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# Auditor General

AUDIT REPORT  
ON  
REVIEW OF SELECTED AGRICULTURAL AND  
RURAL DEVELOPMENT PROJECTS  
OF  
USAID/BANGLADESH

5-388-81-8

**Audit Report Number**

\_\_\_\_\_

February 25, 1981

**Issue Date**

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Area Auditor General Near East  
Agency for International Development

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AUDIT REPORT  
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RURAL DEVELOPMENT PROJECTS  
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USAID/BANGLADESH

## EXECUTIVE SUMMARY

This audit report covers the review of four projects designed to assist the rural poor of Bangladesh. Although the population is 90 per cent rural and thus very dependent upon agriculture, their agricultural practices are backward and the resulting low production of food grains has not kept pace with the population growth.

Our review was made to determine if project resources were used effectively and efficiently, to review compliance with AID policy and regulations and to identify problem areas requiring management attention.

Rural Finance Experimental Project - The rural poor have not had access to the limited institutional credit funds available in Bangladesh because they usually do not have acceptable collateral and available funds are often loaned to the larger, more influential farmers. As a result the poor have not had the means to improve their productivity and, when they have borrowed money, the interest rates paid to money lenders have been at least 100 per cent annually.

This project provided \$7 million in grant funds through nine banks to test various experimental model lending programs with interest rates ranging between 12 and 36 per cent. After about 15 months of implementation experience the banks found that the rural poor want and will accept

institutional credit at the relatively high rates offered through the project and that they will repay the loans. Many of the features of the model programs for loan office organization and services to farmers, however, proved to be unnecessary or irrelevant. Thus the project was revised by implementation letter to reflect the change from testing individual model programs to developing procedures for making the credit offices more effective and financially viable. The project's new and different approach has not been thoroughly documented in project records. Accordingly, we recommended that USAID prepare a revised logical frame work reflecting project changes in order to have the means to evaluate the project's progress and for use in developing a follow-on project that is being planned. (See pp. 3 to 7.)

Agricultural Research Project - This project was designed to assist the BDG in improving its agricultural research capability by strengthening two local research organizations that are responsible for coordinating all agricultural research in Bangladesh and carrying out research on non-rice crops. A total of \$8.2 million in loan and grant funds have been provided. Most of the financial assistance was for completing the construction of two research stations, technical assistance, training and for development of a vertebrate pest control component.

Overall, we found that the project has made progress toward completing the planned construction and in improving their physical facilities but the level of effectiveness desirable in a research institution has not been reached. An evaluation team recently made 21 recommendations for improving agricultural research capability but implementation of the recommendations has been slow. We also found that USAID has not obtained progress reports required under the agreements and that a more effective training office was needed. We made three recommendations addressing these problems. (See pp. 8 to 11.)

Small Scale Irrigation Project I - This project provides farmers with an opportunity to obtain small hand pumps to irrigate dry season crops that could not be grown without irrigation. A total of 240,000 hand pumps were planned for local manufacture using the proceeds of this \$14 million loan for the foreign exchange requirements to purchase raw materials and components.

Despite the apparent capacity of local industry to produce the pumps and the acceptance of the pumps by local farmers, project implementation

has been slow. Once pumps were available, sales proved to be disappointingly slow. A late monsoon, price increases, and farmer problems related to obtaining credit clearance have delayed sales. We recommended that USAID review the credit arrangements and take action to ensure that sales are not limited because of credit problems. We also recommended that USAID closely monitor sales and limit production so that inventories do not become excessive. (See pp. 12 to 16.)

Rural Electrification - Bangladesh has the generating capacity and most of the distribution grid to support an expanded electrification system. This project provides \$35.3 million in grant funds and another \$34 million loan to assist the EDG to deliver electricity to rural users, starting with 13 rural electrification societies that will serve 45 of Bangladesh's 440 thanas. The relatively cheap electricity which is generated from hydro-power and large reserves of natural gas will provide the power for irrigation and rural industries as well as for residential consumption,

Despite some slippages, the project is making good progress and the prospects for meeting the scheduled completion date for the major distribution line construction are good. The 13 electrification societies have been formed and the first 10 societies have reported over 462,000 membership applications against a target of 468,000.

In our review of commodity procurement, we found that several U.S. based companies supplying commodities had been overpaid approximately \$308,000. We recommended that USAID review project disbursements to ensure settlement of the over-payments and that Financial Management review payment procedures for making payments under Letters of Commitment to determine whether the exceptions we found indicate shortcomings in required practices. (See pp. 19 and 20.)

This report was reviewed with USAID/Bangladesh officials and their comments were considered in finalizing the report.

