



UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

May 16, 1995

CAIRO, EGYPT

ACTION MEMORANDUM FOR THE MISSION DIRECTOR

FROM: Robert Jordan, AD/PDS 

SUBJECT: Canal Cities Water & Wastewater II project
(No. 263-0174); Approval of Project Paper
Supplement No. 01.

ISSUE:

Your approval of Project Paper Supplement (PPS) No. 01 for the Canal Cities II Project is required to obligate \$ 41.366 million of previously authorized funds to finance the activities detailed in the Discussion section. Accordingly, your signature is requested for the attached Project Data Sheet.

BACKGROUND):

In 1987, USAID approved a \$ 380 million grant to provide urgently needed water and wastewater (W/WW) infrastructure for the three Canal Cities of Port Said, Ismailia and Suez. The project is designed primarily to eliminate the adverse environmental impact and health risks of untreated wastewater, to increase Port Said's raw water supply to meet its needs, and to enhance local capacity to operate and maintain the old and new facilities on an economic basis.

The project finances the following activities; 1) design and construction of a new wastewater treatment plant (WWTP) in each of the three canal cities of Suez, Ismailia, and Port Said with the capacity of 130,000 cubic meter/day (cmd), 90,000 cmd, and 190,000 cmd respectively; 2) design and construction of a pumping station in Qantara to expand the raw water supply for Port Said city; 3) an institutional development program aimed at strengthening the local institutional capacities of the WW departments and Suez Canal Authority (SCA) to better operate and maintain the W/WW facilities; and 4) a construction management consultant (CMC) to provide construction management services in connection with the improvement and expansion of water and wastewater facilities serving the three Canal Cities.

All design and construction activities are on track with no significant delays. The design/build contracts for WWTPs were awarded to ABB/SUSA Dillingham (Suez), and Morrison Knudsen (MK)

(Ismailia and Port Said). The final designs are 100% complete and construction work is proceeding according to schedule. The design of the Qantara raw water pump station has started and will be completed by August 1995. Completion of construction of the WWTPs is scheduled for August 1995 in Suez, February 1996 in Ismailia, and February 1997 in Port Said. After construction, a 24 month start up and O&M program will be provided for the local WW staff in the three cities.

An AID direct institutional support contract (ISC) was awarded to Metcalf & Eddy in June 1991. The objective of the ISC is to achieve sustainability of the physical systems installed under the Canal Cities W/WW projects. The ultimate objective of the ISC is that W/WW facilities are properly managed and maintained without continuing dependence on the central government and foreign consultants. All institutional activities are proceeding without significant delay.

The CMC AID Direct Contract was awarded to the J.V. of Black & Veatch International and Montgomery Watson in July 1988. The objective of this contract is to manage and monitor the construction activities carried out by the three design build contractors in the three cities after finalizing the preliminary design work and preparing the tender documents for the construction services. Developing and carrying out various technical studies and surveys is also included in the CMC's SOW. In addition, the CMC is administering for NOPWASD the three design build contracts for the construction of the wastewater treatment plants. The CMC is performing satisfactorily in accordance with the scope of work under the AID direct contract.

DISCUSSION:

I. Supplement Rationale:

In conformance with USAID's strategy, USAID continues to assist the urban population in Egypt gain greater access to reliable W/WW services through constructing and rehabilitating infrastructure. Assistance provided under the Canal Cities II project is commensurate with the Mission Strategic Objective No. 9. "Increased Efficiency of Water and Wastewater facilities". The Canal Cities PPS No. 01 will facilitate attainment of the original project objective without change in the scope of the project and no significant policy issues are involved.

One significant trend in USAID's present approach to the W/WW sector is emphasis on shifting the focus from construction to system sustainability. Despite the fact that the issues of

sustainability and cost recovery were not addressed as conditionality under the original PP, major accomplishments toward sustainability have been achieved during the last three years, including; 1) The three governorates (the responsible entities for providing O&M services to the WW facilities) negotiated an O&M services contract with the SCA (the entity responsible for providing water O&M services). SCA is recognized as being one of the most capable and respected agencies in the GOE in the area of O&M. Upon signing these contracts, SCA will be responsible for the O&M services in the three cities for the new WWTPs; and 2) SCA has taken serious steps to raise the tariff to provide funds for O&M costs, the current tariff already covers 96% of O&M costs, which responds to the cost recovery issue.

By implementing the activities listed under this PPS, the efficiency of the existing WW collection system will be improved. Therefore, SCA may consider taking over the responsibility of providing O&M services for the WW collection system in addition to the new WWTPs. It would be to the advantage of the project if the complete W/WW systems were to be administered under SCA management. Improving efficiency and quality of services of the W/WW services will facilitate the process of tariff increase, cost recovery and revenue retention which respond to the sustainability issue.

The PPS will now permit the inclusion of activities foreseen in the original Project Paper, but not considered at the outset due to the fact that initial cost estimates indicated that the funds available were insufficient to allow the entire objective to be addressed. This PPS will provide further benefits to the population through; 1) Improved efficiency of the existing wastewater collection system; 2) Upgraded environment conditions; and 3) Identified and prioritized needs for W/WW systems future expansions.

NOPWASD has sought USAID assistance to finance the activities of this PPS through a letter dated January 5, 1995 (Annex A).

II. Description Of Activities:

The project **PURPOSE** remains the same which is; 1) to provide sustainable w/ww services and facilities in the three canal cities, and 2) to improve the institutional capabilities of the SCA and municipalities.

The PPS activities were originally contemplated as part of the original Project Paper, in varying degrees. The original Project Paper addressed the following activities as complementary project elements necessary to ensure the effective and efficient utilization of the WW facilities; 1) Tools and equipment; 2) Inventory control program; 3) Flow conservation program; 4)

Infiltration/Salinity survey; and 5) Sewer rehabilitation. Due to a perceived shortage of funds at the outset, these PPS activities were set aside in order to guarantee design and construction of the basic treatment plants with supporting facilities.

