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AUDIT OF  
THE IRRIGATION SYSTEMS MANAGEMENT  
PROJECT IN PAKISTAN  
PROJECT NO. 391-0467

AUDIT REPORT NO. 5-388-83-9  
SEPTEMBER 19, 1988

AGENCY FOR INTERNATIONAL DEVELOPMENT  
OFFICE OF THE REGIONAL INSPECTOR GENERAL FOR AUDIT  
- Singapore -

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September 19, 1988

MEMORANDUM FOR Mr. James A. Norris  
Director, USAID/Pakistan  
FROM: *Richard E. Derrick*  
Mr. Richard E. Derrick, RIG/A/Singapore  
SUBJECT: Audit of the Irrigation Systems Management  
Project in Pakistan, Project No. 391-0467  
(Audit Report No. 5-388-88-9)

The Office of the Regional Inspector General for Audit/Singapore has completed its audit of the USAID/Pakistan Irrigation Systems Management Project No. 391-0467. Five copies of the audit are enclosed for your action.

The draft audit report was submitted to you for comment and your comments are attached to the report. Recommendation No. 2 is considered closed and requires no further action. Recommendations Nos. 1, 3, 4, 5, 6, 7 and 8 are considered resolved and will not be closed until completion of planned or promised actions. Please advise me within 30 days of any additional actions taken to implement the resolved recommendations.

I appreciate the cooperation and courtesy extended to my staff during the audit.

## EXECUTIVE SUMMARY

The goal of the Irrigation Systems Management project was to increase agricultural production and farmer income by improving the management of irrigation water resources. The goal was to be achieved by rehabilitating irrigation canals and drains, by improving the Government of Pakistan water resources agencies, by upgrading Pakistani research institutions, and by improving water management to match water supplies with crop requirements in order to increase crop production. The Irrigation Systems Management project (No. 391-0467) was authorized on May 5, 1983 at a funding level of \$65 million. The project authorization was amended on February 19, 1985 to increase funding to \$90 million.

The Office of the Regional Inspector General for Audit/Singapore made a program results audit of the Irrigation Systems Management project in Pakistan. The audit was made to review A.I.D.'s assistance to the Government of Pakistan for the rehabilitation of irrigation canals and drains and for institutional improvement of Pakistan agencies involved in water resources. The specific audit objectives were to assess the project's progress and effectiveness, to evaluate USAID/Pakistan's management of the project, and to review compliance with A.I.D. policies and regulations.

The Irrigation Systems Management project has progressed toward its basic objective of upgrading Pakistan's irrigation systems. However, the implementation of the rehabilitation program for irrigation canals and drains needed to be improved. In general, USAID needed to do a better job of managing the project. In implementing the project, the Mission generally complied with A.I.D.'s policies and regulations with the exception of certain Handbook provisions. The Government of Pakistan did not comply with project agreement terms regarding counterparts, evaluation, and water charges.

The Irrigation Systems Management project completed the rehabilitation of 59 irrigation canal and drain subprojects by December 31, 1987. A.I.D. reimbursed the Government of Pakistan approximately \$5.7 million. At the same date, the Government had completed 131 watercourse subprojects and had requested USAID/Pakistan to reimburse \$1.1 million for their cost. In addition, progress was made in improving the planning, design and water management capabilities of the Government.

Despite the progress made in the improvement of Pakistan's nationwide irrigation system, the rehabilitation program for

the irrigation facilities is behind schedule. Also, technical assistance should be put to better use and financial management of operation and maintenance should be enhanced. In addition, the project lacked a monitoring and evaluation system and training funds were not effectively used.

Project implementation as outlined in the project paper required: (a) the preparation of a new canal design to minimize maintenance requirements; (b) the reimbursement for completed rehabilitation work using the Fixed Amount Reimbursement procedures; (c) the institutional development of the Provincial Irrigation Departments including their design capabilities; and (d) the use of targets for measuring project progress. USAID/Pakistan's implementation of the rehabilitation program for irrigation canals and drains was adversely affected by inadequate management. In addition, USAID/Pakistan was unable to measure progress towards achievement of the rehabilitation program's original targets. Project implementation was hampered by the limited acceptance by the Province of the Punjab's Irrigation Department of the newly-prepared canal design, by the application of Fixed Amount Reimbursement procedures, and by the lack of sufficient qualified design staff in the Provincial Irrigation Departments. Also, USAID/Pakistan was unable to measure the project's success because of the lack of targets in the original project paper. The problems related to implementation of the rehabilitation program have resulted in a significant delay in project accomplishments and left USAID/Pakistan unable to judge the program's success. The report recommends that USAID/Pakistan review current management of the rehabilitation program to initiate changes to ensure its expeditious completion.

The Irrigation Systems Management project paper amendment, dated January 5, 1985, specified that over 1,000 on-farm water management programs be completed by 1990 at a cost of \$19.4 million. However, progress on the on-farm improvement program was slow. The certification by consulting engineers through March 31, 1988 showed only 330 rehabilitated watercourses for A.I.D. reimbursement. Reasons for the delayed watercourse rehabilitation program were poor design work, poor construction and a reluctance on the part of farmers to complete the on-farm works. The delayed watercourse program will in turn delay benefits to the project beneficiaries, the rural farmers. The report recommends that the on-farm improvement program be reviewed in order to ensure its successful conclusion.

USAID/Pakistan provided technical assistance to the Government of Pakistan through A.I.D.-financed contractors

at a cost of \$29 million. The contractors' scopes of work required them to (a) develop a new canal design; (b) prepare operation and maintenance manuals for irrigation canals; (c) provide oversight of A.I.D.-financed research at various Government of Pakistan research institutions; and (d) upgrade the capacity of subproject management offices of the project's Command Water Management component. The work performed by the technical assistance contractors had limited success because a contractor developed a canal design which received limited acceptance and operation and maintenance manuals had not been finalized. Also, a contractor was poorly managing a research program, and another contractor was operating almost without counterparts. As a result, implementation of project activities such as canal rehabilitation, operation and maintenance of canals, development of water resources research activities and the command water management component of the project was impeded. The report recommends that USAID/Pakistan initiate changes to make effective use of the technical assistance.

A covenant to the project agreement required that each province raise its water charges to consumers in order to cover an increasing percentage of the cost of operation and maintenance of the irrigation systems. Increased water charges were needed to ensure that the full cost of operation and maintenance be recovered. Another covenant required an annual review of operation and maintenance funds to ensure that revenues through water charges were matching expenditures. But, water revenues were not significantly increased in the last five years because the Government of Pakistan was unwilling to increase the farmers' costs. Therefore, the Government increased subsidies for operation and maintenance leading to an increased gap between revenues and expenditures. The provinces had not adequately reviewed operation and maintenance budgets to ensure that revenues were matching expenditures because of constraints in generating revenues. By neglecting the cost recovery objectives, the provinces will be dependent on the Government to meet any shortages in operation and maintenance funds. As in the past, lack of such funds will lead to deferred maintenance and deteriorating irrigation infrastructure, and A.I.D. funds for rehabilitation will be wasted. The report recommends that USAID/Pakistan review with the Provincial Irrigation Departments current levels of operation and maintenance funds.

The Irrigation Systems Management project paper required that a project evaluation program be established. The program was to collect and evaluate data to determine the sustainability of the irrigation canal and drain

rehabilitation program and the requirements for continued maintenance. In addition, the project paper amendment required that production impact data be collected and evaluated from project areas to determine the project's success. Neither the Government of Pakistan nor an A.I.D.-financed contractor were able to establish an effective monitoring and evaluation system because of an inadequate data collection and monitoring system and the lack of trained personnel. Without an effective evaluation program, it will be difficult to judge overall impact of the project. The report recommends that USAID/Pakistan develop with the Government of Pakistan a project evaluation system.

