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More Timely And Realistic Evaluation
Needed For Capital Development
Projects In Pakistan B-158163

Agency for International Development

UNITED STATES
GENERAL ACCOUNTING OFFICE

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NOV.10.1971



UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

INTERNATIONAL DIVISION

B-158163

Dear Dr. Hannah:

This is our report entitled "More Timely and Realistic Evaluation Needed for Capital Development Projects in Pakistan."

Copies of this report are being sent to the Senate Committee on Foreign Relations, the House Committee on Foreign Affairs, and the Senate and House Committees on Appropriations and Government Operations. 2 01300 H 01113 1500

Copies are also being sent to the Director, Office of Management and Budget; the Secretary of State; the Foreign Operations and Government Information Subcommittee of the House Committee on Government Operations; the Foreign Operations Subcommittee of the Senate Committee on Appropriations; and the Foreign Operations and Related Agencies Subcommittee of the House Committee on Appropriations. H 01511 1500

Sincerely yours,

Director, International Division

The Honorable John A. Hannah
Administrator, Agency for
International Development
Department of State

GENERAL ACCOUNTING OFFICE
REPORT TO THE ADMINISTRATOR
AGENCY FOR INTERNATIONAL
DEVELOPMENT

MORE TIMELY AND REALISTIC EVALUATION
NEEDED FOR CAPITAL DEVELOPMENT PROJECTS
IN PAKISTAN
Agency for International Development
B-158163

D I G E S T

WHY THE REVIEW WAS MADE

The United States has provided over \$2.3 billion of economic assistance to Pakistan since 1951. This is one of the largest U.S. Agency for International Development (AID) programs. The United States has provided over \$1.5 billion worth of surplus agricultural commodities to Pakistan under the authority of Public Law 480, in addition to this dollar assistance. 97

Capital development project loans constitute about \$523 million of the assistance provided. These loans are a basic component of the economic assistance program administered by AID.

Earlier General Accounting Office (GAO) reviews of U.S. assistance to other countries identified the need for improved administration of project assistance loans. This review, made by GAO as a part of its continuing review of the foreign aid program, was directed to loans to Pakistan for malaria eradication, electric power expansion, land reclamation and irrigation, road construction, and construction of coastal embankments. GAO sought to determine whether the development projects were contributing toward the accomplishment of U.S. economic objectives in Pakistan and were being implemented in a reasonably effective, efficient, and economical manner.

This report is based on work performed before the outbreak of civil strife in East Pakistan in March 1971. Also AID comments included as appendix I were prepared before then.

FINDINGS AND CONCLUSIONS

U.S. assistance has contributed significantly to progress made toward the economic development of Pakistan. The effectiveness of this assistance could have been greater, however, if AID and the Government of Pakistan had given more attention to finding solutions to problems as they developed.

Malaria eradication

Although AID has provided about \$52 million for malaria eradication activities in Pakistan, AID has been unable to persuade the Government of West Pakistan to provide the financial, administrative, and operational support necessary for a long-range program to be effective. As a result, the

malaria eradication program is about 2 years behind schedule and malaria has reached epidemic proportions in some areas of West Pakistan. Moreover adequate provision has not been made to prevent the recurrence of malaria once the incidence of the disease has been controlled.

All parties concerned are now agreed that the goal of complete eradication of the disease by 1975 is unrealistic. A program of malaria control, as opposed to malaria eradication, is planned. In view of the problems that have plagued the program, GAO believes that the proposed approach is realistic. GAO believes, however, that future U.S. assistance to the malaria program should be based on a realistic appraisal of Pakistan's support of the program. (See pp. 17 to 28.)

Salinity control projects

AID has provided about \$81.1 million for three salinity control and reclamation projects in West Pakistan. Although successful in many respects, they have not fully attained planned objectives. Large numbers of tube wells constructed under the projects have remained unused for long periods, primarily because the electrification work and the connection of the tube wells to the watercourses have not been coordinated properly with the completion of the tube wells.

Also the projects have not been utilized fully because the Government of Pakistan has not established an effective program for operating and maintaining the projects. These difficulties could have been alleviated, GAO believes, if AID had recognized at an early date the shortcomings of the Government of Pakistan in implementing and operating these projects and had taken steps to have Pakistan correct these difficulties. (See pp. 29 to 36.)

Electric power projects

Three AID-financed power projects were not completed on a timely basis, although AID and the Government of Pakistan considered it essential to complete the projects on schedule to meet the expanding power requirements of Pakistan. As a result, increased costs of about \$1.9 million were incurred and the availability of power, urgently needed, was deferred. Since most of the difficulties encountered were of an administrative nature, GAO believes that many of them could have been avoided or minimized if greater efforts had been made by AID and the Government of Pakistan to resolve the problems more promptly. (See pp. 37 to 46.)

The Dacca-Aricha road project

The completion date for the Dacca-Aricha road project in East Pakistan has been set back almost 5 years, due primarily to administrative indecision on the part of AID and the Government of East Pakistan over the scope and financing of the project and to delays caused by a general reallocation of Pakistan's budgeted resources following the outbreak of hostilities between India and Pakistan in 1965.

Funds provided were insufficient to complete the project as originally planned so the scope of the project has been reduced substantially. The Government of East Pakistan has had to assume responsibility for the work not included in the revised project plan, although it is questionable whether East Pakistan has the financial resources needed to carry out the work effectively.

GAO believes that many of the difficulties could have been avoided if AID had made a realistic analysis of the project cost estimate at the time the loan application was under consideration. Such an analysis would have revealed obvious deficiencies in the estimate and would have pointed up the need to reduce the scope of the project or to arrange for additional financing. (See pp. 47 to 53.)

Coastal embankment project

Construction work on the coastal embankment project, which has received \$82.2 million worth of U.S. assistance, has continually been behind schedule because the Government of East Pakistan has not provided adequate support for the project. This lack of support has resulted in inadequate financing for the project, a high percentage of inoperative equipment, the failure to acquire land for right-of-way, and shortages and late deliveries of construction materials. (See pp. 54 to 61.)

RECOMMENDATIONS OR SUGGESTIONS

In view of the current situation in Pakistan, GAO is making no recommendations. When conditions permit these projects to be completed or other economic development projects to be undertaken in Pakistan, any further U.S. support should be based on a realistic evaluation of the recipient's ability and willingness to support the projects.

AGENCY ACTIONS AND UNRESOLVED ISSUES

AID commented fully on a draft of this report in February 1971. (See app. I.) It felt that, under the relationship that existed between AID and the borrower (the Government of Pakistan or its agencies), AID had done all that could have been expected to resolve the problems that had arisen with the projects covered by the review. AID stated, in part, that:

"The GOP [Government of Pakistan] and its agencies are, under all existing loan agreements, responsible for the execution of projects. AID must do its best to ensure that the GOP does so, promptly and efficiently, but its powers to persuade are not always sufficient to avoid delays of the kind the GAO criticizes."

GAO recognizes that there are limitations on the actions that AID can take to ensure that projects are carried out on a timely and efficient basis.

GAO, in its review, noted several instances in which it believed that AID had taken all the actions that reasonably could have been expected, and it so stated in this report. In other instances, however, if AID had been more concerned with problem areas and had been more persuasive in dealing with Pakistani officials, the difficulties cited in this report could have been alleviated and the benefits derived from the projects thus would have been increased.

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ABBREVIATIONS

AID	Agency for International Development
GAO	General Accounting Office
SCARP	Salinity control and reclamation project

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- Funds provided were insufficient to complete the project as originally planned so the scope of the project has been reduced substantially. The Government of East Pakistan has had to assume responsibility for the work not included in the revised project plan, although it is questionable whether East Pakistan has the financial resources needed to carry out the work effectively.

GAO believes that many of the difficulties could have been avoided if AID had made a realistic analysis of the project cost estimate at the time the loan application was under consideration. Such an analysis would have revealed obvious deficiencies in the estimate and would have pointed up the need to reduce the scope of the project or to arrange for additional financing. (See pp. 47 to 53.)

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RECOMMENDATIONS OR SUGGESTIONS

In view of the current situation in Pakistan, GAO is making no recommendations. When conditions permit these projects to be completed or other economic development projects to be undertaken in Pakistan, any further U.S. support should be based on a realistic evaluation of the recipient's ability and willingness to support the projects.

AGENCY ACTIONS AND UNRESOLVED ISSUES

AID commented fully on a draft of this report in February 1971. (See app. I.) It felt that, under the relationship that existed between AID and the borrower (the Government of Pakistan or its agencies), AID had done all that could have been expected to resolve the problems that had arisen with the projects covered by the review. AID stated, in part, that:

"The GOP [Government of Pakistan] and its agencies are, under all existing loan agreements, responsible for the execution of projects. AID must do its best to ensure that the GOP does so, promptly and efficiently, but its powers to persuade are not always sufficient to avoid delays of the kind the GAO criticizes."

GAO recognizes that there are limitations on the actions that AID can take to ensure that projects are carried out on a timely and efficient basis.

GAO, in its review, noted several instances in which it believed that AID had taken all the actions that reasonably could have been expected, and it so stated in this report. In other instances, however, if AID had been more concerned with problem areas and had been more persuasive in dealing with Pakistani officials, the difficulties cited in this report could have been alleviated and the benefits derived from the projects thus would have been increased.

CHAPTER 1

INTRODUCTION

The capital development projects discussed in this report were selected for review as being representative of major projects which could contribute significantly to the economic development of Pakistan and which could further U.S. objectives in that country. Our examination did not include an overall evaluation of the activities of the Agency for International Development in Pakistan.

The examination was directed principally to a review of nine projects for which 15 U.S. loans totaling about \$121.5 million and grants totaling about \$7.3 million have been made. AID has provided, in addition to this dollar assistance, the equivalent of about \$160.6 million in local currency assistance for these projects. Our purpose was to determine whether these projects were contributing toward the accomplishment of U.S. economic assistance objectives in Pakistan and were being implemented in a reasonably effective, efficient, and economical manner. The review was conducted at the Washington office of AID and at the AID's overseas Mission in Pakistan, hereinafter referred to as the Mission.

Pakistan consists of two provinces--West Pakistan and East Pakistan--and the capital of the country is Islamabad located in West Pakistan. Each of the provinces has a provincial government that is responsible for certain functions delegated to it by the central government. The provincial capital of West Pakistan is Lahore, and the provincial capital of East Pakistan is Dacca.

Composition of assistance and projects reviewed

Since its inception U.S. economic assistance to Pakistan, including development of the Indus Basin, has totaled about \$2.3 billion consisting of loans amounting to about \$1.5 billion and grants of over \$800 million. In addition to this dollar assistance, over \$1.5 billion worth of surplus agricultural commodities have been provided to Pakistan

under the authority of the Agricultural Trade Development and Assistance Act of 1954 (Pub. L. 480).

Although program loans, or commodity import loans, constitute the major portion of U.S. assistance to Pakistan, project loans are a basic component of the assistance program. Project loans to Pakistan at the time of our review amounted to \$523 million and consisted of 49 AID project loans totaling about \$303 million and 20 project loans, provided by the former Development Loan Fund, totaling about \$220 million.

These loans have been made for a wide range of needed projects, including (1) a program designed to eliminate malaria in Pakistan, (2) land reclamation and irrigation projects, (3) the construction of electric power plants and related power transmission lines and distribution systems, (4) the modernization of Pakistan's railroad system, and (5) the construction or improvement of roads.

AID loan dollars are used to finance the foreign exchange costs of the projects for such items as equipment, supplies, and technical personnel. The local currency costs are financed either by the borrower or by AID through loans or grants of U.S.-owned rupees accumulated through the sale of commodities to Pakistan under Public Law 480.

The following schedule shows the dollar and local currency assistance provided for the development projects discussed in this report.

<u>Project</u>	<u>Number of loans</u>	<u>Dollars</u>	Local currency (dollar equivalent)	<u>Total</u>
			(note a)	
			(millions)	
Malaria eradication program	5	\$ 24.8	\$ 27.1	\$ 51.9
Power facilities:				
Mangla Dam transmission lines	2	11.2	-	11.2
Lyallpur thermal plant	1	16.4	5.0	21.4
West Pakistan power distribution	1	12.5	15.1	27.6
Salinity control and reclamation projects	4	45.6	35.5	81.1
Dacca-Aricha road	1	14.0	-	14.0
Coastal embankment	<u>1</u>	<u>4.3</u>	<u>77.9</u>	<u>82.2</u>
Total	<u>15</u>	<u>\$128.8</u>	<u>\$160.6</u>	<u>\$289.4</u>

^aAt an exchange rate of 4.76 rupees for each \$1.00.

AUTHORITY FOR ASSISTANCE
AND AID RESPONSIBILITY

The basic authority to finance capital activities in foreign countries is found in the Foreign Assistance Act of 1961 (22 U.S.C. 2151). This act provides that, under the direction of the President, the Secretary of State be responsible for the continuous supervision and general direction of economic assistance. The Secretary of State has delegated this responsibility to the Administrator, AID.

Direct responsibility for the planning and preparation of a capital activity is borne by the prospective borrower or grantee. AID is responsible for ensuring, to the extent possible, that all technical and financial plans are adequate and feasible.

After a loan or grant is made, the principal role of AID in project implementation is to keep the activity under surveillance, to ensure that physical and financial progress is in compliance with all agreements and plans and to ensure that project implementation is proceeding with due diligence and efficiency in conformity with sound engineering, management, and financial practices. AID is responsible also for working directly with the borrower or grantee on any problem affecting the progress of the project.

As a matter of policy, AID requires the following evidence as a prerequisite to project financing.

1. The economic analysis and such engineering, financing, and operating plans as may be appropriate have been completed. These must be in sufficient detail to provide the basis for a reasonably firm estimate of the cost of the project.
2. All financial, management, and technical resources required to complete the activity will be available.
3. Adequate financial, management, and technical resources will be available to operate and maintain the activity in an efficient manner.

4. Any required legislative action by the cooperating country has been, or can reasonably be anticipated to be, taken in time to permit the orderly progress of the project.

With respect to projects financed with U.S. owned or controlled foreign currency, it is AID's general policy, although not a statutory requirement, to apply the same standards of economic and technical feasibility as those outlined above to projects financed with dollars.

ECONOMIC DEVELOPMENT IN PAKISTAN

When Pakistan emerged as an independent nation in 1947, its economic future seemed desperately difficult. Virtually without any industry, the population of 90 million relied on a primitive agriculture for survival. The decade that followed was a period of relative economic stagnation. Beginning in 1960, however, internal conditions gradually were stabilized and the administration moved to improve the economic situation by establishing priorities, matching expenditures with resources, and providing substantial new incentives for exports.

Pakistan's economic growth may be illustrated in part by the following facts.

