

UNCLASSIFIED

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

EGYPT

IRRIGATION MANAGEMENT SYSTEMS (IMS)

263-0132

PROJECT PAPER SUPPLEMENT NO. 3

DATED SIGNED: 08/02/93



UNCLASSIFIED



CAIRO, EGYPT

July 13, 1993

ACTION MEMORANDUM FOR THE ACTING MISSION DIRECTOR

FROM: (A) OD/PDS/PS, Beth *Cypser*
THRU: (A) AD/PDS, Jeff *Malick*
SUBJECT: Approval of Project Paper Supplement No. 03
Irrigation Management Systems (IMS) Project
USAID Grant No. 263-0132

ISSUE: Your signature is required to approve Project Paper Supplement No. 03 of the Irrigation Management Systems which increases the planned Life of Project (LOP) budget level by \$11 million (i.e. from \$325 million to \$336 million). This LOP budget increase is within the existing project authorization level of \$340 million.

DISCUSSION: The attached Project Paper Supplement for the Irrigation Management Systems Project has been prepared by AGR/ILD in collaboration with PDS/PS for Mission Director review and approval. As this is not a substantive amendment as defined in Mission Order 3-30, an ExComm review process is not required. Project Team members and other concerned officers have reviewed the document and agree with the format, analysis, and presentation. There are no concerns or issues which need discussion or require resolution. The level of GOE contributions to IMS has been increased by LE 3.565 million to a revised total of LE 424.714 million to reflect implementation of the conditionality on MPWWR assumption of local operating expenses for the S&M and WRC components.

AUTHORITY: Under paragraphs 4 and 13(g) of Delegation of Authority No. 653, the Acting Mission Director has the authority to approve, negotiate, execute, and implement project assistance amendments without dollar limitation in accordance with applicable law, regulations, policies and procedures established within AID. This authority has not been redelegated.

RECOMMENDATION: That you sign the Project Paper Amendment Face Sheet approving an LOP budget increase of \$11 million to the IMS Project.

Approval *Christopher D. Crawley*

Disapproval _____

Date *8/2/93*

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE

A A = Add
C = Change
D = Delete

Amendment Number

DOCUMENT CODE

3

2. COUNTRY/ENTITY

Arab Republic of Egypt

3. PROJECT NUMBER

263-0132

4. BUREAU/OFFICE

NE/PD

03

5. PROJECT TITLE (maximum 40 characters)

Irrigation Management Systems

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)

MM DD YY
09 25 91

7. ESTIMATED DATE OF OBLIGATION
(Under "B:" below, enter 1, 2, 3, or 4)

A. Initial FY 81 B. Quarter 2 C. Final FY 95

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	16,860	25,140	42,000	241,914	94,086	336,000
(Grant)	(16,860)	(25,140)	(42,000)	(241,914)	(94,086)	(336,000)
(Loan)	()	()	()	()	()	()
Other U.S.						
Host Country						
Other Donor(s)						
TOTALS	16,860	22,600	22,600	241,914	127,945	127,945
		47,740	64,600		222,031	463,991

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECIL 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	133	064		313,000		11,000		336,000*	
(2)									
(3)									
(4)									
TOTALS				313,000		11,000		336,000*	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE C

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code

B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

To improve the system - wide water use efficiency for irrigation.

14. SCHEDULED EVALUATIONS

Interim MM YY 06 90 MM YY 08 93 Final MM YY 06 95

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Local Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a page PP Amendment.)

* \$15 million in Special Account local currency was provided in FY 91 thereby reducing the LOP budget to \$325 million. This PP Supplement increases the LOP budget by \$11 million within the project authorization level of \$ 340 million to facilitate completion of ongoing activities. Methods of implementation and financing remain unchanged as approved by USAID/Egypt Controller.

Approved: Nimi Wijesooriya, A/AD/PM

17. APPROVED BY

Signature

Christopher D. Crowley
Title Christopher D. Crowley
Acting Mission Director

Date Signed

MM DD YY
08 02 93

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DCMENTS, DATE OF DISTRIBUTION

MM DD YY

**IRRIGATION MANAGEMENT SYSTEMS PROJECT NO. 263-0132
PROJECT PAPER SUPPLEMENT**

TABLE OF CONTENTS

- * PROJECT DATA SHEET
- * TABLE OF CONTENTS
- * EXECUTIVE SUMMARY
- * ANNEXES
 - A. Executive Committee Guidance for Planned LOP Increase Dated 2 March 1993
 - B. Action Memorandum Approving LOP Increase Dated 13 March, 1993
 - C. Survey and Mapping Component PIL No. 138
 - D. Revised Implementation Plan
 - E. Revised Financial Plan
 - F. Revised Logframe
 - G. IEE Categorical Exclusion

**EXECUTIVE SUMMARY
IRRIGATION MANAGEMENT SYSTEMS PROJECT
PROJECT PAPER SUPPLEMENT NO. 03**

BACKGROUND:

The March 1987 Project Paper amendment of the Irrigation Management System (IMS) Project provided an authorized funding level of \$340 million. At the beginning of FY 91, the Mission intended to obligate \$30 million for the IMS Project. After the Operating Year Budget was divided among the different projects, the Mission was faced with a \$61 million cost overrun for the Alexandria Wastewater System Expansion Project (263-0100). As a solution to this problem, the Mission decided to use the Special Account to cover local currency costs for some projects and use the previously allocated dollars to cover the cost overrun. The FY 91 obligation for the IMS Project was reduced from \$30 million to \$15 million and an additional \$15 million in local currency from the Special Account was provided to cover the costs of local construction contracts under the Structural Replacement Project (\$5 million) and the Irrigation Improvement Project (\$10 million). The Seventh Amendment to the IMS Grant Agreement, dated July 3, 1991, obligated \$15 million and reduced the planned Life of Project (LOP) funding from \$340 million to \$325 million. Accordingly, the project authorization level remains at \$340 million with an approved LOP budget level of \$325 million.

At the 1992 Fall Portfolio Review for the IMS Project, a draft action memorandum for the Mission Director requesting an additional \$12 million to the existing LOP budget level was presented and discussed as an issue. As a result of the review and subsequent discussions with Director Bassford, AGR/ILD was directed to rewrite the action memorandum to include more technical justification especially that of cadastre activities financed under the Survey and Mapping (S&M) component. On 21 February 1993, an Executive Committee convened to review and discuss the revised action memorandum. Based on the review, an \$11 million increase in LOP funding was approved based on the following conditions:

1. An evaluation of the Irrigation Improvement Project (IIP) component must take place within the next four to five months to determine the most cost effective means of implementing this activity.

2. The increase in LOP funding for two components must be conditioned on MPWWR agreement to assume local operating costs within specified timeframes. The LOP funding increase request had to be adjusted to reflect the deletion of local operating costs of the Water Research Center (WRC) and Survey and Mapping (S&M) components (\$1 million reduction). MPWWR agreement to these conditions must be obtained in the form of a countersigned PIL.

Following the foregoing guidance, the action memorandum was revised and approved by Director Bassford on 13 March 1993. As these funds are required to complete on-going previously designed activities which have proven to consume more time and resources than envisioned at the time of the last amendment, a routine PP Supplement and Project Agreement Amendment were specified as the modality for formalizing the approved LOP increase. Hence, no separate formal Executive Committee review nor additional analysis are required.

DISCUSSION:

To date, AGR/ILD has taken action on the conditionality and the directed evaluation. The IIP component evaluation will occur in mid August 1993 and will address concerns such as cost/benefit of the IIP component given the large reduction in targeted area, direct impact on the farmer, effectiveness of implementation methodology, etc. In the 1993/1994 planning workshop for WRC, WRC was informed and agreed to implement the conditionality of assuming local operating costs as of July 1, 1994. A PIL will be issued to formalize the agreement shortly. However, implementation of the conditionality for the S&M component formed the basis of two separate issues during the 1993 Spring Portfolio Review.

The first issue centered around clarification of the LOP conditionality. USAID had been supporting all of the S&M component's local operating costs except a portion of operation/maintenance for equipment and vehicles. Part of the local operating costs budget included non-recurring costs which were deemed critical in supporting the implementing contractor, Geonex. Clarification was sought as to what specific ESA local operating costs were affected by the conditionality.

The second issue focussed on how USAID could verify MPWWR conditionality. A countersigned PIL as a stand alone document does not produce sufficient evidence of MPWWR compliance. Alternatives were needed to enforce conditionality after the funding was obligated.

To resolve the foregoing issues, AGR/ILD was directed to clearly reiterate to ESA and MPWWR the meaning of the conditionality. A PIL was directed to be issued clarifying the definition of local operating costs, the concern for sustainability in the context of future financing, and the methodology for compliance and verification. In addition to the component specific issues, Spring and Fall Portfolio guidance directed that the logframe must be updated to reflect measurable performance indicators at both the purpose and output levels.

This PP Supplement formalizes the Mission strategy for the LOP budget increase of \$11 million for the IMS project and is structured in the form of seven annexes:

Annex A: ExComm guidance (approved 2 March 1993) is summarized reflecting the Mission Director's determination on the proposed LOP funding increase and provides guidance on PP Supplement preparation.

Annex B: The Action Memorandum for the Mission Director (approved March 13, 1993) reflects the directed evaluation for the IIP component and the conditionality on MPWWR agreement to assume local operating costs for two components (S&M and WRC) within specified timeframes. Additionally, a detailed description of project history, current and projected funding requirements, detailed technical justification (overall and by component), summary project status and Mission strategy for implementation of the LOP increase are included.

Annex C: S&M Component PIL No. 138 (signed 10 June 1993) specifically defines the conditionality for the S&M component and identifies steps/evidence for verification of compliance.

Annex D: As the LOP budget increase was approved in March, the revised implementation plan addresses the remaining significant implementation activities from April 1993 through the PACD considering open commitments and obligations. Included is a description of overall responsibilities, implementation mechanisms, methods of payment, and schedule by subproject.

Annex E: The revised financial plan incorporates the LOP increase of \$11 million in the project budget by component, reflects expenditure projections, obligation schedule through PACD, and a description of how the costs are estimated. AID, Special Account and host country contributions are summarized.

Annex F: The logframe has been streamlined and revised to focus the project purpose and more clearly reflect objectively verifiable indicators at the purpose and output levels.

Annex G: Record of Categorical Exclusion from USAID environmental procedures is executed as per 22 CFR 216.2(c) (2) (i).

The IMS Project Team reviewed the documents and agreed with the format, analysis and presentation. Director signature on the Project Data Sheet constitutes approval of Project Paper Supplement No. 03.



ANNEX A

**Executive Committee Guidance for Planned LOP
Increase Dated 2 March, 1993**



UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

CAIRO, EGYPT

INFORMATION MEMORANDUM FOR THE FILES

DATE: 2 March 1993

TO: The Files, Project 263-0132

FROM: *[Signature]* Carl Derrick, PDS/PS

SUBJECT: Irrigation Systems Management (IMS) Project; Summary of ExComm Guidance for Planned Increase in Life of Project Funding of \$12 Million

Purpose: The purpose of this memorandum is to summarize the Mission Director's determination on the proposed IMS LOP funding increase of \$12 million and provide guidance for revision of the Project Paper Supplement.