The Irrigation Systems Management project paper outlined a training plan in which 390 participants were to receive long and short-term training in the United States by 1989. A.I.D. Handbook 3 requires that project implementation plans be updated periodically or, at a minimum, whenever significant delays occur. A.I.D. Handbook 10 and USAID Mission Order PAK-17-7, required that USAID/Pakistan maintain follow-up activities and evaluation of returned participants. The project training program was behind schedule because the Government of Pakistan was very slow in nominating participants, and once nominated slow in clearing the nominations through the Government. USAID/Pakistan was not following-up on returned participants because a formal follow-up system was not established. As a result, USAID/Pakistan does not know if the remaining project training funds can be effectively used before the project terminates or that participants are utilizing their training. The report recommends that USAID/Pakistan review available training funds to ensure their effective use and establish a follow-up system for returned participants.

*Office of the Inspector General*

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THE IRRIGATION SYSTEMS MANAGEMENT  
PROJECT IN PAKISTAN  
PROJECT NO. 391-0467

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PART I - INTRODUCTION

A. Background

Pakistan has the largest contiguous irrigation system in the world. From the Indus River and its tributaries run a network of canals totalling about 40,000 miles, which in turn, feeds an additional 250,000 miles of public watercourses. The Indus system also includes more than 200,000 tubewells, of which about 13,000 are publicly-owned. The contiguous system serves a total cultivable command area of 34 million acres.

The U.S. Agency for International Development authorized \$90 million for the Irrigation Systems Management project in Pakistan. The project grant agreement, as amended, with the Government of Pakistan provided \$72 million. Project expenditures through March 31, 1988 were \$44.7 million. A project paper amendment was in preparation to cover Phase II of the project. Phase II deals primarily with rehabilitation work and institutional improvement. The funds were to finance technical assistance, the rehabilitation of irrigation canals, drains, and watercourses, machinery and equipment, and training.

The Irrigation Systems Management project completed the rehabilitation of 59 irrigation canal and drain subprojects by December 31, 1987 for which the Government of Pakistan was reimbursed approximately \$5.7 million. At the same date, the Government of Pakistan had completed 131 watercourse subprojects and had requested USAID/Pakistan to reimburse \$1.1 million for their cost. In addition, progress was made in improving the planning, design and water management capabilities of the Government.

Under the project, A.I.D. financed three principal technical assistance contractors. The three contractors were PRC Engineering, Inc. in conjunction with Checchi and Company, the University of Idaho, and the Associates in Rural Development, Inc. The contractors provided assistance to the Government of Pakistan in the areas of institutional development, research and training.

A.I.D. had also financed the procurement of machinery and equipment. Funds for the procurement came from the Irrigation Systems Management Project and from A.I.D.'s Agricultural Commodities and Equipment project. Total expenditures for procurement were about \$30 million as of March 31, 1988. Equipment and machinery procured included bulldozers, mobile cranes, motor graders, and excavators.

#### B. Audit Objectives and Scope

The Office of the Regional Inspector General for Audit/Singapore made a program results audit of the Irrigation Systems Management project in Pakistan. The audit was made to review A.I.D.'s assistance to the Government of Pakistan for the rehabilitation of irrigation canals and drains, and for the institutional improvement of Pakistan agencies involved in water resources. The specific audit objectives were to assess the project's progress and effectiveness, to evaluate USAID/Pakistan's management of the project, and to review compliance with A.I.D.'s policies and regulations. No review was performed on the utilization of project machinery and equipment as this was a subject of a separate audit report (Audit of Utilization and Maintenance of Selected Equipment in Pakistan, Audit Report No. 5-391-88-8, dated July 11, 1988).

The audit was conducted in Islamabad at the offices of USAID/Pakistan and included trips to Karachi, Hyderabad, and Lahore. Visits were made to the Government of Pakistan's Sind and Punjab Irrigation Departments. Discussions were held with technical assistance contractors located in Islamabad and Lahore. Discussions were also held with one of the other donors to the Irrigation Systems Management project, the World Bank. The audit was conducted in two phases. The survey phase was conducted in December 1987 and January 1988 while the audit phase was conducted in March and April 1988. The audit covered the period from May 5, 1983, the inception of the project, through March 31, 1988 and expenditures of \$44.7 million. The reviews of internal controls and compliance were limited to activities related to the report findings. The audit was made in accordance with generally accepted government auditing standards.

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PART II - RESULTS OF AUDIT

The Irrigation Systems Management project has progressed toward its basic objective of upgrading Pakistan's irrigation systems. However, the implementation of the rehabilitation program for irrigation canals and drains needed to be improved. In general, USAID needed to do a better job of managing the project. In implementing the project, the Mission generally complied with A.I.D.'s policies and regulations with the exception of certain Handbook provisions. The Government of Pakistan did not comply with project agreement terms regarding counterparts, evaluation, and water charges.

The Irrigation Systems Management project completed the rehabilitation of 59 irrigation canal and drain subprojects by December 31, 1987. A.I.D. reimbursed the Government of Pakistan approximately \$5.7 million. At the same date, the Government had completed 131 watercourse subprojects and had requested USAID/Pakistan to reimburse \$1.1 million for their cost. In addition, progress was made in improving the planning, design and water management capabilities of the Government.

Despite the progress made in the improvement of Pakistan's nationwide irrigation system, the rehabilitation program for the irrigation facilities is behind schedule. Also, technical assistance should be put to better use and financial management of operation and maintenance should be enhanced. In addition, the project lacked a monitoring and evaluation system and training funds were not effectively used.

The report recommends that USAID/Pakistan initiate action to make the irrigation system rehabilitation program more effective, improve the utilization of technical assistance and review the availability of operation and maintenance funds. In addition, a project monitoring and evaluation system needs to be established and training funds should be better utilized.

A. Findings and Recommendations

1. Implementation Of The Irrigation Canal And Drain Rehabilitation Program Should Be Enhanced.

Project implementation as outlined in the project paper required: (a) the preparation of a new canal design to minimize maintenance requirements; (b) the reimbursement for completed rehabilitation work using the Fixed Amount Reimbursement procedures; (c) the institutional development of the Provincial Irrigation Departments including their design capabilities; and (d) the use of targets for measuring project progress. USAID/Pakistan's implementation of the rehabilitation program for irrigation canals and drains was adversely affected by inadequate management. In addition, USAID/Pakistan was unable to measure progress towards achievement of the rehabilitation program's original targets. Project implementation was hampered by the limited acceptance by the Province of the Punjab's Irrigation Department of the newly-prepared canal design, by the application of Fixed Amount Reimbursement procedures, and by the lack of sufficient qualified design staff in the Provincial Irrigation Departments. Also, USAID/Pakistan was unable to measure the project's success because of the lack of targets in the original project paper. The problems related to implementation of the rehabilitation program have resulted in a significant delay in project accomplishments and left USAID/Pakistan unable to judge the program's success.

Recommendation No. 1

We recommend that USAID/Pakistan:

- a. reach agreement with the Punjab Provincial Irrigation Department on the use of the new canal design to expedite the completion of the canal rehabilitation program, and
- b. require the Provincial Irrigation Departments to provide qualified staff for their design offices.

Recommendation No. 2

We recommend that USAID/Pakistan seek the assistance of the Agency's General Counsel to determine if the use of the Fixed Amount Reimbursement procedures are appropriate for the type work performed under the rehabilitation program.

### Recommendation No. 3

We recommend that USAID/Pakistan define specific targets for the Phase II rehabilitation program.

#### Discussion

The original design for the Irrigation Systems Management project as stated in the project paper dated May 5, 1983, called for the provision of technical assistance funded by A.I.D. to prepare a new canal design (hydraulic design criteria); and to upgrade institutional capabilities, including canal design, of the Provincial Irrigation Departments (PID). In addition, A.I.D.'s reimbursement for completed rehabilitations would employ Fixed Amount Reimbursement procedures. Also, the project paper defined targets to be achieved in the combined World Bank/A.I.D. rehabilitation program. Project targets called for the completion of 8,700 miles of rehabilitation canals and 2,175 miles of rehabilitation drains by 1986.

