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BY THE COMPTROLLER GENERAL

Report To The Chairman,  
Committee On Foreign Relations  
United States Senate  
OF THE UNITED STATES

RELEASED

Poor Planning And Management Hamper Effectiveness Of AID's Program To Increase Fertilizer Use In Bangladesh

To help Bangladesh become self-sufficient in foodgrain by 1985, the Agency for International Development (AID) is making available \$150 million over 3 years to help the country develop a more efficient fertilizer supply and distribution system. AID plans to commit an additional \$85 million in fiscal years 1981 and 1982.



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The project has not achieved its goal of an annual 15-percent increase in fertilizer sales. GAO recommends a number of actions the Agency for International Development should take to improve project planning and management.



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COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON D.C. 20548

B-202490

The Honorable Charles H. Percy  
Chairman, Committee on Foreign  
Relations  
United States Senate

Dear Mr. Chairman:

We received a letter dated July 28, 1980, from the then-Chairman of your Committee, advising us of the Committee's concern about the progress of the Agency for International Development Fertilizer Distribution Improvement Project in Bangladesh and asking us to review project planning and implementation. This report responds to the Committee request for an independent status report on that project.

In this report, we review the major components comprising the project: fertilizer importation, reform of the fertilizer distribution system, storage construction, and bulk handling of fertilizer imports. In each area, we have made recommendations to strengthen the project plan and implementation and to more closely accommodate project decisions to market forces.

In order to expedite the report, we did not follow our usual practice of obtaining official agency comments. As the Committee suggested, we discussed our draft report with the Agency officials in Washington. Their views are included in the report.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days from the date of the report. At that time, we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

A handwritten signature in cursive script that reads "Milton J. Fowler".

Acting Comptroller General  
of the United States



D I G E S T

In 1978, the Agency for International Development (AID), undertook a 3-year, \$150-million project to improve the supply and distribution of fertilizer in Bangladesh. The Agency plans to provide an additional \$85 million for fiscal years 1981 and 1982. The aim of the project is to help Bangladesh meet its goal of achieving foodgrain self-sufficiency by 1985.

Although factors such as foodgrain market prices, credit, water, and tenancy affect fertilizer demand, they are not directly addressed by the project. Some of these factors are addressed by other donors or through other aspects of AID mission policy.

Some progress has been made to improve fertilizer distribution and use but the project has not achieved its goal of an annual 15-percent increase in fertilizer sales. GAO observed the following problems:

- Fertilizer imports have not been adequately planned and coordinated with domestic fertilizer production and storage capacity.
- The project's new marketing system has made limited progress in improving farmer access and reducing distribution costs.
- Construction of storage facilities is significantly behind schedule and those warehouses which have been built are fewer and smaller than planned.
- Plans to provide bulk-handling facilities have not been adequately coordinated among donor agencies.

Fertilizer imports were based on overly optimistic annual sales estimates which were not periodically revised to reflect actual demand, domestic production, and available storage capacity. Fertilizer stock levels at July 1980, had reached a 7-month supply on the basis of sales. To relieve storage demands, Bangladesh has begun to export about 40,000 tons and plans

to export an additional 55,000 tons while continuing to import significant amounts of fertilizer.

Some progress has been made in developing a new fertilizer marketing system. Wholesale and retail distribution functions have been turned over to the private sector. These measures were expected to improve the ability of farmers to obtain fertilizer supplies and reduce program costs. However, costs have not been reduced and the extent to which private-sector involvement in fertilizer marketing and distribution and whether the market is adequately covered is not known. Discounts to wholesalers, which are fixed by the Government, may not be adequate to cover all dealer costs and allow a reasonable profit. These discounts generally determine distances at which it remains economical to market fertilizer while still adhering to fixed retail sale prices.

A lack of complete cooperation among the contractor, host government, and the AID mission in identifying and selecting warehouse locations has affected the timely construction of needed warehouses. Construction of additional storage facilities is proceeding slowly and completion is expected to be delayed by over a year. Only about half of the capacity planned under prior projects has been completed because of poor contractor performance. In addition, construction of staff quarters accounted for 50 percent of building costs, much higher than originally planned. As a result, the AID mission is planning additional storage construction.

AID's plans to purchase portable bagging machines for bulk fertilizer imports may duplicate similar efforts planned by the International Fund for Agricultural Development. AID plans to install the machines and conduct bagging operations on the docks at the two Bangladesh ports. However, current AID-financed fertilizer imports are not sufficient to justify the machines and AID has not obtained commitments from other donors for additional bulk imports. An earlier AID experiment with bagging bulk imports onboard ships was unsuccessful.

## RECOMMENDATIONS

The Administrator, AID, should encourage and assist the Government of Bangladesh to

- employ a more systematic approach for planning imports, one that gives proper weight to the factors of fertilizer supply and demand in a way that is responsive to changing conditions;
- determine how the dealer discount policy should be revised or modified to more accurately reflect actual product and overhead costs to dealers and allow for a reasonable profit; and
- gradually remove officially administered retail sales prices, so long as doing so would not reduce the availability of fertilizer to all farmers on an equitable basis.

The Administrator, AID, should also take steps to

- establish procedures and requirements for joint collaboration among the contractor, the host government, and the AID mission on project activities, and provide a mechanism to speed the approval process, resolving differences as they occur; and
- coordinate and integrate current plans to provide temporary bagging machines with the efforts of other donors.

GAO makes other recommendations for collecting and developing information and for taking other actions to strengthen program activities. (See pp. 15 and 22.)

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In order to expedite the report, GAO did not follow its usual practice of obtaining official agency comments. As the Committee suggested, GAO discussed the draft report with the Agency for International Development mission in Bangladesh and with Agency officials in Washington. These AID officials generally accepted GAO's recommendations and have begun to implement them. The mission does not agree that there has been inadequate coordination with other donors concerning the purchase of bagging machines. (See p. 35.)



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#### ABBREVIATIONS

AID	Agency for International Development
BADC	Bangladesh Agricultural Development Corporation
DAP	diammonium phosphate
GAO	General Accounting Office
IECO	International Engineering Company
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center
MP	muriate of potash
TSP	triple super phosphate
UNDP	United Nations Development Program

## CHAPTER 1

### FOODGRAIN PRODUCTION AND

#### USE OF FERTILIZER IN BANGLADESH

Increased food production in Bangladesh depends upon improvement in cropping intensity and yields which result from the increased and complimentary uses of modern agriculture aids, such as fertilizers, irrigation, and high-yield variety seeds. There is little chance of expanding cultivated acreage because most available land has been under cultivation for the past 2 decades. The ability of the Bangladesh Government to ensure that modern agriculture aids are used fully and effectively is critical in determining whether significant agricultural growth can be achieved. Other factors, however, also affect food production and the demand for and use of fertilizer, including credit availability, land tenure arrangements, water management, incentive production prices, and fertilizer prices. Combined with the (1) severe vulnerability to adverse weather, (2) narrow margin on which most Bangladesh farmers operate, and (3) high propensity to minimize risks under these conditions, these factors inhibit rapid agricultural development and increased fertilizer use.

The goal of the \$150-million AID fertilizer distribution project, signed on July 28, 1978, is to increase fertilizer use by all farmers on an equitable basis by 15 percent annually. A 3-percent annual improvement in foodgrain production is expected to result. Inadequate supplies and inaccessibility to fertilizer were thought to be the major impediments to increased fertilizer sales and use, especially among small farmers. Although the project addresses important supply factors such as fertilizer imports and inefficient internal distribution, the project does not directly address demand constraints, which inhibit the use of modern farming aids by small farmers. It is generally recognized that both supply and demand factors must be addressed to realize long-term benefits. Other donors and aspects of AID mission policy address these factors. Our previous reports have addressed deterrents to increased fertilizer use and small farmer credit in developing countries. 1/

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1/"Restrictions on Using More Fertilizer for Food Crops in Developing Countries," (ID-77-6, July 5, 1977); "Disincentives to Agricultural Production in Developing Countries," (ID-76-2, Nov. 26, 1975); and "Credit Programs for Small Farmers in Latin America Can Be Improved," (ID-77-1, Dec. 9, 1977).

## FOODGRAIN PRODUCTION AND FERTILIZER SALES

Bangladesh currently produces between 80 and 85 percent of its foodgrain requirements and meets additional needs through donor-financed imports. Rice is the main crop, accounting for about 80 percent of total foodgrain acreage. Wheat production has expanded rapidly since 1975 and is expected to continue expanding because of lower production risks to the farmers and lower water requirements. Studies have indicated that because of an increase in fertilizer use alone, substantial initial increases in yield should occur for more than half the acreage now planted in rice and wheat. Further productivity increases tend to be based on other complimentary aids, particularly the use of high-yield variety seeds and irrigation.

The Bangladesh Government has a target of achieving foodgrain self-sufficiency by 1985 which requires average growth rates of 5 percent over the fiscal year 1978 rate. Achieving a more modest target of from 3 to 4 percent is thought to require an annual increase in fertilizer use of about 15 percent.

The productivity response to increased fertilizer use indicates that other factors may have influenced foodgrain production as much, or more, than fertilizer use. During fiscal year 1978, fertilizer sales increased over 40 percent to 730,600 metric tons and foodgrain production reached a record level of 13.3 million metric tons--11 percent higher than the previous year. These increases, occurring before the AID fertilizer distribution project was officially implemented, have been partly attributed to (1) the early announcement of an adequate procurement price for paddy rice and subsequent Government procurement to support the price and (2) increased Government efforts to promote higher fertilizer use.

During the first full year of the project in fiscal year 1979, fertilizer sales increased by only 2 percent and foodgrain production was 1 percent below the 1978 level. In fiscal year 1980, when fertilizer supplies within the country reached record levels, sales increased 14.7 percent and foodgrain production increased 2 percent. To date, the program has not succeeded in achieving its overall goal of a 15-percent annual increase in fertilizer sales nor the expected 3-percent increase in foodgrain production.

