been destroyed by the wars with Israel.

For the past decade, USAID elected to focus its water and wastewater program on these large urban areas. It was here that water and sewerage problems were the most visible. More

importantly, interventions in urban settings require advanced technology and, therefore, substantial outlays of foreign currency. By directing our program to the largest cities, the centers of production and commercial growth, we were supporting Mission economic goals while reaching the largest number of beneficiaries. When the present portfolio of projects is complete, USAID's water and wastewater program will have affected the water or sanitation needs of roughly one out of every three Egyptians.

B. PERFORMANCE TO DATE

In a 1984 Memorandum of Understanding, USAID agreed to invest \$1.2 billion over five years in a water and wastewater program; however, it was recognized at that time that such a program would not be sustainable unless weaknesses in the sector were remediated. Sector constraints were known at that time, but the extent to which they affected operations was not totally understood. USAID requested and the GOE agreed to undertake a program of improvements in four major areas:

- Graduated tariff increases adequate to cover the water/wastewater O&M costs and debt servicing (levels were targeted at 100 percent coverage of water O&M costs and 50 percent of wastewater O&M costs by the end of 1990)
- Provision of adequate facilities for training and technical services, and an incentive system to attract qualified staff
- Establishment of autonomous local water and wastewater organizations with the authority to retain service revenues for their own operating needs
- Retention of construction management firms to ensure timely completion of project activities.

The GOE and USAID met annually to review past and anticipated performance. As the large construction projects got underway, the annual meetings became an arena to discuss implementation problems rather than the broader sectoral issue. There was complete success in meeting the benchmark for contract management and the GOE points proudly to their progress in increasing tariffs seven fold. **The cities receiving USAID project funds now claim that water tariffs collected, on average, cover 98 percent of O&M for water and 23 percent for sewerage O&M. (No debt servicing is covered).** The GOE failed to perform toward the other sector targets--training, personnel incentives and autonomy--and has only recently begun to show an interest in these areas.

USAID, however, has performed well against its commitments. Since the signing of the MOU, we have obligated **\$1.7 billion** in project assistance. USAID efforts have succeeded in clearing the pools of sewerage from the streets of Cairo and Alexandria. With the completion of Cairo Water Supply II, the most densely populated area of the Capital will have access to reliable supply and adequate reserves of water. Projects in Fayoum, Beni Suef, Minia, Port Said, Suez

and Ismailia will bring similar improvements by 1995. Our efforts, in spite of their significant size, have not solved all of the urban service problems. Significant needs still exist within Cairo and Alexandria and in the numerous secondary cities of Egypt.

C. CONTINUED NEED FOR INTERVENTIONS

Detailed accounts of needs and constraints within the sector are well documented. Between 1979 and 1986, numerous assessments and master plans were developed which gave a clear picture of the sector and served as the rationale for our involvement. Needs were identified most recently in 1991 through the Water/Wastewater Institutional Support Project. They were quantified in an analysis of the GOE water and wastewater budget under the 1987-1992 Five Year Plan and updated by a World Bank assessment team. The following table provides their estimate of the financial resources required through the year 2000 for meeting three different growth scenarios:

Total Resource Needs 1992 - 2000 (US\$ million, 1992 prices)

Growth Scenario:	Total	Static Annual	Total	Medium Annual	Total	High Annual
<u>Investments:</u>						
Water Supply	1790	199	2726	303	3799	422
Sewerage	505	56	1574	175	2483	276
Sew. Treatment	<u>244</u>	<u>27</u>	<u>591</u>	<u>66</u>	<u>1157</u>	<u>129</u>
Total Investment	2539	282	4891	544	7439	827
Rehabilitation	1350	150	1350	150	1350	150
O & M	<u>1305</u>	<u>145</u>	<u>1530</u>	<u>170</u>	<u>1800</u>	<u>200</u>
TOTAL	5194	577	7771	864	10589	1177

It is important to point out that just to maintain present levels of service, to rehabilitate or replace deteriorated facilities and to operate and maintain systems properly will require almost \$600 million per year.

Information on water needs is available for Cairo and based on these needs USAID is proceeding with the Cairo Water Supply II Project. Similar data on wastewater needs in Cairo and Alexandria are not available and will require updating their respective master plans. We do know, however, that growth in the two large cities is outstripping the needs projections prepared in the early 80's when our projects were planned. For example, 1976 census data projected that the Giza (West) bank of the Nile would have a population growth rate of 2.4 percent/yr through the year 2000. However, 1987 data showed that the West Bank population was growing at the significantly higher rate of 3.6 percent/yr and most recent studies project that the growth rate between 1990-2010 will be between 3.9 - 4.2 percent/yr. We do not have current data for Alexandria; however, observations on building trends on the city's fringe imply similar unanticipated growth. The new and satellite cities are not attracting rural/urban immigrants, but recent gross projections prepared by LAD show that secondary cities may be growing at even greater rates than Cairo and Alexandria.