The successful implementation of the irrigation canal and drain rehabilitation program was limited due to inadequate management and USAID/Pakistan's inability to measure program progress. The rehabilitation program was designed to work in tandem with a project sponsored by the International Development Association (IDA), a branch of the World Bank.

The successful management of the irrigation canal and drain rehabilitation was hampered by the PID's limited application of the newly established hydraulic design criteria, by the utilization of the Fixed Amount Reimbursement agreement, by the lack of design expertise in the PID's, and by USAID/Pakistan's inability to judge progress towards the program's targets.

Hydraulic Design Criteria - One of the project outputs was the development of an improved hydraulic design criteria (HDC). The new HDC, based upon the collection of hydraulic data, was to minimize maintenance requirements. The new hydraulic design criteria would take into consideration the canal systems increased use. The new design criteria would lower the requirements for maintenance.

The technical assistance contractor, PRC/Checchi developed the new hydraulic design criteria. The initial draft of the design criteria was prepared by the contractor in March 1985. The introduction of the hydraulic design criteria was met with resistance in the Punjab PID. As a consequence,

there had been no A.I.D.-financed rehabilitation work on the base of any canals in the Punjab. According to the Punjab PID, the design criteria were developed without their input. The Punjab PID also disagreed on technical grounds with the data used to develop the criteria. The new design criteria was approved by the PID's in Sind, Baluchistan and the Northwest Frontier provinces but have had limited use to date.

Fixed Amount Reimbursement - The Fixed Amount Reimbursement (FAR) procedures require that projects financed by FAR are specifically defined at the outset in order to have a firm fix on costs. The FAR arrangement generally does not allow for changes in the original cost estimates. Increases in costs are to be absorbed by the host government. Decreases in cost will not affect A.I.D.'s payments to a host country for completed work performed.

Since the inception of the rehabilitation program, the FAR arrangement had posed problems. Normally, projects financed by FAR should be kept to a two-year implementation period. This had not been the case with the rehabilitation program. Rehabilitation subprojects, due to delays, had implementation periods of more than two years. Escalated costs have had their effect on subproject costs. A number of Project Implementation Letters, authorizing schemes for reimbursement, have had to be amended. The Punjab PID is currently requesting the revision of nine subprojects because of escalated costs. For example, the cost of the ISRP-UP-2 subproject, the Main Branch Lower Scheme, has risen from \$1.2 million to \$1.6 million. USAID/Pakistan had not yet decided whether it would amend the FAR to cover these increased costs or reimburse the Government for only the original amount. We believe USAID should obtain guidance from the Agency's General Counsel on suitability of ISM subprojects for FAR procedures and the appropriateness of increasing the FAR amounts.

Design - PID design offices lacked qualified staff because a transfer to a PID design office was not considered a beneficial assignment by PID personnel. For a number of reasons, PID engineers preferred field assignments. Included among the reasons was variety of extra benefits provided to field staff.

A recently completed evaluation performed in January and February 1988 of the ISM project sponsored by A.I.D. stated that design facilities and staff were inadequate. In addition, standards for collection, storage and processing of hydraulic data was considered inadequate as was the present data base available in the field.

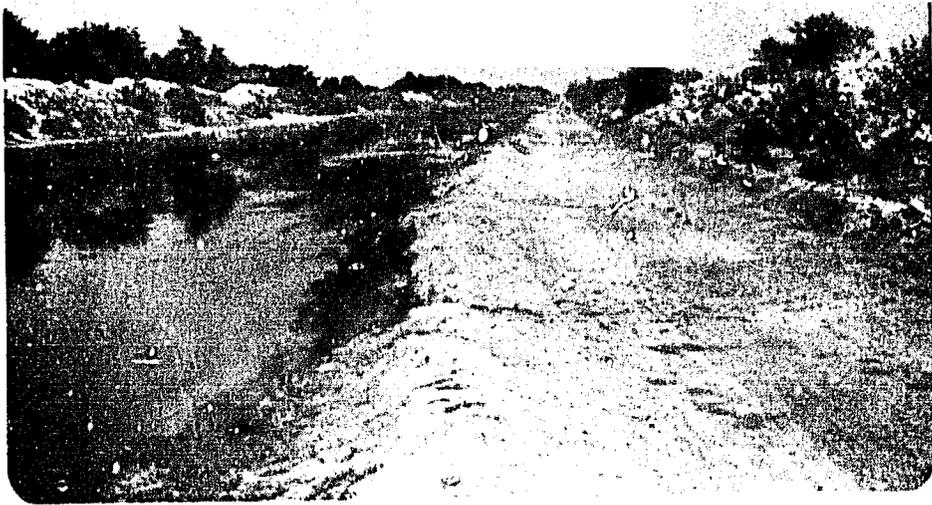
Because PID design offices lacked qualified staff, the design of subprojects was deficient. In the early stages of the rehabilitation program a majority of subproject designs had to be returned by the consultant engineer to PIDs for correction. The delays in the approval of scheme designs delayed the completion of the rehabilitation work.

Measure Project Progress - USAID/Pakistan was unable to assess the progress of the irrigation canal and drain rehabilitation program towards specific targets. The mission was unable to compare original targets for the rehabilitation program as presented in the project paper, with work completed to date.

The original project paper dated January 9, 1983 quantitatively described targets for the rehabilitation program. By 1986, 8,700 miles of irrigation canal and 2,175 miles of drains were to be rehabilitated. These targets were the objectives of the combined International Development Association (IDA), a branch of the World Bank and the A.I.D. project. The targets did not solely represent A.I.D. project targets. Nowhere in the project paper was the A.I.D. targets expressed solely. The project officer could not provide additional information on the original A.I.D. targets.

USAID/Pakistan had reimbursed for work completed on sections of canal systems rather than the entire systems in order to concentrate on high priority areas. This method of program implementation made it difficult to account for completed rehabilitation work on the basis of miles. The consultant engineer reported quarterly to USAID/Pakistan on the financial status of work completed. No longer were the targets in the original design a measurement of rehabilitation program progress.

The problems related to project implementation included the limited application of the new canal design criteria, the application of the FAR arrangement, and the lack of sufficient qualified design staff. These problems delayed the rehabilitation of the irrigation canals and drains. The pictures on page 8 show an irrigation canal and a drain awaiting rehabilitation. The rehabilitation program for Phase-I, scheduled for completion by 1986 will not be completed until June 30, 1989. USAID/Pakistan approved 133 subprojects throughout Pakistan for reimbursement. Through December 31, 1987, only 59 subprojects were completed. The completed subprojects represent 44 percent of the total subprojects approved.



An irrigation canal awaiting rehabilitation



A drain awaiting rehabilitation

In as much as the original project design did not contain specific targets draws into question how the Mission can judge the success of the program.

#### Management Comments

USAID/Pakistan agreed with the recommendations with the exception of Recommendation No. 2.

According to USAID/Pakistan, although several relatively minor cost revisions have been required in the FAR, with the exception of one instance, all modifications consisted of updates of cost estimates necessitated by lengthy delays between the issuance of the earmarking Project Implementation Letter (PIL) and the commencement of construction. In each case, the PIL was revised before construction began. From the project implementation point of view, the FAR is the simplest, fastest and most straight-forward funding mechanism available to the mission for the bulk of ISM-Type rehabilitation work.

USAID/Pakistan also stated that the original project paper was approved and authorized by the A.I.D. Deputy Administrator in A.I.D./W, a procedure which expressly included the General Counsel's review and clearance. The determination as to whether FAR should be used is not just a legal one, rather, it predominantly depends upon existence of a set of circumstances at the time of project authorization which trigger a policy determination on the part of an authorized official to use FAR procedures. In the ISM instance, the Project Paper addressed what it saw as the advantages of the use of FAR, using policies and factors consistent with those set forth in A.I.D. Handbook 3, Appendix J. Thus, "appropriateness" of FAR was considered in the Project Paper in the first instance and legal clearance at the highest level of the General Counsel's Office was part of that process. Consequently the mission does not agree to the need for further review of the FAR mechanism and its appropriateness to ISM.