## BACKGROUND

Agriculture is the principal economic activity of Bangladesh and USAID/Bangladesh's (USAID) current strategy for assistance focuses on increasing food grain production, along with the related objectives of reducing population growth and expanding employment. Bangladesh's population is now estimated at 90 million with a growth rate of 2.7 per cent. The rural population is about 90 per cent of this total, with 50 per cent classified as farmers or cultivators of at least one-half acre of land.

Despite the obvious importance of agriculture, both as the occupation of most of the population and the means of feeding the rapidly growing population, food grain production remains very low. In 1978/1979 the national average food grain production was 0.5 tons per acre. Field trials conducted by research organizations have shown that with improved input management yields of up to 3.5 tons per acre are possible. Despite low productivity until the mid 1960's, Bangladesh (which was then East Pakistan) was close to being self-sufficient in food grain production. Since that time the rapid population growth has overtaken the farmers' capacity to produce food. Becoming self-sufficient again in food grain production has been a EDG objective for several years. A 1976 USAID project paper set 1980 as the target date but that objective has not been met. The USAID FY 1982 Country Development Strategy Statement reports that although the target date has been advanced to 1985 it will probably not be met.

Many factors contribute to the poor agricultural management which keeps Bangladesh's productivity low. Much of the land is cultivated by small subsistence farmers who lack the capital and security to adopt new technologies. Often they do not have access to the right agricultural inputs or do not use them effectively. USAID has described the rural population as one dominated by a small elite made up of landowners with larger properties, holders of government administrative posts and others who occupy positions of importance such as physicians and large merchants. These people control political affairs and decisions. They have first access to education and health care facilities and are the first to benefit from State subsidized agricultural inputs such as irrigation and credit. By contrast, the poorer people cannot obtain these benefits without the assistance of a member of the elite or the payment of some

kind of bribe which they usually cannot afford. According to USAID, the elite seem to exercise this control ruthlessly because they want to establish and maintain control over any alternate power that could potentially threaten their well-being.

Land holdings have become very fragmented as a result of the rapidly increasing population and the Muslim inheritance practices. The Muslims divide a father's property between his children, with sons receiving equal shares that are twice the size of the shares received by the daughters. As a result, the typical farmer cultivates as many as ten small plots scattered between two or more villages.

Much of the land is cultivated under a share cropping system which usually favors the land owners because of the limited amount of land and the abundance of manpower. Typically the share cropper must pay all of the costs of production and give 50 per cent of the crop to the land owner. This system often works to limit production because when the price of grain is low the share cropper may not make enough from the incremental production resulting from the use of increased inputs to pay for those inputs. According to USAID, most land owners are also tenants which complicates an analysis of this factor.

This audit covers four projects designed to assist the rural poor of Bangladesh. The purpose of our audit was to determine if project resources were used effectively and efficiently, to review compliance with AID policy and regulations and to identify problem areas requiring management attention. Our examination included a review of appropriate records of the USAID and the host government organizations responsible for project implementation. We had discussions with cognizant project officials and contractors and visited various project sites. Our audit covered the period from June 30, 1978 through October 31, 1980.

The audit field work was performed during October and November 1980. Our audit was carried out in accordance with generally accepted auditing standards and included such tests of records and other procedures that we considered necessary under the circumstances.

This report was reviewed by USAID officials and their comments were considered in finalizing the report.

## AUDIT FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

### A. RURAL FINANCE EXPERIMENTAL PROJECT

The project was designed to devise or identify one or more replicable rural financial systems for meeting the credit needs of the productive and potentially productive rural poor. Credit availability at reasonable rates has been a constraint to small farmers acquiring the inputs needed to increase agricultural production and this project attempts to address that constraint.

Institutional credit which currently bears an interest rate of about 11.5 per cent has been available to less than 15 per cent of the farmers. Those who do not have access to this source of credit must turn to relatives or money lenders who usually charge interest rates of at least 100 per cent per year. Collateral requirements are the chief obstacle to extending institutional credit to the rural poor because 50 per cent of the rural population is landless. With a limited supply of credit for agriculture, the rural elite, particularly the larger owner/cultivators who can meet the collateral requirements and who often control the disbursement machinery, get most of the institutional credit available.

In August 1977, a \$7 million grant agreement for the Rural Finance Experimental Project was signed. The project was planned to provide credit without collateral to the rural poor to test a number of variables such as interest rates, kinds of outlets, savings promotion measures, simplified forms and procedures and loan supervision. The project's target group was defined as rural dwellers over age 18, male or female, earning less than the equivalent of \$200 per year from all sources, having a net worth (excluding cultivated land) of less than \$333, and cultivating two acres or less of land. The experiment was to be conducted, under the overall management of the Bangladesh Bank by nine banks having branches throughout rural Bangladesh with each of the banks testing a different credit system or model.