Discussion: On February 21, an Executive Committee meeting was held to review and discuss the subject draft Action Memorandum for the Mission Director. Initiating discussion, Director Bassford noted that a direct water charge per unit of water is not realistic for purposes of cost recovery. It was agreed that cost recovery for some IMS components, the lower level of the irrigation system, and other water users (other than agriculture) might be feasible. There are significant social, economic, and political ramifications of such a reform which are well beyond the scope of this Project. The following represents a summary of issues/discussion raised by component level and the direction given for Mission strategy in preparation of related project documentation:

Irrigation Improvement Project (IIP):

Discussion: The Director expressed concern over the decrease in the level of funding, the reduced target number of feddans for this component and the potential for criticism that it represents to the Mission because this component directly benefits Egyptian farmers. The original funding level for the IIP component was \$108 million with a target number of feddans of 394,000. The revised level of funding for this component is proposed at \$63 million with a target number of feddans of 75,000. The Director's specific concerns and AGR/ILD responses were as follows:

Issue: How cost effective is the implementation methodology given the apparent inability of the MPWWR to reach a larger number of farmers? The proposed reduction in support without adjustments to the implementation model to reach more farmers did not seem to offer a solution.

AGR/ILD Response: The original target number of 396,000 feddans was completely unrealistic in terms of the planned funding level and MPWWR's implementation capacity. While it

would be impossible to reach the original target number of feddans within the amount of time remaining in the Project (PACD: 9-30-95), the reduced number of feddans was a conservative estimate which was likely to be exceeded based on current and anticipated contract awards. Progress in expanding the MPWWR's ability to reach a larger number of farmers was slower than expected. Alternatives are being considered for the proposed follow-on project that would increase the private sector's role, expand coverage, and improve cost recovery.

Issue: What is the cost/benefit of the IIP component given the relatively large reduction in the targetted area in comparison to the reduced funding level?

AGR/ILD Response: A considerable portion of funds already expended were for start up and other costs not directly related to IIP. No component level IIR analysis had been performed for IIP based on the revised funding level and targets. Feasibility studies and the mesqa level cost recovery study indicate high cost/benefit ratios at the farm level.

Issue: Due to large investments in highly technical interventions, direct impact of the IMS project on the farmer is difficult to ascertain.

AGR/ILD Response: Extensive efforts have been made to improve MPWWR's capability in the IIP component. Success in establishing and developing systems have positively impacted the farmer. Examples include establishment of an Irrigation Advisory Service (IAS), organization of Water User Associations (WUAs), feasibility studies, main delivery improvements, and a policy for cost recovery at the mesqa level. Another component, Structural Replacement, was mentioned to directly benefit more than 2 million Egyptian farmers through the shift for continuous flow irrigation leading to more timely and equitable water delivery, increased cropping intensity and expansion of irrigated areas.

Guidance: While he approved the revised level of funding for IIP, Director Bassford directed that the planned evaluation of the IIP component be made within the next four to five months to examine the foregoing cost/benefit issues. After the evaluation, the IIP component would be the subject of a special review to determine if further reprogramming of IIP funds is necessary.

Survey and Mapping (S&M):

Discussion: The Director found the technical justification for the cadastres reasonable. In addition to the issues of the cadastre activity's contribution to project purpose and sustainability of the Egyptian Survey Authority (ESA), a

sectoral concern was raised regarding the compensation of GOE employees and their relative skill levels. It was recognized that changes in employee compensation would require a major cross sectoral structural adjustment, one which this Project can not undertake immediately. A Strategic Plan is currently being developed for ESA to address its organizational structure, funding and other sustainability issues (including personnel compensation). Director Bassford specifically focussed on phasing out the proposed assistance for local operating costs (\$900,000).

Guidance: Rather than continuously fund local operating costs through LOP for the S&M component, Director Bassford directed that the requested increase in project funding for this component be conditioned upon MPWWR providing its own financing for all ESA local operating costs required by the S&M component. Accordingly, the requested increase is reduced by \$900,000. No further funding will be provided to ESA for local operating costs effective August 31, 1993. MPWWR agreement to these conditions for financing shall be obtained in the form of a countersigned PIL prior to the approval of extending the Geonex contract through June 30, 1995. Director Bassford stated that the Geonex contract could be extended on an interim basis through August 31, 1993 pending MPWWR agreement to these terms.

Water Research Center (WRC):

Discussion: Support for WRC is being narrowed to fund on-going academic training and five or six key institutes that will undertake high priority research activities for the IMS. While the Mission has certain joint interests in the long term strengthening of WRC's institutional capacity and expanded research activities, the Mission has a mutually agreed upon programmed reduction of support for the WRC's operation and maintenance costs through PACD.

Guidance: In order to give the MPWWR time to locate the necessary resources, Director Bassford directed that any increase in project funding for this component shall be conditioned on MPWWR's agreement to provide full operating costs for the WRC by June 30, 1994. No further funding will be provided for operation and maintenance beyond June 30, 1994 shall be authorized. The requested increase in funding for this component is to be reduced by \$100,000. MPWWR agreement to these conditions shall be obtained in the form of a countersigned PIL.

Next Actions: The result of these decisions (with regard to GOE funding of OE costs) shall result in a \$1 million reduction to the proposed increase in level of funding to \$11 million. Commitment of the approved funding increases for the S&M and WRC components is conditioned on MPWWR agreement to assume ESA and WRC local operating expenses for these components within specified

conditions to subsequent financing. An evaluation of the IIP component shall be completed within the next four months. Components requiring immediate commitment of funding for continuation of activities can draw from the uncommitted resources already obligated under the project, AGR/ILD shall reprogram component funding levels through the issuance of a countersigned PIL. AD/AGR shall also provide an information memorandum to the Director clarifying the financial structure of the IIP component and cost per feddan of IIP improvements. A PP Supplement shall be developed and subsequent PROAG Amendment prepared to reflect the revised increase in LOP funding to a level of \$336 million.

DISTRIBUTION:

H Bassford, DIR
C Crowley, DDIR
R Jordan, A/AD/PDS
D Clark, AD/AGR
P Mulligan, A/AD/EAS
T Carter, AD/LEG
D Franklin, AD/FM
P Thorn, AD/DR

D Miller, AD/HRDC
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W Duerbeck, A/AD/MGT
J Malick, OD/PDS/P
J Dunlap, OD/DIR/CS
B Cypser, A/OD/PDS/PS
N Wijesooriya, DC/FM/FA
R Parks, PDS/P/E

ANNEX B

**Action Memorandum Approving LOP
Increase Dated 13 March, 1993**



UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

ACTION MEMORANDUM FOR THE MISSION DIRECTOR

FROM: AD/AGR, Douglas Clark *DJC*

SUBJECT: Irrigation Management Systems Project (263-0132);
Increase in Planned Life of Project Funding Level

ACTION REQUIRED:

Your approval is requested for an increase of \$11.0 million in the planned life of project (LOP) funding for the Irrigation Management Systems (IMS) Project. Additional financing for two of the IMS components is conditioned on MPWWR agreement to assume local operating costs for two components (Survey and Mapping and Water Research Center) within specified timeframes.

BACKGROUND:**I. Project History:**

The IMS project began in 1981 to assist the Ministry of Public Works and Water Resources (MPWWR) in rehabilitating Egypt's irrigation system and in strengthening the Ministry's capacity to operate, maintain, and plan the irrigation network. The IMS goal is to establish more effective control of Nile waters for all uses, but particularly for their optimal allocation to and within agriculture to increase production and productivity. A sub-goal is to improve the operating efficiency of the water distribution system for agricultural irrigation and for other water users. The IMS purpose is to strengthen MPWWR's capability and capacity to plan, design, operate, and maintain the water distribution system.

IMS was developed as a six-component project budgeted at \$112 million. The major component was Structural Replacement with a \$92 million budget. In June 1984, IMS was amended to include two new components, to increase its authorization to \$139.5 million, and to extend its PACD to July 31, 1987. In March 1987, a Project Paper amendment increased the authorization to \$340 million, added two new components, for a total of 10 components (Table 1), and extended the PACD to September 21, 1995.

In 1990, a full-scale evaluation of the Project was carried out. Principal among the findings were that: the planned IIP target of 394,000 feddans could not be attained by the 1995 PACD; a major institutional development effort was required for S&M; and, an additional \$70 million (over the \$340 million) was required to attain planned outputs (except for IIP) and could be reasonably expended by the 1995 PACD. The \$70 million included major increments to MSM, S&M, and IIP. The evaluation also identified a

number of constraints to implementation and purpose attainment. To address these problems, it produced over forty recommendations. Where practical, these recommendations were carried out, significantly improving implementation efficiency and attainment of project objectives. Actions were completed to address all but three of the major recommendations. One, a future evaluation of IIP is planned for next quarter. Actions to address the remaining two--cost recovery and shift WRC emphasis from capability development to conduct of high priority research activities--are on-going. A portion of the additional funds requested herein will go to further progress on these two issues.

II. Current Funding Situation

Since the 1990 evaluation, planned LOP funding has been redistributed among project components by the Sixth, Seventh and Eighth PROAG Amendments. This was done to best meet on-going needs until implementation capacities, particularly for IIP, and LOP funding requirements of each component could be determined.

The Seventh Amendment in 1991 provided for a contribution in Local Currency from the MIC Special Account equivalent to \$15 million in lieu of an OYB dollar obligation. Concurrently, the planned LOP USAID Dollar contribution was reduced from \$340 million to \$325 million along with elimination of the contingency fund and a significant reduction in PM component funding in response to a change in GOE policy.

Table 1 below shows current planned LOP funding and obligations according to the Eighth Agreement Amendment along with current commitments, expenditures, and pipelines by component. It does not include the \$15 million equivalent in Special Account LC. To date, USAID Dollar obligations for the project total \$313 million with a balance of \$12 million to be obligated.

TABLE 1: CURRENT IMS FUNDING STATUS - 12/31/92
(\$000)

	LOP BUDGET	OBLIG.	COMMIT.	UNCOMMIT. BALANCE	EXPEND.	PIPELINE
IIP	67,000	55,100	39,525	15,575	32,928	22,172
SR	75,800	75,800	75,709	91	75,609	191
PM	29,000	29,000	28,369	631	23,656	5,343
MSM	43,600	43,600	28,399	15,201	21,879	21,721
PSM	15,000	15,000	9,738	5,262	6,940	8,060
PD	14,000	14,000	13,708	292	9,444	4,556
WRC	29,850	29,850	26,543	3,307	19,281	10,569
PPD	11,600	11,600	11,593	7	10,992	608
S&M	32,500	32,500	28,902	3,598	24,830	7,670
MISC.	6,650	6,550	3,961	2,589	3,435	3,115
TOT.	325,000	313,000	266,446	46,554	228,993	84,007

DISCUSSION:

I. Projected Funding Requirements

At this point, USAID has a planned investment of \$325M in this challenging effort to improve the capability of MPWWR to control Nile waters and fulfill the Mission strategic goal of increased agricultural production and productivity in Egypt. Over the past year, project objectives at the component level were subjected to intensive review and refinement in order to **maximize the prospects for project purpose achievement with minimum costs**. The combined knowledge and experience of ILD staff, MPWWR counterparts and the technical assistance teams were brought to bear on the task. Based on the refined component objectives, component outputs and inputs were adjusted. In a number of instances (principally S&M, WRC, and IIP) activities were cutback or eliminated based on implementation capacity and importance (or lack thereof) to purpose achievement.

This assessment coupled with an Executive Committee review of the proposed funding increase resulted in a determination that **an additional \$11 million in planned life of project (LOP) funding is needed**. For the most part, these funds are required to complete on-going activities which have proven to require more time and resources than envisioned at the time of the last amendment. The funding adjustments and needs are shown in Table 2 and raise the planned LOP funding level from \$325.0 million to \$336.0 million.