## FERTILIZER USE IN BANGLADESH AND FACTORS AFFECTING FARMER DEMAND

Although over 60 percent of farmers in Bangladesh are thought to use fertilizer, usage is in quantities estimated to be about one-fifth of the recommended dosages. Nitrogen, phosphate, and potash, the three main categories of manufactured fertilizers, are used in Bangladesh and in fiscal year 1980 accounted for roughly 64, 29, and 5 percent, respectively, of all fertilizer

sold. Those types of fertilizers used in Bangladesh are urea, triple super phosphate (TSP), diammonium phosphate (DAP), and muriate of potash (MP). Each has distinct use characteristics and none is a complete substitute for another.

Bangladesh Fertilizer Sales

<u>Fertilizer type</u>	<u>Fiscal year 1978</u>		<u>Fiscal year 1979</u>		<u>Fiscal year 1980</u>	
	<u>metric tons</u>	<u>percent</u>	<u>metric tons</u>	<u>percent</u>	<u>metric tons</u>	<u>percent</u>
Urea (46% nitrogen)	488,000	67	476,000	64	545,000	64
TSP (46% phosphate)	195,000	27	177,000	24	209,000	24
DAP (46% phosphate and 16% nitrogen)	-	-	38,000	5	43,000	5
MP (46% potash)	42,000	6	45,000	6	47,000	5
Other	6,000	1	9,000	1	11,000	2
Total	<u>731,000</u>		<u>745,000</u>		<u>855,000</u>	

Note: The Bangladesh fiscal year runs from July 1 to June 30.

Less than 50 percent of these combined fertilizer sales were met with domestic fertilizer production. Some of the nineteen bilateral and multilateral donors supplied most of the remaining needs through imports financed by grants, loans, barter arrangements, and through use of the country's foreign exchange. Bangladesh is expected to remain a significant fertilizer importer for years to come even though it is moving toward fulfilling some of its requirements for fertilizer. Currently, only nitrogen and phosphate fertilizers are produced in Bangladesh.

The primary motivating factor for farmers to increase fertilizer use is economic and depends on the farmers' financial situation. Bangladesh farmers will use more modern farming aids such as fertilizer and will increase productivity if they anticipate a profit sufficient to offset the ever-present threat of crop loss. Many farmers are reluctant to invest in fertilizer, given their already narrow profit margins and the uncertainties of crop production. For these farmers, the assured availability of fertilizer even at reasonable prices may not necessarily lead to its increased use. Among the factors influencing farmer demand and use of fertilizer are Bangladesh foodgrain production prices, tenant arrangements, and the availability of credit. Fertilizer prices are thought to be a lesser deterrent because they are kept artificially low through Government subsidy.

The Government policy, in agreement with World Bank conditions for financing fertilizer and foodgrain imports, is to gradually reduce the fertilizer subsidy and eliminate it altogether by 1985. Fertilizer prices were increased by almost 28 percent in August 1979, followed by Government procurement prices for rice and wheat in November 1979. The World Bank

believes that fertilizer price increases have not reduced the incentive spread between fertilizer and grain prices because normally both prices are increased correspondingly.

Part of the AID strategy to reduce the fertilizer subsidy involves reducing costs to import and distribute fertilizer. Although reductions in the subsidy cannot be made without further increases in fertilizer prices, AID tends to rely on the World Bank or other donors to effect needed price increases. The fertilizer distribution improvement project incorporates three potential areas of cost reduction:

- reforming marketing and distribution of fertilizer (see p. 17.);
- substituting DAP for TSP as the major phosphate fertilizer in Bangladesh (see p. 12.); and
- shifting to bulk instead of bagged imports (see p. 30.)

Despite considerable efforts to increase the supply of modern agricultural aids and to spread their adoption, the measurable production response for increased fertilizer use, as indicated by foodgrain production, continues to be below expectations. Potential increases in foodgrain production remain high because the rate of fertilizer use per acre in Bangladesh is one of the lowest in the world.

#### PURPOSE OF THE FERTILIZER DISTRIBUTION IMPROVEMENT PROJECT

A major feature of the project is a new marketing system designed to improve fertilizer distribution in Bangladesh. Marketing fertilizer is to be stimulated by encouraging private-sector involvement in retailing and wholesaling. Under the old system, the Government retained excessive control over marketing and distribution of fertilizer throughout the country, 1/ including the licensing of retail dealers. Several contractors have been engaged to provide the technical assistance and expertise needed to implement each of the major components of the project.

The fertilizer distribution improvement project combines several fertilizer-related activities under a single project designed to improve the supply and distribution of fertilizer in Bangladesh. It was funded at \$150 million over a 3-year period, beginning in fiscal year 1978. Three separate proposals had

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1/Bangladesh has four divisions, 20 districts, and 418 thanas of about 100 to 150 square miles in size. There are about 4,420 unions averaging 15 villages each or about 65,000 villages nationwide.

initially been offered in 1976: one each for fertilizer imports, fertilizer storage, and bulk handling. AID/Washington approved the three projects in November 1976 and included them in the fiscal year 1978 congressional presentation on the basis that they would be consolidated into a single project proposed for grant financing. Although the three projects were set up as one, they were implemented separately with individual conditions so that delays in one project would not delay other components.

The project provides for assistance in:

- meeting Bangladesh fertilizer import requirements for planned demand,
- improving fertilizer distribution through the new marketing system,
- planning and constructing storage facilities to handle increased fertilizer sales and to meet the new marketing system needs, and
- planning and constructing bulk handling and bagging facilities.

STATUS OF FUNDING AND  
ADDITIONAL PROPOSED ACTIVITIES

Project assistance was made available in amounts of \$43, \$57, and \$50 million, respectively, during fiscal years 1978 through 1980. The fiscal year 1980 funds consist of a \$18-million grant and a \$32-million loan. The loan portion had not been obligated at the time of our review. The Government wanted to defer accepting fiscal year 1980 loan funds, pending the future availability of grant funds. Of the \$118 million in grant funds that was obligated, about \$69.8 million had been spent through December 1980. About \$59 million was spent for fertilizer; \$7.9 million for seed purchases; and about \$2.9 million was spent for consultant services and training, as shown in the chart on the next page.

Expenditures for  
The Bangladesh Fertilizer Distribution Improvement Project  
(July 28, 1978 - December 31, 1980)

Funds available	<u>\$150,000,000</u>
Expenditures:	
Fertilizer imports	58,952,000 <u>a/</u>
Seed imports	7,896,000
Warehouse construction	-
Training	6,000
Consultant services	<u>2,941,000</u>
Total expenditures	\$ <u>69,795,000</u>
Balance of funds	\$ <u><u>80,205,000</u></u>

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a/Contracts for an additional \$19.1 million for 60,000 tons of fertilizer were signed in December 1980.

Over \$59 million has been spent to purchase more than 218,000 metric tons of fertilizer since fiscal year 1979-- 92,000 metric tons of urea and 126,000 metric tons of DAP. An additional \$27.5 million was obligated under a previous project in fiscal year 1977 and was spent in fiscal year 1978 for 149,000 metric tons of fertilizer.

About 4,500 metric tons of wheat and maize seed were purchased during calendar year 1978 and 10,000 metric tons were purchased during 1979. Purchasing these seeds had not been anticipated as part of the project and required AID/Washington approval. Over 3,300 metric tons of the 1979 wheat seed valued at \$1.6 million was infested with insects. Although the shipment could not be used as seed, it was accepted and proposed to be used as food. AID has recommended that the Bangladesh Agricultural Development Corporation (BADC) take recovery action against the insurance company, the carrier, and the supplier.

Consultant services have been provided by Soros Associates, the International Fertilizer Development Center (IFDC), the International Engineering Company (IECO), and two AID mission personal services contractors. Soros Associates provided assistance to improve bulk facilities at the existing urea factories. Under about an \$800,000 contract, Soros also conducted a study and made recommendations on the feasibility of bulk fertilizer imports. Among other things, IFDC has been retained as the marketing and distribution consultant responsible for monitoring the new marketing system. The \$1-million per year contract has been renewed annually for a similar amount since 1979. IECO is responsible for planning and designing site selections and for supervising warehouse construction. About \$2 million was initially obligated for this effort. Two contractors complement the mission engineering staff and monitor construction.

Additional funding proposed by the AID mission would continue and extend the major activities now underway and would begin some new activities. The mission planning level of \$85 million--\$35 million for fiscal year 1981 and \$50 million for fiscal year 1982 includes the activities shown below.

	<u>1981</u>	<u>1982</u>	<u>Total</u>
	- - - - (millions) - - - -		
Proposed:			
Fertilizer imports	\$ 8.4	\$24.0	\$32.4
Seed imports	3.5	4.0	7.5
Fertilizer storage	18.0	21.0	39.0
Seed storage	3.0	-	3.0
Factory storage repair	1.0	-	1.0
Consultant services	<u>1.1</u>	<u>1.0</u>	<u>2.1</u>
Total	<u>\$35</u>	<u>\$50</u>	<u>\$85</u>

Continued DAP fertilizer imports are planned at about 70,000 metric tons as well as the introduction of about 6,000 metric tons of other soil nutrients. Funds are also planned to promote the use of new fertilizers and soil nutrients. About 10,000 metric tons of wheat seed and 1,200 metric tons of maize seed are also planned as well as 10,000 metric tons of seed storage and up to 150,000 metric tons of new fertilizer storage. An additional \$100,000 was also planned to make bulk warehouses fully operable at the two urea plants primarily by replacing dehumidifiers. Funds were reserved during the first 3 years of the project to continue IECO construction monitoring and use of personal services contractors. About \$1 million will be available during each fiscal year to extend IFDC marketing consultant services under the existing contract that is renewed annually by contract amendments.