## Project Design and Implementation

The experiments with the rural credit models have so far met with somewhat limited success and in certain cases have not been carried out as planned. This has resulted in a redesign of the project to focus on the mechanics of extending credit because this was found to be more important to conducting the rural credit program than the farm management assistance schemes which had been included in the original models. Despite the failures with various model features, USAID believes the lending institutions are making substantial efforts to reach the target group and recover loans and interest.

The project was originally designed to test various methods for extending credit to the rural poor. The factors to be tested were incorporated into model lending programs with each of the nine participating banks testing a different model. The models differed from one another in the services offered to the borrowers and the kind of branch office set up for extending credit. All of the models were to use simplified procedures and all of the banks were to use interest rates of 12, 18, 24, 30 and 36 per cent with only one rate used at any given office. Project funds were to be paid to the banks for participating in the experiment. Payments to the banks were based on the loans made by the banks; one-third of the value of the loan to be paid for each loan made and a second one-third for each loan fully repaid when due. Thus, for each loan made and successfully collected the bank would earn two-thirds of the value of the loan plus the interest collected from the borrower. The project also included funds for a consultant to provide technical assistance.

Project implementation is about two years behind schedule. The grant was made in August 1977, but the technical assistance contract was not signed until August 1978. Almost no loans were made until the Spring of 1979. Through August 31, 1980, the 63 loan offices participating in the project had made about 20,000 loans amounting to about \$1.9 million with each loan averaging about \$95. Recoveries have been good, the delinquency rate of approximately 10 per cent is considered satisfactory because most of the overdue accounts are in a relatively small number of locations which generally have weak managers.

The banks, with few exceptions, have not conducted the model programs as designed and for the most part the project is no longer conducting the kind of experiment that was originally intended. The banks found that the key features of most of the models were not practical. For example, services which the banks had intended to include in their model programs were often available to the borrowers from other sources or required manpower skills which the banks could not find. As a result of the shortage of effective management personnel many of the models were not administered effectively. For instance, loan repayment is an important factor in the program and the consultants noted in their final report that the differences in repayment experience between test locations was attributable principally to the managers; a good loan office manager had a good repayment record whereas the poor manager had a poor record.

Although the project has not as yet been able to identify a model or models best suited for extending credit to the rural poor, the consultants in their final report have drawn conclusions based on their early experience with the project. They found that the rural poor would borrow money at the high rates (for institutional loans) of up to 36 per cent, and they would repay the loans. Further, they found the various schemes for giving management assistance to the borrowers are less important than:

1. A respected, knowledgeable credit officer working closely with the target group.
2. A simplified and uniform loan application form.
3. More flexible limits for the amounts of loans to be made.
4. Local councils having advisory rather than sanctioning powers.

On July 31, 1980, the project was revised and extended for twelve months, with USAID expressing its intention to extend the project an additional twelve months. At about the same time USAID and the Bangladesh Bank decided not to renew their technical assistance contract and the bank is in the process of obtaining a replacement advisor. The present technical assistance contract has been extended to provide project oversight continuity until the new contractor can begin.

The revisions recognized the changes to the project during the first year that loans were made. The banks have revised their credit program models and, as the unworkable features of the original models are dropped, the outline of all the models becomes more similar. Basic goals that will be common to all of the banks' operations in an effort to make the loan offices profitable will include expanding the area covered by each office, increasing the loan officers' productivity and reducing loan office delinquency rates. The banks will also be required to use the funds received from their participation in the project either for loans from a revolving fund or for other USAID approved project expenditures.

Despite initial design problems, the project has experienced modest success in providing important information about rural credit. Even with the project revision, however, the future of institutional credit for the rural poor remains uncertain. The project's target group only receives credit because of the substantial incentives paid to the banks and the continuous monitoring of the loans by the technical assistance advisors.

Although the BDG waived the limitations on interest rates to enable the banks to charge rates of up to 36 per cent, the high rates are still a sensitive feature of the project. The BDG is reluctant to give formal approval for charging the poor higher rates than the more affluent borrowers, even though the alternative for the poor has been rates in excess of 100 per cent per year. The Muslim belief that interest is wrong increases this sensitivity. Because of the BDG reservations, the USAID project officer believes that one of the important project objectives during its remaining life is to demonstrate to the BDG that the rural poor want the credit program even with the high interest rates and that credit plays a significant role in helping the rural poor. The project officer also believes that another objective of the extended project is to expand the program so that the banks and the BDG will not be able to ignore the resulting ground roots demand by the rural poor for institutional credit.

In our opinion, the future prospects of this project, even after substantial revisions, remains doubtful. Additional BDG support is essential since most of the project funds are used to pay the banks to make loans to the rural poor at interest rates that are substantially higher than the rates charged to more affluent borrowers. At some point in time this could become a major issue.