Various GOE agencies involved in this project met and discussed with USAID the viability of numerous suggestions put forth by the Canal Cities governors and the agencies within the canal cities, and of course NOPWASD. These discussions were held between April and October 3, 1994, at which time the final agreement was reached with NOPWASD as to the listing, on a priority basis, of the specific tasks which will be undertaken. During this period, USAID did review certain tasks, which were judged to be important, but not viable at this time. USAID therefore agreed that these would be studied in more detail under the programmed Master Plan Up-date for possible future implementation. These items were: 1) co-composting for Ismailia and Suez; 2) effluent reuse; 3) improved WW facilities for Port Fouad; and 4) a regional training center. The meeting held on October 3, 1994, between representatives from NOPWASD, the CMC and USAID represented the culmination of all meetings and discussions which had taken place up to that time.

At this meeting, the final list of activities to be pursued further under this PPS, based on the availability of funds, was reviewed and prioritized for implementation as follows:

Activity 1. Addition of an Infiltration/Salinity Study for the City of Ismailia: (Approximately \$ 2.5 million)

The infiltration/salinity surveys are being performed in Suez and Port Said to identify the areas within the existing sewer systems where specific repairs and rehabilitations are required. Due to a perceived shortage of funds, the IFB documents for Contract No. 2 did not include provisions for a similar survey in Ismailia. This activity will be funded under the "Provisional Sum", which is available for such needed changes under the existing contract. The "Provisional Sum" will be replenished using funds from this PPS once it is released. NOPWASD and USAID have suggested adding this survey in order to provide the necessary identification of the problem areas in Ismailia as well. It was also suggested by USAID that this survey be expedited so that the expected rehabilitation work of all WW collection system can be scheduled within the current PACD.

Activity 2. Procurement of Sewer Cleaning and Maintenance Equipment for All Three Canal Cities: (Approximately \$ 5.2 million)

Preliminary inspections of the existing sewer systems and reports from NOPWASD indicate that the WW departments in all of the three

canal cities lack the equipment necessary to properly clean and maintain the existing WW collection systems. Equipment has been furnished to the canal cities under Canal Cities I project. The present condition of this equipment will be evaluated before any new procurement would be approved, although we recognize the fact that this equipment is twelve to fifteen years old, while the normal operating life for this equipment is five to seven years. This procurement will ensure the efficiency and effectiveness of the WW systems, support tariff increase policy, and facilitate negotiation of an O&M services contract between SCA and the three governorates for the collection system. Involvement of SCA in providing the O&M services would provide two direct benefits to the project. First, it would greatly simplify the overall organization for the control and management of the water and wastewater systems. The second notable benefit would be that proper management and sustainability of the entire system would be virtually guaranteed, since SCA is recognized as being one of the most capable and respected agencies in the government. An effort will be made to make the disbursement proportionately among the cities, taking into account population, system complexity, and condition and quantity of existing equipment. A provision for spare parts and appropriate O&M training to insure proper use of and therefore extended life for the equipment will be included.

Activity 3. Rehabilitation of the Existing Wastewater Pumping Stations: (Approximately \$ 21 million)

The Canal Cities II project includes the rehabilitation of one existing pumping station (Abu Atwa in Ismailia) built under Canal Cities I to re-route the discharge from the Abu Atwa pumping station to the new WWTP. Based on the results of initial investigation at the Abu Atwa pumping station and preliminary investigations of other existing pumping stations, it has been agreed that there is a need to evaluate the conditions of all of the existing WW pumping stations, including those that were built and financed by USAID under Canal Cities I, in order to develop and implement a rehabilitation program that will assure their reliability. A recent audit of the Canal Cities I project indicated that USAID financed pumping stations are in full operation. The data available on the condition of all other WW pumping stations is minimal, so that the estimated cost for the rehabilitation work will be adjusted as further information is made available through on-site investigations of the existing pumping stations. The on going institutional reforms at the three canal cities will give a chance to the three canal governorates to negotiate adding the O&M services of pumping stations to SCA O&M contract. This achievement will respond to the issue of sustainability, and support the on going tariff increase policy.

Activity 4. Rehabilitation of the Existing Wastewater Collection Systems: (Approximately \$ 50 million)

The Project Paper for the Canal Cities project discussed the need for sewer system rehabilitation work without defining a specific scope for this work. During the preparation of the IFB documents, NOPWASD and USAID agreed that a final decision on the sewer system rehabilitation work would be postponed pending confirmation of sufficient funding for this work. The results of activity 1 will be used to define the rehabilitation work needed for Ismailia City. The development and the implementation of the sewer system rehabilitation work will be proposed as the major component of this supplement. The sewer system rehabilitation work is intended to improve the existing WW collection systems and to assure that all sewer areas are connected to the new WW Treatment Plants (WWTP), but this work is not intended to expand the existing collection systems.

Activity 5. Master Plan Updates: (Approximately \$ 2 8 million,

The most current master planning documents for the W&WW facilities in the three canal cities were developed in the 1970's and 1980's. NOPWASD and USAID agreed that there is a need to update the master plan documents to address the current conditions and future plans for the W&WW systems in the three canal cities. The master plan items (see annex A) will provide the basis for an orderly approach to solve existing problems and plan for future development.

Activity 6. Water System Analyses and Leak Detection Program: (Approximately \$ 1 million)

There are indications that a significant portion of the treated water in the three canal cities is lost through leaks in the water distribution systems. The water system analyses and leak detection program will be considered for implementation in each of the three canal cities to identify the major sources of leakage and to recommend improvements that will be needed to reduce the amount of treated water that is wasted.