1. Agricultural productivity, by far the most important sector of Pakistan's economy, has increased. It provides 80 percent of the population with a living and, in fiscal year 1968, accounted for 52 percent of the country's exports. In West Pakistan changes occurring since 1960 have resulted in a rapidly increasing availability and willingness of farmers to use modern inputs, such as fertilizer, new seeds, irrigation water, and pesticides. Fertilizer consumption increased almost 200 percent between 1965 and 1968.
2. Industrial production has increased at an annual rate ranging from 6 to 31 percent since 1951. Although development has been concentrated in a limited number of industries and ownership is not broadly based, Pakistan is now self-sufficient in a

wide range of consumer goods, such as cotton, textiles, electric fans and motors, and newsprint.

3. With the assistance of AID and other donors, installed capacity for the generation of electricity rose from 114,000 kilowatts in 1947 to the point where the country could supply 730,000 kilowatts in 1969.
4. The gross national product has risen since 1960 at an average annual rate of about 5 percent, or about 2 percent in excess of the annual population growth rate of about 3 percent.

The high population growth rate has absorbed part of the economic gains, and the country, having one of the lowest per capita incomes in the world, still is extremely poor. The distance of over 1,000 miles by air and 3,000 miles by sea between the western and eastern provinces of the country and the sharp differences in climatic conditions and natural resources, along with other disparities, always have created additional problems. Further, political factors have limited the achievement of maximum economic development in Pakistan and have had an adverse effect on the timely implementation of the projects discussed in this report.

POLITICAL FACTORS AFFECTING
ECONOMIC DEVELOPMENT OF PAKISTAN

At the time of our review, Pakistan was in the last year of the Third Five Year Plan (1965-1970). The resources available for development, according to the original Third Five Year Plan, had been reduced by nondevelopment outlays for extraordinary defense measures resulting from the war with India in 1965 and by the interruption and reduction of aid flows after the war. Droughts in 1967 and 1968 also reduced the resources available for development.

AID has stated that, although Pakistan expects to come fairly close to meeting growth and export targets established in the plan, development expenditures are expected to fall short of the original plan targets by at least 20 percent.

In March 1969 social and economic disturbances resulted in the downfall of the Government and the establishment of martial law. These disturbances, although largely political, evoked widespread expressions of discontent about the Government's past failures to initiate a program for coping with social problems and income disparities.

The pressure of the disturbances, coupled with the urgings from aid donors, caused the martial law administration to revise the annual plan and the budget for fiscal year 1970 upward by about 8 percent to include funds for an attack on income disparities and social problems. In view of the shortage of funds, earlier plans did not anticipate a shift toward a more socially oriented policy until the Fourth Five Year Plan. AID has stated that, in many respects, the objectives of the martial law administration are not dissimilar from those of the former Government.

General elections were held in the fall of 1970. Subsequently, and preparatory to convening a National Assembly to draft a constitution, negotiations involving the elected leader in East Pakistan, the elected leader in West Pakistan, and the Pakistani President were instituted. These negotiations failed quickly, and civil strife developed between Pakistani soldiers and civilians in East Pakistan in March 1971. At the present time the political situation in Pakistan has deteriorated considerably.

EXTERNAL ASSISTANCE TO PAKISTAN

Pakistan has received large amounts of external financing which has had a major effect on its economic development. In 1961 a consortium of Pakistan aid donors, consisting of several nations and including the United States, was established under the chairmanship of the World Bank. The World Bank and consortium countries sponsor a wide variety of projects in such areas as transportation, power, and agriculture. Also significant foreign assistance funds have been made available by consortium members outside the framework of the consortium. Further, additional funds have been made available by Communist countries.

During the first and second Five Year Plans and the first 3 years of the Third Five Year Plan (July 1955 through June 1968), Pakistan received external assistance amounting to about \$6.1 billion. The United States, having provided 50.5 percent of total consortium assistance in the Second Five Year Plan and 41.5 percent in the first 3 years of the Third Five Year Plan, has been the largest contributor of loans, grants, and food assistance to Pakistan.

U.S. ASSISTANCE TO PAKISTAN

U.S. assistance to Pakistan began on a small scale in fiscal year 1951. An expanded economic and technical assistance program was initiated in fiscal year 1952 and was expanded further in fiscal year 1955.

Assistance objectives

AID economic assistance objectives have been revised to take into account the demand for an accelerated attack on disparities in income and on social problems. The first priority objective, however, still is to help Pakistan maintain high priority for economic development programs and to improve economic policies.

In August 1969 other AID objectives, in order of their priority, were stated as follows:

1. Encourage Pakistan to find an appropriate balance in policy attention and in the allocation of resources

among programs designed to accelerate production within a short period and programs designed to improve human resources and to reduce economic disparities between the East and West provinces.

2. Support Pakistan's efforts to allocate a rising share of available domestic resources to further economic and social growth.
3. Support Pakistan's efforts to expand agricultural production in both provinces by giving particular emphasis to rice production in the East, supported by a high level of production incentives, and by seeking a more market-oriented approach in the West, looking toward diversification of cropping patterns and toward the elimination of production incentives no longer needed.
4. Encourage continuation of efforts to place greater reliance on market forces and on private initiative in the allocation of resources.
5. Support new initiatives to improve the quality of family planning, education, health services, and employment conditions.
6. Foster Pakistan's strong export drive.

AID has stated that these objectives are also Pakistan's stated policy goals. AID has stated also that continued U.S. aid in the form of material resources, plus selective technical assistance, is needed to help Pakistan in its efforts to realize these goals with respect to both growth and social problems. At the current level of assistance, AID considers program lending and the policy issue associated with it to be more important than project lending.

CHAPTER 2

SUMMARY OF FINDINGS

Our review of nine development projects in Pakistan, for which AID has provided the equivalent of about \$289 million in dollars and local currency, showed that the completion of the projects had been delayed and that the achievement of overall development goals had been limited, as indicated below.

- AID has been unable to persuade the Government of West Pakistan to provide the financial, administrative, and operational support necessary for an effective long-range malaria eradication program. As a result, the program is about 2 years behind schedule, the incidence of malaria has reached epidemic proportions in some areas of West Pakistan, and adequate provision has not been made to prevent the recurrence of the disease once its incidence has been controlled. AID and the other participating organizations are agreed that the objective of complete eradication of malaria in Pakistan by 1975 is not now realistic, and a more modest program of malaria control, as opposed to malaria eradication, is now planned.
- Three salinity control and reclamation projects (SCARPs) in West Pakistan, financed with about \$81.1 million of U.S. funds, have not fully attained their objectives. Large numbers of tube wells constructed under the projects have remained unused for long periods of time, and completed facilities have not been fully utilized because the Government of Pakistan has not established an effective capability for operating and maintaining the projects.
- Because of delays in completing three AID-financed power projects, increased costs of about \$1.9 million have been incurred and the availability of much needed power has been deferred.

--The planned completion date of a highway project in East Pakistan has been set back almost 5 years, primarily because of prolonged administrative indecision on the part of AID and the Government of East Pakistan concerning the scope and financing of the project.

--Construction work on a coastal embankment project in East Pakistan, which has received about \$82.2 million in U.S. funds, constantly has been behind schedule because the Government of East Pakistan has not provided adequate support for the project. Some of the embankments were damaged severely during the November 1970 cyclone that struck East Pakistan, and the need for extensive repairs undoubtedly will further delay the completion of the project.

There is no question that these projects, despite the problems described above, have made significant contributions to the economic and social development of Pakistan. For example, the malaria eradication program has spared hundreds of thousands of persons from the misery of that disease; SCARPs have resulted in the recovery of several hundred thousand acres of previously nonproductive land and increased agricultural production; the AID-financed power projects have provided Pakistan with much needed electric power; and the coastal embankment project, when completed, is expected to increase agricultural production in East Pakistan by an estimated \$58 million annually.

Although these accomplishments are impressive, the benefits derived from these projects would have been even greater if AID and the Government of Pakistan had devoted more efforts to finding solutions to problems as they arose. Some of the delays and shortcomings encountered in carrying out these projects were unavoidable. Our review indicated, however, that most of the difficulties were of such a nature that they could have been resolved or at least minimized if AID and the Government of Pakistan had taken timely action to correct them.

In commenting on a draft of this report in February 1971, AID did not disagree with our findings and conclusions and stated that, in most instances, the report clearly

recognized the problems that had been encountered in carrying out these projects, as well as AID's efforts to overcome them. AID stated, however, that, in its view, the report did not adequately recognize the relationship that existed between AID and the borrower in the implementation of capital assistance projects or the limitations imposed by that relationship. In this respect AID stated, in part:

"One problem which the report does not bring out is the fact that AID does not directly manage the projects it finances. The GOP [Government of Pakistan] and its agencies are, under all existing loan agreements, responsible for the execution of projects. AID must do its best to ensure that the GOP does so, promptly and efficiently, but its powers to persuade are not always sufficient to avoid delays of the kind the GAO criticizes. For this reason, we have included in our comments an outline of our approach to project administration."

The outline referred to by AID includes a discussion of the various options that are available to AID in attempting to correct project problems. It is included in appendix I.

We are aware of the responsibilities of AID and the borrower in the implementation of capital assistance projects, and these responsibilities are set forth on pages 7 and 8. We also recognize that, in view of these divided responsibilities, there are practical limitations regarding the actions that AID can take to correct project weaknesses and deficiencies.

In the projects covered by our review, we noted instances in which, in our opinion, AID had done all that it reasonably could have been expected to do to keep the projects moving forward on a timely and efficient basis. We believe, however, that, in other cases, AID did not adequately pursue the courses of action that were open to it or was reluctant to take appropriate measures when it became evident that corrective action was needed.

For example, as early as 1967, it was evident that the malaria eradication program in West Pakistan was in serious trouble due to inadequate funding and other problems. It

was not until the summer of 1970, however, that an overall evaluation of the program was made and that a shift in program objectives was proposed. Also the construction of a third AID-financed SCARP was undertaken although the various phases of the work were not properly coordinated under the first two projects. Under these circumstances it seems that AID, prior to undertaking the third project, should have obtained adequate assurance that the earlier problems would not be repeated.

AID also pointed out that it viewed the financing of capital assistance projects not only as a method of transferring resources but also as a means of improving the institutional structure and operating efficiency of the recipient country. To accomplish the latter objective, the borrower is given the responsibility for all the contracting necessary to carry out the project, subject to certain approvals by AID.

AID stated that, although this method of operation was not always as efficient as would have been the case if AID handled the contracting function, it did provide the greatest opportunity for the recipient government to acquire the technical and administrative skills which it lacked and which it would need if it was to succeed. The borrower was responsible for carrying out the project, and AID's role was to see that it did and that its capabilities were improved in the process.

We agree with AID's comments concerning its approach to the financing and implementation of capital projects. Obviously the long-range objective of bringing about institutional improvements would not be adequately served if AID assumed full responsibility for planning, completing, and operating projects. We believe, however, that, if institution building is to be achieved, AID must assure itself that the recipient is carrying out its assigned functions in a competent manner and that the recipient must demonstrate a willingness to accept the counsel and advice that AID proffers. This requires a degree of cooperation and mutual understanding that has not always been evident in connection with the projects that we reviewed.

CHAPTER 3

OBSERVATIONS ON MALARIA ERADICATION PROGRAM

AID has been unable to persuade the Government of West Pakistan to provide the financial, administrative, and operational support necessary to successfully carry out the malaria eradication program. The reluctance of that Government to fully support the program has created a wide range of problems that have hampered various aspects of the program, which is about 2 years behind schedule. Moreover in recent years the incidence of malaria has reached epidemic proportions in some areas of West Pakistan. Not only has the Government failed to fully support the eradication phase of the program, but it has failed also to make adequate provision to prevent the recurrence of malaria once the disease has been eradicated.

In view of these problems and of other factors, all parties concerned with the malaria eradication program in West Pakistan have concluded that the program objective of complete eradication of the disease by 1975 is not realistic. As a result a program of malaria control, as opposed to malaria eradication, is now planned, with the objective of ultimately reducing the incidence of the disease to a level where it will no longer be considered a serious public health problem. Present estimates indicate that this more modest objective can be attained within the next 10 years.

In contrast to the results of the program in West Pakistan, the malaria eradication program in East Pakistan generally was on schedule and the incidence of malaria generally was within program criteria. The success of the program can be attributed to a large extent to the support furnished by the Government of East Pakistan.

BACKGROUND AND ORGANIZATION OF PROGRAM

When the malaria eradication program started in Pakistan in 1961, millions of people were infected with the disease and thousands died from malaria each year. At that time a program of malaria control, as opposed to eradication, was being carried out in some areas. The objective

of the control program was to reduce the incidence of the disease below the level considered a major public health problem, rather than to eliminate malaria entirely.

From 1952 through 1957 the United States provided about \$1 million in support of malaria control activities in Pakistan. In 1957 this assistance was terminated as a result of the U.S. position that programs related to malaria should have as their objective the eradication of the disease and not merely its control.

In 1958 the World Health Organization and the Government of Pakistan began developing a program for the eradication of malaria in Pakistan. In 1960 they approved a plan of operation for eradicating malaria over a 14-year period, and the program was initiated in 1961. The World Health Organization supports the program by supplying malaria advisory personnel who provide training and operational support and by preparing annual plans of action which supplement the 14-year plan of operation.

The program for Pakistan is part of a worldwide effort being carried out in most of the malarious countries of the world under the leadership, coordination, and guidance of the World Health Organization. In Pakistan and many other countries, AID has provided substantial financial support for malaria eradication activities.

Since 1962 AID has provided about \$25 million in assistance to the malaria eradication program in Pakistan, consisting of five loans totaling about \$24 million, and about \$1 million in grant funds. In addition to this dollar assistance, AID has provided the equivalent of about \$27 million in local currency loans and grants in support of the program. U.S. dollars have been used to finance the foreign-exchange cost of commodities required for the program, such as insecticides, spraying equipment, and vehicles. U.S.-owned local currency has been used to assist in financing the local currency costs of the program. The Government of Pakistan has contributed the equivalent of about \$24 million in local currency for the program.

The objective of the program is to eliminate malaria from East and West Pakistan over a 14-year period and to

prevent its reintroduction into the country. The activities necessary to accomplish this objective are grouped into four separate phases as follows:

1. The preparatory phase, during which time areas are mapped for future program operations.
2. The attack phase, which consists of spraying malarious areas with DDT and starting surveillance activities.
3. The consolidation phase, during which time intensified surveillance is carried out to identify and treat all malaria cases.
4. The maintenance phase, during which the reintroduction of malaria into the country is to be prevented. This is to be accomplished essentially through normal activities of the public health service.

For administrative and management purposes, the areas of East and West Pakistan were divided into regions and subordinate zones. These zones were phased into the program over a period of years on a planned basis. According to World Health Organization criteria, the basic elements for success in a malaria eradication program are (1) total coverage of the area where malaria transmission takes place, (2) provision of staff and commodities on a timely basis, (3) dynamic administrative and professional leadership, and (4) priority support by the local government. The success of the program largely depends upon firm adherence to the plan of operations approved by the World Health Organization and the Government of Pakistan.