D. TRENDS AND CHANGES WITHIN THE SECTOR

There are four discernible trends in USAID's present approach to the water/wastewater sector: (1) wastewater is assuming increasingly more attention than water, (2) emphasis in wastewater has expanded from simple removal of wastes from populated centers to include treatment prior to discharge, (3) emphasis has moved from construction to sustainability, and (4) secondary cities are beginning to be recognized as priority areas.

- Wastewater vs Water: The GOE varies in its ability to meet the pressure put on water and wastewater services by rapid urbanization. The Cairo and Alexandria water authorities (GOGCWS and AWGA) were the recipients of significant donor assistance during the 80's; however, recently they have begun to execute major construction projects on their own. They also claim to be covering the entire cost of O&M through user charges and connections. In contrast, the wastewater organizations, A/GOSD and C/GOSD, are relying almost entirely on donor assistance for expansion of the large collection networks, rehabilitation of pump stations and construction of treatment facilities. At best, an average of 24 percent of O&M costs are covered by connection charges and water tariff surcharges.

The unevenness between the water and sewerage authorities in their respective abilities to keep up with growing urban needs is due to a number of factors. Technically, construction for collection, treatment and disposal of sewage is considerably more complicated and costly than treatment and distribution of water. Egyptian contractors have developed little experience in large scale wastewater technologies, and, prior to USAID's involvement, networks were not extended and treatment plants were bypassed. In contrast, water networks are more easily extended and pumping capacities increased. The GOE did develop their capacity to produce materials which once required off-shore procurement (ductile pipe, PVC pipe and liquid alum,

for example). Consequently, water coverage was far more extensive than sewerage when USAID became involved in the sector. In addition, the potential for deterioration of sewerage facilities is greater than that for comparable facilities for water. Wastewater facilities are more difficult to maintain because of the corrosive nature of the effluent. O&M problems in wastewater are further exacerbated by the fact that sewerage system employees are at the lowest end of skill levels because they are not fairly compensated for their unpleasant working conditions. Water facility employees work in better surroundings and, as a consequence, have a higher employee retention rate and a more skilled workforce.

In summary, continued donor assistance to Cairo and Alexandria for sewage removal and treatment is necessary because neither the GOE nor the Egyptian private sector can deal with the technical challenge of meeting the needs of the cities' growing population densities, which demand sophisticated wastewater interventions and consequently foreign exchange. Needs are, of course, relative. Some of the larger provincial cities require water treatment plants which exceed the capabilities of local contractors, and donors will be requested to provide advanced construction technology. Construction of new facilities is only one part of service delivery. Water quality will remain a major concern of USAID as will water pricing, cost recovery, management and the sustainability of our investments.

- From Removal to Treatment: In the late 1970's there was extensive sewage flooding in the urban areas with the most severe problems occurring in Alexandria, Cairo and the Canal Zone cities. The emphasis in the early AID projects was to assist the GOE in removing the wastewater from the inhabited areas due to public health concerns. Pondered sewage is an excellent habitat for mosquitos and facilitates the transmission of infectious diseases. The AID projects were successful in accomplishing this objective with sewage flooding now being less frequent and less severe. In developing the Cairo Sewerage II and Canal Cities II Projects and in amending the Alexandria Wastewater Project in 1983, attention was turned to the treatment of the wastewater based on environmental considerations. While the evaluation of GOE institutional capacity to properly operate and maintain treatment facilities indicates that simple robust technology be employed, environmental factors do require that, in certain cases, a relatively high standard of treatment efficiency must be provided to protect natural water bodies. In Cairo and Alexandria, primary treatment is considered adequate; however, in the Canal Cities it was necessary to provide secondary treatment. We chose secondary treatment using aerated lagoon systems because they are easily operated and maintained and yet produce a high quality effluent. Our choice of system technology for wastewater systems is therefore the result of consideration of two major factors--environmental soundness and institutional capability. While environmental considerations may dictate the standard of treatment required, institutional capability indicates a technology which is most appropriate and cost effective. In the future, the GOE will have to follow the continuum from removal, to treatment, to disposal. USAID has assisted through development of forward-looking Sludge Disposal Masterplans and through addition of a co-composting component to the Wastewater Treatment Plant to be built in Port Said.

- Sustainability of our Present and Future Investments: Our first generation projects encountered numerous construction related problems. All construction was done through host country contracts, and because the GOE had little experience with USAID regulations and with American contractors, we had to concentrate efforts and staff time on solving and mediating a raft of implementation problems. The major concern was to get the systems built; an average of only 3 percent of project funding prior to 1987 went to non-construction activities (training, management strengthening and spare parts inventory systems).

As the facilities were turned over to the GOE, it became clear that the local utilities could not operate and maintain the new structures without significant training. As a consequence, starting with the Rod El Farag Water Treatment Plant in 1986, all major construction contracts included approximately two years of O&M assistance. While these interventions are significant over the short term, they can be quickly undermined by poor management decisions made at the central government level, or shifting of skilled personnel, underfinancing of the maintenance budgets or overloading plant capacity because of failures in other, older parts of the system. To avoid these problems, the Mission went one step further to add institutional strengthening components to the second generation Cairo Water Supply II, Cairo Sewerage II, and Canal Cities II projects. These activities are directed at making the existing organizations operate better, but they do not affect the underlying constraints which relate to autonomy, accountability and cost recovery.