Activity 7. Extension of the Construction Management Consultant (CMC) Services: (Approximately \$ 5.9 million)

The work presently included in the Design/Build (D/B) contracts extends through February 1999, while the current CMC contract only extends the CMC services through June 1997. Therefore, an extension of the CMC contract is necessary to continue these services through the completion of the work which is presently

included in the D/B contracts. The CMC services may also be required as a result of the additional rehabilitation work that is anticipated for the existing WW pumping stations and the WW collection systems. Therefore, NOPWASD and DR/UAD have suggested that the proposal for the additional work will include provisions to extend the existing CMC contract to include the additional construction management services that are required as a result of the additional work items.

Activity 8. Invitational Travel: (Approximately \$ 350,000)

This was considered an important element for consideration, since there is no mechanism at present for providing this travel, except through the Institutional Development Contract, which has a full quota for travel and has different objectives. As these Design/Build contracts are completed with regard to the construction phase and move into the O&M program, there are many instances where travel to the United States could be beneficial to SCA, the three governorates and NOPWASD staff. This activity will accommodate the travel of about 30 GOE officials to visit similar U.S W&WW facilities and to become familiar with their organization and management. Therefore, we plan to make such a provision, which would become a part of the CMC contract amendment. We believe this would provide needed flexibility to the contract, to be used as considered beneficial, and only with the approval of USAID.

III. Supplemental Implementation Plan:

A. Implementation Approach By Activity:

The additional project activities consist essentially of the following:

1. Infiltration/Salinity Survey, Procurement of Equipment and Rehabilitation Work

It is recommended that the infiltration/salinity survey for the city of Ismailia be conducted by the existing Design/Build Contractor (DBC), (Morrison Knudsen). As explained earlier under Section II, Activity 1, it has been recommended that this activity will be done through a normal Contract Variation Order as was done in the case of Suez and Port Said, using funds under the "Provisional Sum" which is available under the existing contract for such needed changes. Thus no increase in contract price is required. The procurement of sewer cleaning and maintenance equipment will be also handled by the DBC in each city and according to the lists provided by the CMC. The CMC will conduct an assessment and evaluation on the availability and condition of the existing equipment used in order to identify and prepare the required lists for the DBCs.

The rehabilitation of existing wastewater pumping stations and wastewater collection systems will be carried out by the DBC in each city using the results of the infiltration/salinity surveys currently being conducted by the DBCs in Suez and Port Said and will be conducted in Ismailia under the additional project activities as mentioned above.

2. Master Plan Updates and Water System Analysis and Leak Detection Programs:

Implementation of activities 5 & 6 will be done by an appropriately qualified engineering firm using an AID direct contract. In the absence of a qualified 8 (a) firm with relevant overseas experience, USAID/Cairo will compete the requirement using procedures established in the Federal and AID Acquisition Regulations. In short, interested firms will submit standard forms(254/255) in response to a notice published in the Commerce Business Daily. A cost-plus-fixed fee, completion type contract will be negotiated with the most qualified firm selected from among a short-list of the pre-qualified firms.

3. Extension of the Construction Management Services and Invitational Travel:

This extension is to allow the CMC to conduct its work, which is to manage the three DBCs, until the end of their services which can be extended after adding the additional project activities up to the PACD which is 31 August 1999. Under this extension, there will be a line item to authorize the CMC to develop plans for an invitational travel program which will provide the opportunity for the relevant GOE staff to travel outside Egypt and evaluate the various innovative methods that are used for the O&M of water and wastewater facilities.

B. Buy America Considerations:

With the exception of audit, the source of all inputs obtained under this project will be AID Geographic Code 000 and all inputs will be provided through U.S. contractors. Audit services will be obtained locally. Since these will be professional services contracts estimated not to exceed \$ 250,000, local firms will be eligible in accordance with Section 18 A.1.c (4) of Handbook 1B, Chapter 18.

C. Waivers:

The implementation of the program as defined in this Action Memorandum, will require the preparation and approval of Sole Source Waivers (Construction Services), allowing the utilization of

the services of the contractors now on the respective sites in the three canal cities. The specific tasks outlined in the program will be executed through the normal variation order process, funded through the provisional sums currently incorporated into each design/build contract. These provisional sums will be replenished, as necessary, through the addition of funds released by means of this Action Memorandum. There are two important reasons for this course of action, which form the basis of the program; 1) To accomplish all the work planned under this program without the need for additional funds, and 2) To accomplish the entire work program within the current PACD, August 31, 1999.

In order to achieve the two above goals, it is imperative that we utilize the services of the construction management consultant (CMC) and the design/construction contractors presently working on the project in the three cities. They are all well informed about all the aspects of the project, each having been involved for a minimum period of four years, and their use will permit continuity of the entire construction program. There will be an obvious saving in both cost and time to the project when this course of action is followed. Conversely, if this work were to be tendered separately, we would most certainly exceed the present PACD. The costs would increase considerably through the introduction of necessary mobilization, and inflation caused by the slippage of time.

It is anticipated that three waivers will be used, one for each major design/build contract, and that the total value of the three waivers will be approximately \$60 million, averaging about \$20 million each, subdivided into tasks valued from \$2 to \$15 million. The waivers, due to their magnitude, will require approval from AID/W prior to implementation, and will be processed to AID/W immediately following the approval of this Action Memorandum, which will serve as a corroborating document for the waivers, explaining their function and supporting their respective approvals.

IV. Financial Summary

The activities 1 through 7 presented above represent a prioritized listing of the additional work items that have been discussed previously with NOPWASD and the CMC. The total cost of the priority work activities 1 through 7 is approximately \$ 90 million. The current obligation pipeline of roughly \$ 50 million, plus the balance of the authorized project funds of about \$ 41.366 million will provide the funds required to carry out the PPS activities. The preliminary cost estimate presented to date, particularly the estimates for the rehabilitation of the existing pumping stations and the existing WW collection systems, are subject to adjustment based on the outcomes of activity 1 and 6 and upon the availability of funds.