INCREASE IN MALARIA IN WEST PAKISTAN

Although the incidence of malaria in West Pakistan was still below the 1960-61 level, it began to rise in many zones after 1967. As of December 1969, 11 of 17 zones in the consolidation phase, or almost one third of all the zones in West Pakistan, reported malaria incidence of epidemic proportions. The outbreak was such that program officials concluded that most of the 17 zones in the consolidation phase would have to be resprayed. Consequently,

12 zones that had been in the consolidation phase reverted to the attack phase in 1970. The following schedule illustrates the magnitude of the problem.

<u>Zone</u>	<u>Number of cases detected</u>			
	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
5 and 6 (note a)	101	127	460	9,824
8 " 9 (note a)	103	34	56	4,089
14 " 15 (note a)	<u>1,555</u>	<u>153</u>	<u>816</u>	<u>4,229</u>
Total	<u>1,759</u>	<u>314</u>	<u>1,332</u>	<u>18,142</u>

^aZones were combined in 1968 for economy purposes.

We believe that the increase in the incidence of malaria in West Pakistan can be attributed to a number of factors, such as (1) funding difficulties that resulted in the premature advancement of some zones from one phase of the program to another, (2) lack of proper supervision throughout the malaria eradication program, (3) inadequate development of the surveillance phase of the program, and (4) transmission of the disease from the city of Karachi which, together with other major urban areas, had not been included in the program. These matters are discussed in more detail in this chapter.

FUNDING PROBLEMS IN WEST PAKISTAN

The Government of West Pakistan financial support for the malaria eradication program has not been adequate, and funds have not always been released on a timely basis. In some instances economy measures, instituted by Pakistani officials to overcome financial difficulties, required deviations from planned operations that hindered the progress of the program.

During the early years of the program, schedules generally were met and the incidence of malaria declined rapidly. Although some difficulties were encountered, the program was small enough to function adequately with minor adjustments. By 1964, however, program costs were exceeding the amount of local currency that was available. During fiscal year 1964 a local currency deficit was met by postponing payment for locally procured DDT and import and sales taxes, and by reducing administrative, supervisory, and other personnel. The phasing of several areas into the program in 1964 was delayed because of the shortage of funds.

As a result of funding difficulties, AID has insisted that the Government of Pakistan provide assurance that adequate local currency will be supplied to carry out the program. The Government's late submission of this assurance for the third and fourth AID loans delayed the procurement of insecticides. As a consequence of the late arrival of DDT in 1965, many zones received only one round of spraying rather than the normal two, and also in 1968 spraying operations were not completed.

Pakistan's third 5-year plan included a proposed budget of \$86 million for the malaria eradication program. The war with India, which began in September 1965, caused a general revision of program priorities, and the Government of Pakistan proposed that the \$86 million budget for the malaria program be reduced by about 80 percent. AID informed Pakistani officials that the proposed level of funds for the malaria eradication program would only be wasted, because the program could not be successfully carried out with such limited financing.

In August 1966 the Government of West Pakistan decided to terminate the entire malaria eradication program,

because the funds available for the program were insufficient to complete the program. After discussions with AID, an appraisal committee of the Government of Pakistan reconsidered the matter and decided to continue the program. It was stipulated, however, that economy measures be continued in the implementation of the program.

Since 1967 it has been necessary for AID to provide virtually all the local currency requirements of the program, because the Government of West Pakistan has been unable or unwilling to meet its commitments to the program. During fiscal years 1967-69, AID provided the equivalent of about \$12.2 million in local currency for the program while the West Pakistanis provided only about \$200,000. The West Pakistan program budget for this 3-year period amounted to about \$20.8 million. The Government of West Pakistan has failed to provide all the budgeted funds, and the Mission has not always been able to get that Government to release funds when needed. West Pakistan was to provide funds for the program as needed, after which AID would release Public Law 480 local currency to the Government of West Pakistan through the Pakistani Government. West Pakistan delayed the release of rupee funds needed for the malaria eradication program in fiscal year 1968 until informed by the Mission that local currency funds for all AID programs would be withheld unless these funds were released. Because of funding difficulties at the time, spraying operations were curtailed in a number of areas before the incidence of malaria was reduced to an acceptable level.

AID planned to provide the equivalent of about \$4.2 million in local currency support for the program during fiscal year 1969. Due to an unexpected decrease in the level of local currency funds generated by Public Law 480 sales, however, AID was able to provide the equivalent of only about \$2.1 million.

The Mission informed us that it agreed that inadequate financing on the part of West Pakistan had delayed the program. The Mission stated that the financing difficulties arose primarily from the basic problem facing West Pakistan-- attempting to allocate available resources among the many projects and programs being carried out. The Mission stated, in part, that:

"The report recognizes that the program has been relatively successful in controlling malaria in both East and West Pakistan and we would like to emphasize that indeed it is this very success that has compounded the financial problem. With malaria reduced to relatively controllable proportions, even in West Pakistan *** the need for intensive financial support to achieve eradication just could not compete with other more obvious programs *** we have concentrated our efforts in every available way to combat this lethargic attitude on the part of the GOWP [Government of West Pakistan], however, with our own level of support to the program being reduced and the costs of the program constantly increasing, our success has been marginal."

ADMINISTRATIVE AND OPERATIONAL PROGRAM
DIFFICULTIES IN WEST PAKISTAN

AID records show that program officers have not spent sufficient time in the field to effectively supervise field activities. Poor supervision is considered to be one of the major causes of defective spraying techniques, inadequate coverage, and inadequate education of the population about the malaria problem.

West Pakistan has not developed the necessary surveillance activities directed toward the identification and treatment of all cases of malaria. Our review of AID and World Health Organization reports indicate that surveillance coverage generally has been infrequent, irregular, and inadequate in scope. The problems noted on field trips often have not been followed up adequately. Although program standards call for examining 10 percent of the population for malaria in areas where spraying has been completed, AID records show that surveillance teams are reaching less than 8 percent. Area borders have been neglected, and program officials have noted instances where entire villages have been omitted from the surveillance activities.

Another cause of the increase of malaria in recent years has been the transmission of the disease from the city of Karachi, and possibly from other uncontrolled urban areas not included in the program, into rural areas

that were in an advanced stage of the eradication program. By 1967 malaria in Karachi had reached epidemic proportions, and the incidence rate had increased in other major urban areas.

Subsequent to our review the Mission informed us that increased attention had been given to the increase in malaria cases in the urban areas of West Pakistan. The Mission stated that spray coverage had been given to more than one third of the city of Karachi and that an intensive program of case detection was being carried out with gratifying results. According to the Mission, steps were also being taken to include all urban areas of West Pakistan under the malaria program.

EAST PAKISTAN MALARIA ERADICATION PROGRAM

The malaria eradication program in East Pakistan generally is on schedule, although some relatively minor problems have arisen. Mission records for 1969 show, in contrast to the situation in West Pakistan, that only three of the 14 zones in the consolidation phase of the program in East Pakistan have failed to meet the program criteria. We were informed that these three zones were located near a country with an ineffective malaria program and were subject to reinfection from migratory workers and others.

Mission officials attribute the general success of the program in East Pakistan to such factors as (1) greater program support from the provincial government than that accorded the program in West Pakistan, (2) good program management, (3) better financial support from the Government, and (4) mosquitoes in East Pakistan that are less resistant to the insecticide used for spraying.

PROVISIONS FOR MAINTENANCE
OF MALARIA-FREE AREAS

In 1960 AID and the Pakistani Government agreed on a plan for the Government to establish a nationwide system of health services capable of preventing the reintroduction of malaria after the disease had been eradicated. The Pakistan rural health program was to provide the required facilities and organization. Rural health centers were to be built throughout the country and staffed by professional and semi-professional workers. Although this organization had been scheduled to be in operation by 1968, only nominal efforts had been made, and there was no overall capability for carrying out the maintenance function when the program reached that stage of development.

As early as 1964 some concern was expressed by Mission personnel that the rural health program would not have attained the capability to carry out the maintenance function when the program reached that stage of development. Nevertheless in 1964 AID decided to leave the development of the required health services to the Pakistani Government and other donors and terminated its support of the program.

The fifth AID dollar loan agreement for the malaria eradication program, signed in June 1968, required that the Government of Pakistan submit a plan for implementing the maintenance phase of the program. In January 1969 the Government furnished its plan, and, at the time of our review, both the West and East Pakistani Governments were in the process of establishing programs to carry out the maintenance function.

Due to delays in implementing the malaria eradication program, the lack of an adequate malaria maintenance organization has not yet materially affected the program. In one zone in East Pakistan, where the eradication phase has been completed, the maintenance function is being carried out as part of the regular program. If the program continues to progress, an additional nine zones in East Pakistan will be ready for the maintenance phase by the end of 1972.

As stated previously it has been necessary to respray a large area in West Pakistan as a result of the outbreak of

malaria in that province, and consequently there is no immediate need for a maintenance capability in West Pakistan. In both provinces, however, the organizational structure that is presently carrying out the malaria program will have to assume responsibility for the maintenance function until an adequate health service structure is created.

Subsequent to our review the Mission informed us that the Government of Pakistan had been giving increased attention to the infrastructure for health services which eventually would be responsible for carrying out the maintenance function of the malaria program. The Mission stated that:

"Currently a Government Commission is undertaking a complete review of all health services for the purpose of arriving at a final design for the health infrastructure. Obviously this action is not the entire answer since the perennial problems of budgets, facilities and staff training must also be faced. However, with an acceptable plan in hand, attention can be focused on the solution to the problems."

PLANNED CHANGE IN SCOPE OF PROGRAM

Late in 1969 AID officials were in general agreement that, in view of the problems described above, a general reevaluation of the malaria eradication program in West Pakistan was in order. In the summer of 1970, a joint strategy review team, composed of representatives of AID, the Government of Pakistan, and the World Health Organization, was appointed to review the status of the program and to make appropriate recommendations as to its future course.

In September 1970 the review team completed its work and issued a report on the results of its review. The review team concluded that, although the program had been of great value, because of the financial problems and other factors it was doubtful that the objective of complete eradication of malaria by 1975 could be attained.

The review team suggested that the present strategy of the program be changed to a more moderate and economically realistic strategy in line with the resources that Pakistan

was able to provide. The team suggested also that the new strategy have as its objective the eventual eradication of malaria but without time limit. The team expressed the opinion that the incidence of malaria could be reduced within 10 years, to a level where it will no longer be considered a serious public health problem, if some of the more important administrative, operational, and technical problems facing the program are eliminated.

AID, the Government of Pakistan, and the World Health Organization are in general agreement with the recommendations of the joint review team, and it is now contemplated that the suggested revised program will be placed into effect. Under the revised program the immediate objective will be the control of malaria, as opposed to its eradication.

CONCLUSIONS

The problems encountered in carrying out the malaria eradication program in Pakistan have resulted from insufficient governmental program support, particularly its failure to provide financial, administrative, and operational support as agreed. This lack of governmental support, in turn, undoubtedly stems from both the limited financial resources of the country and its somewhat lukewarm interest in the program. Any successful malaria eradication program must have the unqualified support of the local government.

The most serious defects in the program for Pakistan have been the neglect of urban areas, the inadequate surveillance of the sprayed rural areas, and the very slow development of rural health organizations to maintain eradicated conditions. In recent years the incidence of malaria has risen alarmingly in treated areas, and, in the absence of a maintenance structure, it may be expected to rise in other areas.

Until about 1967 the objectives of the program generally had been attained, although at a slower rate than hoped for. The program has saved many thousands of lives and spared hundreds of thousands of people the misery of malaria. Viewed in these very humane terms, the program has produced immeasurable benefits. In the future, however, the

question must be faced of whether the substantial reduction of malaria in Pakistan can be maintained over a long period or whether the high rate of malaria will return because of inadequate eradication coverage and maintenance facilities. The answer depends primarily on whether Pakistan is able and willing to provide the resources necessary for the successful completion of the program.

After a period of postponing confrontation with these basic issues, by attempting to correct the deficiencies in financial and organizational support, AID recognized that the malaria eradication program was at a critical stage. In a recent evaluation of the program, AID and the other participants concluded that, in view of the problems facing the program, the objective of complete eradication of malaria by 1975 was unrealistic.

The evaluation team suggested that the program be brought more nearly into line with the limited resources that Pakistan was able to provide and proposed that a program strategy of malaria control, as opposed to malaria eradication, be adopted. All parties are now agreed that this more modest objective is the best that can be attained under present conditions, and steps are being taken to implement the new strategy.

We believe that the recent evaluation of the program was long overdue and that under the circumstances the proposed approach to the malaria problem is a realistic one. We believe, however, that it is essential that the extent and direction of future U.S. assistance to the malaria program be based on a realistic appraisal of the Government of Pakistan's intentions and capabilities to provide support for the program.

CHAPTER 4

IMPLEMENTATION OF

SALINITY CONTROL AND RECLAMATION PROJECTS

AID has provided the equivalent of about \$81.1 million in assistance to SCARPs in Pakistan which, although successful in many respects, have not fully attained their objectives. Delays in the implementation of the projects and the lack of a more effective operation and maintenance program have been the major causes for reduced benefits from these projects. Many of the problems were originally experienced during the early stages of the program and, in our opinion, could have been eliminated or minimized in subsequent projects.

PURPOSE OF SCARP PROGRAM

In earlier times land in West Pakistan was irrigated by canals which carried water only during periods of high discharge from the rivers. The British built artificial dams on the rivers to provide water for most of the year through tens of thousands of miles of canals. This system eventually resulted in raising the water table and waterlogging the land and concentrating salt deposits in the upper layers of the soil through evaporation.

The objectives of the SCARP program are to correct this condition, by lowering the water table and leaching the high salt content of the soil, and to provide additional water for irrigation purposes. The reclaimed land and the additional water for irrigation provided by the SCARP program, in conjunction with improved agricultural practices, have resulted in increased agricultural production in West Pakistan.

The basic components of a SCARP are the tube wells--drilled wells, cased and screened and usually gravel packed--and a water distribution system. Tube wells are drilled some 200 to 450 feet deep to provide pumped water to increase the intensity of irrigation and to support the leaching process needed to reclaim land already affected by salination. When the groundwater is salty and sufficient surface water is available, they are pumped into the

canal at a rate calculated to provide a mix acceptable for irrigation.

As early as 1954 AID had provided limited grant assistance to Pakistan for comprehensive investigations of groundwater. AID's principal assistance to the reclamation program has been four loans, totaling about \$39.2 million, which are directly related to three individual SCARPs. AID also has furnished \$6.4 million in grant funds in support of the SCARPs.

In addition to this dollar assistance, AID has provided the equivalent of about \$35.5 million in local currency in support of the first two SCARPs. A \$10.7 million AID loan for a fourth SCARP was cancelled in June 1969 at the request of the Pakistani Government. Because of higher priorities, the Government apparently did not have the local currency funds necessary to carry out the proposed project.

Other countries have assisted in financing SCARPs. SCARP III was financed by Yugoslavia and Germany, and, although the proposed AID project in the SCARP IV area has been cancelled, Yugoslavia is financing a project in the area. The following table shows the number of tube wells constructed or under way and the source of financing.