In order to ensure long term sustainability, there must be major organizational and policy reforms which can only come about by decisions made above the level of the individual recipient utilities.

- A Move Toward the Secondary Cities: USAID will continue activities in Alexandria and Cairo because of their political, economic and environmental importance; because of the vulnerability and size of our present investment in the two cities; and because of the continued demand for additional infrastructure. However, recent data show that the population of provincial and some secondary cities is growing at slightly faster rates than Cairo and Alexandria proper. The GOE has recognized this trend and the growing pressure for services in these cities. As a consequence, they intend to direct L.E. 6 billion to secondary cities in their next 5 year plan. (Only L.E. 911 million was spent outside Cairo and Alexandria during the previous 1987-1992 planning cycle.) Based on 1986 census data, nearly 76 percent of Egypt's population lives outside of Greater Cairo and Alexandria. The governorates, NOPWASD and the Suez Canal Authority are responsible for improving water and wastewater service to this population with about 26 percent of the sector budget. Therefore, roughly 3/4 of the people have received the benefits of 1/4 of the GOE budget for the sector. To add to what appears to be an inequity, NOPWASD, which administers the building programs for the cities, has carried out construction with poor designs, absentee site engineers, inadequate budgets and poorly performing public sector contractors. As a consequence, there is little to show for the GOE's investment. Most of the donors have concentrated on rural populations and small integrated health applications. Only USAID in the Provincial and Canal Cities, the Germans in Kafr El Sheik, the Danes in Edfu and the World Bank in Beheira have offered some relief to the secondary cities.

The secondary cities on the Nile and in the Delta contain 43 percent of Egypt's population (excluding Cairo and Alexandria). This is the location of most of Egypt's farming and light industries. However, the cities of the Delta, many of which have severe industrial pollution problems, have non-existent waste disposal facilities. Sewage flooding is prevalent and is complicated by the tendency to dump solid waste into standing water.

NOPWASD has sought USAID and World Bank assistance for the secondary cities, and the GOE has agreed, in principle, to establish autonomous companies and encourage private sector involvement to attract donor investment. USAID will act in concert with the Bank and other donors in targeting some assistance for secondary cities based on sector reforms. USAID's first priority will be given to the Canal and Provincial Cities where we are currently working.

E. CONSTRAINTS

USAID's assistance has brought about significant changes in water and wastewater infrastructure of recipient cities. However, as cited above, outside these cities, the GOE has not been able to effect change. Their inability to expand infrastructure and to see that existing systems operate properly are attributable to the same factors which threaten the sustainability of our present and future investments. These constraints fall into three major, interrelated categories--policy, institutional and technical.

POLICY

- Weak National Policy Setting Bodies: The body mandated to set policy for water and wastewater is the Ministry of Housing and Public Utilities (MHPU). The MHPU's major focus is managing an immense trouble-fraught public housing program and building new communities. Their interest in public utilities is secondary and their staff devoted to that purpose is only six persons. MHPU relegated all policy analysis to the National Organization for Potable Water and Sanitary Drainage (NOPWASD), an organization which is staffed by design engineers and is not sufficiently developed to set policy or provide leadership. As a consequence, policy decisions are still made in an ad hoc manner and MHPU reacts only to crises, i.e., a major donor's complaint or the People's Assembly's publicized criticisms. The MHPU's recent decision to make water and wastewater utilities more autonomous may have come because of the MHPU's inability to cope with the rising demand for services from the People's Assembly rather than from the repeated donor recommendations for independent water and wastewater companies.

- Water Pricing Policy: The last National Water Tariff schedule set in 1987 called for a doubling of rates to all categories of consumers over a five year period, with the target of covering 100 percent of O&M costs for water and 50 percent of costs for wastewater. This tariff schedule is still in effect; however, because it was not indexed to inflation rates, anticipated real gains for meeting cost recovery have long since been eroded. In 1989 the Prime Minister issued a decree that the governorates had the authority to raise tariffs by as much as 200 percent over the published tariff schedule. These tariff increases were voluntary and had to be approved by local Popular Councils. Passing the responsibility to the governorates and

Popular Councils did not effectively solve the problem because the central government continued to provide subsidies, and local authorities had little control over budgets regardless of funding sources. Further, any funds collected had to be remitted to the Ministry of Finance. The central government appears willing to relinquish authority to set tariffs, but the governorates appear unwilling to take on that fiscal responsibility, since they cannot retain or control revenues. Reluctance to raise rates is based only partially on political sensitivity. Real costs of production, operation and maintenance are unknown and, as a result, decision makers at every level are reluctant to involve themselves with tariffs.