V. Economic Rationale

The proposed pump stations and collection systems rehabilitation activities will likely produce a number of social, economic and health benefits for the inhabitants of the Canal Cities.

Rehabilitation of the pump stations and collection systems will improve the efficiency of the wastewater systems by increasing the project design life of the plants and by reducing O & M costs. Non-quantifiable benefits that will accrue as a result of this activity include improved service quality, expanded services to sub-divisions of the three cities, health benefits and other externalities.

Capital cost savings of rehabilitating the pump station are sufficient to yield an approximate 10% economic rate of return. This along with contributions of rehabilitation towards having a more reliable sewerage system are enough to make this investment economically viable.

Capital cost savings and O & M cost savings of rehabilitating the collection systems yield marginal economic rates of return ranging between 7% and 9%. Additional non-quantifiable environmental/health benefits are very likely to boost the overall economic rate of return above 10%. Thus there appears to be a reasonable economic justification for the collection system rehabilitation.

VI. Summary:

This PPS describes the use of funds already authorized but not yet obligated (\$ 41.366 million). This supplement does not require a PACD extension or an additional authorization of funds. The requested obligation is within the existing project authorization level of \$ 380 million. The \$ 41.366 million will permit an FY 95, third quarter, obligation.

This PPS No. 01 for the Canal Cities II project has been prepared by DR/UAD in collaboration with PDS/PS for Mission Director review and approval.

VII. Authority:

As this is considered a routine amendment as defined in Mission Order 3-30 dated July 1989 Section III-F.1, an ExComm review and revised project analyses are not required. Project Team members and other concerned officers have reviewed the PPS No.01 package and agree with the format, content, and presentation. There are no concerns or issues which need discussion or resolution.

Under Delegation of Authority (DOA) No. 653, paragraph 3, the Mission Director has the authority to amend projects without limitation if the amendment does not; 1) present significant policy issues; 2) require the issuance of waiver by AID/W; or 3) result in a total LOP in excess of ten years.

This PPS No. 01 results in none of the foregoing three conditions.

VIII. Recommendation:

That you sign the attached Project Paper Supplement (PPS) Data Sheet thereby approving the obligation of \$ 41.366 million, and that you approve this Action Memorandum thereby approving the additional project activities listed under the PPS.

Approval 
Disapproval _____
Date 5/21/95

ANNEXES:

- A. NOPWASD's Request Letter
- B. Detailed PPS Activities Description
- C. Economic Analysis
- D. Environmental Decision
- E. Revised Logframe

Clearances:

DR/UAD:HFeldt(draft)
DR/UAD:NEL-Maraghi(draft)
DR/UAD:WDaniel(draft)
LEG:PSullivan PWS
DIR/PROC:MWalsh(draft)
DR/ENG:EROjas(draft)
PDS/ENV:SHassanien(draft)
PDS/PS:TBekhit(draft)
(A)OD/PDS/PS:RSteelman(draft)
DD:DMiller DM

DR/UAD:MWissa(draft)
DR/UAD:MRaslan(draft)
PDS/P:TDailey TD
EAP:NAbu El-seoud(draft)
HRDC/ET:FNaguib(draft)
FM/FA:MMousa(draft)
PDS/PS:CDerrick CD
OD/UAD:ANewman(draft)
AD/DR:FGuymont W

(Drafted By:TBekhit, PDS/PS, Date:03/19/95, I.D.#Actmemocc)

ANNEXES:

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Clearances:

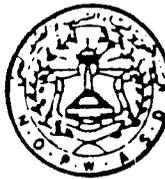
Hfeldet, DR/UAD	---	MWissa, DR/UAD	---
NEL-Maraghi, DR/UAD	---	MRaslan, DR/UAD	---
WDanial, DR/UAD	---	TDaily, PDS/P	---
PSullivan, LEG	---	NAbu El-seoud, EAP	---
MWalsh, DIR/PROC	---	FNaguib, HRDC/ET	---
ERojas, DR/ENG	---	MMousa, FM/FA	---
SHassanien, PDS/ENV	---	CDerrick, PDS/PS	---
TBekhit, PDS/PS	---		

(Drafted By:TBekhit, PDS/PS, Date:03/19/95, I.D.#Actmemocc)

Clearances:

A Newiman, OD/DR/UAD -----
R Steelman, (A)OD/PDS/PS - *Steelman*
F Guymont, AD/DR -----
D Miller, DD -----

National Organization
for Potable Water & Sanitary Drainage



المهنة القومية
لشرب والصرف الصحي

1-9-95

05 January 1995

United States Agency for
International Development
Cairo Center Building
106 El Kasr El Eini Street
Garden City, Cairo

CC: M. Feldt
A. Hassan

Subject: Proposal for Additional Work Items

Attn: Mr. Mickey Feldt
Project Officer

Gentlemen:

In accordance with our previous discussions relative to the utilization of the remaining USAID Grant funds to finance additional work on the Canal Cities Phase II Project, NOPWASD is requesting that the items listed herein be presented to the USAID Project Committee for their consideration and their concurrence for the CMC to proceed with the preparation of the documents that will authorize the implementation of the additional work. It has been agreed that the additional work items as proposed herein will provide a significant benefits to the inhabitants of the three Canal Cities through further improvements to the existing water and wastewater facilities, and it is the opinion of NOPWASD that these further improvements can be implemented within the intent of the Project Grant Agreement. Specifically, NOPWASD is proposing the following eight additional work items for further consideration by USAID:

1. Addition of an Infiltration/Salinity Survey for the City of Ismailia
2. Procurement of Sewer Cleaning and Maintenance Equipment ✓
3. Rehabilitation of Existing Wastewater Pumping Stations (new)
4. Rehabilitation of the Existing Wastewater Collection Systems ✓
5. Master Plan Updates (new)
6. Water System Analysis and Leak Detection Programs ✓

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7. Extension of the Construction Management Services