<u>Project</u>	Number of tube wells	<u>Source of financing</u>			
		<u>Paki-</u> <u>stan</u>	<u>United</u> <u>States</u>	<u>Yugo-</u> <u>slavia</u>	<u>Germany</u>
SCARP I	2,043	248	1,795	-	-
SCARP II (note a)	2,448	-	1,934	514	-
SCARP III	1,585	520	-	542	523
SCARP IV	<u>935</u>	-	-	<u>935</u>	-
Total	<u>7,011</u>	<u>768</u>	<u>3,729</u>	<u>1,991</u>	<u>523</u>

^a AID assistance in the SCARP II area is provided to SCARP IIA and SCARP IIB.

Since the inception of the SCARP program in 1959, significant progress has been achieved in the recovery of non-productive land and in agricultural productivity. The success of SCARP I in providing water for irrigation

stimulated the development of privately owned tube wells, which in turn provided additional water for irrigation.

The contribution of the increase in productive land and irrigation water--together with the additional input of other resources, such as improved farming techniques, better seeds, and increased fertilizer use--has generated a major breakthrough in food production in West Pakistan.

Recent statistics, compiled by the Government of Pakistan, relating to the achievements of SCARP I showed that (1) of the 425,000 acres planned for reclamation in the SCARP I area, 259,000 acres had been reclaimed by the 1967-68 crop year, (2) the water table level had been reduced below the critical stage for most of the land in the area, (3) the cropping intensity had increased from the 1959-60 figure of 76 percent to 103 percent (planned intensity is 110 percent), and (4) the monetary return of major crops had increased about 230 percent after the SCARP I program started.

These are impressive achievements. Nevertheless the dimension of growth attributable to the SCARPs could have been somewhat greater if the problems described in the following sections had been surmounted.

PROJECT IMPLEMENTATION DELAYS

Large numbers of the tube wells constructed under the AID-financed SCARPs have been idle for long periods of time. These delays in utilizing completed wells resulted primarily from the failure to fully coordinate the electrification and connection of the tube wells with the completion of construction. Damage to tube wells from vandalism and deterioration has occurred during the long periods of inactivity.

SCARP I

Since February 1959 AID has provided about \$15 million in development loan funds and the equivalent of about \$10.6 million in local currency for the installation and electrification of about 1,800 tube wells in the SCARP I area of West Pakistan. The project was not fully operative until about 2-1/2 years after the scheduled availability date, because neither electricity nor water courses were completed on schedule.

The original target date for the completion of SCARP I was January 1962. All tube wells, originally scheduled for completion in June 1961, were constructed by November 1962, but the electrification work was not completed until June 1964. As a consequence a large number of the tube wells remained idle for as long as 18 months and others were operated with temporary power connections until permanent power lines were completed.

The delay in the completion of the project was caused primarily by the fact that the construction work and the electrification work were undertaken separately and that the two phases were not properly coordinated by the government agency responsible for implementing the project. The non-availability of power to the grid system which served the project area also delayed the full utilization of the project.

Inadequate watercourses were also a problem under SCARP I. The failure of water users to improve the watercourses promptly contributed to the operating difficulties. The Pakistani Government found it necessary to take over the construction of the distribution works that connect the

tube wells to the watercourses, although it had been expected that the water users would perform this work.

SCARP II

In March 1963 AID and the Pakistani Government signed a loan agreement under which AID provided about \$9.5 million to assist in financing the construction and electrification of 884 tube wells in the SCARP IIA area. AID provided also the equivalent of about \$24.9 million in local currency for this project.

This project experienced implementation delays similar to those encountered in SCARP I. Although the tube wells were scheduled to be completed in April 1966, they were not actually completed until 1 year later. The electrification of the tube wells was not completed until September 1968, and, at that time, only about 375 of the 884 tube wells could be utilized since the watercourses for the remaining wells had not been completed.

As a result of these delays, many of the tube wells constructed under the project remained idle for as long as 28 months. According to AID about 175 tube wells in the SCARP IIA area still were not being fully utilized as of September 1970.

As in the case of SCARP I, the delay in completing SCARP IIA on schedule resulted primarily from the failure to fully coordinate the construction and electrification work. Also, as in the case of SCARP I, some of the watercourses for SCARP IIA were not completed at the time the tube wells were electrified because the water users had not performed this work.

In December 1966 AID made a \$14.1 million loan to Pakistan to assist in financing the installation and electrification of about 1,050 tube wells in the SCARP IIB area of West Pakistan. The Government of Pakistan was to provide all the local currency required for the project. The project is currently under construction and the estimated completion date is late in 1971.

Under SCARP IIB, AID took steps to prevent the recurrence of the problems that had been encountered under the

two previous SCARPs. Nevertheless our review showed that delays and difficulties similar to those experienced on the two previous SCARPs were being encountered in the tube well construction and in the electrification work. After the inception of the project, the construction starting date for tube wells was delayed about 10 months, and the estimated completion date of the electrification work was set back up to 18 months beyond the original target date.

The construction delay was due partly to the delay in the award of the construction contract. The electrification setback was caused primarily by a 6-month delay in signing the engineering services contract, a 6-month delay in deciding the number of circuits to be installed on the transmission lines, and a 6-month delay for the necessary resubmission of tenders for transmissions lines.

NEED FOR A MORE EFFECTIVE OPERATION AND MAINTENANCE PROGRAM

Although the SCARP program has been in existence since 1959, AID has not been able to persuade the Government of Pakistan to establish an effective program for the operation and maintenance of completed SCARPs. AID has continued to provide funds for the construction of SCARPs, although AID officials have doubted that the Government would have trained personnel and sufficient funds to effectively operate and maintain the projects after their completion. The lack of an adequate program for carrying out this function has resulted in the failure to fully utilize the completed projects.

When the AID loan for the construction of SCARP I was made in 1959, Pakistan did not have an organization equipped to carry out the operation and maintenance function and no plans were made for establishing such an organization when the project was completed.

According to AID the problem was further complicated by shifting the responsibility for operation and maintenance of the project among several agencies of the Government, with the result that no one agency had the proper budget support or the trained personnel to carry out the operation and maintenance function for SCARP I. Subsequent

shifting of operating responsibility for SCARP IIA produced similar results.

Operating problems have been encountered since the tube wells for both SCARP I and SCARP IIA were placed in operation and have continued up to the present time. For example, there have been significant numbers of motor burnouts as the result of unstable power and of improper operation of the tube wells in SCARP I. During the period from January 1966 through June 1969, over 2,200 motor burnouts were reported by the SCARP I operating agency. Although we were unable to ascertain the cost involved in repairing this number of motors, we did note that late in 1967 the estimated cost of rewinding motors had ranged from \$150 to \$200 each.

The motors that have been acquired for SCARP IIA and SCARP IIB are equipped with internal protective devices designed to prevent the tube wells from operating when the power is defective. AID records indicated, however, that motor burnouts were still occurring because farmers and untrained operators were circumventing these controls to keep the wells operating.

The lack of a sufficient number of vehicles also has been a problem. Both Government and Mission officials have stated that the lack of motor vehicles has contributed to the operation and maintenance problems of the completed SCARPs. Although AID has authorized a \$3.3 million loan that will finance vehicles for operation and maintenance purposes, the loan agreement has not been signed.

In an effort to correct the operation and maintenance problems of completed SCARPs, both AID and the Government have provided funds. In January 1964 AID made a \$750,000 loan to Pakistan for the acquisition of materials and services required for the operation and maintenance of the AID-financed tube wells in the SCARP I area. AID also provided the equivalent of about \$126,000 in local currency for the operation and maintenance of the SCARP I project.

In June 1970 AID authorized an additional loan of \$3.3 million for the operation and maintenance of SCARPs. The proposed loan was to be used to provide consulting

services, participant training, and operating and maintenance equipment for the SCARPs. As of March 1971, however, the loan agreement had not been signed.

CONCLUSION

The success of the three AID-financed SCARPs has been hampered by delays in completing the projects and by the lack of an effective program for operating and maintaining the projects after they have been completed. We believe that, although some of the problems encountered with SCARP I may have been unavoidable, these difficulties could have been eliminated or minimized on SCARP IIA and SCARP IIB.

AID and the Pakistani Government, however, did not take the necessary actions to properly coordinate the various phases of the construction work and to provide an adequate capability for operating and maintaining the completed projects. As a result the same problems that were encountered on SCARP I have recurred to varying degrees on the two subsequent SCARPs.

It appears that AID has somewhat belatedly taken measures designed to correct these problems. The loan agreement for the proposed SCARP IV, which was canceled at the request of the Government of Pakistan, provided that the loan funds not be made available until the Government gave assurance that the various phases of construction work would be completed promptly and developed an effective plan for operating and maintaining the project after it had been completed. AID also recognized the need to resolve the operation and maintenance problems for the completed SCARPs, and authorized an additional loan of \$3.3 million for this purpose.

We believe that, if Pakistan is going to satisfactorily overcome the operation and maintenance problem, additional effort should be given to developing within the Government of Pakistan the managerial and technical skills needed to carry out an effective operation and maintenance program.

CHAPTER 5

CONSTRUCTION OF ELECTRIC POWER FACILITIES

Our review of three electric power projects in Pakistan, for which AID provided the equivalent of about \$60.2 million in assistance, showed that the projects had not been completed on schedule and thereby the availability of urgently needed power had been delayed and project costs had been increased. Many of the difficulties impeding progress on these projects were administrative and, in our opinion, could have been avoided or minimized if greater efforts had been made by AID and the Government of Pakistan to resolve the problems more promptly.

The delays in the completion of these projects resulted in costly restrictions on both industrial and agricultural production, including the deferment of electrical service to the AID-financed SCARPs. (See ch. 4.) During 1967, 1968, and 1969, the generating capacity of the West Pakistan main grid system failed to meet the requirements by about 15, 10, and 4 percent, respectively. These deficits could have been reduced substantially if the construction of the projects discussed below had been completed on schedule.

Increased costs of about \$1.7 million were incurred because the contracts of consulting engineers had to be extended. Also it was necessary to ship by air spare parts urgently needed for the project at a cost of about \$170,000. Further a greater amount of more expensive steam-generated power is being used than would be the case if the transmission facilities provided for in one project were completed and if available hydroelectric generating units could be fully utilized.

POWER DEVELOPMENT IN WEST PAKISTAN

The United States has participated in Pakistan's efforts to increase its generating capacity through a number of development loans for the power program in West Pakistan. AID and its predecessor agencies have made the following loans to West Pakistan for the development of power.

	Amount (<u>millions</u>)
Main grid transmission lines	\$11.8
Secondary transmission lines	21.1
Quetta thermal power station	6.0
Lyallpur thermal plant	18.1
West Pakistan power distribu- tion system	12.5
Gas turbines	2.8
Mangla transmission lines I	8.2
Mangla transmission lines II	<u>3.7</u>
Total	<u>\$84.2</u>

The United States also has pledged a contribution of \$417 million to the Indus Basin Development Fund which is managed by the World Bank. The fund is being used for the development of power and water resources for industry and agriculture in West Pakistan.

We have reviewed three of the above projects--the Mangla transmission lines, the Lyallpur thermal plant, and the West Pakistan power distribution system--for which AID has approved four dollar loans totaling about \$42.5 million. AID has provided, in addition to this dollar assistance, the equivalent of about \$20.1 million in local currency support for two of these projects. The results of our review of these three projects are set forth in the following sections of this chapter.

MANGLA DAM TRANSMISSION LINES

AID has made two loans totaling about \$11.9 million to finance the construction of transmission lines and associated substations and equipment necessary to connect the first four generating units of the Mangla Dam to the West Pakistan main power transmission and distribution system. The first AID loan amounting to \$8.2 million was made in January 1966, and a second loan for \$3.7 million was made in February 1968.

The Mangla Dam is the principal component of the multipurpose hydroelectric, irrigation, and flood control

project in West Pakistan that is being financed by the Indus Basin Development Fund at an estimated cost of \$400 million. The Mangla Dam project does not provide for the construction of transmission facilities to connect the generating units at the dam to the West Pakistan main grid system.

In February 1965 Pakistan submitted a loan application to AID that requested financing for all the transmission facilities required for the first four generating units at the Mangla Dam. During its review of the loan application, AID decided to finance only that portion pertaining to the first three generating units and postponed consideration of the portion applicable to the fourth unit until financing for that generating unit had been arranged. Financing for the fourth unit subsequently was arranged under Japanese credits, and, in February 1968, AID made a \$3.7 million loan to finance the transmission lines for the fourth unit.

So that the transmission facilities would be ready when the Mangla generating units became operational, the facilities for the first two units at Mangla were scheduled to be completed by March 1967 and the transmission lines for the third and fourth generating units were scheduled for completion by March 1968 and December 1969, respectively.

In carrying out the project, AID considered it necessary that every effort be made to meet the scheduled completion dates to provide for the projected maximum power demands for 1967, 1968, and 1969. The project schedules were not met, however, and the transmission facilities were not available when the Mangla generating units became operational.

The first two generating units at the Mangla Dam were commissioned for commercial operation in July 1967, the third generating unit in March 1968, and the fourth unit in June 1969. Because of delays in the construction of the transmission lines and related facilities:

1. The transmission facilities for the first two Mangla generating units were not completed until January 1968, about 6 months after the two generating units became operational.

2. The transmission lines for the third Mangla unit were not completed until about 2 years after the generating unit was completed.
3. The transmission facilities for the fourth Mangla unit could not be utilized until March 1970 although the fourth generating unit became operational about 9 months earlier. All work relating to the lines for the fourth Mangla unit was to be completed by the end of fiscal year 1971.

During the period of time between the completion of the generating units and their related transmission facilities, power from the Mangla Dam could be utilized only to the extent that existing transmission lines could be used. According to AID, during the last 6 months of 1969, Mangla was operating at only about 70 percent of its generating capacity because of the lack of transmission facilities.

The delay in completing these transmission lines has resulted in increased costs of about \$640,000. We estimate that the dollar costs applicable to that part of the project financed by the first AID loan have been increased by about \$550,000 because of the necessity for extending the consulting engineer's contract until the work was completed.

The Mission has estimated that difficulties encountered in part of the project financed by the second AID loan have resulted in a delay of 8 months in the completion of the project and an increase of about \$90,000 in the cost of the project. About \$70,000 of the increased cost was caused by the necessity for extending the consultant's contract.

Although part of the delay in completing this project could be attributed to the 1965 conflict between India and Pakistan, other problems under the administrative control of AID and/or the Pakistan Government were the major causes for the delay.

For example, the first AID loan was authorized in June 1965. The loan agreement was not signed, however, until January 1966, primarily because of the war with India which began in September 1965, and the initial letters of commitment for engineering services and for the purchase of

material were not issued until September 1966. Consequently, approximately 9 months elapsed from the time the loan agreement was signed until arrangements could be started for acquiring the necessary technical services and material.

The completion of the work financed by the first AID loan was delayed further when the Government of West Pakistan decided to terminate the contract of one of the construction contractors. AID had approved the award of this contract in November 1967 even though it was aware that the contractor was experiencing financial difficulties and that the consultant engineer retained by the Government of West Pakistan had recommended that the contract be awarded to another firm.