#### Office of Inspector General Comments

Subsequent review of USAID/Pakistan's justification of the use of the FAR financial arrangement for the Irrigation Systems Management project indicates that sufficient review has been performed. As a result, Recommendation No. 2 of this report is considered closed upon issuance of this report. Recommendation No. 1 and 3 are considered resolved and will be considered closed when USAID/Pakistan completes the corrective actions.

## 2. Progress On Watercourse Improvement Was Slow

The Irrigation Systems Management project paper amendment, dated January 5, 1985, specified that over 1,000 on-farm water management programs be completed by 1990 at a cost of \$19.4 million. However, progress on the on-farm improvement program was slow. The certification by consulting engineers through March 31, 1988 showed only 330 rehabilitated watercourses for A.I.D. reimbursement. Reasons for the delayed watercourse rehabilitation program were poor design work, poor construction and a reluctance on the part of farmers to complete the on-farm works. The delayed watercourse program will in turn delay benefits to the project beneficiaries, the rural farmers.

### Recommendation No. 4

We recommend that USAID/Pakistan develop a plan to address the design, construction, and poor farmer response problems which are hindering the on-farm improvement program.

### Discussion

The Irrigation Systems Management project paper amendment dated January 5, 1985, specified that over 1,000 on-farm improvement programs be completed by 1990 at a cost of \$19.4 million. USAID/Pakistan had targeted an additional 50 for a total of 1,050 programs. Rehabilitation would include brick or concrete lining of 15-50 percent of the total length of each watercourse, earthen improvement of the remaining 50-85 percent, and the installation of about 36,000 turnout structures, 4,000 culverts, and 2,000 buffalo baths. It was estimated that these improvements would result in increases in water availability by about 18 percent, due to reduction in seepage losses. The picture on page 11 shows a rehabilitated watercourse.

The watercourse improvement program has a five-year implementation period (1985-90). Through March 31, 1988, 330 rehabilitated watercourses were certified by a consulting engineer for A.I.D. reimbursement. The certified watercourses represented 31 percent of the watercourses approved by A.I.D. for reimbursement, leaving 69 percent of watercourses to be rehabilitated by 1990. The watercourse program was delayed and will require a large effort to complete rehabilitation of the watercourses by 1990.



A rehabilitated watercourse

According to project personnel and a USAID/Pakistan consulting engineer, the delays in the watercourse rehabilitation program could be attributed primarily to poor design work performed by the On-Farm Water Management Office of the Provincial Departments of Agriculture. In addition, poor construction techniques were used, and there was a lack of cooperation from local farmers on the completion of the on-farm works.

The design function for the watercourse rehabilitation program was assigned to the On-farm Water Management (OWM) Office of the Provincial Departments of Agriculture. Completed designs were forwarded by the OWM office to an A.I.D.-financed engineering consultant responsible for their review and approval. After approval by the contractor and A.I.D., the watercourse rehabilitation work was performed by local farmers under the supervision of the OWM. It was the job of the A.I.D.-financed engineering consultant to oversee the rehabilitation work and to certify the completed work for A.I.D. reimbursement.

Throughout implementation, the consulting engineer considered the design work performed by the On-farm Water Management Office personnel as inadequate. To offset this problem, the consulting engineer provided training to OWM

personnel. In addition, in order to expedite the rehabilitation work, the consulting engineer carried out his own survey and design work.

During the implementation of the watercourse rehabilitation program, the consulting engineer reported to USAID/Pakistan on the poor quality of construction. The poor quality of construction was evidenced by the use of improper materials and less than standard construction techniques. Inspections by USAID/Pakistan engineers of rehabilitated sites confirmed the consultants' opinion. Poor construction delayed completion of the schemes.

As part of the watercourse rehabilitation program, A.I.D. financed other on-farm work activities including construction of culverts, turnout structures and buffalo baths. These activities were performed by local farmers. Farmers in a specific area were to assist in the work. However, getting complete cooperation of all farmers to complete the other on-farm work activities was a problem. According to USAID/Pakistan personnel, some farmers did not see the benefits which they would accrue by performing these activities. Because of the lack of cooperation, the other on-farm activities have lagged. Due to the late completion of the other on-farm activities, the consulting engineer had deferred certification of civil works for A.I.D. reimbursement.

The delays in the on-farm water rehabilitation program delayed the provision of project benefits to the rural farmers. As outlined by the project paper amendment, the benefits to the small farmer would be in the form of increases in cropping intensity and increases in yields. These increases in cropping intensity and yields will not be fully realized until the completion of the on-farm water programs.

#### Management Comments

The USAID management concurred in the finding and recommendation.

#### Office of Inspector General Comments

Recommendation No. 4 is considered resolved and will be closed when USAID/Pakistan completes the corrective actions.

3. The Value Of The A.I.D.-Financed Technical Assistance Provided To The Government Of Pakistan Was Questionable.

USAID/Pakistan provided technical assistance to the Government of Pakistan through A.I.D.-financed contractors at a cost of \$29 million. The contractors' scopes of work required them to (a) develop a new canal design; (b) prepare operation and maintenance manuals for irrigation canals; (c) provide oversight of A.I.D.-financed research at various Government of Pakistan research institutions; and (d) upgrade the capacity of subproject management offices of the project's Command Water Management component. The work performed by the technical assistance contractors had limited success because a contractor developed a canal design which received limited acceptance and operation and maintenance manuals had not been finalized. Also, a contractor was poorly managing a research program, and another contractor was operating almost without counterparts. As a result, implementation of project activities such as canal rehabilitation, operation and maintenance of canals, development of water resources research activities and the command water management component of the project was impeded.

Recommendation No. 5

We recommend that USAID/Pakistan:

- a. establish with Provincial Irrigation Departments a time table for the implementation of the operation and maintenance manuals;
- b. require the University of Idaho to establish indicators for evaluation of A.I.D.-financed research activities and establish a system for administering the A.I.D.-financed research projects including reporting procedures; and
- c. establish with the Provincial Irrigation Departments a time schedule for the provision of counterparts for the Associates in Rural Development, Inc. contract.

Discussion

USAID/Pakistan financed three major technical assistance contractors under the Irrigation Systems Management Project at a cost of \$29 million. The contractors involved were PRC Engineering Inc. (PRC)/Checchi and Company, the University of Idaho and the Associates in Rural Development, Inc.

The PRC/Checchi contract with an effective date of April 1, 1984 required the contractor under its scope of work to collect hydraulic data in order to resolve existing irrigation canal maintenance problems. The contractor was to develop a new canal design, and a set of operation and maintenance (O&M) manuals to be used by the PIDs for their irrigation canals.

The University of Idaho contract was effective April 4, 1985. According to the scope of work, the contractor was to assist the Government of Pakistan to plan, organize and carry out a comprehensive water management research program. As part of that program, the contractor was to review research proposals by GOP institutions for A.I.D.-financing. Indicators for evaluation of the research activities were to be developed. In addition, a system for administering the research projects was to be developed which included established reporting procedures and a provision for annual review.

The Associates in Rural Developments Inc. (ARD) contract had an effective date of September 15, 1986. Under the contract, ARD was to assist in developing, organizing, and operating subproject management offices under the Command Water Management component of the ISM project. The subproject management offices were established to act as a focal point for the Water Users Associations (WUA), an association of farmers. Subproject management offices were to provide the WUA with assistance from various line agencies such as the Department of Agriculture, the Department of Irrigation and agricultural input suppliers.