In Cairo, Alexandria and the Suez Canal, tariffs are well above the national schedule and each responsible organization claims to be covering 100 percent or more of its O&M costs by user fees and to be passing on collected surcharge funds to sewerage organizations. However, inspection of the water organization's figures show that there is no accounting for depreciation, cost of billings, overheads, personnel or training. Since O&M costs are figured "historically," rather than on appropriate levels of O&M, cost figures are questionable. Absence of cost accounting and lack of incentives to determine real operating costs make pricing policy superfluous to utility managers. Those who should be concerned at the Cabinet level appear to have abdicated their policy setting role and now hope to pass responsibilities to local levels by supporting the autonomous water company concept.

INSTITUTIONAL

- Organizations and Overlapping Authorities: The present water/wastewater organizations are neither completely centralized nor decentralized. Rather, authority and responsibility is dispersed among numerous public entities at both the national and local levels. Consequently, there are neither well-structured central goals and controls nor sufficient local authority in capital investment or funding of the operation and maintenance costs of the systems. Furthermore, since water and wastewater services are often provided by separate organizations, difficulties in the coordination between these bodies are often encountered.

In the Greater Cairo area, responsibilities for wastewater are separated between the organization charged with providing for capital development, CWO, and the organization charged with O&M services, C/GOSD. In addition, both of these organizations, as well as the Cairo water utility (GOGCWS), are involved in operations across three governorates. This presents numerous problems, particularly for the Giza Governorate, which believes that their interests come second to the interests of the Cairo Governorate.

From an operational perspective, the Alexandria Governorate has greater control over the water utility (AWGA) and the sewerage organization (A/GOSD). The chairmen of both of these organizations report directly to the governor and, with the exception of AWGA serving a small portion of northern Beheira, the activities of both organizations are contained within the confines of the Governorate of Alexandria. Moreover, both are responsible for capital investment as well as operation and maintenance services.

The Canal Cities also face a series of overlapping authorities and jurisdictions in the planning,

development, operation and maintenance of water and wastewater services. The Suez Canal Authority (SCA) is responsible for water investments and O&M of the cities of Suez, Port Said and Ismailia. NOPWASD handles water investments outside of these three cities and wastewater investments throughout the three governorates. The individual governorates are responsible for O&M for wastewater services but have neither adequate budgets nor staff to effectively furnish this service. SCA withholds the surcharges due the governorates for wastewater because the governorates fail to pay SCA bills, thus further exacerbating serious underfunding for wastewater services.

In other provincial and secondary cities the situation is similar to that described for the Canal Cities. NOPWASD handles investments; however, the governorates are charged with O&M. Administration varies from governorate to governorate but it usually is handled through a public works department in which budgets for roads, water, wastewater, parks and solid waste removal may all be lumped. Overlapping jurisdictions and authorities blur responsibility and make informed decision-making difficult.

- Management: Because GOE central control and organizational policies restrict the autonomy of local organizations, water and wastewater managers make few management decisions. Since the budget is subsidized, they are not concerned about efficient operations. With few exceptions, management is lethargic and top officials see themselves, at best, as administrators rather than utility managers. Personnel systems are governed by the Civil Service Law which follows a rigid system of promotion based on seniority rather than merit. Pay and benefits are low and absenteeism is chronic. Many skilled personnel moonlight by teaching or working in the private sector. Their public sector jobs are simply seen as a way to secure retirement benefits.

- Accounting and Investment: Modern cost accounting techniques are not known and each agency must use a centrally mandated accounting method which has little application to the operation of a public utility. There is no flexibility in the centrally allocated budgets; Ministry of Finance appointed accountants sit in each organization to assure that the cumbersome government process is strictly applied. A manager who would like to introduce modern techniques, in which savings in one area could be applied to overruns in another, is prevented from doing so.

Public financing instruments such as municipal bonds are not used or understood; so municipalities must rely on the central government to undertake new construction, even though they might be willing and able to fund that construction were a suitable financial entity available to provide loans and were authority granted to set, collect and retain revenues.

- TECHNICAL

Training: Until July 1991 when USAID assisted NOPWASD in setting up a training center at Damanhour, there was no water and wastewater training center in the country outside of Cairo. Examinations given to operators and engineers in 40 cities revealed low levels of competency

and the need for very basic training in the concepts of sanitary engineering. A USAID funded training needs assessment revealed that 24,000 engineers and technicians needed to be trained in the next 10 years. Training budgets for major water/wastewater organizations support organizational orientation programs only. No budget for technical training or upgrading skills exists outside those supplied by donors. As soon as personnel, particularly in the area of management, are trained, they are quickly hired by the private sector. The source of drain on trained manpower comes from the Gulf states, and from our and other donors' consulting teams.

Design and construction: Public sector engineers are not trained to systematically review specifications or to monitor contractor performance. They work without established design standards. The private sector has, through USAID FAR contracting, become more capable of producing quality construction; however, public utility managers have not become equally capable of monitoring construction or judging designs.

III. Strategy

A. USAID'S GOALS

Egypt is at a crossroads in its economic development and is now faced with major decisions concerning its growth strategy.