According to the consulting engineer, the contractor was unable or unwilling to properly perform the work, and, in November 1968, the responsible Government agency directed the contractor to stop work. In March 1969 a contract for the work was awarded to the construction firm originally recommended by the consulting engineer.

When the second AID loan was authorized in June 1967, AID anticipated that the loan agreement would be signed in July 1967, that all procurement in connection with the project would be completed by the end of 1968, that all construction would be completed by the end of 1969.

The loan agreement was not signed until February 1968, however, and, at the time of our review, the estimated construction completion date had been extended. The major reason for the delay centered around the procurement procedures to be followed in connection with the loan. Until late in 1969 these procedures required AID/Washington approval of each purchase order prior to the issuing of a letter of commitment covering the applicable material.

The Pakistani agency responsible for implementing this project originally submitted a request for a blanket letter of commitment for the transmission lines and substation materials in September 1968. AID/Washington ultimately took the position that a separate letter of commitment would be issued for each procurement contract or purchase order after copies were made available for incorporation in the letter of commitment.

After a considerable amount of correspondence among the Mission, AID/Washington, and Pakistan in regard to this matter, AID/Washington, in October 1969, revised its procedures so that blanket letters of commitment could be issued. In November 1969 one letter of commitment was issued to cover the purchase of material as originally requested in September 1968. At the time of our review, a firm terminal disbursement date for this loan had not been established. The Mission indicated, however, that December 1971 might be a realistic date.

LYALLPUR THERMAL PLANT

In July 1964 AID entered into a \$18.1 million loan agreement with the Government of Pakistan to assist in financing the construction of a 132,000-kilowatt gas-fired steam generating power plant and ancillary facilities at Lyallpur, West Pakistan. The plant was to be equipped with two 66,000-kilowatt gas-fired steam turbine units.

The local currency costs of the project were to be funded by the Government of Pakistan in an amount equivalent to about \$9 million, of which AID had directly provided about \$5 million through Public Law 480 local currency loans. The purpose of the project was to meet the anticipated demands prior to the availability of power from the Mangla Dam.

Although the first generating unit was scheduled to be operational by September 1966 and the second unit by the end of December 1966, the units were not completed until November 1967 and December 1967, respectively. These delays have caused, in addition to the loss of urgently needed power, additional project costs of about \$620,000 as a result of having to extend the consultant's contract for the additional period of time required to complete the work. Costs of about \$170,000 also were incurred for the air shipment of spare parts needed to keep the plant in operation.

In a report dated October 1966, the engineering consultants stated that the principal reason for the delay in construction was late procurement of equipment and supplies, caused by letters of credit and amendments to them not having been issued on a timely basis. The report indicated that many weeks had been lost in the shipment of materials because the supplier would not ship before the establishment of acceptable letters of credit by the bank involved. The project also was delayed to some extent by the 1965 war with India and extensive damage to one of the turbines that occurred during shipment.

The operation of the plant also has been impaired by the lack of a formal training program for Pakistani employees, although the project consultant provided some training in accordance with the terms of his contract. In April 1968

the Mission reported that the Government agency operating the plant lacked the maintenance personnel with the skills necessary for repairs requiring only normal maintenance procedures. Although a formal training program had been considered for some time and although funding had been provided, formal training had not been started at the time of our review.

The cost of operating the plant was increased by the need to ship spare parts by air because stocks on hand were inadequate. In October 1969 AID employees reported that only about 35 percent of the required spare parts stocks had arrived at the plant. During our review the Mission advised us that all spare parts would be delivered shortly.

AID records indicated that these difficulties had been caused, in part, by the failure of the project consultant to consider his contract responsibilities to include the coordination of all operations for the successful completion of the project. We noted that the responsible Government agency had expressed dissatisfaction with the consultant in regard to the provision of spare parts. Also, in a Mission audit report issued in June 1968, it was stated that a reasonably definitive contract possibly could have avoided or minimized the difficulties encountered in the training program.

WEST PAKISTAN POWER DISTRIBUTION SYSTEM

In December 1964 AID entered into a \$12.5 million loan agreement with the Government of Pakistan to assist in financing the dollar costs of rehabilitating and expanding the West Pakistan main power distribution system to serve an additional 200,000 customers. The local currency costs were to be provided by Pakistan in an amount equivalent to about \$15.4 million, of which AID had directly provided about \$15.1 million in Public Law 480 local currency loans.

This project has undergone a number of implementation delays and difficulties, and completion of the project is currently about 4 years behind schedule. AID originally estimated that all deliveries of AID-financed commodities under this loan would be completed by the end of 1965. The Mission informed us, however, that the delivery of all such

commodities would not be completed until early in 1970. As a result of these delays, the cost of the project has increased by about \$435,000 because of the necessity for extending the consultant's contract and the objective of providing an improved and needed power distribution system has been delayed.

AID records showed that the earlier delays were due primarily to the reluctance of the Pakistani Government to provide as much detail in its implementation plan for this project as AID wanted. There was an extensive exchange of correspondence among the Mission, AID/Washington, the Government, and the consultant before this matter was resolved when AID reduced the amount of detail that the Government was required to furnish in its plan.

Some of the more recent administrative problems related to the procurement of equipment. Mission files showed that much time was lost in correspondence among Pakistan, the Mission, and AID/Washington regarding the extension of the loan, the amendment of letters of commitment, and the publication of bid invitations.

To reduce procurement time and to terminate loans more promptly, efforts have been made to limit the period of time extensions. The responsible parties disagree, however, on the time required for procurement. Furthermore, AID records indicate that short extensions, particularly when the approval of the extension is delayed, do not allow enough time to carry out the procurement tasks. This causes even more delays.

In August 1969 the Government reported that 90 percent of all AID-financed equipment for the project had been ordered, that 85 percent had arrived, and that a major share of the material and equipment would soon be installed. All deliveries have now been made and the loan has been fully disbursed. (Additional agency comments may be seen on pp. 76 and 77 of this report.)

CONCLUSION

The recurring pattern of difficulties encountered on these three power projects resulted in increased project

costs and delays in the availability of urgently needed power. Both AID and the Government of Pakistan considered it essential to complete these projects on schedule to meet the expanding power requirements of Pakistan. Since most of the difficulties were of an administrative nature, we believe that many of them could have been avoided or minimized if AID and the Government had placed greater emphasis on resolving these problems on a timely basis.

CHAPTER 6

IMPLEMENTATION OF THE DACCA-ARICHA ROAD PROJECT

In June 1964 AID authorized a \$14 million loan to assist in financing the construction of a 58-mile highway between Dacca, the capital of East Pakistan, and Aricha, a port on the Brahmaputra River. The loan agreement was signed in January 1965; AID estimated in 1970 that the project would not be completed until June 1974, almost 5 years later than originally planned.

After the loan agreement was signed, the scope of the project was reduced substantially because the amount of funds provided by AID and the Government of East Pakistan was insufficient to complete the project as originally planned. As a result it was necessary for East Pakistan to assume responsibility for certain construction work that was not included in the revised project plan.

Our review showed that some of the difficulties encountered in connection with the Dacca-Aricha road project were unavoidable. For example, the hostilities between India and Pakistan, which began in September 1965, caused a general reallocation of Pakistan's resources and the subsequent reduction in scope of the project required additional time to obtain Pakistan Government approval for the revised project.

We believe, however, that AID could have avoided or minimized other problems that were encountered, such as (1) insufficient financing for the project, which resulted primarily from inadequate estimates of the cost of the project, (2) the necessity for revising the scope of the project once it became evident that the available funds were insufficient to complete the project as originally planned, and (3) soliciting bids for construction work although adequate funds were not available to finance the proposed work.

BACKGROUND OF PROJECT

In 1963 the Government of East Pakistan retained three U.S. engineering firms to conduct economic and engineering

feasibility studies of about 1,500 miles of roads in East Pakistan, including the Dacca-Aricha road. After the studies were completed, the World Bank agreed to finance the highest priority highway project included in the studies (a road between Dacca and the port city of Chittagong) and AID agreed to finance the Dacca-Aricha road project which was considered the second highest priority road project.

AID, in its justification for the project, acknowledged that it was difficult to quantify the benefits that would be derived from the construction of the road because of the lack of accurate data relating to traffic volume and patterns, vehicle operating costs, population trends, and other matters. AID concluded, however, that the construction of a modern highway would reduce road transportation costs, stimulate agricultural production, and contribute to the industrial and commercial development of East Pakistan.

INADEQUATE COST ESTIMATES

When the AID loan for the Dacca-Aricha road project was made in January 1965, the estimated cost of the project was \$26.6 million, based on data contained in the 1963 highway feasibility studies. The AID loan provided \$14 million for foreign exchange costs of the project, and the Government of Pakistan was to provide the remaining \$12.6 million--\$2.1 million in foreign exchange and the equivalent of \$10.5 million in local currency.

The cost estimate of \$26.6 million contained several deficiencies which resulted in a substantial understatement of the total estimated cost of the project. For example, although the project was not expected to be completed until 1969, the cost estimate was based on fiscal year 1963 prices and contained no provision for price increases. Price increases are a normal occurrence in developing countries, and the general wholesale price index in East Pakistan (fiscal year 1960 being used as a base of 100) increased from 106 in fiscal year 1963 to 141 in fiscal year 1969. In addition, the cost estimate was based on world market prices, whereas the AID loan funds were required to be spent in the United States where prices generally are higher.

Although the largest bridge to be constructed in connection with the project was estimated to cost about \$15 a square foot, the project consultant retained by the Government of East Pakistan later pointed out that the cost of bridges of this magnitude in the United States would be about \$45 a square foot and that a cost of about \$55 a square foot could be expected in Pakistan.

In August 1966 the project consultant completed his final cost estimate for the project, which indicated that the total cost of the project would be about \$49.8 million, or about 87 percent more than the original estimate of \$26.6 million. As a result, the scope of the project had to be reduced to keep the cost of the project within the amount of the available funds. The process of reducing the scope of the project and of obtaining AID/Washington and Government of Pakistan approval for the revised project resulted in a delay of about a year, and the project consultant was not authorized to proceed with design work for the revised project until September 1967.

In April 1968 AID/Washington reviewed the project consultant's cost estimate for the revised project and noted several deficiencies in the estimate, including the use of 1966 prices with no provision for price increases and the omission of about \$1 million of material costs. The AID/Washington review indicated that the consultant had underestimated the local currency cost of the project by the equivalent of about \$5.6 million.

The Government of East Pakistan, however, was not requested to provide additional local currency funds for the project because the time required to obtain approval of such an increase would have delayed the solicitation of bids, which was scheduled for June 1968. The decision to request bids without adequate funds resulted in further delay since it became necessary to engage in prolonged negotiations with the low bidder in an effort to obtain a lower price. (See p. 51.)

PROJECT REVISIONS

The Dacca-Aricha road project originally was justified on the basis that the existing road was mainly single lane with inadequate shoulders and was subject to annual flooding over a substantial part of its length. In addition, it was contended that bridges were needed along the 58-mile road to replace either ferries or existing bridges. Under the project plan, the existing road was to be raised to prevent annual flooding and was to be widened to accommodate two lanes and a total of 15 bridges and other structures were to be constructed.

Our review showed that by August 1965 AID was aware that the project consultant's estimate of the cost of the project would substantially exceed the original cost estimate. The original estimate had been used to determine the amount of funds to be provided by AID and the Government of Pakistan. AID, however, was not able to take any formal action to effect a revision of the project until a year later when the consultant submitted his final cost estimate. As stated on page 49, another year elapsed before the consultant was authorized to proceed with the design work for the revised project.

The revised project provides only for the construction of bridges and other structures. The deletion of the improvements to the existing road was justified by AID on the basis that the road was subject only to minimal flooding and that the proposed improvements could be made later by the East Pakistan Government. According to the Mission, the original justification was prepared after a record flood in 1962 caused extensive damage to the existing road and the benefits to be derived from improvements to the road were overemphasized in the original justification. The Mission also stated that, during an average year, the road would be closed only about 2 weeks.

When the Dacca-Aricha road project was initiated, it was planned that a U.S. contractor would perform all the construction work because the Government of East Pakistan, according to AID, did not have the capability for carrying out the work. Under the revised project plan, however, the Government of East Pakistan is to perform all the road improvement work originally planned for a U.S. construction firm.

According to the Mission this change was possible because the performance of the Government agency responsible for road construction had improved to the extent that it was then capable of carrying out the proposed work. The Mission stated that this increased capability on the part of the Government was due primarily to the training provided by a U.S. consulting firm retained by the Government of East Pakistan at AID's insistence.

It seems that the use of the AID loan funds for the construction of bridges and other structures provides the maximum benefits which can be derived under the circumstances. The construction of these facilities, however, will not accomplish the original objective of providing an all-weather road. This objective will not be accomplished until such time as the Government of East Pakistan is able to make the necessary improvements to the existing road.

BIDDING PROCEDURES

Our review showed that AID was aware that the Dacca-Aricha road project was not adequately funded when bids for the construction contract were initially solicited in June 1968. Although AID had determined that the project consultant's cost estimate was understated, the Pakistan Government was not requested to increase its local currency commitment because the time required to obtain approval for additional funds would delay the solicitation of bids.

Only one bid was submitted on the initial bid-opening date in September 1968; it was rejected because it exceeded the estimated cost of the work to be performed by 122 percent. Bids were resolicited, and, by the second bid-opening date in November 1968, two bids had been submitted. One exceeded the estimated cost of the work by 111 percent, and the other exceeded the estimated cost by 61 percent.

The Government of East Pakistan attempted to obtain a price reduction from the low bidder on the grounds that the prices bid for certain elements of the project were far in excess of the cost estimate. The low bidder, however, contended that its bid was the lowest responsive competitive bid and that a price reduction could be achieved only by deleting certain elements of the proposed work.

A construction contract finally was executed in May 1969 when the low bidder reduced his bid price by about \$3 million, primarily because roadway work and other requirements had been eliminated from the work to be performed by him. As a result, the Government of East Pakistan assumed responsibility for the completion of the deleted work.

AGENCY COMMENTS AND OUR EVALUATION

In commenting on our draft report, AID agreed that the original cost estimate prepared in connection with the Dacca-Aricha road project had been inadequate. AID pointed out that, at that time, no cost data were available for a construction project of this type in East Pakistan. The lack of such cost data, according to AID, made it difficult to prepare an accurate cost estimate and also hampered AID's review of the cost estimate prior to authorizing the loan. AID also noted that the World Bank had encountered similar problems in connection with the Bank's loan for the Dacca-Chittagong highway, which is not yet under construction.

AID pointed out that, although some of the errors in the project cost estimate might have been avoidable, it was impossible at the time to resolve the basic problem of the lack of comparable cost data. AID stated that it had attempted to deal with problems arising from engineer's cost estimates and pointed out also that AID's cost-estimating methods for capital projects had been revised recently to furnish improved guidance to host governments, consultants, and AID employees.