8. Invitational Travel

Each of the above items was discussed at our 3 October 1994 meeting, and we are attaching a copy of the 21 October 1994 Conference Memorandum which was prepared by the CMC to summarize the discussions at that meeting. Please note that the attached memorandum presents a brief discussion of each of the eight items that are proposed herein including a preliminary estimate of the costs associated with the implementation of these items. According to USAID's letter dated December 26, 1994, the Master Plan updates could include a feasibility study for a co-composting facility at Ismailia. Please also note that there is a ninth item that was discussed at the 3 October 1994 meeting. This ninth item is a proposal for the construction of a regional training center in the City of Ismailia, and although NOPWASD continues to believe that the development of regional training centers is important, we acknowledge that further studies will be necessary to quantify and coordinate the specific needs for training facilities in the Canal Cities in addition to those that are already provided as part of the Phase II Project. Therefore, we have decided to postpone further discussion of the regional training center until such time that more specific information is available. In the meantime, we respectfully request that USAID proceed with the actions necessary to authorize the implementation of the eight items proposed herein.

We trust that information included in this letter is sufficient for an initial presentation to the USAID Project Committee, and we look forward to your continued cooperation on the Canal Cities Phase II Project. Please keep us informed of specific actions that are taken relative to the authorization to proceed with the implementation of the additional work, and please feel free to contact me should you have any questions or comments.

Very truly yours,

N.O.P.W.A.S.D

Adel

F. Kozman
8.1.95

General Engineer Fathy Kozman Morcos
Chairman



cc: Mr. David W. Williams - CMC

NOPWASD
project implementation unit
(pzu)
canal cities.

(SENDED)

DCC. NO: A

FILE NO:

DATE : 9 / 1 / 1995

project sites :
MOHANDOSSIN
CAIRO , EGYPT

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ACTIVITIES DESCRIPTION

The activities list to be pursued further under the expanded program, based on the availability of the additional funding was reviewed and prioritized for implementation as follows:

1. Addition of an Infiltration/Salinity Study for the City of Ismailia: This task is actually considered by all parties to be of such importance to the project, that it is currently being prepared, in the form of a Variation Order under the current Ismailia design/build contract to permit immediate implementation of the work. It will be funded under the "provisional sum", which is available for such needed changes under each of the three contracts. The "Provisional Sum" will be replenished using funds from the \$ 90 million once this money is released. The critical need for a study is to evaluate the condition of the sewer collection network, with specific reference to the magnitude of infiltration and degree of salinity in the respective systems, was recognized from the outset of the project, and was incorporated into the design/build contracts for two of the three cities. Again, however, due to a perceived shortage of funds, it was believed that there were sufficient funds to allow this study for only two cities, so Suez and Port Said were selected, as they were considered to be in the worst condition. At the present time we know there are sufficient funds in the provisional sum to execute this work, so it is being implemented as quickly as possible. There is an important reason for this urgency, the fact that it is the only activity that cannot be implemented concurrently with the others, but must be done before the repair/rehabilitation to the existing collection systems can take place. This study will provide the guidance by which the program for the repair/rehabilitation work will be developed and quantified. Through these studies, we will be able to sharply define the areas in the cities where the worse conditions exist, and efforts should be concentrated, thereby saving cost and time. Another important feature coming out of these studies is the development of maps showing the collection systems. The cities do not possess maps of any value at the present time, and these maps being produced under these evaluations will make a valuable contribution to both the cities and to SCA for maintenance and expansion of the systems.

2. Procurement of Sewer Cleaning and Maintenance Equipment for all three Canal Cities: This request has been made on a continual basis from all three of the cities since the Canal Cities II project began. Their primary argument being that they want to properly repair and maintain the various components making up the wastewater systems, but lack the equipment to carry out the needed work, and in some cases

training to effectively utilize the equipment and therefore achieve the desired results. Numerous pieces of sewer cleaning equipment were furnished to the canal cities during the design phase of Canal Cities I project (1982). Since that provision of equipment, the GOE has expanded the collection systems at the three canal cities to meet the demands of the increased population. Therefore, additional equipment is needed in order to sustain the wastewater systems and ensure proper operation. The present condition of the existing equipment would be evaluated before any new procurement would be approved, although we recognize the fact that this equipment is eight to nine years old, while the normal operating life for this equipment is five to seven years. The specific needs of each city will be thoroughly investigated by the CMC, and the procurement will be made through the ongoing DBC's in each of the cities. An effort will be made to equate the disbursement proportionately between the cities, taking into account population, system complexity, condition and quantity of existing equipment, and specific requirements. A provision for spare parts and appropriate training will be included to insure proper use and therefore extended life for the equipment.

3. Rehabilitation of the Existing Wastewater Pumping Stations: This activity was mutually agreed between the involved parties as being very important for the continued and efficient operation of the complete collection systems. In the case of Suez and Port Said, a new major pumping station is being built, which will convey all the wastewater from the cities to the respective pumping stations. In the case of Ismailia, such a pumping station was built under Phase I, so a new one is not required. Although Ismailia's pumping station has been maintained and operated to a degree necessary to assure that it fulfilled the flow demand requirements, it has still been in service over eight years. Normal deterioration over this period in addition to the serious phase reversal problems ever since it was first commissioned, provide a strong justification to bring the station up to "as new" condition. Therefore, upgrading Ismailia pumping station to an as-new condition under the ongoing design/build contract, to establish equality between the cities, is required. There is an obvious need for consistency to maintain the integrity of the three WWTPs. There are numerous smaller pumping stations in each of the cities, collecting sewage from the various sections of the systems and conveying this sewage to the main station and on to the treatment plants. Although these pumping stations are all operating, they are in need of repair and rehabilitation to increase their efficiency and extend their life. The CMC has estimated that there is a total of approximately 30 of these stations to be considered for evaluation and rehabilitation (Suez: 9, Ismailia: 5, Port Said: 16).