To achieve its goals of increased productivity and an improved standard of living for its citizens, the GOE has embarked on a major economic reform program designed to stabilize its economy, remove distortions, and give new-found impetus to the private sector as a central element in its growth strategy.

By removing the most serious state-controlled constraints to growth, Egypt hopes to make the policy climate supportive, one in which the public and private sectors can fashion appropriate roles in furthering the economic development of the country. Together with making the policy environment favorable, the GOE has engaged its judicial machinery in a serious effort to dismantle a legal framework that has given concrete expression to and reinforced old policies. In June 1991 the GOE passed a privatization law, Law 203/1991, which when implemented will divest many state controlled industries, businesses and services.

The new policy climate poses a challenge and an opportunity for reform within service sectors such as water and wastewater. Constraints which kept the GOE from establishing correct pricing policies and responsible management practices appear to have been removed. However, the water and wastewater implementing agencies are at a loss on how to exercise the new freedom and are requesting USAID's assistance. At no time since USAID became involved in the sector has the policy climate been so favorable for making the changes needed which will insure sustainable, reliable water/wastewater services. It is therefore very appropriate that USAID should now review and revise its current strategy.

B. USAID URBAN INFRASTRUCTURE STRATEGIC OBJECTIVE

In January 1992 the Mission set out to make explicit its program goals and objectives. USAID's water/wastewater program fits within the Mission's overall program and seeks to contribute positively to the GOE initiative for successful economic transition in Egypt. The goal of USAID's overall program is "enhancement of Egypt's role as a model of stability, democracy, free markets and prosperity in the region." Subgoals which are supported by the water/wastewater program are "increased economic growth," "enhanced human resource productivity and quality of life" and "strengthening of democratic systems, institutions and processes." (See the attached chart for an illustration of the linkages between program objectives, outcomes, constraints, strategy, inputs and indicators.)

The importance of the water/wastewater sector to support Mission goals was expressed in Strategic Objectives No. 6, in which USAID committed itself to "Increase access to, and efficiency and reliability of, public utilities in urban target areas." Target areas will continue to be the eight cities currently receiving our assistance: Alexandria, Cairo, Beni Suef, Minia, Fayoum, Port Said, Suez and Ismailia. A policy reform based Secondary Cities Project might add several other cities; however, the three provincial cities in which we are now working would form the nucleus of the Secondary Cities program. By concentrating project assistance in urban Egypt, the water/wastewater program supports Program Outcome No. 2.6 by enabling growth of private industry and commerce in those areas. Present and future construction activities will ensure "increased access" to utilities, and the building program's success will be measured by growth in the percentage of water and sewerage connections in the target areas (Program Outcome No. 6.3).

The objectives of increased efficiency and reliability, however, depend on better utility management, and are more difficult to control and harder to measure. Technical assistance contracts currently in place are designed to improve operating efficiencies. Systems cannot be improved if personnel are not properly trained and if the real costs of O&M are hidden by obsolete fiscal accounting systems. Institution building and training in fiscal planning, accounting and management are central to our ongoing projects. Project success in securing utility managers' commitment to improve reliability of the system will be measured by tracking the numbers of personnel trained, of cost accounting systems adopted, and of preventive maintenance programs followed. USAID will measure improvements by tracking water and sewer line trouble calls. We should also begin tracking quality of effluent and make some assessment of deferred capital expenditures. While USAID funded building and technical assistance continues, increases in access to services and system efficiencies should appear; however, if no sector reform takes place, which will allow for the raising and retention of revenues to cover operating costs and some service expansion, gains made by USAID's program will be outstripped by population increases and undermined by insufficient O&M budgets.

C. CROSS CUTTING SUPPORT FOR OTHER MISSION OBJECTIVES AND OUTCOMES

Sustainability for the USAID program is therefore dependent on the success of Program Outcome No. 1.2, "Improved pricing and cost recovery for services." Tariff and rate structure surveys will be carried out for each major city in which USAID is or will be working. Before new infrastructure projects are begun, the government will agree upon a cost recovery plan which will reschedule tariffs and insure the O&M cost budget of the entire urban system. A standard term of reference for the tariff and rate studies will be completed by the end of April 1992 and the tariff studies could begin in the summer, depending on funding availability. Performance against this objective will be measured yearly by calculating the percentage of O&M costs recovered by the urban utilities. However, without reform, raising tariffs alone will not suffice because those tariffs would not be retained.

The connection between water and wastewater services and the environmental and health strategies is critical, particularly because of the "closed" Nile ecological system. Program Outcome No. 5.2 commits the Agency to not only increase urban communities' access to services, but implies that activities to improve the quality of water and the safety of wastewater effluent disposal will be pursued. First generation projects concentrated on water production and sewage collection; new water projects include modern chemistry labs to measure improved water quality; current and future sewerage projects will focus on treatment and sludge disposal.

Progress toward meeting Program Outcome No. 5.2 will be measured by increased availability of services; however, once baseline data on quality of water and purity of effluent are established, the Mission should reset indicators to measure both quality and quantity for this program outcome.