The project as it is now being implemented has changed considerably from what was described in the original project paper. The revisions were made by implementation letters and dealt almost exclusively with implementation matters. Accordingly, we believe an up-dated logical framework should be prepared reflecting the revisions made to the project. The revised logical framework will be needed to evaluate the success of the project and will also be useful in developing a follow-on project that USAID is planning.

Recommendation No. 1

The Director, USAID/Bangladesh should prepare a revised logical framework for the Rural Finance Experimental Project reflecting project design changes and expressing the outputs expected in terms of the project's current status.

## B. AGRICULTURAL RESEARCH PROJECT

The project purpose is to establish a functioning BDG supported and staffed agricultural research system for non-rice food crops and cropping systems. Rice is the country's most important food crop and rice research has been supported by the BDG and other foreign donors. AID officials believe that food production can be increased with crops such as wheat, food legumes, oil seeds and vegetables because these crops can be grown during the winter season when rain fall is often insufficient for rice.

In 1976 USAID initiated the Agricultural Research Project to provide assistance to the Bangladesh Agricultural Research Institute (BARI), the institution responsible for non-rice food crop research. Although the project's primary objectives center on the development of BARI, a secondary objective is to support the Bangladesh Agricultural Research Council (BARC). The BDG has a large number of separate and often uncoordinated agricultural research organizations. Recognizing that it could ill afford the inefficiencies and duplications of this system the BDG formed BARC to coordinate agricultural research activities and resources. In this role BARC has been the channel through which BARI has received project funds.

The project included a \$4 million loan to complete buildings which had been started earlier by the BDG at the main research station at Joydevpur and a regional station at Ishurdi. BARI had occupied a site in Dacca until the late 1960's when the Government of Pakistan took over the site for its "Second Capital". BARI was then left with an undeveloped headquarters site adjoining the Rice Research Institute at Joydevpur (20 miles north of Dacca). The building shells for the administration and research buildings at Joydevpur were 75 per cent complete when project implementation began. AID financed the electrical, plumbing and other work to complete the buildings along with farm site development, machinery and equipment. The project was later amended to provide an additional \$1 million grant for developing the Ishurdi station. The project also included a \$2.5 million grant for technical assistance and training for both BARI and BARC and for funds to backstop and support expatriate technicians through an International Staff Support and Coordination Cell.

The project agreement was amended in 1978 to incorporate a grant of \$.7 million for a vertebrate pest control component within BARI because

substantial amounts of food grain are lost each year to rodents and other vertebrate pests. This phase financed a laboratory building, equipment, supplies and long term participant training.

### Implementation Progress

Although the BARI has not yet become as effective a research institution as might be desired, it has made progress toward that goal. USAID is planning a follow-on project for broader assistance to agricultural research through the BARC.

Building construction and site development work at Joydevpur, including the vertebrate pest facilities, has been completed and all machinery and equipment deliveries are expected by the end of March 1981. Some construction at the Ishurdi station has also been completed, but the work covered by the 1979 project amendment is not scheduled to be finished until December 1982. Despite the improvement in facilities, the BARI has not yet reached the level of effectiveness desirable in a agricultural research institution. BARI has generated new technologies and on-farm validation trials have been strengthened for wheat, potato and mustard crops but implementation of multidisciplinary research programs which have been developed has not yet begun. With completion of the Joydevpur facilities, progress in all of these areas is expected to improve.

An evaluation of Bangladesh agricultural research that was made in 1979 found that lack of training was one of the chief constraints to the development of BARI and BARC. In order for BARI to develop into an effective research institution continuing training is needed for the staff. The evaluation report stated that many of BARI's experiments are unreliable because of poor basic agronomy, untimely use of inputs, and incorrect recording of data. Even experiments that are reasonably well done are poorly reported because of the researcher's inability to write well in English, the language used by BARI.

USAID has provided for some agricultural research training. Six long term participants are continuing doctoral studies and one participant has returned after completing his doctoral studies. Two other candidates have been awarded M. Sc., degrees under the program. One has returned and one is continuing studies under financing other than AID. Under the Development Services and Training grant, USAID also funded 120 man-months of short term training which has been completed.

In order to make the best use of limited training opportunities we believe that BARC should establish a training unit to coordinate not only the training of BARI personnel but also the personnel of the other research organizations administered by BARC. At the time of our audit, a Member/Director of BARC was responsible for training on a part-time basis but the technical assistance training consultant and the team making the evaluation stated a need for BARC to have a training office with a full-time manager. In answer to our draft report, USAID has indicated progress is being made in this area.

#### Recommendation No. 2

The Director, USAID/B should include in the Agricultural Research Phase II Project a provision for BARC to organize and staff a training office to effectively administer and coordinate manpower development.

#### Project Monitoring

Although project monitoring appears to have been effective, neither BARC nor BARI have submitted the quarterly progress reports called for in the project agreements.