Although the lack of comparable cost data clearly made it difficult to prepare a reasonably accurate estimate of the cost of the Dacca-Aricha road project, we believe that AID, in its review and analysis of the estimate, should have detected such basic deficiencies as the lack of a provision for price escalation and the use of world market prices instead of U.S. prices. Such obvious deficiencies should have alerted AID to the probability that the cost estimate contained other errors and was not a sound basis for determining the amount of funds required to carry out the proposed project.

CONCLUSIONS

We believe that many of the problems associated with this project could have been avoided if a realistic analysis of the project cost estimate had been made when the loan application was under consideration. Such an analysis would have revealed such obvious deficiencies in the cost estimate as the lack of a provision for cost increases and would have pointed up the need to either reduce the scope of the project or arrange for additional financing. We believe that, if this basic issue had been resolved before the project was initiated, many of the difficulties that subsequently were encountered could have been avoided or minimized.

It also appeared that AID should not have permitted the solicitation of bids for construction when it was aware that funds were not available to complete the construction work. Although AID permitted this action in the interest of facilitating the implementation of the project, this action contributed to prolonging the negotiations with the contractor and the resultant delay in getting construction work started.

The Dacca-Aricha road project will not accomplish its objective until such time as the Government of East Pakistan is able to complete the work it assumed as a result of revisions in the scope of the project. In view of the limited resources of the East Pakistan Government, there seems to be some question regarding its financial ability to carry out the construction work it has been required to assume.

More importantly the political turbulence and civil strife in East Pakistan occurring in the early part of 1971 make the future prospects for this project quite uncertain.

CHAPTER 7

CONSTRUCTION OF COASTAL EMBANKMENTS

Since 1961 AID has provided \$4.3 million in development loan funds and the equivalent of about \$77.9 million in local currency for the coastal embankment project in East Pakistan. The Government of Pakistan has invested about \$2 million in foreign exchange and the equivalent of about \$179 million in local currency for the project. The project is the first phase of a program designed to increase the agricultural productivity of farmlands in the southern coastal area of East Pakistan by preventing inundation from saline tidewaters and monsoon floodwaters.

In May 1966 we issued a report (B-158163, May 31, 1966), to the Administrator, AID, which discussed the implementation of the coastal embankment project from its inception through fiscal year 1964. In general, the report noted that none of the construction target dates had been met because the Government of Pakistan had not provided adequate personnel and material support.

Our latest review has shown that these earlier delays have continued and that construction constantly has been behind schedule. The project was severely damaged during the massive cyclone and tidal wave which struck East Pakistan in November 1970. Although exact figures are not available, AID estimates that it will cost in excess of \$10 million to repair the damaged embankments. It is not known at this time when the project will be completed.

We found that the delays encountered in constructing this project were caused by such factors as inadequate funding, untimely release of funds, a high proportion of inoperative equipment, failure to acquire land for right-of-way, and shortages and late deliveries of construction materials.

We found also that progress had been delayed by several events that could not be foreseen. In addition to being struck by the 1970 cyclone and tidal wave, the project area also was struck by cyclones in 1965 and 1966 which damaged hundreds of miles of embankment. The 1965 war with

India caused a reallocation of Pakistan's resources and eliminated India as a source of the project's coal requirements. Political turmoil during the early part of 1969 triggered numerous labor disputes and caused a reduction in the project's budget.

Most recently political turbulence and civil strife early in 1971 have significantly affected the project's future. Undoubtedly these later events will only aggravate the situation and will cloud even further the outlook for the project.

It appears that AID has taken all reasonable measures to ensure that the project would be adequately and timely funded. In view of the magnitude of the assistance provided to the project, however, we believe that AID could have reduced the impact of the other problems which have impeded construction progress by making stronger representations to the Pakistan Government agency responsible for carrying out the project.

EARLY PROJECT ACTIVITIES AND CHANGES IN SCOPE

The southern coastal area of East Pakistan is divided into individual units of land and islands by the numerous rivers and the Bay of Bengal. The units and islands, which range in size from 3,000 to 140,000 acres, are encircled with earthen embankments, designed to prevent flooding. The areas formed by the embankments, called maintenance units or polders, are equipped with drainage sluices which eliminate excess rain water and, in some cases, flushing sluices which provide fresh water for irrigation.

These polders have been in existence for many years; but, after Pakistan attained its independence in 1947, they deteriorated from a lack of maintenance. When the coastal embankment project was initiated in 1961, its objective was to protect about 1.6 million acres of land by rebuilding the embankments over a 7-year period at an estimated cost of \$55 million.

The scope of the project was expanded in fiscal year 1962, on the basis of a plan prepared by a U.S. engineering firm, to protect 2.4 million acres of land with 73 polders

over a 10-year period at an estimated cost of \$127.4 million. In fiscal year 1966 the scope of the project was further revised, on the basis of more accurate engineering data, to protect about 2 million acres of land with about 2,100 miles of embankments. According to present plans the embankments, when completed, will be about 2,300 miles long, will enclose about 2 million acres of land, and will cost the equivalent of about \$278 million.

The coastal embankment project is expected to make a substantial contribution to the economy of East Pakistan. According to estimates prepared by the project consultant, agricultural production will be increased by about \$58 million a year when the project is completed. Other benefits--such as savings in foreign exchange, reduction of damage from cyclones, and increased employment--are expected to amount to about \$44 million annually.

PROJECT FUNDING

We found that the amounts of local currency provided by the Government of Pakistan for the project have been consistently less than the amounts specified in the project agreements. From fiscal year 1965 through fiscal year 1968, the Government of Pakistan agreed to provide the equivalent of about \$51.7 million for the project. The total amount of local currency it actually provided during this period, however, was about \$47.3 million. In fiscal year 1969 the Government also failed to provide all the local currency funds that it had agreed to provide. This was partly due, however, to the political turmoil in Pakistan during this period.

The shortage of local currency was one of the principal reasons that construction schedules were not met during this period. Also the allocation of project funds by the Government of Pakistan was not made on a timely basis. For example, only one third of the funds budgeted for the fiscal year ended June 30, 1968, were allocated by March 1968. U.S.-owned local currency was not always available when needed because of the lengthy periods required by the Government of Pakistan to approve the project agreements. For example, the Government did not sign the fiscal year 1967 project agreement until March 1967.

To induce the Government of Pakistan to provide adequate and timely funding for the project, AID stipulated in the project agreements that (1) certain prior year funding shortages would be provided during the period covered by the project agreement and (2) U.S.-owned local currency for the project would not be released until Pakistan had provided specified amounts of local currency.

Another factor which affected the availability of funds for the project was the East Pakistan Government's practice of deducting interest charges from the project's budget. Interest charges by AID are .75 percent for the capital development loan and 3 percent for Public Law 480 loans. There are no interest charges on Public Law 480 grants. Although about 46 percent of the planned budget for fiscal years 1965 through 1968 was provided from Public Law 480 loans and grants, the Government of East Pakistan deducted interest charges from the annual budgets at rates ranging from 5 to 6-1/4 percent on the total investment in the project from its inception. The planned budget for fiscal year 1965, for example, included an interest deduction of \$2.4 million. Thus, although Pakistan agreed to provide \$10.8 million of the budget, the actual amount provided was only \$8.4 million.

EQUIPMENT MAINTENANCE

We found that a large portion of the equipment used on the project was inoperable from fiscal year 1965 through fiscal year 1969, as indicated by the following schedule.

<u>Type of equipment</u>	<u>Percent inoperable</u>				
	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
Launches	50	22	26	19	33
Water pumps	45	25	32	43	44
Outboard engines	72	54	43	57	66

This condition resulted primarily from a lack of spare parts, trained mechanics, and repair facilities and from a lack of proper coordination between the various organizations involved in carrying out the project.

The lack of spare parts was the principal reason that much of the equipment had not been utilized fully. In some instances East Pakistan Government agencies responsible for maintaining the equipment were unable to purchase spare parts when needed because of a shortage of foreign exchange. Spare parts were not always available when needed because of the long period of time required by the East Pakistan Government to process requisitions for spare parts.

The maintenance of equipment has been a continuing problem in connection with this project, although AID has provided financial and technical assistance to the two East Pakistan Government agencies responsible for repairing the equipment. These two agencies, the Mechanical Equipment Organization and the Dredger Fleet, have received \$3.8 million in development loan funds and the equivalent of about \$2 million in U.S.-owned local currency. Notwithstanding this financial support, AID apparently has not been able to persuade these two organizations to provide adequate maintenance service for the equipment used on the coastal embankment project.

The lack of spare parts was also the primary cause of the low utilization of a helicopter used in connection with the project, as indicated by the following schedule.

Calendar year	Hours used		Total
	On coastal embankment project	Other uses	
1965	145	70	215
1966	205	120	325
1967	30	33	63
1968	20	91	111
1969 (first 10 months)	-	10	10

The helicopter, which was purchased with AID loan funds for about \$100,000, was placed in operation early in 1965. Although an additional \$50,000 of AID loan funds subsequently were used to purchase spare parts for the helicopter, a lack of spare parts was the major reason for the nonutilization of the aircraft during 1969. In November 1969 AID

authorized the additional purchase of \$25,000 worth of spare parts from the loan proceeds.

In commenting on various aspects of the coastal embankment project, the Mission acknowledged that the project had been hampered by poor maintenance of equipment. The Mission stated that this was a problem that generally existed throughout East Pakistan, as well as in other developing countries. The Mission stated also that its assistance to the Mechanical Equipment Organization and the Dredger Fleet was directed toward improving this situation. According to the Mission the performance of these two organizations has improved, but additional assistance is still needed.

OTHER DIFFICULTIES

Our review of the coastal embankment project showed that (1) the project was being hampered by delays in acquiring land necessary for embankment and structure right-of-way, (2) substantial amounts of funds provided for land acquisition were not being utilized by the Government of East Pakistan officials who were responsible for that function, and (3) construction progress was delayed by shortages and late deliveries of construction materials.

The following schedule summarizes land acquired for the project and unused funds during the period covered by our review.

End of fiscal year	Acres of land		Local currency funds held by Government officials (millions)
	<u>Required</u>	<u>Obtained</u>	
1965	34,800	9,900	\$ 2.9
1966	39,700	13,000	4.9
1967	51,900	18,000	11.3
1968	59,900	26,700	15.4
1969	65,700	39,600	15.7

The delays in acquiring land in connection with the project were caused primarily by a lack of personnel to carry out land acquisition activities and by public opposition to the land acquisition program.

The large amount of unused funds held by East Pakistan Government officials was caused, in part, by an East Pakistan Government requirement that funds must be available before land acquisition procedures are started. The land owners, however, are paid only 50 percent of the sales price until the transfer of title is effected, a procedure which usually requires several years.

We found that shortages and late deliveries of construction materials also delayed construction progress from fiscal year 1965 through fiscal year 1969. The lack of

these materials was most pronounced during 1967 when work on the sluices had to be suspended and when the funds provided for that purpose were used instead for the construction of embankments. The shortage of construction materials generally was attributed to transportation difficulties and the long period of time required by the Government of Pakistan to process material requests. The supply of coal for the project was affected particularly by the war with India, which eliminated that country as a source of supply.

CONCLUSIONS

The construction of the coastal embankment project has been hindered by difficulties encountered in such areas as project financing, equipment maintenance, land acquisition, and material supply. We believe that AID could have reduced the impact of these difficulties if greater efforts had been made to persuade the Government of Pakistan to take the necessary actions to correct these problems.

Although AID has taken certain measures to ensure that the project would be adequately and timely funded, AID's efforts generally have not achieved the desired results; we believe that continued efforts in this area are necessary. We found little indication that AID had attempted to alleviate the land acquisition problem. Since the failure to acquire the necessary land has delayed the completion of the project, we believe that AID should have urged the Government of East Pakistan to provide adequate financing and staffing and improved land acquisition procedures. We believe also that AID should have increased its efforts to have the Government of Pakistan correct the problem of shortages and late deliveries of construction materials.

APPENDIXES

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

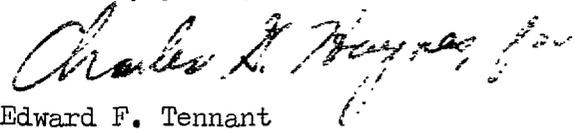
FEB 19 1971

Mr. Oye V. Stovall
Director, International Division
U.S. General Accounting Office
441 G Street, N.W.
Washington, D. C. 20548

Dear Mr. Stovall:

I am pleased to transmit the enclosed memorandum dated February 16, 1971 received from Mr. Donald MacDonald, Assistant Administrator for the Bureau for Near East and South Asia. This memorandum constitutes the Agency's consolidated response to the U.S. General Accounting Office's draft report entitled, "Capital Development Projects in Pakistan."

Sincerely yours,



Edward F. Tennant
Auditor General

Enclosure: a/s

GAO note: The page numbers cited in these comments refer to pages in the draft report submitted for review; the page numbers shown in brackets refer to the corresponding pages of this report.

APPENDIX I

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT

Washington 25, D C

FRE

MEMORANDUM FOR: Mr. Edward F. Tennant
Auditor General

SUBJECT: GAO Draft Report on Need for Improvement
in the Administration of Capital Development
Projects in Pakistan

We appreciate having been given an opportunity to review the Draft Report by the GAO on the "Need for Improvement in the Administration of Capital Development Projects in Pakistan." The GAO clearly recognizes many of the problems we have encountered and, in most instances, gives credit to AID for taking appropriate steps to overcome them. We believe, however, that the summary presented in the first four pages does not adequately reflect GAO's findings and conclusions stated in the body of the draft report, and that certain additional information is needed for a clearer understanding of the projects reviewed by GAO.

Our suggestions for changes in the summary are presented below and, in addition, we are attaching our more detailed comments on the report itself.

Economic Development in Pakistan

Page 1, Paragraph 5

We suggest this paragraph be revised to read:

"GAO believes that the U.S. assistance has contributed significantly to the economic development of Pakistan. In GAO's opinion, however, the effectiveness of this assistance could have been even greater if the Agency's priority efforts to find solutions to problems as they developed had resulted in more timely remedial action by the Government of Pakistan."

Malaria Eradication Projects

Page 1, last paragraph - suggested substitution:

"Since 1962 AID has provided about \$25 million in dollars and \$28 million equivalent in rupees for malaria eradication activities in Pakistan. Approximately 92% of this assistance was in the form of loans. The program has saved many thousands of lives and spared hundreds of thousands of others the misery of malaria. Viewed in those very humane terms, the program has attained immeasurable benefits. Looking to the future, however, the hard question must be faced of whether the substantial reduction of malaria in Pakistan

can be maintained over the long-range. Although the GOEP has provided vigorous support for the program, AID has been unable to persuade the GOWP to provide the level of financial, administrative and operational support necessary for an effective long-range program (see USAID Mission comments p.23). As a result, the malaria eradication program is about two years behind schedule, and malaria has reached epidemic proportions in some areas of West Pakistan. GAO found that all parties concerned with the Malaria Eradication Program are agreed that it is not now realistic to expect complete eradication of malaria in Pakistan and that a program of control rather than elimination is contemplated. AID plans to conduct an evaluation of the malaria eradication program and to develop recommendations to guide the Government of Pakistan and other participating organizations on the future of the program. We believe that the AID program should be brought into line with the more limited [pp. 17-28] purposes and reduced financial support of the GOWP. (See pp.13 - 24.)"