D. SECTOR REFORM NEEDED TO SUSTAIN MISSION GOALS

Our vision is to support the GOE in establishing a system of autonomous regulated public and private utilities. The Mission's goals of greater access to reliable urban services and cost recovery cannot be met in the water and wastewater sector without policy and institutional reform. As a result, sector reform is a core element of the Mission's strategy. A reform agenda will take careful planning with the GOE before new projects can be pursued. However, ongoing projects, which already have technical assistance components aimed at improving utility efficiency, will be adjusted to reflect the GOE's willingness to allow greater autonomy.

The GOE has committed itself to water/wastewater sector reform. The Prime Minister's office has asked the existing implementing agencies to submit plans for reorganization. NOPWASD has responded with a draft Presidential Decree, and CWO/GOSD is expected to submit a reorganization plan to the Prime Minister's office by the end of April. The Steering Committee for the Canal Cities II Project is also discussing alternative autonomous water/wastewater organizations with the Suez Canal Authority. In the midst of interest and willingness to change,

there is a vacuum of expertise for guiding the change. The Ministry of Housing and Public Utilities and NOPWASD have requested technical advisors to assist them in framing sector restructuring. In response, USAID will provide technical assistance through the Water/Wastewater Institutional Support Project and through existing project technical assistance teams.

Technical Assistance (TA) - Our proposed strategy has two main technical assistance thrusts: TA to the Ministry and NOPWASD to develop a system of reforms at the national level which will provide the necessary legal and policy framework to encourage the establishment of modern locally controlled municipal utilities; and TA to each USAID funded water/wastewater organization charged with operating, maintaining and managing services.

(1) Ministry Technical Assistance

The Ministry of Housing and Public Utilities' draft decree would establish water and wastewater organizations along the lines of the existing public sector company model. The details of how this restructuring would be carried out are unclear to both the Ministry of Housing and Public Utilities and NOPWASD, who would be charged with the execution of such a plan were it made law. USAID will provide technical assistance which will work with the GOE to:

- a) define reform objectives,
- b) develop a range of models for utility companies which will fit the Egyptian context,
- c) develop an implementation plan and schedule for establishing utilities, and
- d) define benchmarks for performance against the agreed upon implementation plan.

The USAID funded advisors will first introduce the GOE to several types of workable models of regulated municipal utilities as possible alternatives to the cumbersome government model with which they are familiar. The advisors will demonstrate that, at the local level--be it municipal, governorate or metropolitan region--the need is to create financially independent organizations that are responsible to the local political leadership for provision of water and wastewater services. These organizations should be charged with planning, developing, operating and maintaining the local systems. At the initial stage, the organizations may have to contract with other public or private organizations for some services due to the shortage of qualified staff. However, the local organization should control the financing of these services through independent budgets which are increasingly funded by local user charges. Once the models are understood, the advisors can then embark on the rest of the program outlined above.

At the same time USAID will carry out O&M costs and tariff rate studies in Cairo, Alexandria, the Canal and Provincial Cities. This is a necessary step to take before detailed plans for setting up more autonomous organizations can be completed. Decision makers need to know how much money it will take to make a company financially viable and how to frame the raising of tariffs

and schedule subsidies so as to assure that there will be no "tariff shocks" or serious political repercussions.

(2) Project Technical Assistance

The other important thrust of our technical assistance program will be directed through ongoing TA contracts in Cairo Water II, Cairo Sewerage II, and the Canal Cities II Projects. The technical assistance level of funding in these contracts totals \$46 million. Consultants were directed to strengthen each recipient institution based on the existing structure; their terms of reference accepted the constraints of central control and the consultants were charged with assisting the organization to work better within these constraints. However, given the new policy climate, the consultants can be used to guide recipient agencies toward increased fiscal and management autonomy. The technical assistance consultants will:

- (a) familiarize themselves with Law 203/1991 as it applies to public sector companies and authorities and agree with USAID and the implementing agency on changes to their current scope which will enable them to become more responsive to assisting the establishment of a more autonomous organization, (b) carry out the cost and tariff study for their respective organizations and assist these organizations in understanding the implications of the findings, (c) assist the organizations in establishing a new rate structure, (d) establish steps for the introduction of a graduated tariff, (e) establish cost accounting systems, and (f) prepare the organizations for increased management responsibilities for their respective utility.

E. FUTURE PROJECTS

Once the GOE has thoroughly committed itself to establishing the system of regulated public utilities to replace the centralized organizations which now provide water/wastewater services, new project assistance can begin. The general outline of a reform agenda is:

- (a) Recipient utilities are reorganized as regulated modern municipal utilities before construction bid documents would be tendered, (b) top management of the organizations begin training in utility management, (c) 100 percent O&M cost recovery plans are phased in by agreed upon increments by the Boards of Directors, (d) the Boards of Directors are entrusted with the management and operations of the utility and the Boards are comprised of individuals with commercial, financial and technical skills in senior management, (e) the O&M budgets include the training costs necessary to improve the work force, (f) personnel systems based on merit rather than seniority are adopted, (g) operators' certification programs are adopted, (h) realistic compensation systems are instituted, (i) all costs (not just O&M) are reviewed on a yearly basis, using modern utility cost analysis, and (j) tariffs are raised accordingly and regulated by a public but non-governmental body.

