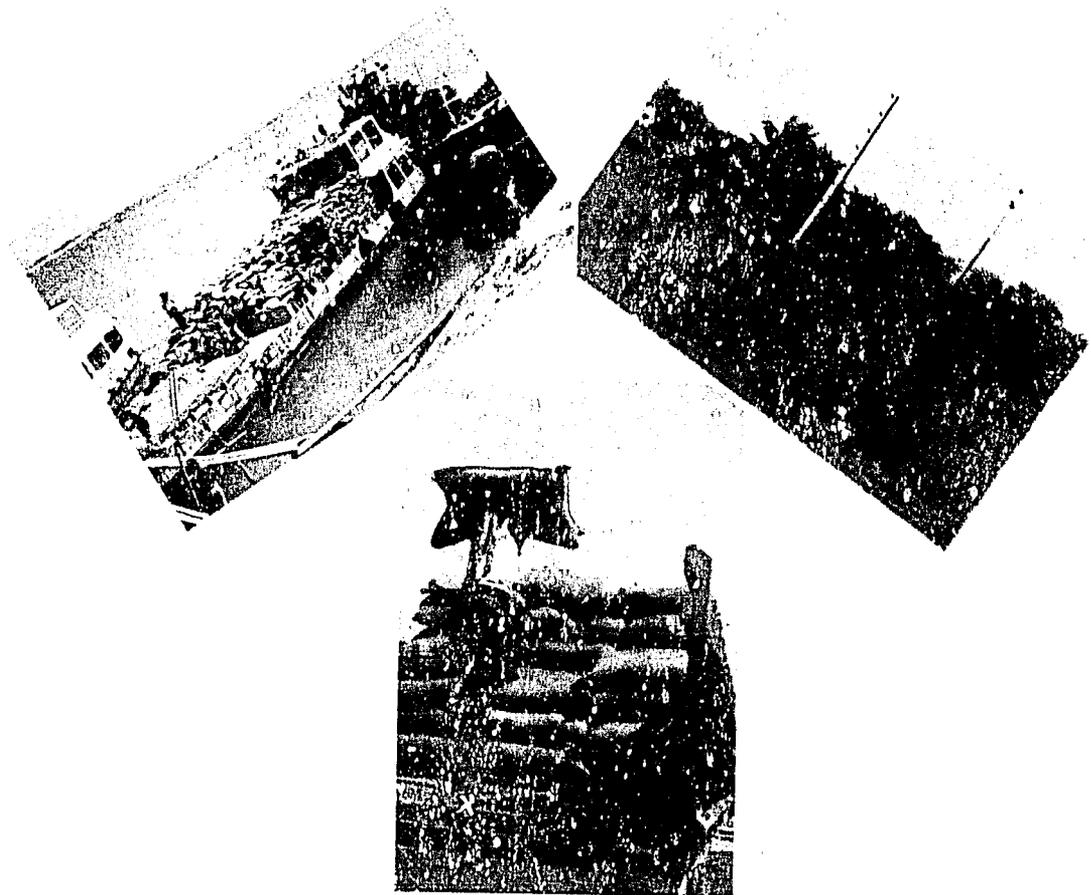


ANNUAL REPORT 1987 - 88

TECHNICAL ASSISTANCE TO
BANGLADESH AGRICULTURE DEVELOPMENT CORPORATION



INTERNATIONAL FERTILIZER DEVELOPMENT CENTER
FERTILIZER DISTRIBUTION IMPROVEMENT PROJECT - II
CONTRACT NO 388 - 0060 - HCC - 8701 -- 01

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TECHNICAL ASSISTANCE TO
BANGLADESH AGRICULTURE DEVELOPMENT CORPORATION

We apologize for one spelling error in the covering page of the Annual Report and also some minor printing mistakes inside it.

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IFDC/Dhaka

USAID/Dhaka Staff
Reference Library



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FOREWORD

March 1, 1988 marked the First Anniversary of the BADC/IFDC Host Country Technical Assistance Contract, grant funded by USAID.

It has been a learning experience for all of us. We have learned more about BADC, BADC employees, BADC customers and BADC opportunities.

We have worked hard to accelerate the rate of change organizationally and conceptually.

Environmental and technological changes are occurring rapidly in Bangladesh. To meet these new challenges a company cannot afford to be rooted in the past.

Fertilizer Distribution Improvement -II (FDI-II) Project, designed jointly by the Government of Bangladesh, BADC and the USAID with technical assistance from IFDC is a result of an assessment of BADC's resources, capabilities, opportunities and the direction it should take to best serve agricultural development.

FDI-II clearly indicates a changed but continued vital role for BADC in agricultural development. However, it in addition identifies a need to encourage the development of a free market system which permits and rewards vigorous competition among companies, organizations, individuals and cooperatives. This free market competitive system envisions selling freely, buying freely, borrowing on a credit worthiness basis which will assure a vibrant and creative market in harmony with the farmers needs.

FDI-II implementation is taking place; significant progress has occurred, including introduction of Transportation Discount Points, a desirable outcome but not easily accomplished.