Contractor technical assistance concerning design criteria, O&M manuals, research, and subproject management offices was not effectively used. For example, in the performance of their tasks, contractors have received mixed reactions to their work by the Government of Pakistan. Completed tasks were not well received and the quality of technical assistance provided was questionable. In addition, a contractor was not receiving the cooperation of the GOP. These problem areas indicated that the technical assistance was not as effective as it could be.

Hydraulic Design Criteria And O&M Manuals - Between 1984 and 1986 PRC/Checchi collected hydraulic data which was used to prepare new hydraulic design criteria to be used on the rehabilitation of irrigation canals. The new hydraulic design criteria were required to help reduce the need for maintenance. The amount of sediment collected in the canals

led to the deterioration of the canals and was one of the reasons for the rehabilitation program. Introduction of the new hydraulic design criteria would lessen the amount of sediment and thus reduce the need for canal maintenance.

By 1986, PRC/Checchi circulated the newly developed hydraulic design criteria to the PIDs. The reception for the criteria was mixed. The Punjab PID objected to the use of the hydraulic design criteria on technical terms. The Punjab PID stated that design criteria data collected were too narrow and was in need of further refinement and research. In addition, the Punjab PID pointed that the problems associated with the hydraulic design criteria were primarily due to a lack of proper liaison, coordination and working relationship between PRC/Checchi and the Punjab PID. At the time of audit, three of the four provinces had accepted the criteria. The Punjab PID had not.

Operation and Maintenance (O&M) manuals were prepared by PRC/Checchi. The manuals were prepared in draft form in early 1986 and 1987. The draft manuals were forwarded to USAID/Pakistan for review and comments. Through March 1988 formal comments have not been made by the PIDs and the O&M manuals remain in draft. PRC/Checchi estimated that the development of the hydraulic design criteria and their efforts in the area of operations and maintenance cost the U.S. Government \$4.5 million.

Water Resources Research - The University of Idaho was tasked to upgrade water resources research in Pakistan. The University was to accomplish this task by assisting existing research institutions in Pakistan. One of the responsibilities of the University was to review research proposals prepared by research institutions for possible A.I.D.-financing. Once A.I.D.-financing was approved, the University was to periodically review the research and provide assistance and guidance in the development of the research projects.

Prior to funding of each research project, a proposed schedule of activities including targets for evaluation purposes and a description of research applications were to be prepared. A system for administering the research projects was also to be developed which would include establishing report procedures and a provision for annual reviews.

Since inception of the contract, the University of Idaho approved research proposals prepared by GOP research institutions for A.I.D.-financing. USAID/Pakistan had earmarked \$2 million for various GOP research institutions

as of March 31, 1988. A review of files at the University's offices in Lahore showed that management or monitorship of A.I.D.-financed research was inadequate. For example, separate files were not being maintained for each A.I.D.-financed research effort. In addition, targets for evaluation purposes were not prepared. Also, there was little evidence of periodic reporting by the research institutions. It would be difficult to readily access the status of an individual A.I.D.-financed research project.

Subproject Management Offices - The Associates in Rural Development, Inc. (ARD) contract called for the contractor to provide technical assistance to subproject management offices under the Command Water Management component of the ISM project. The subproject management offices located throughout Pakistan were principally established to provide assistance to Water Users Associations in on-farm water management activities.

ARD whose work began in late 1986 had difficulties in obtaining the cooperation of various provincial line agencies in the development of the subproject management offices. Line agencies have not provided the staff necessary for the subproject management offices (SMO) nor the staff to assist in SMO areas. According to a World Bank memorandum dated July 22, 1987, non-civil work activities have not received from the line agencies, the same emphasis as civil works activities, that is, the rehabilitation of on-farm watercourses. As a result, ARD contract team members were not given suitable counterparts. Of the five ARD professional field staff, only the Water Management Specialist has had an effective counterpart since the inception of the project.

The value of the technical assistance provided by contractors was questionable because of the Punjab PID's lack of acceptance for the new canal design and the fact that the operation and maintenance manuals have not been finalized. In addition, efforts to improve Pakistan's water resources' research and to improve on-farm water management were in question.

The technical assistance provided to the ISM project by USAID/Pakistan had not been completely effective. PRC/Checchi produced hydraulic design criteria and operation and maintenance manuals which received a mixed reception from the PIDs. The University of Idaho had not properly managed the A.I.D.-financed research activities to ensure that the research performed was effective. Also, the ARD contract team was working without counterparts thus negating the value of technical assistance provided.

Management Comments

The USAID management concurred in the finding and recommendation.

Office of Inspector General Comments

Recommendation No. 5 is considered resolved and will be closed when USAID/Pakistan completes the corrective actions.

4. Increased Water Revenues Are Needed To Ensure Continued Operation And Maintenance Funding

A covenant to the project agreement required that each province raise its water charges to consumers in order to cover an increasing percentage of the cost of operation and maintenance of the irrigation systems. Increased water charges were needed to ensure that the full cost of operation and maintenance be recovered. Another covenant required an annual review of operation and maintenance funds to ensure that revenues through water charges were matching expenditures. But, water charges were not significantly increased in the last five years because the Government of Pakistan was unwilling to increase the farmers' costs. Therefore, the Government increased subsidies for operation and maintenance leading to an increased gap between revenues and expenditures. The provinces had not adequately reviewed operation and maintenance budgets to ensure that revenues were matching expenditures because of constraints in generating revenues. By neglecting the cost recovery objectives, the provinces will be dependent on the Government to meet any shortages in operation and maintenance funds. As in the past, lack of such funds will lead to deferred maintenance and deteriorating irrigation infrastructure, and A.I.D. funds for rehabilitation will be wasted.

Recommendation No. 6

We recommend that USAID/Pakistan:

- a. develop a plan with the Provincial Irrigation Departments and other concerned Government of Pakistan Agencies to fulfill the project covenant to make the operation and maintenance of irrigation systems self-supporting, and
- b. review with the Provincial Irrigation Departments their operation and maintenance budgets in order to align the budgets with realistic operation and maintenance costs as suggested by the technical assistance contractor.

Discussion

The project agreement dated June 5, 1983 contained a covenant that prescribed that the grantee shall have each province periodically increase water charges to cover an increasing percentage of the operation and maintenance cost

of its irrigation facilities. Increased water charges were needed so that the full cost of such operation and maintenance will be recovered by the following dates:

Sind	July 1, 1988
Punjab	July 1, 1990
NWFP	July 1, 1991
Baluchistan	July 1, 1992

Another project agreement covenant called for annual reviews of operation and maintenance fund levels by the provinces.

Water revenues have not significantly increased in the last five years. The World Bank in their Staff Appraisal Report dated March 8, 1988 on the Second Irrigation Systems Rehabilitation Project stated that even though recoveries from water charges have increased about 5 percent annually during the last five years, water charge revenues as a percentage of operation and maintenance allocations have gone down from 53 percent in FY 1983 to about 38 percent in FY 1987.

The revenue-expenditure gap of the Pakistan irrigation system was increasing. The subsidies on irrigation water have gone up from \$33 million in 1980-81 to \$67 million in 1985-86. Excessive financial shortages resulting from under assessment and reporting of water charges and very low water charges are the two major reasons for this growing gap.

Water charges were a sensitive issue in Pakistan. Sind PID project personnel stated that it was not feasible to raise water charges to the farmers at the current time.

The provinces have not been adequately reviewing their operation and maintenance fund budgets to ensure that revenues were matching expenditures. According to PRC/Checchi while maintenance budgets were in use in Pakistan for almost 50 years, they require updating to keep pace with the escalation of construction costs and modern operation and maintenance practices. PRC/Checchi recommended that maintenance budgets be developed in order to secure the funds necessary to properly operate and maintain the rehabilitated canal systems.