The project has made progress in meeting its objectives and USAID personnel played an important role in that success. Reports, however, are an important part of the AID project monitoring procedures and USAID has not enforced the reporting requirements. The project agreement required both BARC and BARI to furnish quarterly progress reports which were to be reviewed at a meeting of representatives from BARC, BARI, the Planning Commission, the contractor, and USAID. The loan agreement required quarterly construction progress and commodity shipping reports. No reports have been furnished by BARC or BARI since the project began in 1976, except an abridged annual report which was prepared for 1978-79.

The Technical Advisors have submitted semi-annual reports covering their activities to the BARI Director and USAID. These reports summarized the research results of various programs but do not satisfy project reporting requirements.

### Recommendation No. 3

The Director, USAID/B should obtain quarterly progress reports from BARC and BARI in accordance with project agreement terms.

### Project Evaluation

The BDG has been slow to implement recommendations for improving agricultural research which were made by a Joint Research Team in April 1979. The Ministry of Agriculture and Forests established a Research Review Team to make recommendations for strengthening the BARC and reorganizing the national research system. Although BARC has been given responsibility for coordinating all agricultural research it has not been filling this role nor have their activities contributed significantly to the development of a strong national research system. USAID stated that it will be several years before BARC has the manpower and budgets to do this but they feel that BARC has been successfully filling the role of an agriculture research information and program development clearing house.

The Research Review Team studied the agricultural research program in Bangladesh and prepared a report with 21 recommendations. The team found that research was concentrated on a few commodities and was carried out by autonomous or semi-autonomous agencies under many different Ministries. Research on many important commodities and non-commodity factors such as soil and water management, crop production and engineering was neglected. The system was not responding to the complex needs of farmers operating different farming systems in the various agricultural areas of Bangladesh. The objectives of the Team's recommendations were: (1) to combine research resources under a management structure that could give comprehensive attention to national agricultural development, (2) to retain and strengthen existing research entities, and (3) to strengthen BARC so that it could carry out its mandate. We believe that USAID should have the BARC include in its quarterly progress report a section covering action taken to implement the Joint Review Team's 21 recommendations.

### Recommendation No. 4

The Director, USAID/B should require BARC to include a review of the implementation status of the Joint Review Team's 21 recommendations in all future quarterly progress reports.

### C. SMALL SCALE IRRIGATION I PROJECT

The project purpose is to provide farmers with an opportunity to purchase small hand operated water pumps they could afford to own privately. With adequate irrigation a crop could be grown during the dry season when otherwise no crop would be possible. In addition to contributing to increased food production, small farmers and small local industry would also benefit. USAID considers the project concept important because it illustrates the linkages between agriculture and small scale industry. They plan to make further investments in the program.

In 1976 AID approved the \$14 million project to supply 240,000 hand-pumps for sale to small farmers. The loan agreement was signed September 29, 1976 and provided authorization for (a) foreign exchange for the purchase of raw materials and components necessary to manufacture the pumps; (b) establishment of a special credit program to facilitate the purchase of handpumps by the small farmers; and (c) promotion activities to make small farmers aware of the advantages of the handpumps and the availability of credit. The original terminal date for the disbursement of funds was December 31, 1979, but that date has been extended to March 31, 1982.

Initially the project was not attempting to introduce anything new. The small farmers, apparently on their own initiative, had started using handpumps for irrigation; USAID estimated that in 1976 about 70,000 handpumps were being used for irrigation. With this project USAID intended to encourage and promote an indigenously originated development activity. During the dry winter season in Bangladesh irrigation is needed to produce a crop but until the introduction of hand-pumps, irrigation was generally not available to the small farmer who cultivates two acres or less of land. These small plots do not produce the income to purchase conventional irrigation equipment, and the small farmers have not had the status to deal with cooperative irrigation schemes or Government pump operators. With his own pump, the small farmer can have a reliable source of water.

The handpump the project is funding is a modified and improved version of the pump that was used to draw water from wells on U.S. farms for the last 100 years. It was intended for pumping water for

household use and is not the best pump for drawing the large amounts of water needed for irrigation. With its limited capacity the pump can only irrigate up to one acre and during the time of peak water requirement must be operated many hours per day. Nevertheless, the pump has the advantages of familiarity and simplicity. Farmers have seen the pump in use and they trust its cast iron bulk. Further, it requires no fuel, can be lubricated with local substances, and is easy to maintain and repair.

Although few ground water investigations have been made, sufficient wells have been drilled to establish that good ground water is available in much of the northern two-thirds of the country. The rainfall range is between 60 to 200 inches per year and during the monsoon season will probably recharge the aquifers depleted by irrigation pumping.