**TABLE 2: PROPOSED REVISIONS TO LOP BUDGET*
(\$ MILLIONS)**

	PGA8	Proposed	Net Change
IIP	67	63	(4.0)
SR	75.8	75.8	000
PM	29	30.5	1.5
MSM	43.6	48	4.4
PSM	15	15	000
PD	14	14.5	0.5
WRC	29.85	32.9	3.05
PPD	11.6	11.6	000
S&M	32.5	37.1	4.6
<u>MISC.</u>	<u>6.65</u>	<u>7.6</u>	<u>0.95</u>
TOTAL	325.0	336.0	11.0

*Does not include \$15 million Dollar for LC swap.
PGA8 = Eighth Grant Agreement Amendment - Sept. 92.

15

II. Rationale for Proposed Revisions in LOP Funding:

A. Overall Justification -- Given the finite amount of water available and its already intensive use, combined with the constant and relentless increase in demands placed on it, Egypt has no choice but to further increase water use efficiency. Yet, because the Nile system provides many opportunities to use water before its final loss to the sea, it is already quite efficient in terms of the extent to which available water is put to productive use. However, the system does contain numerous inefficiencies in terms of delivery costs and opportunity costs that can be reduced through better management to optimize water distribution and allocation.

The more efficient the system is, the more difficult and costly it becomes to attain increases in efficiency--it requires fine tuning. Fine tuning requires precision tools and demands more innovative, sophisticated and risky interventions. More emphasis must be placed on management of the system as a whole and the interaction among its parts. This requires ever increasing quantities and qualities of data. The collection, analysis and application of this information to develop and implement such complex interventions on a timely basis requires a wide array of modern technology and sophisticated management tools and procedures.

This is the essence of several components of the IMS project, mainly MSM, S&M, and PSM. They constitute a high risk, high cost effort to apply modern technology to wring-out marginal, but cost effective, increases in efficiency (More crop per drop). The underlying premise is that the potential benefits, crisis avoidance included, justify the costs and risks involved.

While each component makes a necessary contribution to attainment of the project purpose, none alone is sufficient. The greatest potential for improved management of the system lies in combining and integrating component outputs. The accurate and timely data generated by MSM can be used in the traditional way by system managers to improve operations; the maps and geographic data from S&M will add to the efficiency of planning, design, construction, operation and maintenance activities; and, application of the models developed under PSM, utilizing existing data, will help managers make better decisions. However, when these and the outputs of other components are integrated, the results are management tools which allow managers to determine interactions and tradeoffs among system elements and perform the fine tuning essential to meet future demands for water use efficiency.

These relationships, the complexity of the problem this project addresses, and the overall context within which it is being confronted provide the setting within which the following component rationales must be considered.

B. Survey and Mapping -- The objective of this component is to provide the aerial photography, maps and other geographic information the Ministry needs to plan, design and implement improvements to the irrigation system in the most effective manner.

Two key issues concerning this component are: (1) How do the outputs of this activity, particularly the 1:2500 scale "cadastre" maps, contribute to the attainment of the purpose and sub-goal of the project; and, (2) What steps are being taken by the GOE to assure that the technological gains made by ESA will be sustained and used to continue production and updating of the information?

B.1. Importance of 1:2500 Scale (Cadastre) Maps: Key to increased water use efficiency is the Ministry's ability to deliver the needed quantity to the appropriate place at the right time. This requires physical and managerial improvements which must be engineered to the geographic characteristics of both the site of the improvement and the area served. Without up to date and accurate geographic information, the Ministry either runs the risk of the improvement not being operationally effective or must suffer the high costs of "ad hoc" production of the required geographic information. These functions will be performed more efficiently when the relevant geographic information is readily available.

The primary focus of the S&M activity and ESA's principal mandate is the production of the 1:2500 scale "cadastre" maps which contain the vast majority of the most critical information. While called "cadastre" maps, these maps are actually multi-purpose maps. In addition to legal property boundaries, they depict all of the irrigation and drainage systems in the mapped area and other pertinent geographic information. Only about 40 percent of the contents of these maps is for cadastre purposes. These maps are the only maps being produced that are of a large enough scale and contain the information needed to meet project purpose and other user requirements. Examples of their uses and other project components requiring or benefiting from them are:

- **For planning, designing and implementing improvements and maintenance activities.** If a map doesn't exist, an engineer must create one to develop his plan and design. Producing maps in this fashion is more costly and less accurate. Poor maps lead to poor design. Poor design leads to cost and schedule overruns. For example, the IIP project director estimates that poor maps have increased the design cost of ⁴³some IIP projects by 70 percent. (IIP, MSM, PM, SR and PSM will use).

- **For determination of water requirements and optimum water distribution and utilization.** Water demand forecasting and water use management models, such as those being developed under this project, require data with a spatial component. Similarly, this information is needed for measuring system performance. These maps contain most of this critical data. (PSM, IIP and PM will use).

- For assessing equitable shares under a cost recovery program. Accurate maps are needed to prorate cost recovery charges on the basis of the number of feddans serviced and to convince farmers they are being charged their fair share. (All components will use).

- As a source of revenue to partially recover map production costs. ESA sells more than 125,000 of the 1:2500 cadastre maps each year even though they are badly dated (S&M will use).

- For settling disputes and resolving operational problems on a daily basis. Estimates are that the MPWWR handles between 150,000 to 200,000 requests for service and/or complaints each year that require the use of the 1:2500 maps (IIP, PM, and SR will use).

- For planning and implementing land use improvements in both old and new lands. The primary reasons for the selection of the two governorates covered by the project were their large size and populations, the extensive urbanization and land reclamation that is taking place there, and their maps were badly outdated with large areas of unregistered lands.

B.2. GOE Commitment to Sustain S&M The issue of sustainability hinges on the development of ESA's capability to apply, manage and maintain the new technology and the GOE's commitment to provide the financial support this requires.

ESA has made excellent progress in providing and training the staff to sustain this activity, but still needs some time and assistance to refine this expertise through practical experience. This request for additional project resources is based on what is believed necessary to complete the development of the technical and managerial capability. ESA is also very much attuned to the problem of staff development and retention and is attacking it in several ways -- a non-salary incentives program, a program established so that both new and potential employees are being constantly trained, and a program to convert good technicians into good managers.

There is solid evidence of the GOE's commitment to this activity. First of all, this activity was included in the project largely at the insistence of the GOE and plans are already being made for its continuation without project support. MPWWR has directed ESA to include the full amount of the projected operating budget for the S&M component in its budget request for FY93/94, approximately LE3.5 million. This is a significant change in that to date the project has funded over 75% of these costs. Also, the GOE has indicated that they will invest LE10 million to the construction of new ESA facilities for which plans have been completed and ground

15

broken. In addition, ESA has requested assistance to develop a long-range strategic plan to help address the issue of sustainability; and, funding for this assistance is included in this proposal. Finally, ESA commitment is evidenced by the plans it is making for a phased move, as work is completed, of the S&M cadastre survey crews currently operating in Beheira and Sharquiya to begin mapping of the Assiout and Sohag governorates without project support.

B.3. Need for Additional Funds and Their Uses: Due to an initial lack of understanding of the magnitude of this task and a change in implementation methodology, the amount of resources and the time required to accomplish its objectives are much greater than planned. The change in methodology has demanded that an enormous effort be put forth to build the capability within ESA to produce the sophisticated mapping products. It was originally estimated that this activity could be completed in thirty months. Actually, it will take about twice that long.

To develop and modernize ESA's map-making capability has involved the procurement of much sophisticated technology, its installation and training of ESA staff in its use. The nucleus of the map production system (renovated facilities, the base mapping equipment and the orthophoto map production system) has recently been installed and is just now being incorporated into the production process. Getting to this stage has consumed all of the time and the bulk of the resources originally planned to complete the activity. At least one year of extensive technical assistance and on-the-job training is now needed to build skills for operating, maintaining and managing the systems efficiently. This should be followed by a phase down of TA over the next year and a half (to mid-1995) to ensure production of the planned outputs and to consolidate institutional capability.

B.3.A. Conditionality: Rather than continuously fund local operating costs through LOP for the S&M component, any increase in LOP funding for this component shall be conditioned upon MPWWR providing its own financing for all ESA local operating costs required by the S&M component. No provision of grant funding after August 31, 1993 shall be authorized for ESA local operating costs. MPWWR agreement to these conditions for financing shall be obtained in the form of a countersigned PIL prior to the approval to extend the Geonex contract through June 30, 1995. The Geonex contract shall be incrementally funded through August 31, 1993 pending MPWWR agreement and performance to these terms.

B.3.B. Proposed Increase: In addition to the \$32.5 million already obligated, another \$4.6 million is estimated to be required to (1) take ESA to a point where it can sustain its improved capacity and (2) complete most of the mapping and other geographical information products originally planned. To keep project cost to only that considered essential to attainment of

project purpose, the coverage of the Cadastre Survey activity was cut from four governorates to two, the Land Information activity was scaled back, and technical assistance for production activities was reduced to place more of this burden on the GOE. This \$4.6 million, combined with the uncommitted balance of \$3.6 million, would be used to fund an extension to the Geonex contract to provide the required TA (\$7.3M), commodities and equipment (\$.9M).

C. Water Research Center -- The purpose of this component is to improve WRC's capacity and effectiveness in performing research to provide solutions to problems facing MPWWR in its activities for the control, use and development of Egypt's water resources. To date, IMS support for the Water Research Center (technical assistance, commodities and academic and other participant training) has concentrated on building WRC's core capacity for carrying out research along with better planning and establishment of research priorities. Although not all of the TA, training, commodity procurement funded to date have been completed, WRC is a much improved institution. It is now better equipped and staffed. A long-term research plan with established priorities has been developed and its implementation begun.

Some examples of where WRC's improved capacity has contributed to attainment of the project purpose through the production of applied research results are: improved estimation of crop water requirements, better estimates of drainage water quality and quantity, aquatic weed control, delta salt balance, groundwater potential maps, the design of canals and drains, sedimentation in Lake Nasser, and feasibility and hydraulic studies for infrastructure such as the Esna and Naga Hammadi barrages.

With this improved capacity and the expected return over the next few years of additional researchers trained at the graduate level, the WRC provides an excellent opportunity to both continue and initiate research on a number of issues of high priority for AID. In addition to completing the support planned to date, additional funding is proposed to help WRC further address water quality and related environmental issues and intensify their efforts to produce results useful for resolving technical and policy issues effecting other components and water use efficiency in general. Specific areas of interest include: cost recovery and water pricing; water quality management and pollution control; policies on re-use of agricultural drainage water; policies on conjunctive use of ground and surface water; and, water scarcity and crisis management. Furthermore, our completed water quality assessment, supported by other donors' assessments, identifies the number one constraint to dealing with water quality issues to be the lack of adequate data to monitor water quality and clearly define problems. To address this need, the added funding would also support improvement of water quality monitoring and data collection.

C.1. Conditionality: In order to give the MPWWR time to

locate the necessary resources, the Mission will not provide funds for operation and maintenance beyond June 30, 1994. Any increase in LOP funding for this component shall be conditioned on MPWWR's agreement to providing full operating costs for the WRC by June 30, 1994. MPWWR agreement to these conditions shall be obtained in the form of a countersigned PIL.

C.2. Proposed Increase: To implement the above, it is proposed that the LOP funding for the WRC component be increased by \$3.05 million to bring the total for this component to \$32.9 million. Funding needs are estimated as follows: present TA, commodity procurement and local operating cost will be reduced and focused on the five key research institutes that contribute to the aforementioned high priority research areas (-\$1.75M); the training line item will be increased to fund increased cost of academic training in progress (\$.8M); and additional funding will be provided to address expanded research in the areas of water quality and water quality monitoring, water use efficiency, and policy specific research (\$4M). The additional funds required for the latter activities would be used to finance buy-ins to the centrally funded PRIDE and EPAT projects established specifically to support these types of activities.