Salinity Control and Reclamation Projects

[page 2, paragraphs 3 and 4]

Page 2a, paragraph 2 - suggested substitution for the first sentence:

"Since the beginning of Salinity Control and Reclamation Project No. 1 (SCARP I) in 1959, AID has provided dollar loans amounting to approximately \$39 million, dollar grants of \$6.4 million and \$35.5 million equivalent in rupee loans and grants for three SCARP projects in West Pakistan. Significant progress has been achieved through these SCARP projects in terms of recovering non-productive land and increasing agricultural productivity. In addition, the success of the SCARP projects has stimulated development of privately-owned tubewells which have become a very important factor in W. Pakistan agriculture. These developments of increased productive land and irrigation water from the tubewells, together with the additional input of other resources such as improved farming techniques, better seeds, and increased fertilizer use, have contributed very significantly to the major break through in food production in West Pakistan. In spite of these impressive achievements, the dimension of growth attributable to the SCARP projects could have been somewhat greater, if the following implementation and maintenance problems had been surmounted---".

Dacca-Aricha Road Project

[page 2]

Page 2a, last paragraph - with the suggested addition, the first sentence would read as follows:

APPENDIX I

"The planned completion date of the Dacca-Aricha road project in East Pakistan has been set back almost 5 years, due primarily to administrative indecision concerning the scope and financing of the project and to delays caused by a general reallocation of Pakistan's budgeted resources following the outbreak of hostilities between India and Pakistan in September 1965."

Coastal Embankments Project

[page 3, paragraph 3]

Page 2b, last paragraph - suggested revision:

"Construction work on the coastal embankment project, which has received the equivalent of \$85.8 million in U.S. assistance (a \$4.3 million loan in dollars and \$81.5 million equivalent in local currency of which 80% was in loans) has continually been behind schedule because the GOEP has not provided the level of support needed by the magnitude of this project which, on completion, would comprise about 2300 miles of embankments to protect about 2 million acres from normal high tides and fresh water flooding from the rivers in the Ganges delta area. Although the GOP has invested \$2 million of its own foreign exchange and about \$179 million equivalent in rupees, this has been less support than needed. Other factors contributing to slower than planned implementation were a high percentage of inoperative equipment, the failure to acquire land for right-of-way as rapidly as needed, and shortages and late deliveries of construction materials. In view of the magnitude of assistance provided by AID, GOP and GOEP for this important project, GAO believes that AID should vigorously renew its efforts to persuade the GOEP to correct the problems which could delay further construction and could be serious deterrents to rehabilitation of the embankments damaged during the major hurricane and tidal wave disaster last November 12."

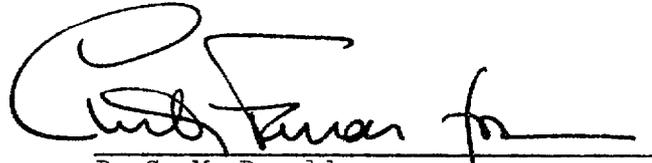
We believe that both the summary and the report should give adequate recognition to the very substantial accomplishments and progress made thus far in this project, e.g.: The U.S. consulting engineers, Leedshill-DeLew, in their 1968 evaluation report computed the estimated increase in agricultural production attributable to the project at \$58 million annually. The report, in all fairness, should reflect the major logistics problems and serious intermittent weather difficulties involved in carrying out a project of this magnitude on the low-lying peninsulas and islands of the Ganges delta. [See GAO note.]

Responsibility for Execution of Projects

One problem which the Report does not bring out is the fact that AID does not manage directly the projects it finances. The GOP and its agencies are, under all existing loan agreements, responsible for the

GAO note: The estimated increase in production valued at \$58 million annually is based on future increases after the project is completed. It is not known at this time when the project will be completed.

execution of projects. AID must do its best to ensure that the GOP does so, promptly and efficiently, but its powers to persuade are not always sufficient to avoid delays of the kind the GAO criticizes. For this reason, we have included in our comments an outline of our approach to project administration.

A handwritten signature in black ink, appearing to read "D. G. MacDonald", written over a horizontal line.

D. G. MacDonald
Bureau for Near East and South Asia

Attachment: a/s

APPENDIX I

COMMENTS ON DRAFT REPORT ENTITLED
"NEED FOR IMPROVEMENT IN THE ADMINISTRATION
OF CAPITAL DEVELOPMENT PROJECTS IN PAKISTAN"

I. Objectives Pursued and Operating Principles Applied by AID in the
Administration of Capital Projects.

1. We view the financing of Capital Projects not only as a way to transfer resources but also as a means to improve the institutional structure and operating efficiency of the government agencies involved. In the interest of completing the transfer of resources efficiently and promptly, we should always choose that solution to a problem which will get a given project completed at the earliest possible time. In the interest of serving the longer-range objective of bringing about institutional improvements, we favor that solution to a problem which provides the greatest opportunity to transfer those technical and administrative skills which the government agency involved lacks and will need if it is to succeed. Inevitably, the pursuit of these two different goals leads, on occasion, to compromise solutions which cannot be explained if one focuses only on the prompt completion of projects.
2. From its inception in 1961, AID has recognized the importance of the institution building aspects of its Capital Assistance Program, and adopted operational principles to reflect that recognition. Foremost among these principles is the so-called "Borrower/Grantee Contracting" system under which the Borrower or Grantee is charged with the responsibility for all the contracting necessary to execute the project, subject to certain approvals by AID. That system has

led to delays which might have been avoided if AID had chosen to retain the responsibility for contracting.

3. Not being a party to the contracts with consultants, suppliers and constructors means that AID does not directly "manage" the projects which it finances. The Borrower/Grantee entity manages the projects; AID's role is to see that it does so, and that its capabilities are improved in the process. In many cases, it would be simpler for AID, and, in the sense of getting a project completed on time, more efficient to do the entire job itself. Having decided that it must also seek to serve the broader objective of institutional improvements, those responsible for the administration of Capital Projects in AID must weigh, in each instance where the objectives conflict, which solution to a given problem would strike the proper balance. This, clearly, is a matter of judgment, and reasonable men may differ in any given case.

4. Where delays in the execution of projects occur, whether due to slowness in the allocation of local currency, contracting problems or other factors, AID must consider first what it can do to overcome those problems. Only when there appears to be no reasonable chance that those efforts will succeed should it consider applying those remedies which its loan or grant agreements provide for cases of the Borrower's default under such agreements. Suspending disbursements is possible only to the extent that there remain funds which have not been obligated by the Borrower in the form of contractual commitments, normally backed up by irrevocable letters of credit.

APPENDIX I

In many cases, therefore, refund claims for funds already disbursed or acceleration of the loan are the only remedies available, both of which would, in most cases, result in further indefinite delays in executing the project since it would then have to be completed with the Borrower's own funds. Clearly, either one of these remedies should be applied only in the most serious circumstances, since both, for practical purposes, amount to abandoning the project on the part of AID.

5. The framework within which AID administers the funds used to finance Capital Projects thus circumscribes rather narrowly the actions AID can take to accelerate or improve their execution. Short of effectively withdrawing its funds, it can attempt to persuade, at all appropriate levels; it can withhold approvals of contracts or contract modifications; it can withdraw funds not yet tied up by the Borrower's firm commitments to contractors. It cannot normally "take over the work", i.e. substitute itself for the Borrower in contracts to which it is not a party.

The following comments on specific statements in the Report are offered with these thoughts in mind.

[Chapter 3]

II. Chapter 2 - Observations on the Malaria Eradication Program.

Page 20, 3rd paragraph [page 23, last paragraph]

The report states that the GAO auditors were advised by a Mission technician that adequate surveillance techniques could detect the disease in infected migrants leaving Karachi (where it reached epidemic proportions in 1967) before transmission to individuals in rural areas.

We do not doubt that this information was given to the auditors, but its accuracy appears rather dubious. We are not aware of any practical way in which every person leaving Karachi, by air, rail, sea or road, could have been examined to determine whether or not he carried the malaria parasite. Unless the GAO has corroborative evidence that the information obtained is accurate, we, therefore, believe that the statement should be omitted.

[pages 25 and 26]

Pages 21-23 - Provisions for the Maintenance of Malaria Free Areas

The Mission, on page 2 of its memorandum to the GAO Team dated March 25, 1970, advised the GAO that:

"Currently a Government Commission is undertaking a complete review of all health services for the purpose of arriving at a final design for the health infrastructure. Obviously this action is not the entire answer since the perennial problems of budgets, facilities and staff training must also be faced. However, with an acceptable plan in hand, attention can be focused on the solution to the problem."

We believe that the addition of the substance of that paragraph would round out the picture presented in the Report.

[page 28]

Page 24, 1st paragraph and Recommendation

The Mission's record of continued and forceful efforts to induce the GOWP to provide adequate support for this project is fully documented.

[page 22]

GAO recognizes these efforts, in part, in stating on page 19 that "the Mission informed GOWP that it would withhold rupee funds for all AID programs unless these funds [for project support] were released".

We suggest the first sentence on page 24 be revised to read:

"AID carried on a long and intense effort to induce GOWP to provide the level of support needed from it for each element and phase of the malaria eradication program, but without commensurate results. We found that AID had come to recognize ---".

In September 1970, a joint GOP/WHO/USAID Team completed a study entitled "Report of Joint Strategy Review Team Malaria Eradication Program, West Pakistan". Advance copies of this report are under staff review

APPENDIX I

in A.I.D. A similar study of the East Pakistan program is scheduled to begin in January 1971. This is part of the evaluation which the GAO recommends and the GAO may, therefore, wish to take note of it in its Report.

[Chapter 5]

Chapter 3 - Construction of Electrical Power Facilities

III. Mangla Dam Transmission Lines

Page 28 [page 39]

The Report states that the transmission facilities were not available when the Mangla generating units became operational and details the delays encountered. We have analyzed the actual "bottle-necked" power from the time the first generating unit went into production until now. That analysis shows that a substantial amount of the available generating capacity was not utilized only between June and December 1969. Our study supporting this conclusion is attached as Annex "A".

Page 29, Last Full Paragraph [pages 40 and 41]

The Report states correctly that part of the initial delay in implementing the project was attributable to the conflict between India and Pakistan in the fall of 1965. As a result, the loan agreement was not signed until January 1966, after the termination of that conflict. If the time consumed by contract negotiations were counted from the loan signature date that period would be nine months rather than 15 months. Given the fact that the Borrower needed AID's approval of the Request for Proposals and of the contract, and that the intention to contract had to be advertised for 45 days, a period of nine months for completion of contracting for engineering services may be somewhat longer than necessary but not by more than perhaps 2-3 months.

We nevertheless recognize that some delays were avoidable. An airgram circularized to all Missions in the NESAs Region on June 4, 1968 attempted to analyze the causes of delays in the implementation of projects and suggested steps to keep under constant review the phases of the implementation process to permit early identification of problems and to minimize delays. Since then, the steps which both the Borrower and AID must take have been reviewed in considerable detail with the GOP before the signature of loan agreements.

Pages 29 and 30 [page 41]

The Report implies that A.I.D. should not have approved the award of the contract to the low responsive bidder (a Pakistani firm which subsequently failed) although the consulting engineer had recommended that the award be made to another firm. To award to other than the low responsive bidder would have required concurrence by AID in the consultant's finding that such bidder was not responsible. We had no firm basis to support such a finding at the time of award.

IV. Lyallpur Thermal Plant

Pages 31 and 32 [pages 43 and 44]

We agree with the GAO assessment of the length of delay in completion of the project, approximate cost in additional engineering services, and the results of the failure to meet the power demand by not having the plant available on time. Most of the delays were caused by slow procurement, late deliveries by U.S. suppliers, and installation problems.

APPENDIX I

The 1965 war between India and Pakistan was an important factor in causing delays and, in one case, major damage to equipment. It is also evident that all parties involved in the project, the contractor (Westinghouse Electric International Co.), the Consultant (Commonwealth Associates, Inc.), and the borrower (WAPDA), contributed to the delay in completing the project. It is possible that even closer monitoring of progress by AID would have helped to avoid these problems.

We agree with the GAO's comments on the need for formalized training for plant operations and maintenance personnel at the Lyallpur Plant. This problem was clearly identified and recognized by the Mission in 1967 and strenuous efforts were made by the Mission to assure that adequate training would be carried out by WAPDA and the contractor. Although training requirements were included in the loan agreement with the GOP, results fell short of expectations. Training required by the WAPDA contracts with WEICO and CAI, although carried out, proved too limited in scope.

V. West Pakistan Power Distribution System

Pages 33 and 34 [pages 44 and 45]

As in any electric utility operation, the expansion and improvement of WAPDA's distribution system is a continuous activity. The assistance given by AID was, therefore, not intended to cover specific, defined parts of the distribution network but to provide foreign exchange for the purchase of equipment and materials, and of services to improve

WAPDA's engineering and operating capability. In addition to the funds provided by AID, WAPDA used before, during and after disbursements from the AID loan were made, funds provided by the GOP and other donors to purchase materials and equipment. Seen in this context, delays in utilizing AID funds under this loan did not constitute a delay in building distribution lines. Such delays in disbursements merely led to the application of the AID financed equipment and services to a later phase of system development than had been planned.

VI. Chapter 4 - Implementation of Salinity Control and Reclamation Projects.

Project Implementation Delays, SCARP 1

Page 39 [page 32]

The Report states that a large number of tubewells were idle for long periods of time. Somewhat similar statements are made on succeeding pages for each A.I.D. financed SCARP. The last paragraph on page 39 [page 32] refers to specific dates in regard to the schedule for and the actual completion of SCARP 1. These statements imply that no electrical power was available until June 1964. Although the electrification work was not completed until 1964, most wells were in use much earlier. Some wells were provided with temporary connections and were in operation early in 1963 although the permanent lines to serve them were not provided until a year or more later. We suggest that the statement be revised substantially as follows:

APPENDIX I

"The original target date for the completion of the SCARP 1 project was January 1962. All tubewells, originally scheduled for completion by June 30, 1961, were completed by November 1962 but the electrification work was not completed until June 1964. As a consequence some tubewells remained idle for as long as 12 to 18 months, while others were operated with temporary connections until permanent power lines were completed. The delay in the completion of the project was caused primarily by the fact that the tubewell construction work and the electrification work were undertaken separately and the two phases were not properly coordinated by the GOP agency responsible for implementing the project. In addition, non-availability of power to the grid system which served the project area delayed full utilization of the project. Nevertheless, water deliveries from the wells began during the 1961-62 crop year and one year later a very high pumping rate had been achieved.