4. Rehabilitation of the Existing Wastewater Collection

Systems: This particular task was considered by all parties, including strong feelings on the part of the three governors, to be of great importance to the project and to the respective cities. There are several reasons for this high rating of importance. One is as a logical follow-up to the infiltration studies. These studies, as noted under task No. 1 will provide the information to efficiently and effectively repair and rehabilitate the collection systems, thereby greatly reducing the infiltration into the system and reducing the salinity of the influents to the plants. Initial studies in the cities of Suez and Port Said have already indicated that current infiltration rates could run between 30 and 50 percent. This means that effective use of the plants is being lost by these percentages, since 30 to 50 percent of the influent is not sewage and therefore should neither be treated nor allowed to enter the collection system. It is not possible, for economic reasons, to eliminate all of this infiltration, but if the worst areas of failed or leaking pipes in the network were repaired, and if the infiltration rates were reduced by half, it is easy to see that the capacity of the plant would be increased, and accordingly the design life. This would be accomplished without any physical increase in the size of the plant.

Another factor, which is considered of great importance is the involvement of SCA in the overall O&M of the wastewater system. At the outset of the project we eagerly sought the involvement of SCA, both directly and through the Institution Development Contract, to assume the O&M responsibilities for the entire system since they were already in charge of the water supply system. They strongly opposed involvement to any degree, but eventually agreed to assume the O&M for the wastewater treatment plants only, mainly because they were new facilities. Their strongest argument against involvement with the remainder of the system was the relatively poor condition. Their position was that they would be assuming not only the O&M, but the general repair and rehabilitation of the system, which they were not prepared to accept. Therefore it is possible that if the system were up-graded to an acceptable level, SCA may agree to accept this responsibility. This action would provide two direct benefits to the project. First, it would greatly simplify the overall organization for the control and management of the water and wastewater systems. At the present time SCA operates the water system within the cities and will operate the new wastewater treatment plants, the cities operate the wastewater collection systems within the cities, and governorates operate the water systems outside the cities. The second notable benefit would be that proper management and sustainability of the entire system would be virtually guaranteed, since SCA is recognized as being one of the most capable and respected agencies in the government.

5. Master Plan Updates: This task was, again, agreed by all to be of significant importance, not so much for the completion of the Canal Cities Phase II Project, but to evaluate the canal cities region for future expansion with regard to the water and wastewater systems. The existing master plan was developed in the 1970's and 1980's, and thus, can be considered as having little, if any value, especially taking into consideration the rapid development of the region, both ongoing and planned. All three governors plan to develop the east side of the Suez Canal from the standpoint of industry, agriculture and tourism. All plan to reclaim large portions of the desert, which will require great quantities of water. This is one of the reasons that all have shown great interest in the reuse of the effluent from the plants. Also the feasibility of constructing co-composting plants, as noted earlier, can be reviewed for justification. Composted material would be of great benefit toward the rehabilitation of the desert by breaking down clays and adding water retaining characteristics to the sand. Maps could also be developed under the Master Plan Update to show both water and wastewater systems in the region, which would contribute to the planned expansion programs for the region. Specifically, agreement has been reached that the update will include, as a minimum, the following items to provide the basis for an orderly approach to solve existing problems and plan for future development:

- * Mapping of the existing water and wastewater systems.
- * Evaluations of the existing water and wastewater facilities.
- * Updates of the population and land use projections.
- * Updates of the water usage and wastewater flow projections.
- * Recommendations for immediate improvements.
- * Recommendations for long term improvements.
- * Evaluation of the feasibility for reuse of the effluent flows from the new wastewater treatment plants.
- * Evaluation of co-composting as an alternative sludge disposal option in Suez and Ismailia.
- * Development of preliminary cost estimates for the recommended facilities.

Present indications are that it may be difficult to permit either of the engineering firms currently engaged on the project to assume this Master Plan work by way of an amendment to their existing contracts, although they both would have obvious advantages should this work be offered through open request for proposals. The main factors under consideration are time and cost. We wish to have this work completed within the PACD of the project, August 31, 1999, and obviously the most economically acceptable way possible. The main objective at the moment is to have this task approved as part of the additional work package, due to its magnitude of importance in

the overview of development and work in the region.

6. Water System Analyses and Leak Detection Programs: This is considered an important task, again to provide valuable information to evaluate the water supply systems and quantify the work involved to upgrade the facilities to reduce leakage and improve efficiency. The results of these programs would not affect the current project, which is primarily concerned with wastewater, however it would be of tremendous benefit for future planning and contribute to the updates of the Master Plan.

We believe this work could easily be combined with the Master Plan Update, since they both would be implemented through an engineering firm, and due to the relatively small estimated cost of the work (\$1 million), it would be quite logical to combine the two tasks. Also, as in the case of the Master Plan Update, it is not a part of the original scope, and therefore could not easily be assigned to one of the engineering firms now engaged on the project.

7. Extension of the Construction Management Services: This task is mandatory from the standpoint of the ongoing work. The PACD is August 31, 1999, while the present DBC's will continue to February, 1999. The current CMC contract, however, runs out in June, 1997. Therefore, considering the fact that their work has been totally satisfactory up to the present time and it would not be logical to change firms at this stage, the present contract will be extended to provide management services for the remaining work up to the PACD of the project. Beyond that, there may be an increased level of effort in regard to the preparation of the work plans for the additional tasks which will be implemented. This will be evaluated and taken into consideration as necessary.

8. Invitational Travel: This was considered an important element for consideration, since there is no mechanism at present for providing this travel, except through the Institutional Development Contract, which has a full quota for travel and has different objectives. As these contracts are completed with regard to the construction phase and move into the O&M program, there are many instances where travel to the United States could be beneficial to SCA, the three governorates or NOPWASD for training and viewing existing plants to see existing systems in operation. Therefore, we plan to make such a provision, which would become a part of the CMC amendment to their contract. We believe this would provide needed flexibility to the contract, to be used as considered beneficial, and only with the approval of USAID.