D. Main Systems Management -- The objective of MSM is to enhance the capability of MPWWR to effectively manage the release and distribution of water for irrigation and other purposes. It will establish an automated water measuring, data collection and communications network to provide the Ministry with the information required to do this on a timely basis. Support is also provided to develop the capability to competently manage, operate and maintain the information network.

Simply put, the completion of the system will give the Ministry the capability to determine how much water is in the system and where at any given moment. With managers having automated linkages to the MSM system and access to data from other sources on how much water is needed where at what time, their ability to effectively manage water distribution will be greatly improved. Excess deliveries leading to waste and increased costs as well as shortages that negatively impact on production can be minimized, contributing directly to increased water use efficiency.

This component has been well managed by MPWWR, but has experienced some problems due to rather "typical" delays and cost increases in procurement and others in the development of institutional capability to operate and maintain the highly technical, data collection system. To complete the system, an increase of \$4.4 million is required and would raise total planned LOP funding to \$48.0 million for this component. Most of the increase (\$3.5 million) is required to fully fund the \$23 million, fixed-price GOE contract for the Voice/data Communication System. The balance

21

(\$900,000) is needed to fund technical assistance for continued oversight of system development and training to further strengthen MPWWR's capability to operate and maintain the system.

E. Preventive Maintenance The objective of this component is the development and implementation of a more cost effective and replicable preventive maintenance program for a specified target area. The project provides TA, training and nearly \$17 million in equipment and other commodities to improve facilities, develop more effective maintenance practices and establish improved management procedures.

The recent evaluation determined that all elements of project support were instrumental in bringing about major improvements in the maintenance program. It found the mixture and sizes of project equipment and the new maintenance practices to be well fitted to maintenance requirements along with improved management procedures. It recommended that this model be replicated in the remaining governorates to cover the entire irrigation system.

The evaluation also confirmed the existence of several persistent impediments to more efficient and sustained use of equipment and facilities. Principal among these are: 1) staff inadequately trained to operate and maintain the equipment and facilities; 2) inadequacy of budget allocations to support operations; and, 3) inexperience in utilization of the management tools developed for improved administration of the program. However, the evaluators felt these problems were surmountable and recommended additional TA and training, along with some modifications to the management techniques, to overcome them.

Expansion of the program to additional areas is beyond the scope of this project, but an **increase in funding of \$1.5 million** (from \$29M to \$30.5M) is proposed to provide the TA and training needed to assist the Ministry resolve the above constraints. The provision of this support would coincide with the planned phase out of project support for operational expenses. It is suggested that all future assistance for this activity be conditioned on the Ministry taking specific measures to provide required staff and to increase its maintenance budget to a level consistent with needs.

Obviously, a poorly maintained system can not be operated efficiently; and, the impact of all other IMS efforts to improve operational efficiency of the system will be compromised by inadequate maintenance. Completion of the PM component will establish adequate maintenance programs in six of the eighteen Governorates and give coverage to 80 of the 167 irrigation districts or approximately one-third of the irrigated area (2,430,000 feddans out of 7,200,000).

Specifically, the additional funding will: (1) ensure that MPWWR staff are adequately trained in the operation and maintenance of

22

project funded equipment and facilities, (2) further develop the maintenance management tools and train Ministry staff in their application, and (3) provide the Ministry with additional time and support to obtain the budget resources required to sustain the program. Successful completion of this activity would also supplement the Ministry's efforts to attain assistance from other donors to expand this improved maintenance capability to the rest of the system.

F. Professional Development This activity establishes a National Irrigation Training Institute (NITI) to carry out Ministry-wide training programs by providing facilities and equipment, trained staff and the development of curriculum, policies and procedures for promoting professional growth. Construction of the training center and the procurement and installation of about \$3.0 million in Project funded commodities will not be completed by March of 1993 when the current TA contract ends. These activities have fallen behind schedule due to problems with construction cost increases and the Mission delaying completion of procurement activities until the Ministry made acceptable progress on staffing NITI and the provision of funds for its operation and maintenance.

The issues of financing of the construction cost increases and the staffing problem have been resolved and the Ministry has committed to funding operation and maintenance costs. It is proposed that an additional \$500,000 be provided for this component to finance the technical assistance and training needed to ensure that the facility is completed and made operational. These funds will finance additional TA and training to assist with completing the procurement and installation of Project funded commodities along with the training of NITI staff in its use and maintenance. This would be provided in conjunction with reduced operational budget support over the next two years as the Ministry assumes this obligation.

This additional support will help NITI train over 2,500 staff per year in critical areas such as design and construction, operation and maintenance, management, practical and scientific laboratory skills, mechanical and electrical engineering, computer sciences, orientation for new employees and specialty areas.

G. Miscellaneous The purpose of this component is to make available to MPWWR and USAID the technical assistance, training, commodities and other resources required to cope with emerging problems or to take advantage of particular opportunities and to support a Monitoring Office responsible for overseeing the physical and financial progress of all components. The uncommitted balance of \$2.59 million in this component is needed to fund programmed needs including the Ministry-wide MIS and Decision Support Unit (\$2.0M), the third cost recovery study (\$.3M), and an EOP evaluation (\$.25M). ILD also recommends the inclusion of an

additional \$600,000 for activities in support of our policy dialogue agenda. Included among the expected activities are short term technical assistance, studies, training, workshops and seminars. The recommended increase is \$.95 million and would bring total LOP funding to \$7.60 million.

Additional outside assistance and support for workshops and seminars is crucial to our cost recovery policy dialogue process. Likewise, support provided under this component is essential to support the integration of component outputs into a management scheme for improvement in overall system performance.

H. Irrigation Improvement Project The purpose of this component is to plan, design, and construct improved, operationally efficient irrigation systems at the lower end of the network. It builds on the experience of the earlier EWUP project, expanding it to selected canal commands throughout the country to further test and demonstrate the concept of increased farmer responsibility for improvement, operation and maintenance of the water delivery system. It also incorporates elements of cost recovery and water pricing to improve allocative efficiency.

The original LOP funding for this component was \$108 million with a target of 394,000 feddans. However, with the Seventh Amendment funding was reduced to \$77 million and the target area to 150,000 feddans. The primary factor leading to these adjustments was the slower than anticipated development of MPWWR's capacity to implement improvements. The slow rate of implementation led to a further reduction in target area and a corresponding decrease in planned funding to \$67 million with the Eighth Amendment. (It should be noted that reductions in Dollar funding for this component are partially offset by the \$10 million equivalent in local currency received from the Special Account for funding IIP construction costs). Factors that contributed to this slowness were inexperience in designing improved systems using the new technology, related contracting and contractor supervision problems, and problems related to the cost recovery issue. Rising costs of improvements have also contributed to the reduced target area and at the proposed funding level, the target area is now estimated at approximately 75,000 feddans.

Although these problems have been resolved to a large extent and there has been a marked improvement in implementation over the past year, ILD proposes that the planned LOP dollar funding for this component be further reduced by \$4 million to \$63 million. This position is based on MPWWR's previous difficulties in timely implementation and continued doubts about MPWWR's implementation capacity. Alternatives for MPWWR's role in the implementation of mesqa improvements are currently being considered in the context of any follow on project activity. Furthermore, an evaluation of the IIP component shall take place within the next four months to enable the Mission to consider whether reprogramming of the

component's remaining funding is necessary.

III. Proposed Mission Strategy for Implementing the Increase in LOP Funding:

On February 21, an Executive committee meeting was held to review and discuss a proposed draft LOP funding increase of \$12 million for the IMS Project. At the meeting, you directed the following courses of action:

1. An evaluation of the IIP component must take place within the next four months to determine the most cost effective means of implementing this activity.
2. The increase in LOP funding for two components (Survey and Mapping and Water Research Center) must be conditioned on MPWWR agreement to assume local operating costs for these components within specified timeframes. The request for LOP funding increase of \$12 million shall be adjusted to reflect the deletion of local operating costs of the WRC and S&M components (\$1 million reduction). MPWWR agreement to these conditions shall be obtained in the form of a countersigned PIL.

Three of the project's ten components (Main Systems Management, Professional Development, and Surveys and Mapping) are being implemented through instruments which require additional commitment of funds in the near term. Immediate funding is needed to ensure continuation of activities under these three components. Drawing from uncommitted resources already obligated under the project, AGR/ILD shall reallocate the component obligation levels through the issuance of a PIL to allow additional commitment of funds. As additional funding for Survey and Mapping is conditioned on MPWWR agreement to assume ESA local operating costs, the implementing activity contract (Geonex) will be incrementally funded through August 1993. In the meantime, PDS/PS and AGR/ILD shall prepare a PP Supplement and subsequent PROAG amendment which incorporate the revised LOP budget and previously agreed upon conditionality.

RECOMMENDATION:

That you approve the increase of \$11 million in the planned LOP funding for the Irrigation Management Systems Project No. 263-0132 to bring the total planned LOP funding level to \$336 million. Based on your approval, a PP Supplement and PROAG Amendment shall be prepared and cleared in accordance with Mission procedures.

Approved: 
Henry H. Bassford
Mission Director

Disapproved: _____
Henry H. Bassford
Mission Director

Date: 2/1/53

26

ANNEX I: SUMMARY PROJECT STATUS

Irrigation Improvement Project - This component began with the 1985 Project Amendment and was expanded with the 1987 amendment to cover 394,000 feddans. To date, the Irrigation Advisory Service has been established and its staff trained in the organization of Water Users Associations (WUAs). Assistance is provided to WUA members to participate in the design and implementation of improved water delivery systems and training is provided for operation and maintenance. Over 1700 WUAs have been organized; feasibility studies completed and approved for 186,000 feddans; main delivery system improvements completed or underway for 64,000 feddans; mesqa improvements completed or underway for 38,200 feddans; and, the IIP staff has been trained in improvement design, construction and quality control. However, implementation is severely hampered by the Ministry's capacity to design, contract and provide adequate construction supervision. It is clear that the planned target of 394,000 feddans is far beyond the Ministry's capacity during the planned LOP. In fact, ILD estimates that no more than 75,000 feddans can be completed by the PACD.

Structural Replacement - The SR component focused mainly on small and medium sized structures; i.e. intake regulators, head regulators, weirs, tail escapes, spillways, and crossing structures. It also aimed at improving the quality of structures by upgrading and assuring they were built to standards. As last amended, 8,500 structures were planned for construction or replacement under the component with a USAID investment of \$80.8 million. It should be noted that reductions in dollar funding for this component are partially offset by the \$5 million equivalent in local currency from the Special Account for funding SR construction costs. The component is now being closed out after rehabilitating or replacing more than 19,000 of the approximately 44,000 structures in the system with the above investment. More than two million farmers were benefitted through reduced waterlogging, increased cropping intensity, expanded irrigated area and more equitable water distribution.

Preventive Maintenance - The original PP authorized planning and implementation of a pilot preventive maintenance project in one Directorate to improve maintenance practices and reduce maintenance costs through improved management of the maintenance program. The pilot program was successful and has been replicated in five additional Directorates through the second PP amendment which also authorized co-funding of an IBRD Channel Maintenance Project-CMP. However, AID support for the CMP has been minimized due to a change in GOE policy which resulted in a change in IBRD strategy. Approximately \$18 million in commodities and equipment along with

TA and training have been provided to improve maintenance planning and operations. As presently structured TA and training will end in May 1993 with project support for the operating budget continuing for several more years. Sustainability is a major concern due to the difficulty PWR is having in obtaining, training and supporting adequate staff to operate and maintain the equipment and facilities provided under the project.