To increase access to water and wastewater services in urban areas, protect our sizeable past investments, and further sector reform, the Mission will pursue new infrastructure projects. Consistent with the above outlined reform agenda and in consultation with the GOE, we will establish a graduated program of benchmarks to measure institutional autonomy: cost recovery, fee retention, personnel policy (certification, training, incentives), etc. These will be included in specific project grant conditionality. USAID and the GOE would consider the following new projects:

Alexandria Wastewater II Project: Further work in Alexandria is necessary to ensure that the facilities provided under Alexandria Wastewater I are properly integrated with the existing AGOSD system. Aging and poorly maintained AGOSD pump stations can not be relied upon in their present condition to keep the system working. Additional project assistance is required to ensure that the facilities will be properly operated and maintained. The current project does not cover the area of the city in most need for sewage collection--the Central Zone. We propose covering this need and ensuring that the effluent is discharged in an environmentally acceptable way to the sea. Under AGOSD's current organization, neither the funding mechanism nor the management structure will ensure that the facilities be maintained in the long term; therefore, USAID would assist AGOSD in organizational restructuring along the lines proposed above.

Cairo Sewerage III Project: Work done thus far under Cairo Sewerage II has not assured the long term sustainability of the USAID financed system. While the institutional strengthening which will assist GOSD for the next two years will undoubtedly improve the operation of the organization, it will not attack the basic problems of sustainability which will necessitate fundamental changes in the organizational mandate of the utility. The purpose of the CSIII Project would be to mitigate the impact of the rapid urban growth of Giza on the quality of water in the Rosetta Branch of the Nile by assuring self-sufficiency and sustainability of the West Bank (Giza) sewerage system. To ensure the sustainability of our present and future infrastructure investment, GOE would create an independent wastewater organization to operate the West Bank system. This organization, like its sister organization in Alexandria (above), will be formed along a modern West European or US regulated public utility model.

Secondary Cities Water and Wastewater Project: This project will implement reforms and help establish autonomous water and wastewater utilities in governorates or secondary cities. Project funding for infrastructure would be available to a limited number of cities (5-10) which meet the following criteria: have shown past initiatives in undertaking public improvement projects without the assistance of the central government or outside donors; accept the responsibility of supporting through taxes and tariffs the operation and maintenance of the system; accept a technical assistance package which would undertake the necessary task of setting up an independent municipal water/wastewater company; agree upon and show the ability to recover 50 percent of the capital cost over a 20 year payback period to an intermediate financing institution.

Donor Coordination - USAID is the lead donor in the sector; however, particularly in pursuing sector reform, it will be necessary to seek close cooperation with other donors. The Dutch, Germans and Finns are working in the rural areas. The United Kingdom, Japan and Italy have loaned funds for urban projects. We have discussed the need for the independent water and wastewater approach with them at donors' meetings and through informal channels. Agreement on the need for autonomous water and wastewater companies is unanimous and there appears to be only a slight difference in strategy between the donors. The Finns work with very small programs in the rural areas; they do not feel that their programs have much leverage upon the way the government will organize the sector; consequently, their strategy is to create very simple stand-alone systems and train a number of local people to operate and maintain them. The Finnish Mission does agree, however, that reform is necessary for sustainability in the larger systems. The Dutch, working in Fayoum, see autonomous water organization as a prerequisite for sustaining the work they are doing with the El Azeb Water Company. The Germans, working at Kafr El Shiek, have predicated further work (Phase II) on the government's cooperation in making the Kafr El Shiek water and wastewater company totally independent. The United Kingdom recently expressed its reservations regarding future assistance except to protect its sizeable investment on Cairo East Bank; these reservations are because of concern for organizational weaknesses. Last year, the World Bank was asked by the central government whether they would consider loans to the sector. The preliminary recommendations made in the World Bank Assessment (to be released in May) suggest a top down restructuring of the sector before the Bank would be willing to invest. It is clear that the strategy we are embarking on will be supported by other donors working in the sector; it stems from the constraints we commonly perceive.

The specific indicators and targets which are intended to measure progress towards outcomes will be contained in an auxiliary document.

**OBJECTIVE/
OUTCOME**

ISSUE/CONSTRAINT

STRATEGY

INPUT

INDICATOR

**I. Strategic
Objective No.
6**

**A. Increase
access to
water/
wastewater
services in
target urban
areas**

Population growth on the periphery of the largest Egyptian Cities has outstripped GOE's ability to provide services, particularly in wastewater. There are insufficient resources and local technical expertise to construct the necessary infrastructure.