#### OBJECTIVES, SCOPE, AND METHODOLOGY

This review focused around Committee concern that careful planning was required to make the project succeed considering the magnitude of the program, the complexity of designing and implementing a fertilizer distribution system, and the technical assistance required. Our purpose was to analyze major project components and to provide a status report on the progress and problems involved in project implementation. The major project components addressed in the review were: fertilizer imports, the distribution system, storage construction, and bulk imports. We did not review and determine the full impact of external factors outside the scope of the project which are known to affect fertilizer demand and use (see ch. 1), nor did we independently assess the extent to which fertilizer is available to all farmers on an equitable basis. Our efforts were concentrated on project planning and implementation with fieldwork performed from September 29 through November 3, 1980.

The Committee provided some project background information. During our review, we interviewed AID and World Bank officials in the United States and in Bangladesh; contractor representatives (except Soros Associates, the bulk handling consultant); shipping agents and host-government officials. We examined and analyzed official AID and Bangladesh Government project documents. In addition, we made fieldtrips to the Bangladesh ports, the Ashuganj fertilizer factory, existing AID-financed fertilizer warehouses, proposed storage sites, and to warehouses constructed and rented by the Bangladesh Agricultural Development Corporation.

Comments on our findings, conclusions, and proposed recommendations were provided by the AID mission and by the Office of Bangladesh and India Affairs of the Bureau for Asia. These comments and additional information have been considered and incorporated in the report as appropriate. The AID mission has interpreted our recommendations as a call for renewed efforts to implement existing project elements and for possibly expanding some activities. These officials noted that we were not recommending cancellation or curtailment of any project element. Our objective was to provide a status report on project activities, to identify and illustrate problems and to point to or recommend improvements. We are therefore not expressing an opinion on the continuation, future funding, or cancellation of the project or any of its elements.

## CHAPTER 2

### FERTILIZER IMPORTS AND DOMESTIC PRODUCTION

#### NOT ADEQUATELY PLANNED AND COORDINATED

Fertilizer imports and domestic production proceed for the most part without the benefit of any systematic scheduling or projections. BADC, a semi-autonomous agency within the Ministry of Agriculture, compiles statistics on fertilizer sales but has not as yet determined the kind of medium- and longer-term projections which would match fertilizer requirements with domestic production and import sources. BADC procures, stores, and markets fertilizer and receives a subsidy from the Government to cover the difference between procurement and distribution costs and fertilizer sales revenues generated at officially established prices.

Fertilizer produced domestically is under the control of the Bangladesh Chemical Industries Corporation--another semi-autonomous agency within the Ministry of Agriculture--and is pooled with imported fertilizers distributed by BADC. The domestic fertilizer is taken over by BADC at transfer prices fixed by the Government. These prices are intended to cover budgeted costs, depreciation, and a profit element for the plant.

#### SUPPLIES IN EXCESS OF DEMAND TRIGGER EXPORTS

Because projected sales targets are not revised to reflect current conditions, Bangladesh fertilizer supplies during fiscal year 1980 substantially exceeded the demand and seriously strained existing Government-owned and leased storage space. As a result, the country which imports almost 50 percent of its needed fertilizer had planned to export 150,000 tons of its domestic urea, including 20,000 tons to Pakistan, 20,000 tons to Sri Lanka; and 55,000 tons to India. AID mission and other donors protested the exports which were apparently canceled except for the 40,000 tons contracted with Pakistan and Sri Lanka.

In further response to this issue, the AID mission reported that such exports were made in anticipation of the early start-up of the new Ashuganj factory which did not materialize. The mission also reported that fertilizer exports resulted because of the lack of inter-ministerial coordination. In our opinion, the lack of storage space within the BADC distribution system and at production facilities for the Bangladesh Chemical Industries Corporation seems to have been a major factor. Nevertheless, the mission staff contended that their projections at the time the contracts were awarded (and those of BADC), indicated a need for urea imports, not exports. By the time exports actually began,

the mission said that BADC had adequate empty storage space and could have accepted delivery on a faster schedule than the Corporation was able to export it. We realize other factors are involved, including potential factory shutdowns and unprotected storage. We believe, however, that the AID mission should anticipate these management problems and should help resolve them before, and as, they arise. The mission should consider taking steps at the highest levels, with other donors, to forestall the export of fertilizer known to be needed--and indeed being imported--by the country.

During recent years, increased imports and improved domestic production have resulted in a substantial surplus as shown below. Stocks at the end of fiscal year 1980 (530,000 tons) were at least at a 7-month supply based on fiscal year 1980 sales.

Bangladesh Fertilizer Sales, Imports, and Domestic  
Production for Fiscal Years 1977 through 1980 a/

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
	- - - - (metric tons) - - - -			
Beginning stock	391,000	230,000	174,000	393,000
Plus:				
Imports	138,000	425,000	614,000	573,000
Domestic production	<u>222,000</u>	<u>250,000</u>	<u>350,000</u>	<u>419,000</u>
Total available	751,000	905,000	1,138,000	1,385,000
Less: Sales	<u>521,000</u>	<u>731,000</u>	<u>745,000</u>	<u>855,000</u>
Ending stock	<u>230,000</u>	<u>174,000</u>	<u>393,000</u>	<u>530,000</u>

a/The above figures vary by source. Except for the 1980 ending stock, beginning and ending stock levels were computed based on actual sales, imports, and production data.

BADC and the AID mission have determined and agreed that maintaining a 3-month supply of nitrogen fertilizer and a 5-month supply of phosphate and potash fertilizer would be adequate to prevent supply disruptions. (Earlier, the policy was a 5-month supply for all fertilizer.) Our analysis of the ending stocks for fiscal year 1980 showed that supplies exceeded overall needs even considering the seasonal nature of fertilizer sales.

Months' Supply of Fertilizer Stocks  
(Fiscal Year 1980)

	<u>Nitrogen</u> <u>(Urea)</u>	<u>Phosphate</u> <u>(TSP) (DAP)</u>	<u>Potash</u> <u>(MP)</u>	<u>Other</u>	<u>Totals</u>	
	- - - - (thousands of metric tons) - - - -					
Actual sales	545	209	43	47	11	855
Ending stocks	328	99	45	54	4	530
Months' supply	7.3	5.7	12.6	13.8	4.4	7.5

Ending stock levels of nitrogen fertilizer, the most heavily used kind, were more than double the established criteria at the end of fiscal year 1980. Supplies of phosphatic fertilizer, which represent about 30 percent of all fertilizer sold, also exceeded the established 5-month supply level particularly DAP with more than a 1-year supply. Potash, the least used fertilizer, was very plentiful--nearly triple the expected needs.

These excessive stock levels occur because BADC does not routinely revise projected sales targets to reflect current demand. Once the projected annual sales target is set and allocated over 12 months, it is not changed and is used in planning imports. For example, during the first quarter of fiscal year 1981, from July through September 1980, the projected sales level was 255,000 metric tons. Even though actual sales were about 194,000 metric tons or about 31 percent below projections, the projected annual sales level of 1,150,000 metric tons remained unchanged.

Excessive stock levels have also necessitated renting more temporary storage, leaving some fertilizer supplies without shelter, and stopping local production because of limited factory storage. The amount of leased space is generally overstated. BADC personnel overstate warehouse capacity to secure the scarce space and to provide the owners with competitive rents which range above Government rental ceilings. During July 1979, the TSP factory stopped production for a time and the following August fertilizer was stored without cover. We noted that these conditions also occurred during 1980.

To further illustrate the problem of correlating imports with sales and storage capacity, first half sales in fiscal year 1979 were about 20 percent higher than the comparable fiscal year 1978 period. Final sales were about 745,000 metric tons--an increase of only about 2 percent. This lower-than-expected sales level has been attributed to a severe drought from middle to late fiscal year 1979 when application levels were below normal. The decrease in sales resulted in inadequate storage to handle previously ordered imports and domestic production. The drought continued to affect sales through the first part of fiscal year 1980 when sales were expected to reach

1,016,000 metric tons. Sales only reached about 855,000 metric tons--an increase just under 15 percent. For fiscal year 1981, the Government projected sales at 1,168,000 metric tons--about a 37-percent increase over actual sales in fiscal year 1980.

AID-financed fertilizer imports from fiscal years 1977 through 1980 showed little, if any, correlation to actual sales, projected sales, or storage capacity. In fiscal year 1978, AID-financed imports amounted to 149,500 tons or about 22 percent of total imports; in fiscal year 1979, 176,200 tons or 29 percent of total imports. AID financed 42,000 tons of DAP in fiscal year 1980 and an additional 60,000-ton purchase of phosphate fertilizer--30,000 tons of DAP and 30,000 tons of TSP--was approved in November 1980.

The BADC monthly fertilizer newsletter has been cited as an important means of responding to and coordinating fertilizer distribution. It includes pertinent, countrywide statistics on supply, sales, imports, production, and storage capacity. The extent to which the document is used by major donors and the Government to plan and coordinate fertilizer imports is unclear. We cannot comment on the overall accuracy of the data, but, in our view, a major flaw is the static annual sales projection which apparently is not changed to reflect current conditions. In our view, a more dynamic process is needed to coordinate fertilizer imports and domestic production with fertilizer sales and the availability of storage space.

ASSUMPTIONS ABOUT DAP USE WERE  
OPTIMISTIC AND CREATED STRAINS ON STORAGE

Almost 84,000 metric tons of DAP were imported into Bangladesh from December 1978 through April 1979. Based on actual sales and lack of a marketing campaign, which had not been initiated until about May 1980, over 19 months passed before this quantity of DAP fertilizer could be sold. An additional 42,175 metric tons were received between February and March 1980 and sales, though seasonal, averaged about 2,000 metric tons per month.