PRC/Checchi estimated that the Punjab's PID operation and maintenance budgets should be doubled by the Government of Pakistan by FY 1993. The PRC/Checchi estimated maintenance budgets were turned down by the Punjab PID because the maintenance funds needed would pose a problem due to limited financial resources. No further action was taken in respect to the revised maintenance budgets.

A Pakistani researcher in a report dated March 1988 stated that provincial governments have very few ways to raise revenues. In addition, raising water charges would be one of the most promising alternatives for generating funds required for efficient operation and maintenance of the irrigation system.

Very low water charges in Pakistan has restrained the irrigation system from generating funds for efficient operations and maintenance. Consequently the irrigation systems have deteriorated because of deferred operations and maintenance. Substantial investments are being made to offset the deteriorated conditions caused by the deferred maintenance and to restore the irrigation systems to their original capability. However, these efforts will not yield expected benefits if the irrigation systems are not maintained. The provinces in neglecting the project's cost recovery objective will be dependent on the Government to meet any shortages in future operation and maintenance funds. As before, lack of such funds will lead to deferred maintenance and deteriorating irrigation infrastructures and A.I.D. funds for rehabilitation will be wasted.

In summary, the increasing gap between revenues and expenditures in respect to the operation and maintenance of the irrigation systems will continue unless revenues generated from water users are substantially increased. In addition, using unrealistic methods of estimating operation and maintenance costs will not provide the Provincial Irrigation Departments with sufficient argument to substantiate budget allocations for operation and maintenance. Lack of sufficient O&M funds will lead to deferred maintenance. Deferred maintenance will return the irrigation system to its deteriorated condition existent at the beginning of the ISM project.

#### Management Comments

The USAID management concurred in the finding and recommendation.

#### Office of Inspector General Comments

Recommendation No. 6 is considered resolved and will be closed when USAID/Pakistan completes the corrective actions.

5. The Project Has Not Developed An Adequate Monitoring And Evaluation System.

The Irrigation Systems Management project paper required that a project evaluation program be established. The program was to collect and evaluate data to determine the sustainability of the irrigation canal and drain rehabilitation program and the requirements for continued maintenance. In addition, the project paper amendment required that production impact data be collected and evaluated from project areas to determine the project's success. Neither the Government of Pakistan nor an A.I.D.-financed contractor were able to establish an effective monitoring and evaluation system because of an inadequate data collection and monitoring system and the lack of trained personnel. Without an effective evaluation program, it will be difficult to judge overall impact of the project.

Recommendation No. 7

We recommend that USAID/Pakistan develop a plan with the Government of Pakistan to use technical assistance to develop a project evaluation system, including the provision of adequate staffing, which would allow for the collection and evaluation of data as prescribed by the project paper and its amendment.

Discussion

The project paper dated January 9, 1983 stipulated that a variety of project data would be generated. Data was to be collected by the Alluvial Channel Observation Project (ACOP), an independent research and evaluation unit of the Water and Power Development Authority (WAPDA). The data collected would allow for a before and after comparison on the sustainability of the rehabilitation program. In addition, the Watercourse Monitoring and Evaluation Cell (WMEC), another independent research and evaluation unit of WAPDA would collect data on watercourse flows, cropping patterns, yields and farmer income.

The project paper amendment dated January 5, 1985 prescribed that Command Water Management subproject management (SMO) offices would be responsible for baseline and subsequent data gathering. Monitoring would take place in three main areas: (a) institutional development; (b) management and physical improvements; and, (c) improvements in agricultural production and farm incomes.

The Government of Pakistan was unable to develop a system to collect and evaluate data in order to monitor project activities and to determine project impact. In addition, a technical assistance contractor who was tasked to assist in setting up ongoing monitoring and evaluation systems at seven Command Water Management subproject offices was unable to do so.

The Alluvial Channel Observation Project (ACOP) was tasked by USAID/Pakistan to develop data on the sustainability of the rehabilitation program, on a before and after comparison basis. The data developed by ACOP proved questionable. ACOP stated that the data developed was defective due to the timing of their analysis and the method by which the rehabilitation program was performed. In the implementation of the rehabilitation program the PIDs rehabilitated canal sections rather than a complete system, impeding the evaluation process.

Under the Command Water Management component of the ISM project, seven subproject management offices (SMO) were to be established in subproject areas. Within each SMO, a Project Monitoring and Evaluation (PME) unit was to be established. The PME units were responsible for gathering baseline and subsequent data gathering. Monitoring would include areas such as institutional development, management and physical improvements and improvements in agricultural production and farm incomes.

As reported by the contractor, Associates in Rural Development (ARD) Inc., difficulties have been encountered in the implementation of the Monitoring and Evaluation program due to the non-existence of the PME units for all practical purposes. Through January 31, 1988, the Government of Pakistan had not approved the recruitment of the additional SMO staff requested. According to ARD personnel, monitoring and evaluation was being viewed as a mechanism for judging and criticizing performance rather than as a means for obtaining information for refinement of the project's improvement program.

The Watercourse Monitoring and Evaluation Cell (WMEC) had performed research on canals rehabilitated by the World Bank. To date, three evaluation reports have been printed. WMEC was to produce a final report which would analyze the first three evaluations and develop conclusions. Part of these conclusions would reflect on the impact the project had on farmers' income. WMEC personnel interviewed in Lahore stated that there were no plans for producing a final report without further funding. World Bank provided funding for WMEC thru June 30, 1987. Since that date, World

Bank has not provided any additional funds. It is questionable whether or not the final report will be produced by WMEC.

The ISM project monitoring and evaluation program had not progressed as planned. Little evaluation data exists on the sustainability of the canal and drain rehabilitation program and the project's impact on agricultural production and farmers income. Unless USAID/Pakistan, in conjunction with the GOP, takes effective measures to remedy the situation, the ISM project will terminate with little information on the sustainability of the rehabilitation program or the project's impact on the project beneficiaries, rural farmers.

#### Management Comments

The USAID management concurred in the finding and recommendation.

#### Office of Inspector General Comments

Recommendation No. 7 is considered resolved and will be closed when USAID/Pakistan completes the corrective actions.

6. The Project Training Program Should Be More Effective.

The Irrigation Systems Management project paper outlined a training plan in which 390 participants were to receive long and short-term training in the United States by 1989. A.I.D. Handbook 3 requires that project implementation plans be updated periodically or, at a minimum, whenever significant delays occur. A.I.D. Handbook 10 and USAID Mission Order PAK-17-7, required that USAID/Pakistan maintain follow-up activities and evaluation of returned participants. The project training program was behind schedule because the Government of Pakistan was very slow in nominating participants, and once nominated slow in clearing the nominations through the Government. USAID/Pakistan was not following-up on returned participants because a formal follow-up system was not established. As a result, USAID/Pakistan does not know if the remaining project training funds can be effectively used before the project terminates or that participants are utilizing their training.

Recommendation No. 8

We recommend that USAID/Pakistan:

- a. review and revise the project's training plan to reflect any changed conditions resulting from slow project implementation;
- b. in conjunction with the Government of Pakistan review the levels of available training funds to determine if they will be effectively used by the termination of the project;
- c. reprogram or deobligate any unneeded training funds; and
- d. establish a follow-up system for returned participants.

Discussion

The Irrigation Systems Management project paper dated January 9, 1983 had a training plan which targeted 390 participants to receive long and short-term training within the United States between FY 1983-1989. The training plan was directed towards long-term degree training in irrigation engineering and water management research and short-term technical courses. The cost of this training was authorized at \$10.7 million.

A.I.D. Handbook 10 and A.I.D. Policy Determination No. 8 provides A.I.D.'s policies, procedures and guidance on participant training. For example, A.I.D. policy is to support participant training as needed to ensure the effective implementation and institutionalization of A.I.D. supported projects. A.I.D. Handbook 3 requires that: (1) the project include detailed implementation plans for achieving project objectives, and (2) project implementation plans be updated periodically or, at a minimum, whenever significant delays occur.