USAID will continue to direct the major thrust of its program to the largest population areas where FX is necessary to provide sophisticated solutions for wastewater disposal (and, to a lesser degree, water treatment). USAID will continue to use the FAR mechanism in order to strengthen the capacity of the Egyptian Construction Industry's ability to build needed infrastructure on their own.

New infrastructure projects in Alexandria, Cairo and selected secondary cities

Number of facilities constructed,

Number of connections made

**B. Increase
efficiency of
services**

Water loss and wastage accounts for 40-50% of production. Sewer flooding still exists in some parts of Cairo and is prevalent in other cities.

Most water loss comes from leaking plumbing fixtures, particularly bathroom toilets. USAID will assist the Ministry of Industry and manufacturers to improve the local toilet float valves. Loss in the distribution network will be reduced by training programs in leak detection. Reducing water losses will decrease the hydraulic demand placed on the sewer system and help reduce sewer flooding.

• TA through the Cairo Water Supply II Project will develop industrial standards and assist in manufacturer's adoption of the standards. There will be a media campaign in conjunction with newly produced fixtures.

• Leak detection training.

• Sewer cleaning training.

Number of water trouble calls, 18

Number of sewer floods reported.

**OBJECTIVE/
OUTCOME**

ISSUE/CONSTRAINT

STRATEGY

INPUT

INDICATOR

C. Increase reliability of services

Maintenance is the major constraint to reliable operations. Workers are poorly trained and poorly remunerated. Spare parts are unavailable or difficult to access because of cumbersome GOE procedures. Preventive maintenance is not practical. Budgets for O&M are low; budgets for training are often non-existent. Management is often ineffective and decision making is made at the top.

Reliability of services relates to sufficient budgets and organizational management. Improvement will depend on budgetary and organizational reform. USAID's reform agenda will concentrate on proper O&M cost accounting and budgeting; adequate remuneration and training for personnel; implementation of a certification program.

- Continued O&M facility specific training
- Training programs at Damanhour, in Cairo and Alexandria
- Structural Reform of W/W utilities to remove inappropriate civil service laws and introduce tariffs which will cover O&M costs.

Number of O&M personnel trained.
Number of organizations with cost accounting systems.
Number of organizations with preventive maintenance systems.

Program Outcome No. 1.2

Improved pricing and cost recovery for services

Present cost recovery policies result in low water and sewerage rates which do not cover O&M costs and make no contribution toward system expansion.

Growing resource needs for protecting existing assets and expanding services require improved local support from users fees.

Pursue a reform agenda with the GOE focusing on cost recovery and pricing policy which will

- 1) be system specific and reflect the cost of services (cover O&M cost and a large share of expansion costs);
- 2) allow rates to be adjusted periodically;
- 3) allow all revenues from rates and fees to be retained and controlled by the utility;

- T.A. to perform cost/rate tariff studies, establish cost accounting systems and set up billing systems
- T.A. to assist in establishing independent W/W utilities and appropriate regulatory and financial organizations.

• % of O&M cost covered by users for W/W services
• No. of tariff/rate studies carried out and recommendations adopted

**OBJECTIVE/
OUTCOME**

ISSUE/CONSTRAINT

STRATEGY

INPUT

INDICATOR

Program
Outcome No.
2.6

Power,
Telecommunicat
ions and Water
provided to
enable the
growth of
private
industry and
commerce in
urban areas.

Public investments in
urban infrastructure is
being outstripped by
growing populations.
Water tariffs are
insufficient to support
system expansion and
there is a shortage of
Egyptian contractors
capable of undertaking
appropriate
infrastructure
construction.

USAID will continue to
support expansion of
water facilities in
Cairo and the Provincial
cities. At the same
time, we will pursue a
pricing policy which
will allow for system
expansion, but take into
account social
considerations and the
continued need for
subsidies to support
extraordinary needs
which may come from
commercial and
industrial demands.

- Infrastructure
expansion in Cairo,
Provincial Cities and
secondary cities.
- Appropriate Tariffs
on water (see above)

Total urban
infrastructure
capital
expenditures
provided to
industrial
areas and to
areas targeted
for industrial
and commercial
growth.

Program
Outcome No.
5.2

Increased
access to
clean water
and sewerage
systems in
urban areas.

The operational word in
this program outcome is
clean. Environmental
quality is a relatively
new concept to Egypt.
Standards, are often
inappropriate and rarely
enforced. Water
treatment plant
operators are usually
concerned about
production rather than
quality of water
produced. Water
chemistry labs are
poorly equipped and lack
necessary chemicals to
do analytical tests.
Wastewater is often
discharged without
treatment, causing
further degradation of
water quality.

USAID strategy will be
to concentrate T.A. on
of water quality and
wastewater disposal in
ongoing projects.
Through institution
building and training,
they will strengthen
GOE's capability to test
and treat water, and
design for appropriate
waste disposal.

- Building W/WW systems
in urban areas
- Laboratory training
- Plant management
training
- New sewerage projects
directed toward
environmentally safe
disposal of sewage

% of urban
water coverage

% of urban
sewerage
coverage

20