Main Systems Management - Based on an earlier Ministry pilot program to test the concept of using telemetry to measure water levels at key locations, the 1985 PP amendment authorized the installation of a nationwide telemetry data collection system. The 1987 amendment authorized continued development of the system and added other activities to include a nation-wide voice/data communication system (VDCS) and automation of controls on a pilot canal command. The first phase of the telemetry system, 80 sites along with the master and sub-master stations has been completed and is operational. The second phase, adding an additional 120 sites is underway and due to be completed in CY93. A \$23 million contract for the VDCS has been signed and implementation begun to be completed in 1995. Work has also begun on the pilot canal automation. The TA contract is currently scheduled to end in 1993, but there will be a need for additional TA into 1995.

Planning, Studies and Models - This component was added with the second amendment in 1987 and implementation arrangements took several years to put in place. However, over the past two years implementation has consistently accelerated and is now proceeding at a moderate to rapid pace. The designs for planning and distribution models have been modified and are now moving into the application/testing phase. Design of the High Aswan Dam operational model is underway and work to improve the Egyptian Agriculture Economic Model will be completed later this year. The Nile Forecast Center has been established, staffed and equipped and is nearing completion of the first phase (Blue Nile) of the monitoring, forecasting and simulation (MFS) activity for the upper Nile basin. Planning for the second phase (White Nile) of MFS is underway. Funding is in place and implementation arrangements are either set or defined for continuing the PSM activity into 1995.

Professional Development - The PD component began in 1982 utilizing whatever PWR staff, facilities and organizations could be made available. The 1987 amendment provided for assistance to establish the National Irrigation Training Institute (NITI) and provide it with the facilities, equipment and staff. This phase of the component began in 1989 with assistance of a host country contract team providing TA, training and procurement services. To date more than 7,600 PWR staff have been trained in planning, design, construction management, quality control, operations,

maintenance and water management through both off-shore and in-country events. Most of this has occurred during the past three-years. NITI facilities construction, funded primarily through the MIC special account, began in 1990 and should be completed by June 1993. Phase out from this component is schedule for March 1993 (TA contract end date) with diminishing support (operation and maintenance) until 1995. A major issue is sustainability in regard to MPWWR provision of adequate permanent staffing and operational budget support for NITI.

Water Research Center - Prior to its expansion with the 1987 PP amendment, assistance to WRC focused mainly on one research institute and the management unit. As currently structured, this component began in 1989 to support all 11 WRC research institutes; is being implemented under a \$26.2 million host country contract with CID; and provides TA, training and commodities. To date TA has been provided to strengthen research planning and management capabilities; about 60 percent of planned commodity procurement has been completed; and, all academic training has been initiated (44 MS and 31 Ph.D.). While institutional strengthening activities (training and commodities) continue at a diminished rate, project emphasis has shifted from institutional development to identifying and conducting specific high priority research activities and studies needed for carrying out PWWR priorities. Seventeen MS and 11 PhD participants have completed their training and are working on these research priorities established under a 5-year strategic plan. Support for WRC is planned to continue until the PACD with intensified efforts concentrated on a narrower focus.

Project Preparation Department - IMS support for this component began in 1982 with the objective to provide quality technical and economic feasibility studies that analyze investment options and to prepare reports in English for submission to international donors. Support has been provided in the form of technical assistance, training, budget support, and English language upgrading as well as vehicles and other commodities. PPD has prepared high quality feasibility studies to meet specific development needs and has been successful in having these studies accepted by donors. Examples include the Esna Barrage project financed by a consortium of donors, five projects financed by the IBRD and several financed by Middle East financial organizations. For the past several years project assistance has been limited to minor inputs of commodity and budget support along with short-term TDYs of a technical specialty nature. This component will be closed out during the coming year.

Survey and Mapping - Added by the 1987 PP amendment, this was the last component of IMS to get underway with implementation beginning in February of 1990. S&M was designed to produce modern

mapping and related geographical information products. This requires a complete renovation of the Egyptian Survey Authority's (ESA) early twentieth century, mapping capabilities through training, the improvement of existing systems and procedures, and the installation of modern systems. Extensive aerial photography - a basic input for the map production, crop and soil inventory program and the land information system - is nearly completed. A major renovation and equipping of ESA map production facilities is nearing completion. After a great deal of effort and considerable delay, the two basic state-of-the-art map production systems have been procured and are just now being installed and tested along with initial on-the-job training of ESA operators. Cadastral surveys and related mapping work are underway in two Governorates. Also, the land information system and crop and soil inventory work are well underway.

Miscellaneous - This component provides technical assistance, training, commodity and other assistance to monitor, evaluate and support project implementation and to address policy and other issues. It funds the Monitoring Office (MO) which serves as a technical secretariat for the IMS High Coordinating Committee (HCC) and its Chairman. The MO also provides liaison to all IMS components, oversees and tracks implementation and provides periodic reports on funding, commodities, participants and technical assistance. Start-up workshops financed under this component have served as an effective tool to get new activities started in the right direction and ongoing ones back on track. Evaluations of the overall project and of separate components have been made. Studies to support dialogue on cost recovery and water quality have been completed and follow-on work is on-going. Support is also on-going for a Ministry-wide Management Information System and Decision Support Unit to provided decision makers with timely and accurate information for management of the irrigation system.

ANNEX C

SURVEY AND MAPPING COMPONENT PIL NO. 138



CAIRO, EGYPT

June 10, 1993

Engineer Gamil Mahmoud
Chairman IMS Coordinating Committee
Ministry of Public Works and Water Resources
Imbaba

Subject: Irrigation Management Systems Project (263-0132),
Survey and Mapping Component, Project
Implementation Letter No. 138.

Dear Engineer Gamil:

With regard to the subject project, the purpose of this letter is to respond to the Egyptian Survey Authority's (ESA) request for an additional \$5.5 million to support the accomplishment of output targets by the Project Assistance Completion Date (PACD) of September 21, 1995 and reiterate USAID concerns regarding ESA's present and future sustainability.

Issues Affecting ESA Sustainability:

ESA's Ability to Sustain Survey and Mapping Capability - ESA's capability to apply, manage, and maintain the new technology it has acquired under the Survey and Mapping (S&M) component depends upon the Government of Egypt's long term commitment to provide adequate financial resources for its continued operation. In this context, USAID is strongly encouraged by MPWWR's recent direction to the ESA to include the full amount of the operating budget for the S&M component in its FY 93/94 budget and the MPWWR's pledge to budget approximately LE 3.5 million annually to cover the operation and maintenance costs associated with the S&M component. The GOE has also indicated that it will invest LE 10 million for the construction of new facilities for which plans have been completed and ground broken. ESA has also requested USAID assistance to develop a long range strategic plan to help address the issue of sustainability.

Level of GOE Contributions - An enormous gap exists between ESA's current contributions to recurrent operating costs and that which will be required to sustain the S&M activity after the project ends. During the first three years of the project, GOE contributions have been insufficient to meet previous agreements regarding the percentages of the local operating budgets to be funded by the GOE. For example, these agreements called for the GOE to fund at least 40 percent of the recurrent operating costs for IMS components during GOE FY 92/93. However, based on available expenditure data, ESA's

contribution to the FY 92/93 recurrent operation budget for the S&M component will be only about 10-12 percent of the annual expenditures with the balance funded by USAID under the project. Given this large gap and the significant increase in overall S&M component costs, the Mission is compelled to request that the GOE assume responsibility for a large share of these additional costs.

Structural Constraints - While USAID has been encouraged by MPWWR's intentions to provide funding for ESA's recurring local operating costs (as reflected in recent correspondence), the level and expenditure of ESA's financial resources are still governed by external authorities, regulations, and policies over which it has little influence. Accordingly, how the Ministry of Finance (MOF), the Ministry of Planning (MOP), and MPWWR actually implement the decision to fully provide and allot funding for ESA local operating costs needs to be clarified and resolved.

Condition for the Provision of the Additional \$4.6 Million in IMS Project Funding for the S&M Component: \$900,000 of ESA's request for an additional \$5.5 million in financing are for ESA local operating costs. Considering the foregoing issues regarding ESA sustainability and MPWWR's pledge to assume these same costs, USAID is conditioning \$4.6 million of additional funding for the component upon GOE agreement to assume these recurrent operating costs ESA requires for the continued implementation of the ESA component as of August 31, 1993. Accordingly, no provision for project funding after August 31, 1993 shall be authorized for ESA local operating costs. In order to render this conditionality more meaningfully, the definition of recurrent costs and specific steps for mutual agreement/monitoring are outlined below.

Definition of Recurrent Local Operating Costs: In principle, USAID considers recurrent local operating costs to be those costs ESA requires to employ and support staff and to operate and maintain the facilities and equipment needed to carry out project activities on a day to day, month to month and year to year basis and to continue these activities at the same level of intensity after the project ends. In essence, these include all local operating costs except those necessary to: (1) support the TA contractor, (2) purchase special equipment and other commodities, (3) employ local professional consultants as part of the technical assistance package, (4) provide in-country training, (5) carry out seminars and workshops, and (6) rent project vehicles pending the purchase of additional project vehicles.

Utilizing the proposed Survey and Mapping component local operating budget for GOE FY 93/94, the following table defines the types of activities and recurrent budget resources USAID concludes the GOE must provide to the Egyptian Survey Authority in order to sustain the S&M Component at its present output level after August 31, 1993. Anything less would jeopardize the success of the S&M Component. The table also illustrates the local operating budget costs that are considered non-recurrent and eligible for funding with USAID project funds.

2/11

Illustrative Budget for S&M Component for FY 93/94.
(Egyptian Pounds)

Budget Items	RECURRENT Budget/GOE	NONRECURRENT Budget/USAID	TOTAL Budget
Project Support Personnel	62,600	367,000	429,600
Local Prof. Consultants	0	20,200	20,200
Training (in-country)	0	42,000	42,000
Office Equip & Supplies	0	100,500	100,500
Prof. Equip & Supplies	97,200	24,000	121,200
Training Equip & Supplies	0	9,000	9,000
Consultant Office Prep.	36,000	28,000	64,000
Communication/Reports	0	157,400	157,400
Travel & Per Diem	844,500	18,000	862,500
Vehicle Rental	0	330,000	330,000
Vehicle Oper Expense	824,550	0	824,550
Equipt Maintenance	540,300	0	540,300
Total	2,405,150	1,096,100	3,501,250
July, August 1993	(400,858)	400,858	0
Total	2,004,292	1,496,958	3,501,250
Incentives & Social Ins.	228,000	0	228,000
Total	2,232,292	1,496,958	3,729,250

Steps and Evidence for Meeting the Conditionality: USAID recognizes that ESA and the MPWWR do not have total control over the provision of these funds, but depend on other entities, such as the Ministries of Planning and Finance, for approval of budgets and allocation of funds on an annual basis. We also understand that the imposition of this condition comes at a time in the GOE budget cycle that will require special measures to be taken to adjust previous budget requests for ESA and that this may require additional time. For this reason, evidence of full compliance with the conditionality will not likely be available before it is necessary to obligate the \$4.6 million in additional funds with the Ninth Project Agreement Amendment in order to make a portion of these funds available to either continue or close out the Geonex contract, depending on progress in meeting the

conditionality. Therefore, USAID will consider and act on evidence of the MPWWR's intent, the GOE's commitment, and progress for compliance with this conditionality as follows:

1. USAID will consider the signature of this PIL by the indicated ESA and MPWWR representatives as evidence of ESA's and the MPWWR's intent to comply with the conditionality and on that basis obligate the additional \$4.6 million with the Ninth Project Agreement Amendment to be signed within the next two months. The Project Agreement Amendment will include a provision which reflects the conditions stated in this PIL.