The annual reports on the operation of SCARP 1 yield the following data on the amounts of water actually pumped during this period:

1961-62 crop year -- 650,000 acre feet

1962-63 crop year -- 2,270,000 acre feet

1963-64 crop year -- 2,510,000 acre feet

These records may be compared with the expected long-term average annual pumping for the area of 1,500,000 acre feet estimated in the consultant's report of June 1959 which reviewed the original plans for SCARP 1. The above records, however,

reflect some heavy pumping from completed wells to obtain rapid drainage of water logged areas. In other areas the wells were uncompleted as of the 1963-64 crop year."

Project Implementation Delays, SCARP 2

Page 40 [page 33]

The Report discusses SCARP 2-A. Our review indicates that some corrections may be desirable. On the basis of material in our files, we suggest that the second paragraph of that discussion be revised as follows:

"This project experienced implementation delays similar to those encountered in the SCARP 1 project. Although the tubewells were scheduled to be completed in April 1966, they were not actually completed until early in 1967. The electrification of the last of the tubewells was not completed until mid-September 1968, and at that time only about 375 of the 884 tubewells could be utilized since the connection channels had not been completed from the wells to the irrigation distribution system. By March 1969, two years after the last tubewell was completed and six months after the electrification was completed, about 840 wells were usable and had been transferred to the operating agency. At the time of our review in late 1969, most of the tubewells in the SCARP 2-A project area were being utilized. However, as a result of the delays described above, some of the tubewells constructed under the project remained idle for as long as 28 months."

APPENDIX I

We do not have available the detailed data to determine how long individual wells remained unused. It is conceivable, but improbable, that some individual wells might have been unusable for as much as three years. The attached graph, Annex "B", presents the overall situation. It shows that the period from the installation of the well equipment until the time when power was available tended to vary from 9 to 24 months. The time from electrification to transfer to the operating agency reflects some additional delay in completing the water channels but it also reflects administrative convenience and the desirability of transferring operable groups of wells, not individual units. It is significant, however, that the time between the curves for wells drilled (first work on a well) and for transfer to the operating agency is consistently under three years.

Need for a More Effective Operation and Maintenance Program

Page 43 [page 35]

The Report discusses the problem of motor burn-outs. WAPDA, their consultants and our predecessor agency, the Development Loan Fund, did not foresee the unusual operating conditions and practices which led to this very serious problem. Therefore the well installations for SCARP 1 contained only normal electrical protection equipment.

As indicated in the Draft Report, internal protective devices were specified for the SCARP 2-A motors, the specifications for which provided:

"Each motor shall be equipped with three thermal devices embedded and symmetrically spaced in the stator winding.

These devices shall operate on temperature rise to de-energize the control circuit of the motor thus disconnecting it from the power source. The thermal devices shall be so located in the winding and so constructed that they will prevent motor damage due to over-heating resulting from overload, lack of ventilation, single phasing, stalling, high ambient temperature or voltage unbalance."

The specifications for SCARP 2-B have similar provisions. As the motors of SCARP 1 are rebuilt, similar protective devices are normally incorporated. The protective motor devices described above are connected in series in the circuits of the push-button type magnetic switch controls which are now being installed. At the suggestion of the Mission, the GOWP operating agency has taken steps to lock the newer type motor control panels, thereby prohibiting manual access by operators to the magnetic coils and thus eliminating motor damage from this cause. Protective devices can not entirely eliminate motor burnouts, but they should help to reduce the abnormal rate that was encountered early in the SCARP 1 operations.

Page 44 [page 36]

The reference to SCARP 4 might be improved by noting that this loan was authorized and its terms defined in June 1967, a time at which the seriousness of the electrification delays on SCARP 2-A was just becoming evident and construction on SCARP 2-B had not yet begun. A.I.D. had, however, discussed these delays with WAPDA on numerous occasions ever since 1963, and had been assured by the GOP that the problems encountered with SCARP 1 would not recur.

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Page 42 [page 34]

The Report points out that A.I.D. financed SCARP construction although it doubted that Pakistan had trained personnel in numbers sufficient to operate and maintain the facilities. This was the first development of its type in Pakistan and AID believed that it would be easier to create an effective operation and maintenance organization closer to the time when the facilities would be ready for operation than before the project was started. Although the full potential benefit of the SCARPs cannot be obtained without better operation and maintenance practices, the benefits obtained even with current management practices justify the investment. The accomplishments of SCARP 1 are cited on page 38. A study by economists of WAPDA in February 1970 estimated that, under current conditions, the project is producing benefits that amount to 3.5 times the annual costs, using a 10 per cent interest rate in computing the amortization of the investment. Efforts to improve the operation and maintenance of the project continue.

[Chapter 6]

VII. Chapter 5 - Implementation of the Dacca-Aricha Road Project

Pages 47 through 49

The comments with respect to this project relate largely to inadequate cost estimating and the resulting problems: delays, rebidding and reduction in project scope. The cost estimate prepared in connection with the original project feasibility study (in 1963) by a U.S. consulting engineering firm was indeed inadequate. At that time, cost data for a project of this type to be constructed by a U.S. firm in East Pakistan were not available. Similarly, A.I.D. was seriously

hampered in its review of the estimates prior to authorizing the loan by the lack of comparable experience with construction costs in East Pakistan. (The IBRD ran into similar problems with a loan for the construction of a highway from Dacca to Chittagong; that project is not yet under construction.) Some of the errors in estimating the cost of the Dacca-Aricha project may have been avoidable, but it was impossible to resolve the basic problem, the lack of comparable cost data. Whether it would have been better to make attempts to refine the estimates under these circumstances instead of inviting bids is debatable, since it is very unlikely that such re-estimates would have demonstrated the magnitude of the differences (brought out by taking bids) between the views taken by consulting engineers and contractors on the likely cost of constructing this project.

More generally, however, AID has attempted to deal with problems arising from engineer's cost estimates. Thus M.O. 1223.1--Cost Estimating Methods for A.I.D.-financed Capital Projects has recently been revised to furnish improved guidance to host government, consultants and A.I.D. personnel.

[Chapter 7]

VIII. Chapter 6 - Construction of Coastal Embankments

Page 56

The Report states that the value of increase in agricultural production attributable to the project after its completion is estimated at the equivalent of \$44.2 million. Other sources show a higher estimate, such as \$58 million computed by the U.S. consulting engineers (Leedshill-DeLeuw) in their 1968 evaluation report (p. 249, Vol. 1). We are in no position to argue for or against either figure

APPENDIX I

but suggest that a range of estimates be shown in the Report.

Page 60

The Report deals with the problem of land acquisition for the project by the Government of East Pakistan. While the figures cited vary somewhat from those provided in the consulting engineers' report for June 1970, it is clear that land was not acquired on schedule.

The only noteworthy differences between the two sets of figures are in the column headed, "Acres of Land Obtained"; the engineers' figures show a progression from 18,000 in 1967 to 26,700 in 1968 and 39,600 estimated for 1969, rather than a constant 26,000 for each of those three years.

ANNEX "A"

Study of Mangla Dam Generation
and Transmission Line Capability

The following table shows the degree to which transmission line availability limited generating output from Mangla Hydro Electric Plant.

Explanation of Table:

Column No. 1 (Available Generation)

Each unit has a capability of about 130 MW when the reservoir is full and only about 40 MW at low reservoir. Therefore, this column indicates the capability of the units for the periods indicated. The large figure indicates high head and the smaller figures low head. They vary during the year.

Column No. 2 (Potential System Capacity)

This column indicates the capacity of the generators or the transmission system whichever was the limiting factor.

During the period from July to October 1967, the generation system limited the output to 160 MW due to reservoir water level. From October 1967 to February 1968 the generation and transmission systems were equal in capacity.

Column No. 3 (Bottle-Necked Power)

Column No. 1 minus Column No. 2.

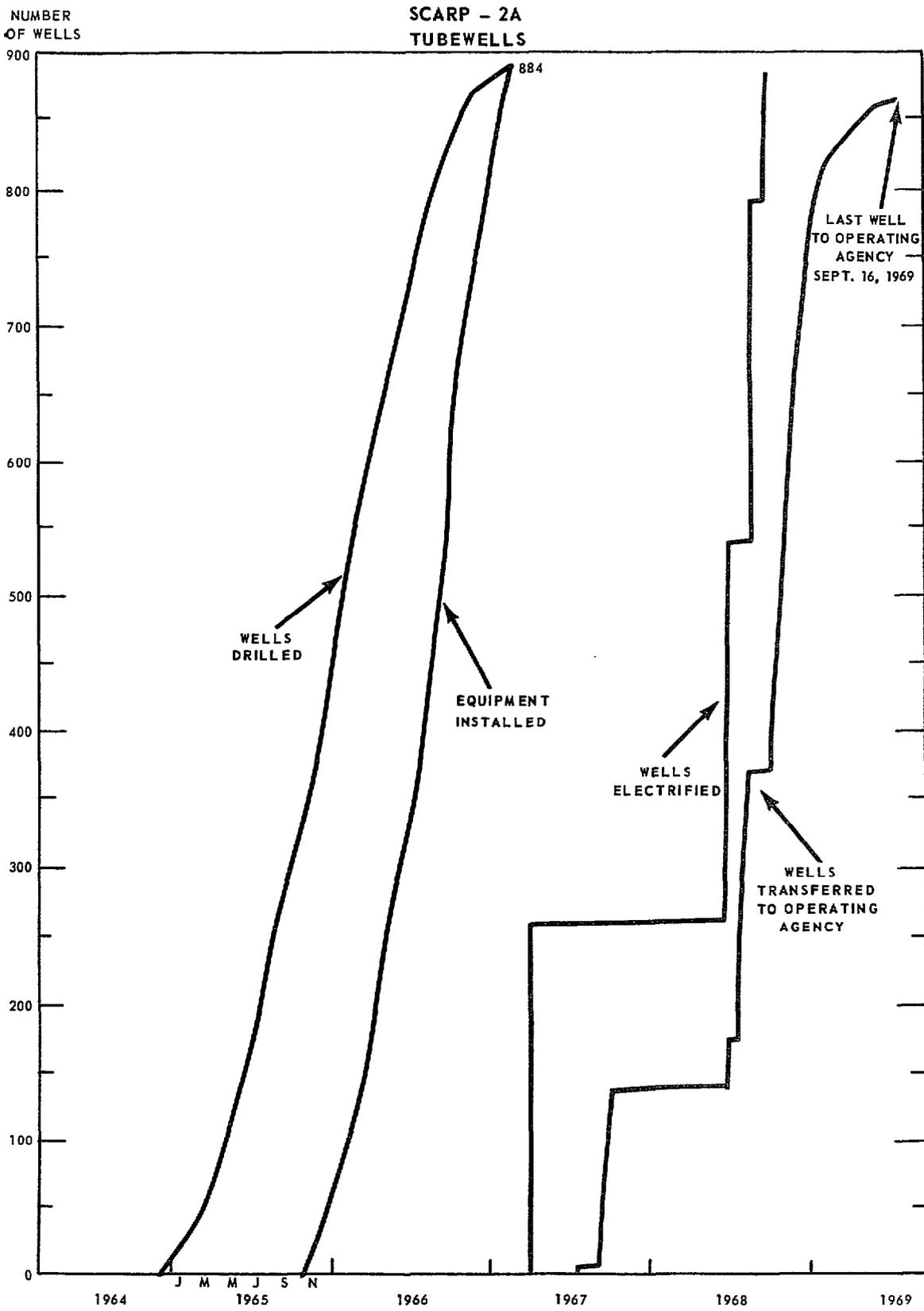
APPENDIX I

Date	Output (MW)		Bottle-Necked Power
	*Available Generation (1)	Potential System Capacity (2)	
<u>1967</u>			
July-September	160	160	0
October-December	200	200	0
<u>1968</u>			
January-February	200	200	0
March-November	300	240	60
December	300-276	280**	0-20
<u>1969</u>			
January	264-246	280	0
February	237-174	280	0
March	192-234	280	0
April	264-279	280	0
May	282-300	280	2-20
June-November	400	280	120
December	400-376	280	120-96
<u>1970</u>			
January	368-328	300***	68-28
February	312-256	300	12-0
March	248-216	300	0
April	206-240	300	0
May	270-308	300	0-8
June	308-312	300	8-12

* This schedule does not take into consideration the time required for yearly maintenance (on which reliable data is not available). It takes about one month to complete the yearly maintenance for each unit; therefore, the available power is less than that shown in Column (1) by about 100 MW for at least one month for each unit during the year. If the maintenance were done during the periods when there was insufficient transmission capacity, then the bottle-necked power would have been considerably less. Little power would have been bottle-necked during 1967 and 1968. There would have been considerable power bottle-necked from June through December 1969, but none thereafter.

** Line jumpers were replaced to increase line capacity to 280 MW.

*** Mangla-Gujranwala Section energized at 132-KV to increase system capacity to 300 MW. Prior to this, system capacity consisted only of existing 132 KV and 66 KV lines.



APPENDIX II

PRINCIPAL OFFICIALS RESPONSIBLE
FOR THE ADMINISTRATION OF ACTIVITIES
DISCUSSED IN THIS REPORT

Appointed

DEPARTMENT OF STATE

SECRETARY OF STATE:

William P. Rogers	Jan. 1969
Dean Rusk	Jan. 1961

UNDER SECRETARY OF STATE (note a):

John N. Irwin	Sept. 1970
Elliot L. Richardson	Jan. 1969
Nicholas deB. Katzenbach	Oct. 1966
George W. Ball	Feb. 1961

UNITED STATES AMBASSADOR TO PAKISTAN:

Joseph S. Farland	Nov. 1969
James W. Spain (Charge d'Affairs)	July 1969
Benjamin H. Oehlert	Aug. 1967
Eugene M. Locke	June 1966
Walter P. McConaughy	Mar. 1962
William P. Roundtree	Aug. 1959

AGENCY FOR INTERNATIONAL DEVELOPMENT

ADMINISTRATOR:

John A. Hannah	Apr. 1969
Rutherford M. Poats (acting)	Jan. 1969
William S. Gaud	Aug. 1966
David E. Bell	Dec. 1962
Fowler Hamilton	Sept. 1961

ASSISTANT ADMINISTRATOR, BUREAU FOR NEAR
EAST AND SOUTH ASIA (note b):

Donald G. MacDonald	Sept. 1970
Maurice J. Williams	Apr. 1967
William B. Macomber, Jr.	Feb. 1964
William S. Gaud	Nov. 1961

AppointedAGENCY FOR INTERNATIONAL DEVELOPMENT (continued)

DIRECTOR, MISSION TO PAKISTAN:

Joseph C. Wheeler	Aug. 1969
C. William Kontos	July 1967
Charles M. Elkinton (acting)	Mar. 1967
Maurice J. Williams	Aug. 1965
Donald G. MacDonald	Oct. 1963
John Heilman	Mar. 1962
Frederick Bunting	Aug. 1961

^aHas the authority, as delegated by the Secretary of State, for the overall direction and coordination of the mutual security program.

^bBureau established in November 1961.

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