The mission assumed that the Government was committed to DAP purchases and that there would be no difficulty introducing DAP fertilizer into Bangladesh and eventually having it replace TSP. The two products have similar physical characteristics; to touch, sight, and smell there is little difference. Both DAP and TSP are used in similar ways before planting, with urea or other nitrogen-based fertilizer applied during the growing period. Almost identical results can be achieved using a combination of TSP and urea. However, the most efficient proportion of DAP or appropriate combinations of other fertilizers is not known. Because no reliable data exists on the best application of fertilizers used in Bangladesh, applications are made based on recommended quantities. DAP, however, does contain about 39 percent more nutrients than TSP, including both nitrogen and phosphate.

The planned shift to DAP was based primarily on its higher nutrient content which would provide a lower equivalent cost than urea and TSP and would result in savings in transportation and storage. The calculated overall storage requirement of 572,000 metric tons by June 30, 1981, was based on the assumption that each ton TSP replaced by DAP would eliminate the need for .39 tons of storage, therefore eliminating the requirement for about 64,000 tons of storage space. The desired level of DAP sales was not achieved, however, and this situation adversely affected storage capacity.

During May 1980, BADC initiated a marketing campaign. The mission funded the printing of about 100,000 posters and 500,000 folders for this campaign and distributed them to each district. A few local publications had mentioned and recommended the use of DAP during 1979 and 1980; however, mention in most publications was not widespread. Several BADC officials told us that promoting the use of DAP included a requirement that wholesalers or dealers wishing to purchase granular TSP also had to take some DAP and some powdered TSP which had a low demand.

Future plans to promote DAP use include withholding most TSP from one Bangladesh division and allowing DAP to be the major phosphate fertilizer in the area. In our opinion, this may not be practical because wholesale and retail dealers have relative freedom in fertilizer sales. According to a World Bank official, the Bangladesh Government has received approval to use bank credits to purchase DAP but has not done so thus far.

One factor affecting DAP sales is its higher price, about 28 percent more than for the same quantity of TSP. To achieve results similar to those achieved using a combination of urea and TSP, use of DAP will result in higher costs to the farmer. The mission has discussed the higher DAP price with the Bangladesh Government; however, the Government has neither lowered DAP prices nor increased TSP prices.

#### PROSPECTS FOR SELF-SUFFICIENCY IN DOMESTIC PRODUCTION

Bangladesh's major prospect for achieving some measure of fertilizer self-sufficiency is in urea production, relying on the country's natural gas resources. Bangladesh, however, will apparently continue having to import other fertilizers or the raw materials to manufacture them. The country currently has two urea plants in operation, one under construction, and plans for additional plants by 1985. Bangladesh also produces TSP at a two-plant complex; however, the phosphate rock and sulfur needed to produce this type of fertilizer must be imported. The country relies heavily on the successful completion of the new Ashuganj plant which, after extended delays and cost overruns, is now scheduled to begin operating in mid-1981. The plant is designed to produce about 528,000 tons of urea per year and is being financed by 10 multilateral and bilateral donors, including AID which is providing about \$53 million or 12 percent of the estimated cost of \$450 million.

Domestic production has been well below expected levels and rated capacities. Lack of foreign exchange often has been an important factor affecting the operation of existing plants because it is required for the import of raw materials, sulfur and rock phosphate, as well as spare parts.

In fiscal year 1979, one of the best production years recently, local production reached only 55 percent of capacity. Despite reduced production caused by the inability of BADC to remove the fertilizer in sufficient quantities to free storage space, shortages in raw materials, and other problems, actual production during the first 6 months of fiscal year 1980 was 218,000 tons--about 50 percent of target. Actual production for fiscal year 1980 reached 419,000 tons--64 percent of capacity.

To illustrate some of the problems, the Chittagong TSP plant was idle on several occasions in 1979 due to a lack of raw materials. The TSP plant has also been closed because of slow sales of the currently produced and less preferred powdered TSP and because of a lack of adequate storage space at the factories. We understand that the World Bank and the Dutch are planning to rehabilitate and convert the facilities to granular production. Because farmers have indicated a marked preference for imported TSP, which is easier to apply, this action is expected to improve sales. All fertilizer plants have had inadequate preventive maintenance due to shortages of imported spare parts.

The limited availability of experienced plant operators and technicians and the absence of adequate programs and facilities to hire and train enough skilled workers have also been significant factors. Because of low salaries and a lack of incentives, most skilled workers are being attracted to much higher paying jobs in the Middle East. The three existing plants have a total employment of about 3,600; approximately one half has technical skills.

To some extent, projects financed by United Nations Development Program (UNDP), the World Bank, and other donors are addressing the need for: foreign exchange to obtain spare parts and raw material, adequate preventive maintenance, skilled labor training programs, and plans to rehabilitate the TSP plant.

#### CONCLUSIONS AND RECOMMENDATIONS

Our review suggests the need for a more systematic analysis and projection of fertilizer requirements, based on changing supply and demand factors. The BADC monthly fertilizer newsletter provides statistics on many of these factors and uses a projected annual sales target to plan imports. Actual monthly sales activity would tend to reduce or increase overall fertilizer requirements when measured against these sales targets; yet the annual sales targets are not revised to reflect this activity. Because most leased warehouse space is known to be overstated and of low quality, the availability of storage space

should not be the major consideration for imports. Demand which reflects both actual and systematically projected sales activity should more appropriately gauge import needs.

Realizing the potential benefits of DAP will require a more effective marketing campaign and a better job of planning imports to consider such factors as farmer acceptance and the availability of storage. In the long run, we believe that optimal fertilizer benefits await the development of reliable data on the best types, quantities, and combinations of fertilizers which should be used in Bangladesh. Accordingly, we recommend that the AID Administrator assist and encourage the Government of Bangladesh to

- employ a more systematic approach in planning imports, one that gives proper weight to the factors of fertilizer supply and demand in a way that is responsive to changing conditions;
- pursue a DAP marketing strategy to include more widespread and consistent informational promotion, on-farm experiments to demonstrate the advantages of using DAP, and consideration of price incentives to purchase and use DAP; and
- develop reliable, nationwide data on the most effective types, proportions, and combinations of fertilizer to use on the main crops grown in Bangladesh.

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AID officials concur on the need to improve planning and stated that they would be doubling month-to-month efforts in this area and would also be raising this issue (with the Bangladesh Government) to get agreement on some procedural changes to be included in plans for extending the project. Mission officials noted that the peak fertilizer inventory levels of 604,000 tons reached in August 1980 had been reduced to about 376,000 metric tons by December. There was no indication of the various fertilizer products represented by these figures to determine if there were excess supplies of individual brands. Much of the reduction, in our opinion, may be attributed to higher sales which normally occur from November through January. Stock levels at the end of October were about 512,000 metric tons, which is not significantly different from the July 1980 530,000 metric ton level.

AID officials also accept our recommendations for a DAP marketing strategy and on the development of fertilizer use data. The mission and the Bangladesh Government are reported to agree on the need for extensive field trials of DAP and other fertilizers including nutrient fertilizers. Promotional marketing efforts for DAP are being increased partially with AID financial assistance. AID officials believe that the price of DAP should be set so that the subsidy on DAP equals the subsidy on the

equivalent nutrient combinations of TSP plus urea. The mission is to seek specific agreement on this issue in its proposed project extension.

## CHAPTER 3

### DEGREE OF NEW MARKETING SYSTEM

#### ACHIEVEMENTS HAS NOT BEEN DETERMINED

Some progress has been made in addressing the objectives of the new marketing system which is aimed at transferring fertilizer marketing and distribution to the private sector and reducing the BADC cost to provide those functions. The private sector has been given unrestricted wholesale and retail distribution responsibilities; however, the Government has not determined whether dealer discounts are adequate to encourage competition, nor whether fertilizer has been made more accessible to small farmers. Additional warehouses must be constructed and the use of rented space must be eliminated before expected cost reductions in fertilizer marketing and distribution are realized.

#### GENERAL OVERVIEW AND OBJECTIVES

Although inadequate supplies of fertilizer products have been a problem in Bangladesh, the BADC institutional arrangement for distributing and marketing fertilizer also hindered its availability and use by farmers. BADC and cooperative associations monopolized wholesale fertilizer distribution. BADC made fertilizer available for sale in about 423 separate areas throughout the country and maintained more than 1,100 owned and leased warehouses. BADC sold about 75 percent of the fertilizer directly to licensed dealers and 25 percent was sold through cooperatives who resold to their BADC appointed dealers and member village cooperatives.

This system was beset with many problems, particularly after more farmers accepted the use of fertilizer. The inability of BADC to increase supplies to meet growing demand led to black market trading at prices above Government-administered prices. Transport difficulties particularly during the rainy season, when there were foodgrain shortages and when regional storage shortages existed, also caused fertilizer distribution to be uneven and inequitable. BADC tended to distribute fertilizer primarily in easy-to-reach areas near the ports and fertilizer factories or near main storage locations. According to a World Bank study, these factors may account for the higher use of fertilizer in the Chittagong and Khulna divisions compared to the other two more remote divisions of Bangladesh.

Under the AID project agreement, the Bangladesh Government agreed to the nationwide introduction of wholesale and retail competition among private fertilizer dealers, cooperatives, and other private individuals and businesses on an equal competitive basis. BADC introduced the system in the Chittagong division in December 1978; in the Dacca and Khulna divisions in December 1979; and in the Rahshani division in June 1980.

The two basic objectives of the system are to (1) remove the deterrents to farmer access to fertilizer products and (2) reduce BADC marketing and distribution costs. To achieve these objectives wholesale distribution and marketing of fertilizer will be transferred to private-sector dealers who will make fertilizer more readily available to all farmers. Private wholesalers and retail dealers will be permitted to register and purchase fertilizer at any BADC warehouse without restrictions on where it may be sold or where farmers may make purchases (except within 5 miles of border areas). Individuals, companies, farmer associations and cooperatives will be on an equal competitive basis, and BADC warehouse prices will be uniform although private-sector wholesale and retail prices may vary. Competition and more available supplies are expected to keep retail market prices lower than the official ceiling price.