2. By July 18, 1993, documentary evidence must be submitted to USAID which demonstrates that the Ministry of Finance and Ministry of Planning intend to allocate all of the funds required to meet ESA's FY 93/94 recurrent costs requirements for the Survey and Mapping component and has allotted to ESA the portion of funds needed to cover these costs through the second quarter of FY 93/94 (ending December 31, 1993). Based on receipt of this information, USAID shall increase the commitment level of funding for the S&M component and the Geonex contract sufficient to fund these through December 1993.

3. Beginning December 31, 1993, ESA will be required to submit this budget allocation and expenditure information quarterly through June 1994. USAID will continually monitor GOE budget allocations to ESA and ESA expenditures to ensure the S&M component is provided adequate budget support to meet recurrent cost requirements. USAID will proceed to commit additional funds on a quarterly basis to the S&M component and the Geonex contract based upon acceptable submission of these reports and in accordance with implementation needs. ESA/MPWWR should therefore ensure that ESA's budget request for FY94/95 includes funding adequate to meet the entire year's requirements.

4. If the documentary evidence is not submitted in the time frames and of the substance described above, USAID shall cease to fund the S&M component and commit additional funding only if required to close out the activity in a rational and orderly manner.

It is important to understand that continued USAID funding for the entire S&M component rests on your agreement and GOE compliance with these funding conditions. USAID recognizes and appreciates the extensive efforts put forth by ESA and Geonex to implement this complex and difficult activity. Their accomplishments, particularly over the past year are to be commended. We look forward to attaining agreement regarding the above conditions and continuing our support to assist ESA with the successful completion of the S&M Component.

Sincerely,


Christopher D. Crowley
Acting Director

Engineer Gamil Mahmoud
Chairman, IMS High Coordinating Committee
Head of Planning Sector

Date: _____

Engineer Kamal El Sharabasy
Chairman, Egyptian Survey Authority

Date: _____

cc: Dr. Hassan Selim
Administrator
Department for Economic Cooperation with the U.S.
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Dr. Kamal El Ganzoury
Minister of Planning
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Cairo

7/8

ANNEX D

REVISED IMPLEMENTATION PLAN

**ANNEX D
IMPLEMENTATION PLAN**

(April 1, 1993)

I. IMS Project Overview

As an "umbrella" project, the Irrigation Management Systems (IMS) project is currently in its eleventh year of implementation and is currently comprised of ten separate components. The Project Paper has been amended twice with expansion of components and addition of new components. Eight technical assistance contracts, a grant to UN/FAO and three PASAs are in place to assist in project implementation which includes training and commodity procurement. Implementation is progressing well with greater emphasis now being placed on institutionalizing project developments within MPWWR and the integration of component outputs to realize their full potential for improved system operating efficiency. With each component in various stages of completion, remaining activities constitute implementation of the \$11 million LOP budget and closure on the open commitments. In this context, a general plan is presented below discussing how the remaining significant activities will be implemented.

II. Summary of Remaining Activities

As reflected in the attached implementation schedule, significant activities that will occur in the remaining life of project are segregated by component, activity, mechanism, responsibility, method of payment, and expected timeframe of occurrence. All annual work plans of the components must be approved by the Mission before project funds are made available to assure that the local operating budget is updated. The following summaries (by component) describe what key activities must occur to support the remaining planned activities:

Irrigation Improvement: The host country contract between MPWWR and Morrison-Knudsen will be modified to provide funding for additional training and the development of a revised training plan. Project Implementation Letters (PILs) will be issued to fund the procurement of commodities from several suppliers following host country contracting procedures. Host country contracts will be issued for the procurement of computers and automatic gates. Construction contracts will continue to be financed under the modified fixed amount reimbursement (MFAR) program. Construction contracts are reimbursed from the AID's dollar funded portion of the project and the Special Account funds. An interim evaluation is planned to assess progress, identify constraints, evaluate sustainability and assess cost effectiveness of IIP. USAID will directly contract the services for the evaluation through a delivery order to an existing indefinite quantity contract administered by AID/W Office of Procurement. An updated implementation and financial plan will be completed by June 1994.

Preventive Maintenance: A host country contract between MPWWR and Morrison Knudson will require modification to develop a maintenance handbook and training module. The contractor will complete the development of a computerized irrigation facility inventory system and train about 20 participants in the utilization of a computerized spare parts inventory control system. The contractor will also provide assistance in the repair, maintenance, and utilization of equipment for improve maintenance performance. A PIL will be issued to fully fund and approve the contract amendment.

Main Systems Management: The host country contract between MPWWR and Harza Engineering Co. will be modified to increase the level of effort and fully fund the technical assistance contract through the PACD. The contractor will oversee the installation and testing of the Voice and Data Communication System and the training of directorate staff. A revised training plan will be completed by the contractor to include training of directorate staff in the operations and maintenance of the telemetry and voice and data communication system. The contractor will assist the MPWWR to integrate project activities into existing ministry management structure to ensure long term sustainability. USAID will amend the Bank Letter of Commitment for commodities to fully fund a host country contract between MPWWR and EG&G Special Projects, the supplier for the Voice and Data Communication System.

Planning Studies and Models: A grant amendment will be issued to UN/FAO to expand the MPWWR capability to forecast Nile River flows into Lake Naser. Capability already established for the Blue Nile Basin will be expanded to the White Nile Basin. Under the PASA with US Bureau of Reclamation, three US Universities will develop, test, and undertake case studies for the models need for long-term Nile River Basin planning and conjunctive use of reservoir and ground water in Egypt. Under a PASA subcontract with Utah State University, the Planning Distribution Model will be field tested and provide recommendations for the use of the model in planning and operation.

Professional Development: Project activities, including a host country between MPWWR and Sheladia, are scheduled to be completed in December 1993, which corresponds with the MPWWR's scheduled completion of the construction of the National Irrigation Training Institute (NITI). The project will continue to provide local operating costs for partial support of the NITI in-country training activities through June 1995.

Water Research Center: A host country contract between MPWWR and CID will be modified to reduce the level of effort in order to provide funding for research priorities under other mechanisms. Development of strategic water policy research program and water quality monitoring/analysis/dissemination programs will be implemented through a buy-in with EPAT and PRIDE respectively.

Survey and Mapping: The host country contract modification between the Egyptian Survey Authority (ESA) and Geonex Corp. was approved

through June 30, 1995. However, a PIL was sent to MPWWR clarifying the steps required for meeting the conditionality which are tied to USAID's funding of the contract. In compliance with conditionality specified for the LOP increase, the contract will be incrementally funded by increasing the Bank L/Comm funding level on a quarterly basis. Failure to comply with the conditionality shall result in an immediate phase out of the technical assistance activity. The contractor through a subcontract will develop a strategic business plan to reorganize ESA to meet increasing demands for map products. The contractor will revise the computer plan to include additional computers for the cadastral field program. A host country contract will be awarded to provide printing supplies. Funding for the commodity procurement of computers and printing supplies will be provided through an amended Bank Letter of Commitment. The contractor will use a series of team building workshop to assist ESA to integrate contractor mapping activities.

Miscellaneous: Through a host country contract, the contractor will develop a ministry-wide management information system. A buy-in with ISPAN will be executed to complete cost recovery study no. 3. A PASA agreement will be amended to provide engineering services to the Ministry. A PIL will be issued to continue support for the engineering services of a foreign service national.

Activity	Responsible Party	Mechanism	Method of Payment	GOE FY									
				92/93	93/94				94/95				95/96
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1

IRRIGATION IMPROVEMENT PROJECT

Revise Training Plan	IIP/MKE	HCC MOD	L/COM		xxxxxx										
MKE/LBII Contract Amendment	IIP/USAID	HCC MOD	L/COM		xxxxxx										
IIP Interim Evaluation	IIP/USAID	ICC	DIRECT		xxxxxx										
Automatic Gate Procurement	IIP/USAID/MKE	HCC MOD	BANK L/COM		xxxxxx			xxxxxx							
Computer Procurement	IIP/USAID/MKE	HCC MOD	BANK L/COM			xxxxxx									
Annual Work Plan / LOB	IIP/MKE	PL	COST REIMB					xxxxxx							
Construction Activities Implemented	IIP	PL	MFAR	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx

PREVENTIVE MAINTENANCE PROJECT

Maintenance Handbook	MKE	HCC MOD	L/COM		xxxxxx										
Training in MOMS and SPIC	MKE	HCC MOD	L/COM		xxxxxx	xxxxxx									
Equipmt Utilization Program Implemented	MKE	HCC MOD	L/COM		xxxxxx	xxxxxx	xxxxxx	xxxxxx							

MAIN SYSTEM MANAGEMENT PROJECT

Increase Funding for TA Contract	GOE/USAID	HCC MOD	L/COM	xxxxxx											
Revise Training Plan	GOE	HCC MOD	L/COM		xxxxxx										
Test VDCS in El Minya	HARZA	HCC MOD	BANK L/COM		xxxxxx										
Increase Funding for Commodities	GOE/USAID	HCC MOD	BANK L/COM			xxxxxx									
Increase Funding for LOB	GOE/USAID	PL	COST REIMB		xxxxxx				xxxxxx						

PLANNING STUDIES and MODELS

Planning Dist. Model, Testing/Application	BUREC	PASA Amend	COST REIMB	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	
Irrig. Command Model Field Testing	BUREC	PASA Amend	COST REIMB	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx							
Monitoring, Forecasting & Simulation	FAO	GRANT AMEND	LOC		xxxxxx										

PROFESSIONAL DEVELOPMENT PROJECT

FY 93/94 LOB Approval	USAID/MPWWR	PL	COST REIMB		xxxxxx										
Review/Extend TA Contract	Sheladia/PD/USAID	HCC MOD	L/COM		xxxxxx										
NITI Construction Completed	MPWWR	PL	MFAR		xxxxxx	xxxxxx	xxxxxx								
FY 94/95 LOB Approval	USAID/MPWWR	PL	COST REIMB					xxxxxx							

Activity	Responsible Party	Mechanism	Method of Payment	GOE FY									
				92/93	93/94				94/95				95/96
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1

WATER RESEARCH CENTER

FY 93/94 LOB Approval	USAID/MPWWR	PL	COST REMB		xxxxxx									
EPAT Central Buy-in Contract	USAID	BUY-IN	COST REMB		xxxxxx									
WRC/PRIDE Workshop	WRC/USAID/PRIDE	BUY-IN	COST REMB		xxxxxx									
Amend CID Contract	CID/WRC/USAID	HCC MOD	L/COM		xxxxxx									
PRIDE Central Buy-in Contract	WRC/USAID/PRIDE	BUY-IN	COST REMB		xxxxxx									
FY 94/95 Research Budget Approval	WRC/USAID	PL	COST REMB					xxxxxx						

PROJECT PREPARATION DEPARTMENT

ANNUAL WORK PLAN	GOE/USAID	PL	COST REMB	xxxxxx				xxxxxx					xxxxxx	
LOB Approval	GOE/USAID	PL	COST REMB	xxxxxx				xxxxxx						