ECONOMIC ANALYSIS

The project amendment proposes eight additional work items to be carried out with funds still available to the Canal Cities Project. The two principle activities under consideration are the rehabilitation of waste water pumping stations and the rehabilitation of waste water collection systems. Since 75 percent or more of the proposed additional expenditure will be devoted to these two activities, they are the focus of this economic analysis. It is worth noting, however, that the other proposed work items, e.g. an infiltration/salinity survey in Ismailia, procurement of sewer cleaning equipment, master plan updates, leak detection programs, and an extension of construction management services, have relatively low costs and appear to be consistent with the practices of a well run water/waste water utility.

A. Rehabilitation of the Pump Stations:**1. Discussion:**

The principle quantifiable economic benefit resulting from rehabilitating the pump stations takes the form of discounted capital cost savings. On average a pump station rehabilitation which costs U.S.\$ half a million for each city, will defer major capital investments, costing \$1 million, by five years at least. Moreover rehabilitation of the pump stations will lead to more efficient and reliable sewerage systems and hence reduce instances of localized sewerage flooding which occur when stations are out of operation.

2. Economic Viability:

Although the economic benefits of reduced flooding are unknown at present, the capital costs savings of rehabilitating the pump stations are sufficient to yield an approximate 10 percent economic rate of return. This is sufficient, along with the non-quantified reliability benefits described above, to make the proposed investment economically viable.

B. Rehabilitation of the Collection Systems:**1. Discussion:**

The sewerage collection systems in the Canal Cities are in deteriorating condition. Clogging of the pipes and surcharging of the manholes have resulted in frequent flooding in residential areas with subsequent detrimental health effects. Exfiltration of sewerage has resulted in contamination of ground water supplies in some areas and dangerous conditions to health.

Rehabilitation of the collection system is necessary to reduce infiltration of saline solution, sand and grit thereby saving on O & M costs. Rehabilitation will also reduce exfiltration of sewerage which will result in health benefits and enhanced quality of life for the populations of these cities. Since the benefits of reduced infiltration are more readily quantifiable, they form the basis of this economic analysis.

The principle quantifiable economic benefit of rehabilitating the collection systems takes the form of discounted capital cost savings. That is, expansion of the treatment plant can be put off until a later date. Rehabilitation will cut infiltration of sand/grit, thereby reducing wear and tear on the pumps and lowering maintenance requirements for screens. Similarly reducing the salinity of the influent will increase the life of the pumps and treatment plants and lower maintenance costs.

Lower infiltration will make the sewerage system more reliable with less clogging, surcharging and flooding. Consequently, there will be significant health impacts on the populations of these cities. Also the quality of the sludge and the effluent will be improved, allowing for more beneficial uses and higher environmental quality "downstream".

Moreover, rehabilitation of the collection system will allow subdivisions of the three cities which are sewered but not connected to the primary collection system to be redirected to the primary systems leading to the waste water treatment plants, instead of draining raw sewage into the nearest receiving body as they currently do. An estimated 40,000-60,000 people could benefit from this project. By redirecting the outfall pipes of these small collection systems into the primary system, contamination in the receiving bodies will be reduced.

2. Economic Viability:

Rehabilitation at a cost of \$25 million will allow major investments in the treatment plants, costing an average of \$45 million, to be deferred by approximately seven years for each city. Rehabilitation will also reduce infiltration by half and thus result in savings on O & M cost for the treatment plant and pumps. Available information suggests that O & M costs savings for the treatment plant are in the order of \$560,000 for each city. Savings on O & M costs for pump stations are roughly \$203,000 for Ismailia, \$270,000 for Suez, and \$427,000 for Port Said. The stream of net benefits resulting from capital cost savings and O & M cost savings yield marginal economic rates of return between 7%-9% in the three cities.

Given the resulting non-quantified environmental/health benefits described above, it is very likely that the overall economic return to the proposed collection system rehabilitation is in excess of 10%.

Mar. 20 '95 16:24

USAID CAIRO

FAX 20-2-356-2932



UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

CAIRO, EGYPT

THRESHOLD DECISION BASED ON INITIAL ENVIRONMENTAL EXAMINATION

Project Location: Egypt

Project Title/ID: Canal Cities Water and Wastewater, Phase II, Additional Work Items, Grant No. 263-0174

Funding (Fiscal Year and Amount): FY 95
\$41.366 Million

IEE Prepared By: Date:
Seifalla Haseinein 3.15.95
Seifalla Haseinein
Environmental Specialist, PDS/ENV

Environmental Action Recommended: Negative Determination as per 22 CFR 216.3(a)(2)(iii)

Associate Mission Director's Concurrence: Date:
Frederick J. Guymont 3/16/95
Frederick J. Guymont
Associate Director, DR

Decision of Environmental Coordinator, Bureau for the Near East:

Approved: [Signature]
Disapproved: _____
Date: 15 April 1995

Clearances:
EWashington, PDS/ENV
HFeldt, DR/UAD
MWissa, DR/UAD
PSullivan, LEG

[Signature] Date: 3-15-95
[Signature] Date: 3-13-95
[Signature] Date: 3/13/95
[Signature] Date: 3/13/95

21

PROJECT DESIGN SUMMARY

ANNEX (E)

LOGICAL FRAMEWORK

Life of Project
 From FY 87 to FY 99
 Total U.S Funding :\$ 380 m
 Date Prepared:3/30/95

Project Title And Number: *Canal Cities Water & Sewerage II Project (263-0174)*

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Improve the health and living conditions of people in Suez, Ismailia, and Port Said by increasing access to adequate water and wastewater services.</p>	<ul style="list-style-type: none"> -Reliable water and wastewater system established. - Population of 2 million served by improved water or wastewater systems. 	<ul style="list-style-type: none"> - USAID monitoring and evaluation system. 	<ul style="list-style-type: none"> - Water and wastewater services contribute to improved health conditions. - GOE continues to identify and support expansion as a high priority social and economic goal.
<p>Project Purpose :</p> <p>Provide sustainable water and wastewater services and facilities in the three canal cities.</p> <p>Improve the institutional capabilities of the Suez Canal Authority and municipalities.</p>	<ul style="list-style-type: none"> - Infrastructure constructed and operated as designed effectively meeting environmental concerns. - Sustainable method for managing, operating and maintaining new WWTP and collection systems are established. 	<ul style="list-style-type: none"> - Contractor reports. - SCA and governorate records. - USAID monitoring and evaluation reports. - Other GOE documents. 	<ul style="list-style-type: none"> - GOE willing to make agreed upon policy reforms and meet specific benchmark.