BADC marketing and distribution costs are expected to be reduced by discontinuing multiple warehouses, transportation, handling and related product losses, and by reassigning personnel. By consolidating BADC sales points into primary distribution points where fertilizer will be sold, and by retaining only those sales centers in remote areas not expected to be adequately served by wholesalers or retail dealers, marketing and distribution costs will be reduced. Discounts much higher than those at other sales centers, will be offered at the primary distribution points to help consolidate centers and to encourage fertilizer purchases. Minimum quantity purchase requirements and discount rates as agreed to by AID and the Bangladesh Government are: 1/

--at primary distribution centers (3 tons and over): \$15.33 per ton; \$.56 per 82.2 lbs.

--at sales centers (below 3 tons):  
\$.33 per 82.2 lbs.

The system had been introduced throughout the country by June 1980. During February 1979 and May 1980, the IFDC consultant completed two evaluations on system effectiveness in Chittagong and concluded that it was working well based primarily on the extent that sales were switched from sales centers to primary distribution points. Countrywide evaluations are not expected to be completed before August 1981.

Several factors affect the achievement of benefits expected to be derived from the new marketing system. Dealer coverage and discounts and distribution costs are discussed below; warehouse construction is covered in Chapter 4. Our analysis of these factors is based on the two contractor evaluations, provisions of the project agreement, and documents provided by the Bangladesh

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1/Based on Bangladesh currency and units of measure:  
(15 taka = \$1.00; 2,240 pounds = 1 long ton;  
82.2 pounds = 1 maund).

Government. We also analyzed AID project evaluations and held discussions with contractor personnel and officials of the Bangladesh Government and the AID mission. Other than through contracted evaluations, no provision has been made to collect information or to consistently monitor the new marketing system effectiveness.

FERTILIZER DEALERS HAVE NOT ASSUMED  
MAJOR FUNCTIONS EXPECTED UNDER THE  
NEW MARKETING SYSTEM

An obvious change sought under the new marketing system was the creation of wholesale fertilizer dealers who would sell primarily to retailers, merchants, or industrial users. Wholesale and retail fertilizer dealers were expected to provide warehouse space and transportation, as well as perform promotion and marketing functions. Although assuming more transportation costs and some other limited functions, the IFDC evaluation concluded that dealers have assumed little responsibility for storing fertilizer. Most of the responsibility for fertilizer storage remains with BADC. The evaluations indicate several factors which affect the ability of dealers to provide this space. Fertilizer sales are seasonal in nature and dealers seldom buy more fertilizer than they have customers for. Dealers purchase fertilizer in relatively small quantities because of (1) insufficient funds to invest in fertilizer stocks and (2) poor profit incentives compared to other marketing opportunities. According to the evaluation, reasons for limited fertilizer stocks include the high village interest rates which range from 50 to 100 percent or more, and the low margin on fertilizer sales.

The evaluations and information BADC provided indicate that the locations and activities of dealers are basically unknown because (1) dealers may register and make purchases at several primary distribution points or sales centers; (2) dealer registrations were relatively unchanged 7 months after implementing the new marketing system; and (3) system evaluations have only been made in one of four Bangladesh divisions. To illustrate, in July 1979 just over 44,000 dealers were registered nationwide compared with about 43,000 in July 1978, under the old marketing system. Whether an increase in the number of new dealers has occurred has not been determined because dealers may register and make purchases anywhere and double counting occurs. We requested current information from BADC on the number and areas covered by active fertilizer dealers. The information provided was similar to that collected by the IFDC consultant in 1979, however, and had not been revised since that time.

The IFDC consultant considers that only about half the 44,000 registered dealers are active, and purchasing fertilizer at least once every 3 months. Although the evaluation estimates that about 60 percent of active dealers sell to subdealers, only the remaining 8,800 dealers are estimated to be true wholesalers, making at least half their sales to an average of four subdealers. The seasonal nature of the fertilizer business and the

low margins result in most dealers only engaging in retail sales on a part-time basis. Both IFDC and a previous AID-financed study concluded that fertilizer is typically retailed by small general shopkeepers who sell a range of products such as food, household items, hardware, and other items. Only about a third of active dealers are thought to engage fulltime in fertilizer sales.

DEALER DISCOUNTS MAY NOT BE SUFFICIENT  
TO ENCOURAGE GREATER DEALER ACTIVITY

Evaluations have not been made to determine whether primary distribution point discounts are adequate to encourage greater dealer competition while maintaining Government-administered sales prices. These discounts are designed to compensate dealers for transportation and handling costs, profit, and other business expenses. Discounts generally determine the distance at which it remains economical to market fertilizer at Government-administered prices or less and still make a profit. Dealers making 3-ton minimum purchases at primary distribution points receive a \$46 discount off official retail prices for distributing and marketing 6,720 pounds of fertilizer. Whether this margin is adequate to cover all expenses and still provide a reasonable profit has not been determined.

According to contractor evaluations, transportation costs are considered the major expenses of the dealers and, at greater distances, this expense is relayed to farmers who pay higher than official retail prices. Dealer discounts under the old marketing system were based on the distance between registered dealers' shops and official BADC sales points. This is impractical under the new marketing system because dealers may buy and sell wherever they choose.

Retail fertilizer sales prices have not changed significantly under the new marketing system. Although prices may be lower than administered prices near primary distribution points or other sales points because of increased competition, prices in remote areas are higher. In addition to the distance from retail sales places, several other factors affect the prices farmers pay for fertilizer.

An equity study the IFDC consultant completed in April 1980 indicated that small farmers with less than 3 acres generally paid higher fertilizer prices. According to the study, these farmers generally made two or three small fertilizer purchases each crop season, usually in hand-measured quantities. The study also revealed that these farmers were unable to bargain for better prices or discounts in contrast to farmers who purchased full bags of fertilizer. Most retail fertilizer sales are made in loose quantities, accounting for most of the fertilizer sold.

In our opinion, the use of a single discount rate of 230 taka per ton (\$15.33) and the absence of economies of scale affect competition between dealers and their ability to adhere

to Government-administered prices. As illustrated below, the single discount rate produces a gross margin of 10.5 percent to 15.8 percent for dealers able and willing to sell at official sales prices.

Fertilizer type	Price per ton		Discount		Gross margin (percent)
	taka	U.S. dollars	taka	U.S. dollars	
Urea	2,190	146.00	230	15.33	10.5
Imported TSP	1,703	113.53	230	15.33	13.5
Domestic TSP	1,460	97.33	230	15.33	15.8
Imported DAP	2,190	146.00	230	15.33	10.5

These variations tend to inhibit dealers from buying, storing, and distributing the more expensive and less profitable fertilizers. Moreover, the fact that prevailing retail prices paid by farmers often exceed Government-administered prices, suggests that the Government should be encouraged to gradually remove such prices.

#### THE NEW MARKETING SYSTEM MAY NOT REDUCE DISTRIBUTION COSTS

BADC costs under the new marketing system may be approximately equal to costs under the old marketing system, according to estimates prepared by IFDC and based on 1981 sales projections. Comparisons were made using average fiscal year 1979 costs projected over fiscal year 1981 expected sales of 1,150,000 long tons. Some costs such as transportation, storage, and inventory losses may be reduced, as compared to the old marketing system, but are expected to be replaced with higher dealer discounts to encourage purchases from the primary distribution points.

The major distribution cost under the new marketing system is for discounts paid to fertilizer dealers. An IFDC study completed in November 1979, reported that BADC costs for dealer discounts, transportation and handling, inventory losses, overhead charges, and staff salaries accounted for about 90 percent of distribution costs during a 5-year period, ending in June 1979. These costs represented the greatest areas for potential savings under the new marketing system. Costs had increased 250 percent during the 5-year period from July 1973; the fertilizer sales volume increased only 90 percent. Transportation and handling expenses increased 185 percent; dealer discounts increased 133 percent; overhead charges increased 680 percent; and staff salaries and allowances increased 196 percent.

#### CONCLUSIONS

The extent to which the new marketing system objectives have been achieved has not been determined, including questions about whether fertilizer has been made more available to small farmers,

as envisioned. The number of active wholesale and retail fertilizer dealers and their jurisdictions are basically unknown because the information about dealer activities is not systematically collected. Most registered dealers apparently are not engaged in wholesale fertilizer storage and distribution but are direct users or retailers themselves.

Whether discounts are adequate to cover all dealer expenses and broaden sales jurisdictions of dealers has not been determined. The single discount system affects the ability of dealers to market fertilizer at great distances from buying sources. Fertilizer is sold in remote locations at higher than Government-administered prices because of a lack of competition and higher transportation costs which constitute the dealers' major expense.

The absence of economies of scale in the current primary distribution point discount structure may inhibit greater wholesale and retail sales. Because prevailing prices which farmers pay often exceed officially administered prices, current pricing policies should be revised to better reflect wholesale distribution costs.

Aside from dealer discounts, most other cost reductions anticipated under the new marketing system, cannot be realized until (1) storage locations are consolidated, (2) some sales centers and all leased warehouses are no longer used, and (3) the BADC staff has been reduced. Because of current large fertilizer stocks and the slow construction of additional warehouses, however, cost savings in these areas are not likely for sometime.

#### RECOMMENDATIONS

We recommend that the Administrator, AID, encourage and assist the Government of Bangladesh to

- systematically collect information on dealer functions and coverage under the new marketing system and use this data to help make necessary changes to ensure that farmers have equal access to available fertilizer when needed;
- determine how the dealer discount policy should be revised or modified to more accurately reflect actual product and overhead costs to dealers and to allow a reasonable profit; and
- gradually remove officially administered retail sales prices, as long as doing so would not reduce the equal access of fertilizers to all farmers.