A.I.D. Handbook 10, Participant Training, Chapter 10, Section 2B10 and USAID/Pakistan Mission Order PAK-17-7 dated August 10, 1987, required that the mission maintain follow-up activities and evaluation of returned participants to ensure they return to work in positions where their training is utilized effectively.

The training program for the Irrigation Systems Management project had not progressed as originally planned. The training program was behind schedule. In addition, USAID/Pakistan did not have a follow-up system in place to ensure that the training received was effective and properly used.

Training Delays - Of the 72 participants programmed for long-term training during 1984-87, only 29 were actually sent for training. During the first three years of the program, FY 1983 through FY 1985, only 17 participants were processed for training.

Interviews with GOP personnel indicated that there was a lack of interest in long-term training as this would require an extensive stay outside of Pakistan. In addition, the processing of nominations was delayed because of the lengthy clearance process on the part of both the central and respective provincial governments.

As of March 31, 1988, the project processed 247 out of the 390 participants scheduled for training in the United States. The Government of Pakistan has accelerated the training program as shown by the processing of 179 participants in 1987-1988. Even with this acceleration, it may be difficult for the project to train the participants in time to utilize their skills before the completion of the training plan in 1989. Therefore, we believe USAID/Pakistan should revise its training plan for the remaining project life to determine if the project training funds remaining uncommitted (\$1.6 million) can be effectively used before project termination. Based on this plan, USAID/Pakistan should reprogram or deobligate any unneeded training funds.

Training Follow-up - USAID/Pakistan had little information on the activities of the participants who were trained under the Irrigation Systems Management project after they returned from training. This information was not available because USAID/Pakistan had not installed a formal system to follow-up on the participants. Therefore, USAID/Pakistan was not in a position to know if the participants were utilizing their training for development activities which is a primary objective of A.I.D.'s participant training program.

Also, USAID/Pakistan was not in a position (1) to assess the effectiveness of the training in meeting project objectives, and (2) to assist returned participants in reinforcing, extending, and transmitting to others the technical and managerial knowledge acquired during their training which are both objectives of a participant training follow-up system according to Handbook 10.

Audit results showed that the effectiveness of some project training was questionable, that a follow-up system was needed to determine the extent of the effectiveness or ineffectiveness of the training, and to determine what assistance was necessary to better use the training on project activities. For example, a short term, six week course in irrigation procedures was offered at the University of Utah. Two of the participants who took the training told us that much of the material was irrelevant. According to the participants, the course dwelled too much on trickle irrigation rather than on flow/surface irrigation needed by irrigation engineers in Pakistan. In addition, the balance of the course was considered to be too general and rather basic by the participants.

Also, various USAID/Pakistan contractors cited cases where training was provided to participants which was not considered appropriate to project needs. For example, two master degrees slots in agricultural irrigation engineering were switched by the GOP to two slots in research management. This was done despite the fact that the University of Idaho deemed the research management training inappropriate because irrigation researchers under their respective programs do not need to receive training in this type of administration.

Implementation of the Irrigation Systems Management training program was slow. The training program was originally designed to be completed by 1989, but did not start to any appreciable extent until 1987. There was some question whether the uncommitted training funds of \$1.6 million can be used effectively by the completion of the training

program in FY 1989. By not following-up on returned participants, USAID/Pakistan did not know if the training to date was effective and what further training assistance was necessary to improve the work performance of participants who were ineffectively trained for their positions.

Management Comments

The USAID management concurred in the finding and recommendation.

Office of Inspector General Comments

Recommendation No. 8 is considered resolved and will be closed when USAID/Pakistan completes the corrective actions.

## B. Compliance and Internal Control

### Compliance

USAID/Pakistan should ensure adherence to project agreement and contract provisions and A.I.D. Handbooks. Findings 3, 4 and 5 illustrate the need for the Government of Pakistan to comply with project agreement provisions on counterparts, evaluation, and water charges. Finding 3 shows that USAID/Pakistan needs to have a contractor comply with contract provisions. Findings 1 and 6 indicate a need for USAID/Pakistan to comply with Handbook 19 on Fixed Amount Reimbursement procedures, with Handbook 3 on project targets, and with Handbook 10 on training. The audit review of compliance was limited to the findings presented in this report.

### Internal Controls

The audit showed that internal controls needed improvement. Finding 1 discusses the need for better controls over the use of the Fixed Amount Reimbursement method. Finding 3 deals with ways to improve oversight of contract provisions. Finding 5 discusses the need to establish a project monitoring and evaluation system. Finding 6 focuses on the need to improve the follow-up on participant training. The audit review of internal controls was limited to the findings presented in this report.

## C. Other Pertinent Matters

### 1. Accrued Expenditures Should Be Completely Documented

Since inception of the project on May 5, 1983 through March 31, 1988, the Irrigation Systems Management project had expended about \$44.7 million. The controller had an accrual on the books for about \$12.4 million of which about \$7.5 million was related to the FAR disbursement system for the irrigation subprojects. Appendix 4A of the Controller's Guidebook stated that FAR expenditures were to be accrued based on supervisory engineer reports. The accruals may be developed on the basis of completed units or percentages of work completed. The auditors were informed by the project accountant, which was confirmed by the project officer, that the quarterly accruals for the irrigation subprojects were determined through the respective engineers' reviews of the completed work and supported by trip and progress reports. However, from the trip and progress reports made available, none specifically stated a percentage of completed work. A review of four subprojects covering fiscal years 1985 through 1987 with accrued expenditures of \$2.7 million showed that the accruals had been on record from nine to over 24 months. Accruals for individual subprojects ranged from \$17,900 to as high as \$837,000 per subproject.

The lack of supporting documentation questions the validity of the accrued expenditures and in turn questions the Controller's current estimation of the project pipeline.

### 2. Questions Exist On Costs Recovered From Farmers On Watercourse Improvements.

Under Article 5, Section 5.8 of the project grant agreement entitled "Provincial Cost Recovery Program", each province was required to recover the cost of materials for the renovation of watercourses and other farm works from farmers at varying rates of recovery. Two questions exist. The first question reflects on the need to recover costs that are A.I.D. grant-financed. Justification for the cost recovery appears to be questionable. In addition, if costs are recovered for what purpose are the funds to be used. USAID/Pakistan had not formally documented with the Government of Pakistan on the agreed use of the collected funds.

The second question relates to A.I.D.'s reimbursement for rehabilitated watercourses. Under the FAR arrangement, A.I.D. finances 95 percent of material costs associated with

the rehabilitation of watercourses. At the same time, farmers are also paying 20 to 25 percent of material costs. In effect, the GOP was collecting between 115 to 120 percent of the material costs.

3. Clearance Of A Grant Condition Precedent Was Questionable.

Article 4, Section 4.5A, (2) (a) and (b) of the project grant agreement required the Government of Pakistan to provide sufficient staffing to subproject management offices (SMO). The SMO was established to implement the Command Water Management program (CWM) of the ISM project. The condition precedent had to be fulfilled prior to A.I.D. disbursement for civil works under the CWM program. The condition precedent was cleared by the USAID/Pakistan in 1986 after the GOP provided documentation showing positions at the SMOs would be filled. To date, SMOs are still not sufficiently staffed. Despite this, USAID/Pakistan had disbursed over \$570 thousand for civil works under the CWM program.