### Project Planning and Design

Poor project planning and design during the initial stages has caused over a two year delay in completion of the project. Under the original loan, disbursements were to be based on the number of pumps sold on credit, with a fixed amount paid for each reported sale. USAID discovered that the manufacturers were reluctant, without commitments for orders, to build up inventories of handpumps. Their reluctance was increased by problems in procuring and paying the duties for raw materials, despite the fact that the AID project funds were intended to provide the foreign exchange for the raw materials. During the first year of the project no sales were reported for reimbursement and in February 1978 USAID prepared an implementation letter revising the project.

The principal change was to designate the Bangladesh Agricultural Development Corporation (BADC) as the implementing agency replacing the Project Implementation Committee which had been made up of various BDG entities. The BADC was to coordinate with other BDG agencies the import of raw materials; order, through competitive bidding, the manufacture of pumpheads and strainers from the private sector foundries; store the materials and finished products; and sell the pump sets from BADC designated outlets to appointed agents. A consultant was hired to assist BADC in the implementation of the

project and to monitor production and quality control. AID loan funds were also authorized for use to reimburse BADC for goods and services used to manufacture pumps rather than for the number of pumps sold.

Through October 31, 1980, about 75,000 pumps had been produced and the BADC consultant estimated that approximately 75,000 more pumps could be produced from available loan funds by June 1981. This represents a shortfall of about 35 per cent in meeting the project objective of 240,000 pumps. USAID stated the shortfall is primarily due to inflation of component costs and the addition of costs for a consultant/advisor and they do not expect the shortfall to increase.

Because of implementation delays, no sales of project financed pumps were reported until the BDG FY 1980 which began July 1, 1979. Sales during that year were 18,702 units. During the first four months of FY 1981 an additional 5,429 pumps have been sold, which is far short of the projected sales of over 50,000 for the year.

Sales had been expected to increase rapidly once the pumps were produced and available for sale. Although USAID and BADC officials remained optimistic that sales would increase, so far the results have been disappointing. However, USAID has recently reported that sales levels are currently increasing. The time of peak demand for pumps is December through February when the farmer does his winter cropping. At the time of our review, USAID and BADC officials explained that sales had been lagging and would possibly fall short of projections because this year's monsoon rains had lasted longer than usual. With water still standing in many fields, the farmers were not buying pumps which they would have been anxious to have under more normal conditions.

Higher cost is another cause of slow sales. Last year pumps were selling at about Tk. 750 (\$50), but this year because inflation has increased manufacturing costs, pumps are selling at about Tk. 1,000 (\$67), an increase of about 33 per cent. For a small farmer whose annual cash family income is only about \$300 the cost of a pump represents a substantial investment. Cumbersome procedures for obtaining bank credit have aggravated the problem. In one area we visited, a dealer told us he had orders for 200 pumps but had been

unable to fill them because of delays of over two months by the local bank in approving loan applications. A principal cause of delay is the time required for a title search on the farmer's land even though one of the objectives of the project was to make credit for the purchase of pumps readily available to the small farmer who either owns no land or does not have clear title to the land he cultivates. Approximately 50 per cent of the pump sales were to have been on credit but initially project records did not show whether the pumps were sold for cash or on credit terms.

The sales problem is critical and needs prompt attention. Promotional schemes using newspaper and poster advertisements have thus far not been successfully implemented. Since BADC is already subsidizing the cost of pumps in amounts up to about 50 per cent, any new promotional schemes making use of rebates to dealers or to farmers may not be practical and would probably meet with opposition from the BDG Finance Ministry. We believe USAID should monitor handpump sales very carefully during the early months of 1981, with particular attention to credit sales. Bank procedures should be reviewed to make certain that unrealistic collateral requirements and cumbersome procedures are not keeping small farmers from buying pumps. With sales slow and uncertain, to complete production of all pumps for which project funds are available could possibly result in a three year inventory of pumps. We believe production should be controlled to limit the inventory not to exceed one year's planned sales.

In answer to our draft report, USAID has indicated our analysis is a thoughtful and useful document and that the major suggestions are appropriate and responsive. They stated that action has already been initiated to help lift credit sales by freeing up collateral requirements and a concerted monitoring effort of sales activity is also underway. They agreed with the following two recommendations and indicated corrective action has been started.

#### Recommendation No. 5

The Director, USAID/Bangladesh should review the credit arrangements for handpump sales and take action to help ensure that available credit to small farmers is adequate and not a cause of severe sales limitation.

Recommendation No. 6

The Director, USAID/Bangladesh should monitor the hand-pump sales and require that BADC control production so that inventories do not reach excessive levels.

#### D. RURAL ELECTRIFICATION

The project purpose is to provide reliable electric service at reasonable rates to existing and potential sources of rural employment, to community service facilities and to rural residents, especially the rural poor, in all project areas. At the time the project was designed, with the exception of an east-west connector between the major segments of its transmission grid, Bangladesh had the transmission system and the generating capacity to support an expanded electrification system. This project assists the BDG to look beyond the grid to the development of a system for delivering power to rural users.