SURVEY and MAPPING PROJECT

HC conditionality PIL approval	GOE/USAID	PL	COST REMB		xxxxxx	xxxxxx	xxxxxx	xxxxxx						
Strategic Plan Implemented	Geonex	HCC SUBCONT	L/COM			xxxxxx								
Revised Computer Plan	GOE/ESA	HCC	BANK L/COM			xxxxxx								
Vehicle Procurement	GOE/ESA	HCC	BANK L/COM					xxxxxx						
Printing Supplies Procurement	GOE/ESA	HCC	BANK L/COM			xxxxxx								
Increase Funding for LOB.	GOE	PL	COST REMB		xxxxxx									

42

Activity	Responsible Party	Mechanism	Method of Payment	GOE FY									
				92/93	93/94				94/95				95/96
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1

MISCELLANEOUS COMPONENT

MO ANNUAL WORK PLAN	GOE/USAID	PIL	COST REMB	xxxxxx				xxxxxx				xxxxxx	
MO LOB	GOE/USAID	PIL	COST REMB		xxxxxx				xxxxxx				xxxxxx
PASA Employee	USAID	PASA	COST REMB	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
FSN PSC	USAID	DIRECT	COST REMB	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
ISPAN CR Study#3	USAID	BUY IN	COST REMB			xxxxxx	xxxxxx	xxxxxx					
PRIDE Report (WRC)	GOE/USAID	BUY IN	COST REMB		xxxxxx								
EPAT Report (WRC)	GOE/USAID	BUY IN	COST REMB		xxxxxx	xxxxxx							
IMS EOP Evaluation	USAID	BUY IN	COST REMB									xxxxxx	
MIS (Including LOB & Commodities)	MPWWR	HCC	BANK L/COM	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx

MPWWR - MINISTRY OF PUBLIC WORKS AND WATER RESOURCES

MKE/LB - MORRISON KNUDSEN/LOUIS BERGER

LOB - LOCAL OPERATING BUDGET

MOMS & SPIC - MINISTRY OPERATIONS AND MAINTENANCE SYSTEM & SPARE PARTS INVENTORY CONTROL

VDSC - VOICE AND DATA COMMUNICATION SYSTEM

NITI - NATIONAL IRRIGATION TRAINING INSTITUTE

CR - COST RECOVERY

MIS - MANAGEMENT INFORMATION SYSTEM

HCC - HOST COUNTRY CONTRACT

PIL - PROJECT IMPLEMENTATION LETTER

L/COM - LETTER OF COMMITMENT

42

ANNEX E

REVISED FINANCIAL PLAN

Annex E

Financial Plan

USAID Contribution

By Action Memorandum dated March 1993, the Mission approved an increase of \$11 million in the planned life of project funding for the IMS Project. This increase results in a new total planned LOP budget of \$336 million. The revised budget by IMS component is shown in Table 1, below.

**TABLE 1: REVISED LOP BUDGET
(\$ MILLIONS)**

IMS Component	ProAg (Amend 8)	Revised Budget	Change
IIP	67.00	63.0	(4.00)
SR	75.80	75.8	0.00
PM	29.00	30.5	1.50
MSM	43.60	48.0	4.40
PSM	15.00	15.0	0.00
PD	14.00	14.5	0.50
WRC	29.85	32.9	3.05
PPD	11.60	11.6	0.00
S&M	32.50	37.1	4.60
MISC	6.65	7.6	0.95
TOTAL	325.0	336.0	11.00

Table 2 provides actual expenditures by IMS component through June 1993 along with projected expenditures through the last quarter of FY 1993, FY 1994 and FY 1995.

IMS Project obligations to date total \$313 million. Current earmarks stand at \$300 million, commitments at \$271 million and expenditures at \$236 million. The planned FY 1993 obligation is \$23 million. Obligations by IMS component to date along with the planned FY 1993 and FY 1994 obligations are shown in Table No. 3.

Table No. 4 is in the format of the expenditure table to be used in the Ninth Amendment of the Grant Agreement and presents current and planned expenditures through the PACD in foreign exchange and local currency. The methods of implementation and financing for the inputs under each component remain the same as currently being used under the project; namely (1) technical assistance funded under direct letters of commitment and through

assistance funded under direct letters of commitment and through by-ins with centrally funded projects, (2) commodity procurement utilizing TA contractors as PSAs with funding under bank letters of commitment and (3) funding of USAID's share of operating costs through already established PILs.

Special Account Funding (SWAP)

Expenditures from the FY 1991 \$15 million SWAP are outlined in Table 2. The \$5 million set aside for reimbursement of construction costs under the Structural Replacement has been fully disbursed. The \$10 million allocation to the Irrigation Improvement Project is being utilized to fund USAID's share of irrigation improvement construction costs, demonstration pump procurement and a pump loan credit guarantee program. These special account funds will also be used to fund a limited demonstration land leveling program. PILs establishing reimbursement procedures for the construction, demonstration pump and credit guarantee programs are in place. A PIL will be developed to define the land leveling program.

Host Country Contribution

The planned host country contribution is shown in Table 5. The expenditures through GOE FY 91-92 are actual reported expenditures from the inception of the IMS Project through GOE FY 91-92. Estimated expenditure are shown for the following years. The bulk of the GOE cash contribution consists of the GOE share of construction costs under structural replacement and irrigation improvement, the construction of facilities fully funded by the GOE and Special Account contributions in the form of funding of the National Irrigation Training Institute (NITI), Egypt Air tickets for training participants and incentives for project staff. The in-kind contribution consists of costs associated with project related operations, including: staff, offices, warehouses and other facilities, and operating costs.

Project operating costs are being provided by both the GOE and USAID. In 1990 agreement was reached on a plan to gradually phase out USAID's contribution to recurrent operating costs by the end of the project. During the current GOE fiscal year, FY 92-93, the GOE's share of these costs is 40%. The GOE share will increase to 55% in GOE FY 93-94, 70% in GOE FY 94-95 and then 100% beginning with GOE FY 95-96. The conditionality associated with approval of the \$11 million increase, namely the requirement that the GOE fund all Surveying and Mapping recurrent operating costs as of September 1, 1993, and all Water Research Center operating costs as of July 1, 1994, results in an increase in the planned GOE contribution to the IMS Project. This increase, LE 1.132 million in GOE FY 93-94 and LE 2.433 million is reflected in Table 5. The increase of the total planned GOE contribution from LE 421.149 million to LE 424.714 million will be included in the Ninth Amendment to the IMS Grant Agreement.

Audits

During the remaining life of this project, non-federal recipient audits will be performed to determine whether recipients have properly accounted for and used AID funds. To date, all commitments over \$25,000 have been included in the Mission's audit universe. Non-federal audits of local currency expenditures under the MSM TA contract (Harza) and the IIP TA contract (MKE/LBII) have been completed with all recommendations resolved. Two other non-federal audits of TA contractor local currency expenditures, PPD (Sheladia) and S&M (Geonex), have been completed and the process of resolving recommendations is underway. The IMS Project's three largest component operating budgets, IIP, PM and S&M, were selected for audit this year. These audits were initiated in April and are expected to be completed in August 1993. The audit schedule calls for audits of all significant operating budget PILs in subsequent years.

Table 2 - Projected Expenditures

**Projected Expenditures - USAID Contributions
(\$1,000)**

IMS Component	Thru June 93	4 th QTR. FY 93	FY 94	FY 95	Total
Irrigation Improvement Project	33,182	3,680	16,251	9,887	63,000
Structural Replacement	75,613	187	0	0	75,800
Preventive Maintenance	25,312	2,677	2,157	354	30,500
Main Systems Management	20,387	6,313	15,374	5,926	48,000
Planning Studies & Models	8,104	767	3,039	3,090	15,000
Professional Development	9,816	2,390	1,929	365	14,500
Water Research Center	23,043	3,072	6,429	356	32,900
Project Preparation Dept.	10,941	550	59	50	11,600
Survey & Mapping	26,072	3,708	5,476	1,844	37,100
Miscellaneous	3,516	598	2,180	1,306	7,600
Total	235,986	23,942	52,894	23,178	336,000

**Projected Expenditures - Special Account
(\$1,000)**

IMS Component	Thru June 93	4 th QTR FY 93	FY 94	Fy 95	Total
Irrigation Improvement Project	4,425	1,860	3,649	66	10,000
Structural Replacement	5,000				5,000
Total	9,425	1,860	3,649	66	15,000

**IRRIGATION MANAGEMENT SYSTEMS PROJECT
USAID PROJECT NO. 263-0132**

TABLE # 3

OBLIGATION SCHEDULE (\$1,000)

COMPONENT	Obligations thru Grant Agreement Amendment # 8	Planned Fiscal Year 1993 Obligation	Subtotal Including Fiscal Year 1993 Obligation	Total Planned Obligation
IRRIGATION IMPROVEMENT PROJECT	55,100	7,900	63,000	63,000
STRUCTURE REPLACEMENT	75,800	0	75,800	75,800
PREVENTIVE MAINTENANCE	29,000	1,500	30,500	30,500
MAIN SYSTEMS MANAGEMENT	43,600	4,400	48,000	48,000
PLANNING STUDIES AND MODELS	15,000	0	15,000	15,000
PROFESSIONAL DEVELOPMENT	14,000	500	14,500	14,500
WATER RESEARCH CENTER	29,850	3,050	32,900	32,900
PROJECT PREPARATION DEPARTMENT	11,600	0	11,600	11,600
SURVEY AND MAPPING	32,500	4,600	37,100	37,100
MISCELLANEOUS	6,550	1,050	7,600	7,600
TOTAL	313,000	23,000	336,000	336,000

IRRIGATION MANAGEMENT SYSTEM PROJECT
USAID PROJECT NO. 263-0132

GRANT AGREEMENT AMENDMENT No. 9
PROJECTED USAID EXPENDITURES BY COMPONENT - (\$1,000)

COMPONENT	Thru June 93		4th Qtr FY 93		FY 94		FY 95		TOTAL		GRAND
	\$FX	\$LC	\$FX	\$LC	\$FX	\$LC	\$FX	\$LC	\$FX	\$LC	TOTALS
IRRIGATION IMPROVEMENT PROJECT	32,152	1,030	1,943	1,737	8,458	7,793	2,640	7,247	45,193	17,807	63,000
STRUCTURE REPLACEMENT	8,995	66,618		187					8,995	66,805	75,800
PREVENTIVE MAINTENANCE	23,163	2,149	2,393	284	1,272	885		354	26,820	3,672	30,500
MAIN SYSTEMS MANAGEMENT	18,671	1,716	6,082	231	14,939	435	5,630	296	45,322	2,678	48,000
PLANNING STUDIES AND MODELS	7,666	438	740	27	2,939	100	3,036	54	14,381	619	15,000
PROFESSIONAL DEVELOPMENT	7,491	2,325	2,267	123	1,603	326		365	11,361	3,139	14,500
WATER RESEARCH CENTER	21,753	1,290	2,600	472	5,600	829	300	56	30,253	2,647	32,900
PROJECT PREPARATION DEPARTMENT	9,120	1,811	505	45		59		50	9,633	1,967	11,600
SURVEY AND MAPPING	23,858	2,214	3,417	291	5,097	378	1,845		34,217	2,883	37,100
MISCELLANEOUS	2,787	729	488	110	2,041	140	1,150	155	6,466	1,134	7,600
TOTAL	155,664	80,322	20,435	3,507	41,949	10,945	14,601	8,577	232,649	103,351	336,000
COMBINED ANNUAL TOTALS		235,986		23,942		52,894		23,178			

TABLE 5

**IRRIGATION MANAGEMENT SYSTEM
USAID PROJECT NO. 263-0132
GRANT AGREEMENT AMENDMENT NO. 9
GOE CONTRIBUTION
(L.E. 1,000)**

GOE Fiscal Year	Cash Contribution	In-Kind Contribution	Total Contribution
Thru			
1991-92	204,914	86,941	291,855
1992-93	35,948	10,786	46,734
1993-94	28,200	10,827	39,027
1994-95	17,000	13,228	30,228
1995-96	15,000	1,870	16,870
TOTAL	301,062	123,652	424,714

Note: Cash contribution includes the LE equivalent of the \$15 million FY91 allocation from the Special Account.