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AID officials agreed with our recommendations on collecting information about dealer functions and stated that several studies

have been done, some are in process and others are planned. Agency officials also reported discussing several recommendations with the Bangladesh Government for changes in the new marketing system which are to be described in detail in the proposed project paper amendment. We wish to point out that studies and other information made available to us thus far have been inconclusive regarding how well dealers have taken over and are performing the distribution functions expected under the new marketing system. In our view, reliable information upon which to base changes which would improve the system is necessary.

AID mission officials agreed that dealer discounts may be inadequate to encourage greater dealer activity; they said that these discounts will be entirely eliminated when administered retail prices are removed. The mission staff also said that its position has been that there should be no "administered price" to the farmers, that the dealers should be permitted to charge whatever price they wish. The mission also said that price control should be exercised solely by maintaining supplies and competition. The mission also reports that, in connection with the proposed project extension for fiscal years 1981-82, BADC has orally agreed that the administered sale price to farmers will be eliminated when phase II warehouse construction is complete.

If and when the elimination of the administered sale price occurs, the problem of inconsistent dealer discounts will be effectively resolved because dealers presumably will be free to set their own prices. It is unwise, in our view, to defer action on the existing condition of inconsistent dealer discounts and the deterrents they generate by basing this deferral on a precondition that may be many months or even years away, i.e., the completion of phase II warehouse construction for which contract awards are not expected before March 1981.

We believe that AID, in addressing the recommendations made above, should do so in a practical manner consistent with the current situation, considering the ultimate project objective of increasing fertilizer use among all farmers by making it more equitably available.

## CHAPTER 4

### BETTER PLANNING AND IMPLEMENTATION ARE NEEDED FOR WAREHOUSE CONSTRUCTION

Implementing the new marketing system at a time of rising inventories created a critical shortage of warehouse space at primary distribution points and prevented the early closing of most sales centers. The consolidation of BADC sales points called for centralized storage at these locations, and BADC was obligated to close and discontinue sales at many of its sales centers. About 50 centers discontinued sales when the new marketing system was implemented, but the lack of adequate storage at primary distribution points required that the centers continue to be used to store the large fertilizer inventories which had accumulated. The BADC staff was also required to remain at these centers to safeguard the stocks.

As noted earlier, warehouse capacity at primary distribution points has been, and remains, inadequate to serve current and anticipated sales volumes under the new marketing system. To illustrate, primary distribution points sales during May 1980 in Chittagong accounted for over 81 percent of total sales but these locations had only 43 percent of the total storage capacity in Chittagong. BADC only owns storage space for about 16,500 tons at existing primary distribution points in Chittagong. Leased space for about 18,500 tons was secured to help meet storage needs but much of this space is not near existing facilities. Further, this leased space is poorly constructed and is more suitable for temporary use. The leased space we saw consisted of tin or thatched sheds, mostly with tin roofs and dirt floors, which offered little protection from the elements. Similar conditions prevail in other areas of Bangladesh.

BADC, AID, and other donors plan to construct new warehouses at primary distribution points which will allow the release of some owned and all leased warehouses. As of October 1, 1980, BADC owned space for about 195,000 metric tons and leased space for about 230,000 metric tons. Owned storage space for only about 147,650 metric tons is located at existing and planned primary distribution points. The International Engineering Company was provided AID funding in 1979 to complete a national fertilizer storage plan. Under this plan, BADC storage requirements through 1985 were to be determined and locations for primary distribution points were to be identified. Plans were designed to integrate construction with the new marketing system calling for about 400,000 tons of new storage space to be constructed by 1985.

#### SHORTFALLS IN WAREHOUSE NEEDS

Efforts to provide adequate fertilizer storage under the new marketing system have been hampered by poor planning and implementation. Original AID mission estimates and assumptions about

required storage levels were not related to needs under the new marketing system and understated the amount of additional storage required. Consequently, the benefits of adequate storage will not be readily achieved. Although efforts have been made to consolidate BADC sales points, full consolidation of storage locations cannot be completed until more warehouses are added at existing and proposed primary distribution points. These measures are being relied upon to reduce BADC costs for multiple handling, transportation, inventory losses, and other distribution expenses.

When the new marketing system began in 1978, the mission estimated that BADC-owned storage space for about 572,000 tons of fertilizer would be required by the end of June 1981 to (1) maintain about a 5-month fertilizer inventory; (2) allow for wasted space, such as aisles; and (3) provide for factory production for one month. These needs were expected to be met from about 380,000 tons of existing BADC storage, additional space under construction, and from existing and planned factory storage. The mission assumed that the private sector would construct space for at least 19,000 tons of fertilizer leaving a balance of about 173,000 tons which the mission planned to construct. The AID estimate for additional storage would have been for 64,000 tons more, except for an assumption that DAP would completely replace TSP fertilizer which proved to be overly optimistic. No allowances were made to reflect existing or planned warehouses that were not located at primary distribution points.

The estimated amount of storage required to meet BADC needs has been affected by the completion of only about half the sites originally planned under AID phase I and BADC construction programs. During July 1977, the mission implemented a phase I program, planning warehouse construction for about 50,000 metric tons of fertilizer at 57 sites including ancillary buildings (staff quarters and office space). When site engineering was completed and contracts were awarded, however, capacity had been reduced to 35,000 tons. The construction was financed by a \$5.25 million AID loan to the Bangladesh Government. Because of poor contractor performance final construction was completed during September 1980 resulting in space for only 27,000 metric tons at 27 sites and in cancellation of contracts for the remaining construction for storage of 8,000 metric tons. Almost half the cost of construction, in some instances, was used to complete the ancillary buildings and office space. These funds could have been used, in our opinion, to construct larger warehouses.

The BADC construction program which planned to complete space for 60,000 metric tons is still incomplete. The completed warehouses provide storage for about 24,000 metric tons of fertilizer. Although the BADC Chairman mentioned that the program would be completed, a BADC official stated that the mission had

been requested to finance the completion of the project. A mission engineer said that AID financing was unlikely because of the poor quality of the construction.

Some storage sites under the AID phase I and Government programs were constructed at primary distribution points and will be used under the new marketing system. Other sites may become remote sales centers. When the new marketing system is fully implemented, unused warehouses will be transferred to other Government agencies or rented to private businesses. The mission had not attempted to integrate phase I construction sites with the new marketing system before construction began because, according to the mission, the new marketing system had not been fully negotiated or agreed to by the Bangladesh Government before all phase I contract awards were made.

#### LACK OF JOINT PLANNING AND COOPERATION IMPAIRS CURRENT CONSTRUCTION

Before planning for additional warehouse construction under the phase II program, AID, BADC, and IECO had not completed or agreed on overall methods to identify storage locations, determine capacities, and establish procedures for resolving differences. The lack of an initial plan and the lack of joint collaboration during the identification and selection of proposed storage locations has affected the timely implementation of the phase II construction project.

Since September 1979, when BADC awarded the AID-funded engineering contract to IECO a state of disharmony has existed between the three parties. Depending on the source, each party has been blamed for project delays. No mutually acceptable mechanism had been devised to resolve professional differences regarding the quality or method of work expected. These parties share authority and responsibility for project activities and will be involved throughout the project. Successful project completion depends on their cooperative efforts. Initial plans estimated that \$23 million would be spent to construct space for about 173,000 tons of fertilizer at 50 primary distribution points. Currently, about \$51 million is budgeted to engineer, supervise, and construct between 24 and 30 warehouses for about 143,000 tons of fertilizer. The higher cost estimates have been accompanied by significant decreases in the number of storage sites and in the total storage space to be provided.

To illustrate the extent of disharmony and indecision in warehouse construction planning, the AID mission proposed building 50 warehouses under phase II, whereas the consultant proposed building 45 sites in January 1980 and 62 in April 1980. During this period, 171 changes in the size and locations of sites occurred. Many sites were added, deleted, and subsequently re-added to the warehouse construction plans. In October 1980, the mission was still finding it necessary to propose changes to construction plans even though the bidding process was already months behind the planned schedule. In a monthly project status report,

in March 1980, the mission project officer reported that an adequate system of information exchange had not been fully established between IECO, the mission, and BADC. The mission had not established a mechanism to be informed of progress on site investigations and had not arranged for site visits by AID mission engineers. At this point, 27 sites are slated for construction under phase II; two of these sites are yet to be acquired and the total number of sites will be determined later.

These changes have affected the ability of IECO to complete plans or meet contract and scheduled deadlines. For example, the consultant planned to complete preliminary plans and specifications by February; final plans and specifications were to have been completed by the end of May 1980. After the company identified 33 sites and inspected 50 locations by February, BADC changed 1985 targeted sales levels, which precipitated as many as 78 site changes in 1 month and other changes in subsequent months. After both BADC and AID mission changes, 77 percent of the sites selected for construction as of October 1980 were those the consultant originally proposed the previous March. Of the 50 warehouse sites originally proposed by the mission, only 20 are scheduled for construction. These difficulties in coordinating among the principal parties cost the project time and money and indicate the absence of an overall agreed-upon plan.

According to AID, final design, approval, completion, and issuance of invitations for bids was finally achieved on December 9, 1980--14.5 months after the effective date of the contract and 7 to 8 months later than expected. Bid packages were mailed to seven pre-qualified firms, three of which appear to be U.S. contractors.

The IECO contract also provided for the development of a national fertilizer storage plan to meet storage needs for projected fertilizer sales through fiscal year 1985. While the plan was being developed, the mission and BADC were rejecting or modifying many of the proposed sites which had already been investigated. The draft plan was submitted in July 1980, and as of December 1980, it had not been approved by BADC or the AID mission. The AID mission response to this situation was that the basic outline of the storage plan had been accepted earlier allowing the consultant to propose sites within the storage plan for phase II. AID believes that the consultant has yet to submit all the land plans as required by the contract.