The project agreement for a loan of \$16 million and a grant of \$21 million was signed December 15, 1977. Subsequently, the loan was increased to \$34 million and the grant to \$35.3 million. Project implementation has been assigned to the Rural Electrification Board (REB) under the Ministry of Flood Control, Water Resources and Power. The REB was formed for purposes of this project to separate rural electrification from the Power Development Board, the agency responsible for generation and national transmission of electrical power and urban distribution. At the local level, administration of the program is assigned to rural electrification societies call Palli Bidyut Samity (PBS) which are responsible for the promotion, operation and maintenance of the local distribution systems. Under the project, 13 PBS's have been formed that will serve 45 of the approximately 440 Thanas (basic administrative units) in Bangladesh. The project objective is to construct 4,000 miles of distribution lines and 26 transformer sub-stations and to rehabilitate 300 miles of distribution lines. The project will also assist in connecting and metering service to 468,000 rural domestic, commercial, agricultural and small industrial consumers.

Electricity is generated mainly from the country's reserves of natural gas and hydro-power thus reducing the dependence on oil imports and increasingly scarce local wood supplies. Distribution in the rural areas plays an important role in meeting the USAID's objectives of increasing food grain production and expanding employment. Reasonably priced power supplied as a result of this project is important to ensure adequate supplies of irrigation water needed to increase food grain production.

Rural unemployment which is estimated at 30 per cent is one of Bangladesh's major problems. Even with farmers adopting the more labor intensive HYV's and cultivating crops during more of the year,

the on-farm employment opportunities cannot absorb the expanding rural work force. Because the BDG does not want unemployed rural workers migrating to the cities, increased non-farm rural employment is considered the best solution. Although many other inputs are needed, electrification is essential for the development of rural industries. In particular, electricity is required to supply heat, refrigeration, light and concentrated power which cannot be supplied by human labor. The rural poor are expected to benefit not only from increased employment opportunities, but also from increased commercial activity and community services such as education and health services which will be possible with the introduction of electricity.

### Project Implementation

Project implementation has gone well and despite slippages in some areas, the prospects for meeting the scheduled completion date are good.

Work has been started on the distribution lines in 6 of the 13 PBS's. Of the 4,000 miles of lines to be financed by the project, 1,574 miles have been designed and contracts were signed for construction of 1,200 miles of those lines. The technical advisors have also trained 21 construction contractors, using the Dacca PBS for the training ground. As a result, 110 miles of line was energized in June 1980 and is now in limited operation in the Dacca PBS. Estimates indicate the 21 contractors each have the capacity to construct 100 miles of line a year. Based on this capability the advisors believe that they will be able to meet the December 1983 project completion date.

Progress on sub-station construction has been slow with only 13 of the 26 stations started. Two of these are completed, however, and several others are very close to being completed. The construction of PBS warehouse facilities, offices and housing were originally scheduled for completion within the first quarter of 1979, but a shortage of cement and reinforcing rod and the poor performance of contractors has resulted in delay in completion dates. Five headquarters buildings are now complete, seven are about 90 per cent complete and one is still in the design stage.

The project set as an initial target the metering of 268,000 rural consumers, but the early response was greater than expected and that

target has since been increased to 468,000 consumers. As of October 1980, the first 10 PBS's to report have a total of 462,170 membership applications. Although most of these are domestic users, that figure includes 44,283 commercial, industrial and agricultural users. Because of the larger than anticipated number of applications the implementation schedule for connecting and metering users was scheduled for review in January 1981.

### Commodity Billing

Some suppliers have billed charges in excess of amounts allowed in their contracts and the Banking and Financing Division of the Office of Financial Management (FM/BFD) paid the excess charges. The REB has had difficulty monitoring payments because it has not received copies of payment documents.

Material and equipment for the project were tendered by REB in seven bid packages amounting to approximately \$33 million. FM/BFD, issued 45 Letters of Commitment (L/C) to provide for contract payments to the various suppliers.

The Bid Invitation stated in Article II, Section 6, that payment will be made on the basis of actual freight costs not to exceed the Bidder's quoted freight estimate. The schedule of prices provided for a quotation of total estimated freight and total cost and freight. General Electric Company billed the quoted estimated freight costs instead of actual freight costs as required by the Invitation for Bid resulting in an apparent overbilling and overpayment of about \$278,000. Two freight bills were not available to us so an exact amount could not be determined. The over-billing covers Bid Invitation Nos. 11, 16 and 38.