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																
<p>Outputs:</p> <ul style="list-style-type: none"> - Wastewater treatment facilities at Suez, Ismailia, and Port Said functioning as planned. - Construction of pump station and its raw water pipeline from Qantara to Port Said Water Treatment Plant. - Master plan updates - Personnel trained in O&M - The financial and institutional capacity of SCA and the Canal Cities staff improved. 	<ul style="list-style-type: none"> - Treatment facilities operable in Suez at 130,000 cmd, in Ismailia at 90,000 cmd, and in Port Said at 190,000 cmd by 1995, 1996, and 1997, respectively. - 370,000 cmd of raw water provided to Port Said after construction of 46 Kms transmission line in 1997. - Infiltration/salinity survey in Ismailia completed - 30 +/- WW pumping stations rehabilitated - 100Km +/- WW collection system rehabilitated - \$5.2M +/- spent to procure sewer cleaning equipment - Master plan completed. - 300 people trained in O&M - By 1996, the accounting systems are expanded to include: <ul style="list-style-type: none"> - Cost of service and tariff design module. - A consolidated billing, revenue collection and customer accounting system. - A modern inventory control and stores management system. - By 1996, a consumer education program is implemented. - By 1996, training equipment for the SCA water and wastewater training center is provided. 	<ul style="list-style-type: none"> - Contractor monthly reports. - Construction data. - Site inspection and above reports. 	<ul style="list-style-type: none"> - Timely availability of GOE human and other resources in support of the project. - Willingness and cooperation of GOE and local authorities to proposed institutional changes. 																																
<p>Inputs: AID:</p> <ul style="list-style-type: none"> - Wastewater Facilities and Raw Water System - Technical assistance. - Audit and evaluation - In Kind 	<table border="0"> <thead> <tr> <th colspan="2">USAID (Mil)</th> <th colspan="2">GOE (Mil)</th> </tr> <tr> <th>\$</th> <th></th> <th></th> <th>LE</th> </tr> </thead> <tbody> <tr> <td>326.40</td> <td></td> <td>350.00</td> <td></td> </tr> <tr> <td>52.30</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1.30</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2"><hr/></td> <td colspan="2"><hr/></td> </tr> <tr> <td>380.00</td> <td></td> <td>350.00</td> <td></td> </tr> <tr> <td colspan="2"></td> <td colspan="2">120.00</td> </tr> </tbody> </table>	USAID (Mil)		GOE (Mil)		\$			LE	326.40		350.00		52.30				1.30				<hr/>		<hr/>		380.00		350.00				120.00		<ul style="list-style-type: none"> - Grant agreement - Contract documentation - USAID financial records - Audits 	<ul style="list-style-type: none"> - Condition Precedent/Covenants are met. - Foreign exchange and local currency are available as budgeted.
USAID (Mil)		GOE (Mil)																																	
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AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET	1. TRANSACTION CODE <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete Amendment Number <u>1</u>	DOCUMENT CODE 3
2. COUNTRY/ENTITY Egypt	3. PROJECT NUMBER <input type="checkbox"/> 263-0174 <input type="checkbox"/>	
4. BUREAU/OFFICE NE/PD	5. PROJECT TITLE (maximum 40 characters) <input type="checkbox"/> 03 <input type="checkbox"/> Canal Cities Water & Wastewater	

6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 08 31 99	7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4) A. Initial FY <u>1997</u> B. Quarter <input type="checkbox"/> C. Final FY <u>1999</u>
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8. COSTS (\$000 OR EQUIVALENT \$1 =)						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	109,400		109,400	380,000		380,000
(Grant)	(109,400	()	(109,400	(380,000	()	(380,000)
(Loan)	()	()	()	()	()	()
Other U.S.						
1.						
2.						
Host Country				120,000		
Other Donor(s)						
TOTALS	109,400		109,400	500,000		500,000

9. SCHEDULE OF AID FUNDING (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ESF				338,634		41,366		380,000	
(2)									
(3)									
(4)									
TOTALS				338,634		41,366		380,000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)	11. SECONDARY PURPOSE CODES
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)	
A. Code	B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

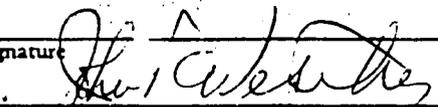
To provide sustainable w/ww services and facilities in the three canal cities, and to improve the institutional capabilities of the SCA and municipalities.

14. SCHEDULED EVALUATIONS Interim MM YY MM YY Final MM YY 0 9 9	15. SOURCE/ORIGIN OF GOODS AND SERVICES <input checked="" type="checkbox"/> 000 <input type="checkbox"/> 941 <input type="checkbox"/> Local <input type="checkbox"/> Other (Specify)
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16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment)

USAID/Egypt Controller concurs with the proposed methods of implementation and financing.

Mohamed Tanamly
 Mohamed Tanamly, A/AD/FM-----

17. APPROVED BY	Signature  Title John R. Westley Mission Director	Date Signed MM DD YY 11 24 95	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY 11 27
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