Warehouse construction for over 400,000 tons of new fertilizer storage at 82 sites was identified in the plan. The AID mission estimates that space for about 143,000 tons will be completed at 24 sites under the current phase II program. Unless more warehouses can be completed under phase II, additional AID construction phases are being considered to accommodate 155,000 tons of fertilizer at 30 locations. Other donors, including the World Bank, the Dutch Government and the German Government, are expected to complete construction on space for about 107,000 tons of fertilizer at 28 sites.

## CONCLUSIONS

Active collaboration among AID, IECO, and BADC is urgently needed to assure successful implementation of phase II storage construction. The current inconsistent efforts have impeded the smooth implementation of the project which is already a year behind schedule. The three participants in phase II should act immediately to cooperate on project activities requiring three-party review and approval processes. They should also establish a mutually agreed-upon implementation plan and a mechanism to integrate new developments into project planning documents.

Lastly, phase II is apparently only one of several phases in the Bangladesh Government campaign to provide the systems to efficiently distribute agricultural supplies and technology. AID is already planning to participate in future phases of storage construction. Even though the need for storage is urgent, AID must assess the likely role of other donors in addressing these needs in deciding on future AID involvement in construction. Future AID presentations to the Congress should explain current Agency funding for storage construction and for AID construction plans over the foreseeable future.

## RECOMMENDATIONS

To avoid further loss of time and money in the design, planning, and construction of storage facilities, we recommend that the Administrator, AID, act to establish procedures and requirements calling for collaborative project efforts among the contractor, the host government, and the AID mission and providing a mechanism to speed the approval process, resolving differences as they occur.

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The AID mission provided lengthy comments on reasons for project construction delays. The mission staff believes that we have accepted the consultant's point of view concerning responsibility for project delays. Our discussion in the report is aimed at emphasizing that three major parties are involved who share in the exercise of authority and in the responsibility for project progress: AID, BADC, and the consultant. Our purpose is to illustrate a few of the problems and difficulties and to suggest some remedial actions which could allow the project to proceed without further costly delays.

The AID mission reported that, in their view, the consultant's overall performance was unsatisfactory in quality, quantity, and timeliness of the work. Mission officials said that the principal professional differences which have delayed the project were related to land selection; site layout, design, and specifications; and preparation of contract documents which were faulty and required numerous corrections. It is our observation that little or no effort was made initially when problems began to occur, to establish a formal mechanism to resolve differences,

to modify or clarify contract requirements, or to seek alternative ways of accomplishing project objectives in a timely fashion. In our view, existing contract language calling for the preparation of site drawings, designs, and cost estimates within 5 months of the agreement, "in so far as possible," is not conducive to holding a contractor accountable for the timely completion of work or for assessing the responsibility for project delays.

The AID mission said in part that an overall plan for identifying warehouse locations and proposed capacities did exist and actually worked well. They cite, as evidence, the approval letter of the consultant's contract which apparently called for the completion of a draft outline of the national fertilizer storage plan in 1 month and the final plan in 9 months. First, neither event occurred on time: the basic outline was agreed to only in principle in December 1979, several months after the effective date of the contract, and the storage plan which we would look upon more appropriately as an overall plan, is yet to be approved. Secondly, the mission's contention that an overall plan existed and worked well is in conflict with our findings of extensive project delays due to the inability of the three parties to resolve professional differences regarding the quantity and quality of work expected and methods for accomplishing it. In light of these factors, we are of the opinion that an overall workable plan did not exist.

In a further response directed more specifically to our recommendation, the AID mission, although holding its stated positions, said they have no difficulty accepting this recommendation or in agreeing to carrying it out to the best of their ability. The AID mission staff is to look for ways to improve the approval process within the limits set by AID policy and procedures.

## CHAPTER 5

### PLANS FOR BULK FERTILIZER IMPORTS

Current AID plans to install portable bagging machines on the docks at the two Bangladesh ports to handle bulk duplicate similar efforts planned by the International Fund for Agricultural Development (IFAD). There was little or no evidence of collaboration between these two parties. Moreover, use of the machines could not be justified, based solely on current levels of AID-financed imports, and the AID mission did not obtain enough other donors, who were also committed to bulk imports.

The design and construction of bulk storage and handling facilities are aimed at reducing BADC operating costs. Several AID-financed studies have concluded that bulk fertilizer imports are feasible and will result in cost savings. Based on recommendations by Soros Associates, the AID mission proposed construction of bulk storage and handling facilities at both Bangladesh ports. AID/Washington rejected the idea in December 1980, but the mission has considered alternative means of addressing bulk imports. Two AID-financed bulk purchases were made to test feasibility and to demonstrate cost savings. Although the operations were not successful, the mission has not completely ruled out this alternative and considers the portable bagging operations a viable approach to bulk imports.

### BAGGING MACHINE PURCHASES FOR CHITTAGONG DUPLICATE IFAD EFFORTS

As part of a \$33.8 million fertilizer program for Bangladesh, IFAD plans to spend \$2,377,000 to install bulk unloading and bagging equipment at Chittagong. The pilot project was initially proposed to upgrade existing facilities at the TSP plant jetty to handle bulk operations but in May 1980, IFAD decided that other berths at the main port would be preferable because (1) bulk handling operations would be simpler and less troublesome because the TSP factory conveyor system would not be used, (2) these berths could handle more fertilizer per year than the TSP jetty, (3) bulk operations would not be dependent on TSP plant management for administrative and operational support, (4) two berths had better all-weather storage facilities, and (5) using the berths would be \$1.5 million cheaper than the TSP facilities. The operation would use eight bagging machines at a cost of \$333,000, including accessories and spare parts for 2 years.

On behalf of BADC, in July 1980, the AID mission proposed the purchase of ten portable bagging machines--five for each port--including bagging and lightering services. The proposal requests that the machines be adaptable for use onboard ships, lighter vessels, barges, or at port berths. The proposal also requires the contractor to fill bags with 50 kilograms of fertilizer and to sew them according to specifications. Of the five responses to the proposal which the mission reviewed, none were

responsive to all the requirements. Three responses, however, appeared to demonstrate contractor capability to perform the services and bidders were invited to submit detailed technical proposals including full cost data. The project officer estimates that the bagging machines will cost \$1 million.

The AID mission knew about the IFAD project as early as May 1979 but decided to purchase the bagging machines and related services. The AID mission project officer asserted that if the mission purchased ten machines, IFAD would purchase fewer than eight. There was no evidence, however, to demonstrate a coordinated effort to provide these services.

#### JUSTIFICATION FOR THE PORTABLE BAGGING MACHINES IS QUESTIONABLE

The mission project officer asserted that the 10 portable bagging machines will process 360,000 tons of fertilizer the first year of operation, assuming the arrival of significant bulk shipments from other donors who have not committed to bulk purchases. AID mission fertilizer imports during calendar years 1978 through 1980 have averaged 122,000 metric tons--about a third of the expected capacity of the machines.

The fertilizer project officer told us that justification for purchasing the portable bagging machines is based on average import of 30,000 tons each month in two to three shiploads. This projection includes shipments by other donors who are currently shipping in bags and have not been asked to switch to bulk shipments once the machines are operating. The project officer admitted that he should have obtained commitments for bulk shipments before inviting bids to purchase the bagging machines, however, he said that he is sure Canada is interested in bulk shipments. Furthermore, the 30,000-ton projection does not consider the 3 to 4 months of monsoon rains when transporting fertilizer is severely limited or the fact that these operations would be carried out on unsheltered docks.

The Chulna port is not expected to have warehouses for fertilizer for at least 2 years. A BADC official told us that until storage facilities are available at Chulna, he preferred purchasing bagged, rather than bulk, fertilizer. BADC officials also told us that the completion of a 22,000-ton capacity BADC warehouse, scheduled to be built at the Chulna port is more than 2 years away. Further, officials said that bulk handling would be difficult because there is a general shortage of barges at the port and bulk fertilizer required special barges which would have to be funded and built.

#### STUDIES SHOW THAT BULK IMPORTS ARE FEASIBLE

Three AID-financed studies by consulting engineers concluded that importing fertilizer in bulk form was feasible in Bangladesh and could result in significant savings but differ on the best

methods and facilities for handling bulk shipments. Because most imports have been in bags, actual cost data based on shipping experience, and the ability of the Bangladesh labor force to efficiently fill, weigh, and sew bags was lacking. 1/ Savings were estimated at between \$18 and \$36 per ton by switching to bulk rather than bagged fertilizer. Two of the studies contend that the most feasible solution is to establish bulk storage and bagging facilities at the Chittagong TSP plant complex; while one study recommends, as a long-term solution, building an offshore platform served by conveyor belts to receive ocean-going vessels. Joint use of the TSP complex for TSP production and bulk handling is recommended by the Economist Intelligence Unit study and Soros Associates recommends conversion entirely to bulk handling. Both of these studies recommended establishing bulk handling facilities at the Chulna port.

In September 1979, based on Soros Associates recommendations, the mission proposed assisting in the construction of bagging facilities at the Chittagong and Chulna ports and in a fertilizer storage and dispatch facilities at Shiromoni, an inland port. Estimated cost for these facilities was \$69 million which did not include a proposed offshore platform served by conveyors at Chittagong. Because inflation could increase total costs to over \$100 million before completion, mission participation in the project was estimated at \$30 million--about 30 percent.

Constructing bulk handling and bagging facilities was originally planned as part of the project but in December 1980, AID/Washington rejected the proposal citing that it (1) went beyond the intent of the fertilizer project which anticipated funding only the design of bagging facilities and (2) appeared more suitable for other donor funding. AID officials also believe that the mission proposal to finance final designs for bulk handling facilities should be undertaken only if potential donors for the construction phase are identified and they request AID to finance the final design. As an alternative, the mission has experimented with bulk shipments to test feasibility and cost saving potential by having shippers bag fertilizers onboard ships.