Apparent overpayments were also made to General Electric Company on invoice number 727,055 where 59 voltage regulators were billed while only 54 were ordered, shipped and received. This resulted in an overbilling of \$13,595. Also, apparent overpayments amounting to \$15,283 were made to Koppers Company Inc., on Bid Invitation Number 26, 27 and 28 as a result of shortages in the shipment of wooden poles and cross arms.

FM/BFD also paid Westinghouse Electric Company the total amount of Letter of Commitment No. 1207 which included \$1,368.10 for commission

which was not provided for in the Invitation for Bid or the Bid proposal. Actual freight costs for the shipment were less than the estimated cost on the bid and Westinghouse then billed the difference between actual and estimated freight as commission. Because the payment of freight costs above actual charges is not allowed in the contract, the payment should be recovered.

The Bid Invitation provides that supplier's deliver to FM/BFD the original and six copies of the Public Voucher for Purchases, Bidder's Invoice and two originals and five copies of the Bill of Lading showing the amount of freight charges clearly marked "Prepaid" and certain other documents for payment. Procedures also provide that ninety per cent of each invoice is paid by FM/BFD upon delivery of the commodity to the port and presentation of proper documents. In order to prevent future over-payments, we suggest that one copy of the documents presented for payment to FM/BFD be forwarded to REB for their audit and record. When the balance of the invoice is paid the REB should also be apprised of this and a copy of the final payment documents forwarded to them.

Recommendation No. 7

The Director, USAID/B should review project payments and ensure settlement of the overpayments reported above.

Recommendation No. 8

The Chief FM/BFD should review payment procedures under the above Letters of Commitment to determine whether the exceptions we found indicate shortcomings in required practices. FM/BFD should also determine if copies of payment documents should be sent to AID Missions and/or host governments as suggested above.

LIST OF ACRONYMS USED IN REPORT

AID	Agency for International Development
BADC	Bangladesh Agricultural Development Corporation
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BDG	Government of Bangladesh
FM/BFD	Banking and Finance Division, Office of Financial Management
L/C	Letter of Commitment
PBS	Palli Bidyut Samity (Rural Electrification Society)
REB	Rural Electrification Board
USAID	U.S. AID Mission to Bangladesh

LIST OF RECOMMENDATIONS

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Recommendation No. 1

The Director, USAID/Bangladesh should prepare a revised logical framework for the Rural Finance Experimental Project reflecting project design changes and expressing the outputs expected in terms of the project's current status.

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Recommendation No. 2

The Director, USAID/B should include in the Agricultural Research Phase II Project a provision for BARC to organise and staff a training office to effectively administer and coordinate manpower development.

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Recommendation No. 3

The Director, USAID/B should obtain quarterly progress reports from BARC and BARI in accordance with project agreement terms.

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Recommendation No. 4

The Director, USAID/B should require BARC to include a review of the implementation status of the Joint Review Team's 21 recommendations in all future quarterly progress reports.

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Recommendation No. 5

The Director, USAID/Bangladesh should review the credit arrangements for hand pump sales and take action to help ensure that available credit to small farmers is adequate and not a cause of severe sales limitation.

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LIST OF RECOMMENDATIONS

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Recommendation No. 6

The Director, USAID/Bangladesh should monitor the hand pump sales and require that BADC control production so that inventories do not reach excessive levels.

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Recommendation No. 7

The Director, USAID/B should review project payments and ensure settlement of the overpayments reported above.

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Recommendation No. 8

The Chief FM/BFD should review payment procedures under the above Letters of Commitment to determine whether the exceptions we found indicate shortcomings in required practices. FM/BFD should also determine if copies of payment documents should be sent to AID Missions and/or host governments as suggested above.

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## LIST OF REPORT RECIPIENTS

### USAID/Bangladesh

Director 5

### AID/W

Deputy Administrator (DA/AID) 1

#### Bureau For Asia

Assistant Administrator (AA/ASIA) 5

Office of Bangladesh and India Affairs (ASIA/BI) 1

Audit Liaison Officer 1

#### Bureau For Development Support

Assistant Administrator (AA/DS) 1

Office of Development Information and Utilization (DS/DIU) 4

#### Bureau For Program and Policy Coordination

Office of Evaluation (PPC/E) 1

Office of Legislative Affairs (AA/LEG) 1

Office of General Counsel (GC) 1

Office of Financial Management (FM) 1

IDCA Legislative and Public Affairs Office 1

#### Office of Inspector General:

Inspector General (IG) 1

Assistant Inspector General for Investigations and  
Inspections (AIG/II) 1

Communications and Records Office (IG/EMS/C&R) 12

Policy, Plans and Programs (IG/PPP) 1

#### Regional Inspector General for Audit:

RIG/A/W 1

RIG/A/Nairobi 1

RIG/A/Manila 1

RIG/A/Cairo 1

RIG/A/Panama 1

### OTHER

General Accounting Office (GAO/W) 1

New Delhi Residency 1