ANNEX F

REVISED LOGFRAME

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK

Project Title And Number: Irrigation Management Systems (IMS) Project 263-0132

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>To increase production and productivity in the agricultural sector.</p>	<p>Measures of Goal Achievement:</p> <ul style="list-style-type: none"> o Minimum of 4% average annual increase in agricultural productivity o Minimum of 3% average annual increase in agricultural production. 	<ul style="list-style-type: none"> o Ag Production Growth Rate from Official Ministry of Agriculture and Land Reclamation (MALR) Statistics. o Economic yield per acre and agricultural GDP per farm worker (MALR statistics). 	<p>Assumptions for achieving goal targets:</p> <ul style="list-style-type: none"> o Factors affecting agricultural productivity other than water stay the same or improve o Agricultural policies improved to free up production and markets.
<p>Project Purpose:</p> <p>To improve the system-wide water use efficiency for irrigation.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <ul style="list-style-type: none"> o Irrigation efficiency system-wide will increase by 3% over the Life of Project. (Defined as total value of agricultural production divided by total volume of irrigation water used). o MPWWR utilizing a rational, interdisciplinary irrigation management system in the planning, design, operation and maintenance of Egypt's water distribution network. 	<ul style="list-style-type: none"> o Crop production and area records from MALR. o Estimation of total irrigation water used by summing (1) calculations of crop evapotranspiration, (2) measurement of drainage water lost to the sea and (3) calculations/estimates of evaporation from free water surfaces. o Evaluations. o Contractor report. o MPWWR system operation documents. o MPWWR organization chart. o MPWWR MIS manuals application and utilization. o MPWWR budget requests. 	<p>Assumptions for achieving purpose:</p> <ul style="list-style-type: none"> o Data will be sufficiently accurate and consistent for crop production areas and drainage water lost to the sea. o Farmers cooperate in the appropriate use and maintenance of the irrigation systems o MPWWR integrates IMS organizational units and activities into MPWWR o Irrigation cost recovery program developed and adopted by GUC for IMS organizational units.

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5/11

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Outputs:</p> <p>1. MPWWR's capacity strengthened in irrigation system improvement planning, design, construction, operation and maintenance.</p> <p>2. Improve MPWWR capabilities in analyzing project proposals and developing feasibility studies according to international standards.</p> <p>3. Water User Associations formed and independently operating and maintaining mesqa level irrigation facilities.</p> <p>4. Improved management capabilities of MPWWR to carry out structural replacement.</p> <p>5. MPWWR's irrigation maintenance process strengthened.</p> <p>6. A water measuring, data collection and communication network established to allow decision makers to access water discharge data.</p> <p>7. A Nile Forecast Center established to monitor and forecast Nile River flows.</p>	<p>Magnitude of outputs:</p> <ul style="list-style-type: none"> o 17 Feasibility Studies (394,000 feddans) completed. o 75,000 feddans improved and operational. o Continuous flow provided in the 75,000 feddan improved area. o Computer models tested for planning and operational improvements. o MPWWR employees conduct 32 pre-feasibility and special studies. o 1200 Water User Associations registered with MPWWR making operating and maintenance decisions. o 19,200 Irrigation Structures replaced or rehabilitated. o 5 Large irrigation structures replaced. o Construction control manual developed and utilized. o Contracting administration procedures developed and utilized. o A monitoring and reporting system developed for the structural replacement program. o Maintenance manual prepared with standards, responsibilities, and procedures. o Systems for management of equipment, spare parts, and facility maintenance utilized. o 200 meteorbursts and 600 voice data collection sites, 2 master stations and 24 submaster stations installed in the Irrigation Directorates. o A primary data user system for satellite monitoring of the Nile Basin in place. o A meteorological data distribution system operational for receiving meteorological data and weather analysis information. o Work stations and staff for data processing, forecasting and simulation of hydrological and meteorological processes in the Nile Basin in place. o A comprehensive hydro-climatic data base and file retrieval system in place. 	<ul style="list-style-type: none"> o Review of studies: contractor reports. o Contractor reports, review of vouchers, field trip reports. o Contractor reports, field trips. o User manuals for software, case study reports, contractor reports. o Completed studies, progress reports, and annual workplans. o MPWWR's WUA registration records. o WUA operating data collected by the Irrigation Advisory Service. o MPWWR Structural Replacement records. o Completed construction control manual and site inspections. o Completed contract administration procedures manual and related implementation documents. o Completed monitoring and reporting systems manual. o Completed manual. o Quarterly equipment utilization reports. o MPWWR organizational chart and job descriptions. o Data from all 800 sites received daily at the Directorate and national level. o Center organizational chart, equipment inventory list, and daily forecast reports to senior decision makers. o Site visits, contractor reports and MPWWR personnel records. 	<p>Assumptions for achieving outputs:</p> <ul style="list-style-type: none"> o Irrigation Department accepts the changes in canal operation proposed by IIP. o Legislation enacted to recover mesqa improvement costs. o PPD retains trained staff and its function is integrated into MPWWR's overall planning process. o Legislation approving Water User Associations is adopted. o Project organizations will become permanent MPWWR units. o Equipment will be installed on time and decision makers will avail themselves of the information. o Skilled staff will be made available.

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>8. Institutionalization of a process for identifying research needs and setting research priorities; and institutional strengthening for conducting priority research and disseminating research results.</p>	<ul style="list-style-type: none"> o Number of research activities addressing priority MPWWR problems will increase by 15% over the Life of Project. o A Documentation and Management Information System established o A Strategic Research Unit staffed and equipped to support integrated resource management at MPWWR for addressing long-term strategic policy issues. o A system-wide Water Quality Monitoring and Data Management and Dissemination unit established and operational. o 31 PhD and 43 MSC participants completed degree training and return to assume key research positions. o 157 person months of technical training completed and 50 person months of management training completed to strengthen WRC's research and management capabilities 	<ul style="list-style-type: none"> o Research unit reports or research undertaken. o TA contractor reports. o Developed and installed MIS. o Five Year Work Plan and organization charts. o Organizational and personnel charts. o Returnee reports. o Training unit reports. 	<ul style="list-style-type: none"> o MPWWR retains trained and qualified staff. o WRC assumes local operating costs by June 30, 1994.
<p>9. The National Irrigation Training Institute constructed, equipped and operational.</p>	<ul style="list-style-type: none"> o A comprehensive policy manual reflecting the entire NITI operations in place. o Promotional materials developed and completed. o 80 courses developed and offered annually. 	<ul style="list-style-type: none"> o Completed policy manual; o Completed promotional materials; o Course curriculum and NITI participant registration records. 	<ul style="list-style-type: none"> o NITI retains trained staff.
<p>10. The Egyptian Survey Authority modernized and operational.</p>	<ul style="list-style-type: none"> o Production department equipped with state-of-the-art digital survey and mapping equipment. o Summer and winter soil and crop maps for the Delta. o Cadastral Maps w/ 2 meter contour overlays Topographic Maps: 50,000 sq km @ 1:50,000 Orthophoto maps: 35,000 sq km @ 1:10,000 Town/village maps: 135 sq km @ 1:1,000 o Pilot Land Information System in place. 	<ul style="list-style-type: none"> o Production department equipment inventory list and contractor reports. o Contractor reports. o Site inspection. 	<ul style="list-style-type: none"> o ESA assumes local operating costs by August 31, 1993.

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55

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Inputs: AID: Technical assistance advisors and consultants.</p> <p>Participant training abroad and in-country training</p> <p>Equipment, supplies, vehicles to support field activities.</p> <p>Dollar financing of local costs of the SR and IIP construction programs.</p> <p>GDE: MPWWR staff time, salaries, per diem, recurrent local operating costs, incentives, office space, laboratory, furniture and other local costs.</p>	<p>Implementation Target (Type and Quantity)</p> <ul style="list-style-type: none"> o \$131.03 million o Off Shore long term: 125 o Off Shore short term: 950 o In-country training: 9,000 o \$85.48 Million. o \$71.4 million. o \$127 million. 	<ul style="list-style-type: none"> o Project accounts. o AID and contractor records. o Evaluation reports. 	<p>Assumptions for providing inputs:</p> <ul style="list-style-type: none"> o USAID funding available as planned. o MPWWR satisfies USAID conditionality.

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516

ANNEX G

IEE CATEGORICAL EXCLUSION



UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

CAIRO OFFICE

RECORD OF CATEGORICAL EXCLUSION FROM USAID ENVIRONMENTAL PROCEDURES

Project Location: Egypt

Project Title/ID: Irrigation Management System Amendment # 1 (263-0132.1)

Funding (Fiscal Year and Amount): FY81 - FY95 \$11 million

Prepared By:

Date:

Anne E. Patterson, Environmental Advisor, NE/DR/ENR

July 1, 1993

Environmental Action Recommended: Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)

Associate Mission Director's Concurrence:

Date:

John Foti, Acting AD/AGR

July 1, 93

Decision of Environmental Coordinator, Bureau for the Near East:

Approved: Herbert S. Jackson

Date: 7/1/93

Clearances: GWhaley, Mission Env. Officer; DSmith, AGR/ILD; PSullivan, LEG

GPW Date: 7/1/93; DTS Date: 7/1/93; PWS Date: 7/1/93

- 2 -

RECORD OF CATEGORICAL EXCLUSION
FROM USAID ENVIRONMENTAL PROCEDURES

1. Project Location: Egypt
2. Project Title/ID: Irrigation Management System Amendment # 1
(263-0132.1)
3. Funding (Fiscal Year and Amount): FY81 - FY95 \$11 million
4. Prepared By: Date:
Anne E. Patterson July 1, 1993
Anne E. Patterson
Environmental Advisor, NE/DR/ENR
5. Action Recommended: Categorical Exclusion as per 22 CFR
216.2(c)(2)(i)

6. Discussion of Major Environmental Relationships of Project
Background

The Irrigation Management Project (IMP) is 15 year, \$325 million project designed to strengthen the capability and capacity of the Ministry of Public Works and Water Resources (MPWWR) to plan, design, operate, and maintain the water distribution system in Egypt. The project amendment facilitates a completion of the ongoing activities which have proven to consume more time and resources than originally planned at the time of the last amendment. Additionally, some funds will be used to strengthen the institutional capacity of MPWWR to maintain and operate the infrastructure (drainage canals, weirs, and dams) which have been funded by this project.

Discussion

An Environmental Assessment for IMP was approved by the ANE Bureau Environmental Coordinator on Jan 14, 1988 (STATE 010594). The project amendment does not add any new activities with the exception of some technical assistance for MPWWR. This proposed action will not have an effect on the natural or physical environment and is entirely within one of the categories listed in paragraph (c)2, "Categorical Exclusions" of 22 CFR Section 216.2, "Applicability of Procedures". Pursuant to 22 CFR 216.2 (c)(2)(i), the proposed project amendment is categorically excluded from further environmental review. Neither an initial environmental examination or an environmental assessment is required for this action.

69