#### Cost Savings of Bulk Imports are Uncertain

To demonstrate that bulk fertilizer shipments could be handled in Bangladesh at reduced costs, BADC purchased 20,683 tons of AID-financed DAP to be bagged, weighed and stitched onboard ships. The operations were unsuccessful and based on our limited analysis, cost savings are uncertain at best. Ship owners were required to supply scales, thread, portable bagging machines, and other items for bagging, weighing, (within a

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1/These studies were compiled by Frederick Harris, Inc., the Economist Intelligence Unit, Ltd., and Soros Associates.

tolerance of 49 to 51 kilograms) and stitching each bag. Bagging or rebagging was not to be permitted on land.

On February 22, 1980, two bulk shipments arrived at the Chittagong port aboard the "Al Raouf" and the "Alex Stephens." Apparently, the "Al Raouf" bagging operation went reasonably well; however, operations aboard the "Alex Stephens" were not successful. The bagged fertilizer did not fall within the required limits, so BADC required repackaging of unacceptable bags. The "Alex Stephens" was permitted to repackage on land at the owners expense despite contract requirements to the contrary. Further, four portable stitching machines broke, causing 32 additional days to rebag.

Both carriers ultimately hand-stitched many of the bags resulting in a "tampered with" appearance which farmers were reluctant to purchase. Because DAP and imported TSP are similar in appearance, they believed the contents may have been altered. One fertilizer wholesaler told us that selling fertilizer in the hand-stitched bags is a major problem. On our fieldtrips, we saw tons of DAP in several warehouses in the poorly stitched bags. Other problems associated with hand-bagged and hand-stitched fertilizer are (1) extreme variances in bag weights (the weight of some bags on the "Alex Stephens" ranged from 44 to 58 kilograms), (2) potential fertilizer losses from moisture damage, and (3) higher unloading costs.

The general consensus among shipping representatives we interviewed was that onboard bagging can be done, but it is not desirable. They believed that for best results bagging should be done on a wharf or inside a warehouse. One shipper stated that from a carrier's point of view it is preferable to carry fertilizer that is already bagged. In his opinion, bagging in Bangladesh will not be as successful as it potentially can be until a proper bagging facility is constructed. IFDC consultants believe that successful onboard bagging depends on strict supervision and the sincerity of the carriers to do a good job. According to a charter and marine representative, requiring ship owners to supply and use bagging and stitching machines is unattractive to owners who are usually not experienced in operating these machines.

BADC and AID mission officials contend that despite problems with onboard bagging, the operations were successful. An analysis done by the fertilizer project officer in January 1980 showed that bagging bulk fertilizer onboard ships could save from \$16 to \$32 per ton when purchased from Korea and the United States, respectively. An AID/Washington analysis of bagged versus bulk shipments concluded that prices varied so much that it was difficult to draw any firm conclusions one way or the other. Our limited analysis of bids and actual shipments of bulk and bagged DAP fertilizer suggested that bulk fertilizer imports are not always cheaper than bagged imports at delivered costs. Costs depend on several factors including the origin, availability, and

the carriers used. The requirement that 50 percent of AID-financed shipments be carried by U.S.-flag vessels also affects costs. In one comparison of tenders, bulk fertilizer shipped from the United States by a foreign-flag carrier would have been more expensive than bagged fertilizer shipped the same way. In another comparison, using a non-U.S. source and carrier, bulk was again more expensive than bagged. When a U.S.-flag carrier was used, the result favored bulk shipment.

## CONCLUSIONS

Both AID and IFAD plan to purchase and install onshore bagging equipment which could be duplicate efforts. The AID mission is planning to place five temporary portable bagging machines at each of the two major ports; IFAD plans to install eight machines at the port of Chittagong. Very little effort has been made to coordinate the bagging machine installations planned by AID and IFAD. Furthermore, five other AID-financed machines scheduled for Chulna seem to be premature because storage facilities there will probably not be available for at least 2 more years.

The AID mission estimate of processing 360,000 tons of bulk fertilizer during the first year of operation for the portable machines is questionable because the estimate anticipates bulk fertilizer imports from other donors who have not committed to bulk. Moreover, the open-type dockside operations which AID envisions will be subject to extensive periods of monsoon weather which, combined with the additional capacity of the IFAD machines and the shortage of adequate storage facilities, may well lead to waste, congestion, and underutilization of expensive equipment.

Although several AID-financed studies have concluded that importing bulk fertilizer is cheaper than bagged, they differ on the best methods and facilities to handle bulk shipments. In the absence of actual cost data and shipping experience, we did not attempt to analyze the results or recommendations of these studies. Importing fertilizer in bulk and bagging it onboard ships has been tried with mixed results. Our limited analysis of tenders and actual shipments of bulk and bagged DAP fertilizer suggested that costs savings by bagging bulk aboard ships are, at best, uncertain. In our opinion, the efficiency and economy of various schemes tried or proposed to accommodate bulk imports still remain to be convincingly demonstrated.

Because AID considers the construction of permanent bulk-handling facilities to be more suitable for other donor funding, the establishment of such facilities, as recommended by several consulting engineers is contingent upon the support of donors other than AID. We recognize the AID mission efforts to address the problems of bulk imports: through feasibility studies, bagging aboard ships experiments, and now, through the use of portable bagging machines. Recognizing AID's experimental and

alternative efforts and its position on financing major construction, we are not making a formal recommendation concerning permanent bulk handling facilities. However, the planning and financing necessary to provide either temporary or long-term permanent handling facilities in Bangladesh will require active coordination among several major donors. In this regard, we encourage AID to remain active in helping to meet both short- and long-term needs.

#### RECOMMENDATION

The Administrator, AID, should act to coordinate and integrate current AID plans for providing temporary bagging machines with similar efforts of IFAD, including securing appropriate commitments from the host government and other donors for effective equipment use.

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AID mission officials stated that there is no lack of coordination and disagree that their efforts duplicate those of IFAD in financing fertilizer bagging equipment and services. Mission officials believe that sufficient donor commitments had been obtained to justify the machines and further state that all principal donors have agreed to finance bulk imports. They also point out that the BADC project manager is the same for both projects and that if AID-financed machines and services are already ordered, excess IFAD-financed ones will not be ordered. Both organizations have budgeted separately for the equipment which, according to the mission is of the same type, in the interest of standardization. The mission also states that BADC is very committed to all bulk imports once adequate bagging facilities are established. The mission pointed out that BADC issues all purchase orders for fertilizers.

We were not convinced at the time of our review that adequate AID mission, IFAD and Government coordination had occurred to prevent duplication. The project officer told us the donors had not been asked to commit to bulk purchases to justify the planned number of machines. In addition, the 3- or 4-month monsoon season, when operations are impractical, was not fully considered. Even though BADC issues the fertilizer purchase orders, they are still subject to donor approval. Both organizations have budgeted separately for their respective operations at Chittagong which have been planned at different locations at the port and have not been integrated. Each effort resulted from separate feasibility studies on bulk imports. Budgeting under such uncertain circumstances, apparently without formal agreement, whereby one party orders expensive equipment only if another party does not, raises questions of proper planning and adequate and reasonable coordination. Other than the mission's cabled comments, no additional information or evidence of coordination and donor agreement to finance bulk shipments has been made available since we completed our fieldwork.

In an earlier draft of our report, we suggested that the AID mission take an active leadership role in influencing the design, financing, and implementation of permanent bulk handling facilities once bulk cost savings had been established. We have deleted the recommendation because the mission believes, and we agree, that the use of the portable bagging equipment partially addresses our recommendation, as well as some of the uncertainties surrounding bulk imports to Bangladesh. According to the mission, major feasibility issues not yet addressed included labor, organization, and management factors which are to be addressed in part by implementing the portable bagging operation. This operation appears to be less costly and, hopefully, will help resolve these issues, as well as the question of producing measurable cost savings which, in turn, could lead to the construction of permanent facilities.

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## United States Senate

COMMITTEE ON FOREIGN RELATIONS

WASHINGTON, D.C. 20510

July 28, 1980

The Honorable Elmer B. Staats  
 Comptroller General of the United States  
 General Accounting Office  
 Washington, D. C. 20548

Dear Mr. Staats:

The Senate Foreign Relations Committee has a continuing interest in the conduct of foreign assistance programs carried out by the Agency for International Development. Over the past several years, the Committee has been particularly concerned with a Fertilizer Distribution Improvement project in Bangladesh.

According to AID, this fertilizer distribution project will cost \$200 million over a period of four years commencing with fiscal year 1978. This represents a major portion of Agricultural, Rural Development and Nutrition funds authorized under Section 103 of the Foreign Assistance Act. Most of the funds are to be used to provide fertilizer for distribution in Bangladesh. The intended beneficiaries are the small farmers who produce a substantial portion of the crops in Bangladesh.

The magnitude of this program and the complexity of designing and implementing a distribution system for fertilizer and other agricultural inputs and technical assistance needed to make this project succeed require the exercise of careful project planning. Particularly, the Government of Bangladesh needs to show a significant commitment to undertake implementation of policies aimed at increasing small farmer and sharecropper access to fertilizer.

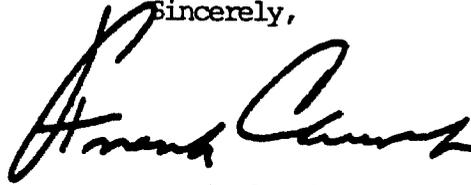
AID has been aware of our concerns and has indicated that it will be watching closely the project's progress and evaluating the impact of the implementation annually. The Committee staff has been briefed from time to time on the progress and problems in implementing the project.

To be in a better position to assess whether more resources should be committed to the project, I am requesting that the General Accounting Office examine the planning and implementation activities of this project. Such an independent status report would be useful to the Committee during the fiscal year 1982 legislative hearings.

The scope of the review may require further definition and refinement. The Committee staff will be available for consultation with those assigned to conduct the review.

With best wishes,

Sincerely,

A handwritten signature in cursive script, appearing to read "Frank Church".

Frank Church  
Chairman



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