AUDIT OF  
THE IRRIGATION SYSTEMS MANAGEMENT  
PROJECT IN PAKISTAN  
PROJECT NO. 391-0467

PART III - APPENDICES

UNCLASSIFIED

ISLAMABAD 018382 Appendix 1

Page 1 of

(4) ACTION AID2 INFO AMB DCM

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FM AMEMBASSY ISLAMABAD  
TO AMEMBASSY SINGAPORE 0952  
BT  
UNCLAS ISLAMABAD 19392

LOC: 513-514 508  
30 AUG 88 1225  
CN: 59098  
CHRG: AID  
DIST: AID

ADM AID

FOR REGINALD HOWARD, RIG/I/S FROM J. NORRIS, DIRECTOR

E.O. 12356 N/A

SUBJECT: COMMENTS ON DRAFT AUDIT REPORT OF THE  
- IRRIGATION SYSTEMS MANAGEMENT  
- PROJECT IN PAKISTAN

REF: SINGAPORE 07776

1. THE MISSION WAS PLEASED WITH THE PROFESSIONAL AND CONSTRUCTIVE MANNER IN WHICH THE AUDIT WAS CONDUCTED AND THE TONE OF THE DRAFT REPORT APPROPRIATELY REFLECTS THIS APPROACH. WE BELIEVE THE AUDIT WILL BE A USEFUL TOOL IN IMPROVING PROJECT MANAGEMENT IN BOTH THE MISSION AND THE IMPLEMENTING AGENCIES OF THE GOVERNMENT OF PAKISTAN.

2. WE DO NOT HAVE ANY SPECIFIC DETAILED COMMENTS ON THE TEXT OF THE DRAFT REPORT. WE CONCUR IN RECOMMENDATIONS NOS. 1,3,4,5,6,7 AND 8 AND HAVE ALREADY TAKEN ACTIONS IN RESPONSE TO MOST OF THOSE RECOMMENDATIONS. WE BELIEVE THAT ACTIONS WILL BE SUFFICIENTLY ADVANCED TO CLOSE MOST OF THE RECOMMENDATIONS WITHIN 30 DAYS AFTER THE ISSUANCE OF THE FORMAL AUDIT REPORT.

3. WE DO NOT CONCUR IN RECOMMENDATION NO. 2 AND REQUEST THAT IT BE DELETED FROM THE FORMAL AUDIT REPORT BASED ON THE FOLLOWING:

ALTHOUGH SEVERAL RELATIVELY MINOR COST REVISIONS HAVE BEEN REQUIRED IN THE FAR, WITH THE EXCEPTION OF ONE INSTANCE, ALL MODIFICATIONS CONSISTED OF UPDATES OF COST ESTIMATES NECESSITATED BY LENGTHY DELAYS BETWEEN THE ISSUANCE OF THE EARMARKING PIL AND THE COMMENCEMENT OF CONSTRUCTION. IN EACH CASE, THE PIL WAS REVISED BEFORE CONSTRUCTION BEGAN. FROM THE PROJECT IMPLEMENTATION POINT OF VIEW, THE FAR IS THE SIMPLEST, FASTEST AND MOST STRAIGHT-FORWARD FUNDING MECHANISM AVAILABLE TO THE MISSION FOR THE BULK OF ISM-TYPE REHABILITATION WORK.

THE ORIGINAL PROJECT PAPER WAS APPROVED AND AUTHORIZED

REC:

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ISLAMABAD 018382

BY THE AID DEPUTY ADMINISTRATOR IN AID/W, A PROCEDURE WHICH EXPRESSLY INCLUDED THE GENERAL COUNSEL'S REVIEW AND CLEARANCE, (PAGE 4 OF PROJECT AUTHORIZATION). THE ORIGINAL PP AT PAGE 29 AND AGAIN AT PAGES 90 THROUGH 92 ADDRESSED THE POINT OF APPROPRIATENESS OF CERTAIN ASPECTS OF THE ACTIVITY (CANAL AND DRAINS REHABILITATION) FOR FAR TREATMENT, AND IN DOING SO CONSIDERED THE VARIOUS ADVANTAGES INVOLVED IN ISSUING THIS MECHANISM. THE DETERMINATION AS TO WHETHER FAR SHOULD BE USED IS NOT JUST A LEGAL ONE, RATHER, IT PREDOMINANTLY DEPENDS UPON EXISTENCE OF A SET OF CIRCUMSTANCES AT THE TIME OF PROJECT AUTHORIZATION WHICH TRIGGER A POLICY DETERMINATION ON THE PART OF AN AUTHORIZED OFFICIAL TO USE FAR PROCEDURES. IN THE ISM INSTANCE, THE PP ADDRESSED WHAT IT SAW AS THE ADVANTAGES TO THE USE OF FAR, USING POLICIES AND FACTORS CONSISTENT WITH THOSE SET FORTH IN AID HB 3, APP. J. THUS, "APPROPRIATENESS" OF FAR WAS CONSIDERED IN THE PP IN THE FIRST INSTANCE AND LEGAL CLEARANCE AT THE HIGHER LEVEL OF THE GENERAL COUNSEL'S OFFICE WAS PART OF THAT PROCESS. CONSEQUENTLY THE MISSION DOES NOT AGREE TO THE NEED FOR FURTHER REVIEW OF THE FAR MECHANISM AND ITS APPROPRIATENESS TO ISM.

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Recommendation No. 1

We recommend that USAID/Pakistan:

- a. reach agreement with the Punjab Provincial Irrigation Department on the use of the new canal design to expedite the completion of the canal rehabilitation program, and
- b. require the Provincial Irrigation Departments to provide qualified staff for their design offices.

Recommendation No. 2

We recommend that USAID/Pakistan seek the assistance of the Agency's General Counsel to determine if the use of the Fixed Amount Reimbursement procedures are appropriate for the type work performed under the rehabilitation program.

Recommendation No. 3

We recommend that USAID/Pakistan define specific targets for the Phase II rehabilitation program.

Recommendation No. 4

We recommend that USAID/Pakistan develop a plan to address the design, construction, and poor farmer response problems which are hindering the on-farm improvement program.

Recommendation No. 5

We recommend that USAID/Pakistan:

- a. establish with Provincial Irrigation Departments a time table for the implementation of the operation and maintenance manuals;
- b. require the University of Idaho to establish indicators for evaluation of A.I.D.-financed research activities and establish a system for administering the A.I.D.-financed research projects including reporting procedures; and

- c. establish with the Provincial Irrigation Departments a time schedule for the provision of counterparts for the Associates in Rural Development, Inc. contract.

Recommendation No. 6

We recommend that USAID/Pakistan:

- a. develop a plan with the Provincial Irrigation Departments and other concerned Government of Pakistan Agencies to fulfill the project covenant to make the operation and maintenance of irrigation systems self-supporting, and
- b. review with the Provincial Irrigation Departments their operation and maintenance budgets in order to align the budgets with realistic operation and maintenance costs as suggested by the technical assistance contractor.

Recommendation No. 7

We recommend that USAID/Pakistan develop a plan with the Government of Pakistan to use technical assistance to develop a project evaluation system, including the provision of adequate staffing, which would allow for the collection and evaluation of data as prescribed by the project paper and its amendment.

Recommendation No. 8

We recommend that USAID/Pakistan:

- a. review and revise the project's training plan to reflect any changed conditions resulting from slow project implementation;
- b. in conjunction with the Government of Pakistan review the levels of available training funds to determine if they will be effectively used by the termination of the project;

- c. reprogram or deobligate any unneeded training funds; and
- d. establish a follow-up system for returned participants.

Report Distribution

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Assistant to the Administrator for Management (AA/M)	2
Office of Financial Management (M/FM/ASD)	2
Office of Agriculture (S&T/AGR)	1
Center for Development Information and Evaluation (PPC/CDIE)	3
Inspector General	1
Deputy Inspector General	1
Office of Policy, Plans and Oversight (IG/PPO)	2
Office of Programs and Systems Audit (IG/PSA)	1
Office of Legal Counsel (IG/LC)	1
Executive Management Staff (IG/ADM)	12
Assistant Inspector General for Investigations and Inspections (AIG/I)	1
Regional Inspector General for Investigations/Singapore (RIG/I/S)	1
RIG/A/Cairo	1
RIG/A/Dakar	1
RIG/A/Manila	1
RIG/A/Nairobi	1
RIG/A/Tegucigalpa	1
RIG/A/Washington	1