During this first year of Technical Assistance, IFDC has assisted with identifying some redirection for BADC including a draft reorganization.

This specific reorganization was recommended after a study of :

- (1) What work BADC does now and what they can probably do best in assisting with the development of agriculture in Bangladesh.
- (2) Evaluating each work task to determine its link to achieving the agricultural development objectives.
- (3) Redefining the work to take advantage of the unique skills within BADC Supply Wing.
- (4) Determining reporting relationships to eliminate some line positions, reduce rigidity and create more specialists.

IFDC looks forward to its second year in assisting the project and confidently anticipates accelerated and intensified competition in the fertilizer market place.

March 1988

Kenneth L. Moots
Chief of Party
IFDC/Dhaka



Chief of Party

Kenneth L. Moots

IFDC, an international nonprofit organization, is dedicated to increasing agricultural productivity and food production in the tropics and subtropics through the development and use of marketing management systems, improved fertilizers and fertilizer practices and policies. Headquartered in Muscle Shoals, Alabama, U.S.A., IFDC conducts its research, training, and technical assistance programs in collaboration with private, national, and international organizations throughout the world.

INTRODUCTION

Fertilizer is one of the most important inputs for agricultural production in Bangladesh. Although, many people refer to the fertile soils of Bangladesh; in fact, current crop production levels can be maintained only through fertilizer use on most of the soils.

A recent study indicated that the annual rate of increase in rice production has been maintained at 2.43% during the last 10 years even though area under paddy leveled off during the last 5 years. Increasing use of fertilizer accounted for about 30% of the increased rice production.

The goal of the Fertilizer Distribution Improvement II (FDI-II) Project is to increase agricultural production by increasing fertilizer consumption through more responsive and cost effective distribution of fertilizers while simultaneously continuing assurance of adequate supplies of fertilizers nationwide. FDI-II will continue the process of developing a significant private sector involvement in the distribution of fertilizer, which in 1978 began with the introduction of the New Marketing System (NMS) under FDI-I. The NMS consists of 1) BADC's distribution of fertilizers to 75 primary distribution points (PDPs) where they are sold to private sector dealers and cooperatives, 2) uniform prices at all PDPs, 3) no regulation and restriction of dealer appointment and dealers' selling prices or sales areas and 4) support of private sector dealers through a dealer development and training program. This is a great contrast to the previous system of distribution to 430 Upazila Sales Centers for sale to small scale dealers under controlled appointment, restricted sales areas and controlled selling prices and to 97 Upazila Central Cooperative Associations.

FDI-II will carry the initiatives of the NMS one step further by developing large-scale private wholesalers with a potential for division- and nation-wide distribution and sales of fertilizer. The project focuses on developing a nation-wide free competitive marketing system involving the public and private sectors. The project supports dealer development through providing funds for credit, for BADC's Dealer Development and Training Program, for laboratory equipment for quality control work and for infrastructure improvement to facilitate lifting from factories and transit warehouses.

IFDC was selected to provide technical assistance in implementing the FDI-II Project. A Host Country Cost Reimbursement Contract for Fertilizer Distribution and Marketing Consultancy Services was signed on February 28, 1987. IFDC began providing the services on March 1, 1987.

ADMINISTRATION OF THE TECHNICAL ASSISTANCE

The technical assistance contract is under the direction of the Managing Director, IFDC, Muscle Shoals, Alabama, U.S.A. The Chief of Party who is also the Marketing Consultant, is the principal representative of IFDC in Bangladesh. He is responsible for overall coordination, administration and supervision of the technical assistance team and their work.

Personnel

The Chief of Party/Marketing Consultant of the IFDC technical assistance team for Fertilizer Distribution Improvement I (FDI-I) was continued in a similar position for providing the leadership for the current technical assistance. Additionally, 32 host country nationals (HCNs) from FDI-I were carried over. New assignments to the team include two expatriate consultants (Financial/Credit Consultant and Dealer Development and Training Consultant), seven experienced HCN specialists and 30 other HCNs. Thus, at the end of February 1988, the technical assistance team consisted of 72 persons, including three female employees.

The planned utilization level of personnel is 171 person-months for expatriates and 3,834 person-months for HCNs during the 52 months (life of contract) with additional support from expatriate and HCN short-term consultants. Thus, the contract provides for an average of more than 77 person months of effort per month, but the project has utilized about 64 person-months per month during the first 12 months. Staff requirements and hiring have been restrained because of delayed implementation of the project by the Government of Bangladesh (BDG).

Organization

IFDC/Dhaka is structured to efficiently provide relevant technical assistance for the improvement of fertilizer marketing in Bangladesh. Under the direction of the Chief of Party/Marketing Consultant, 2 expatriate consultants and 5 HCN specialists supervise the activities which provide the technical assistance. The current organizational structure is shown in Figure 1.

Although the team is structured into units, personnel from each unit often work closely with those from other units in performing particular tasks. Principal activities of staff assigned to the 7 units are:

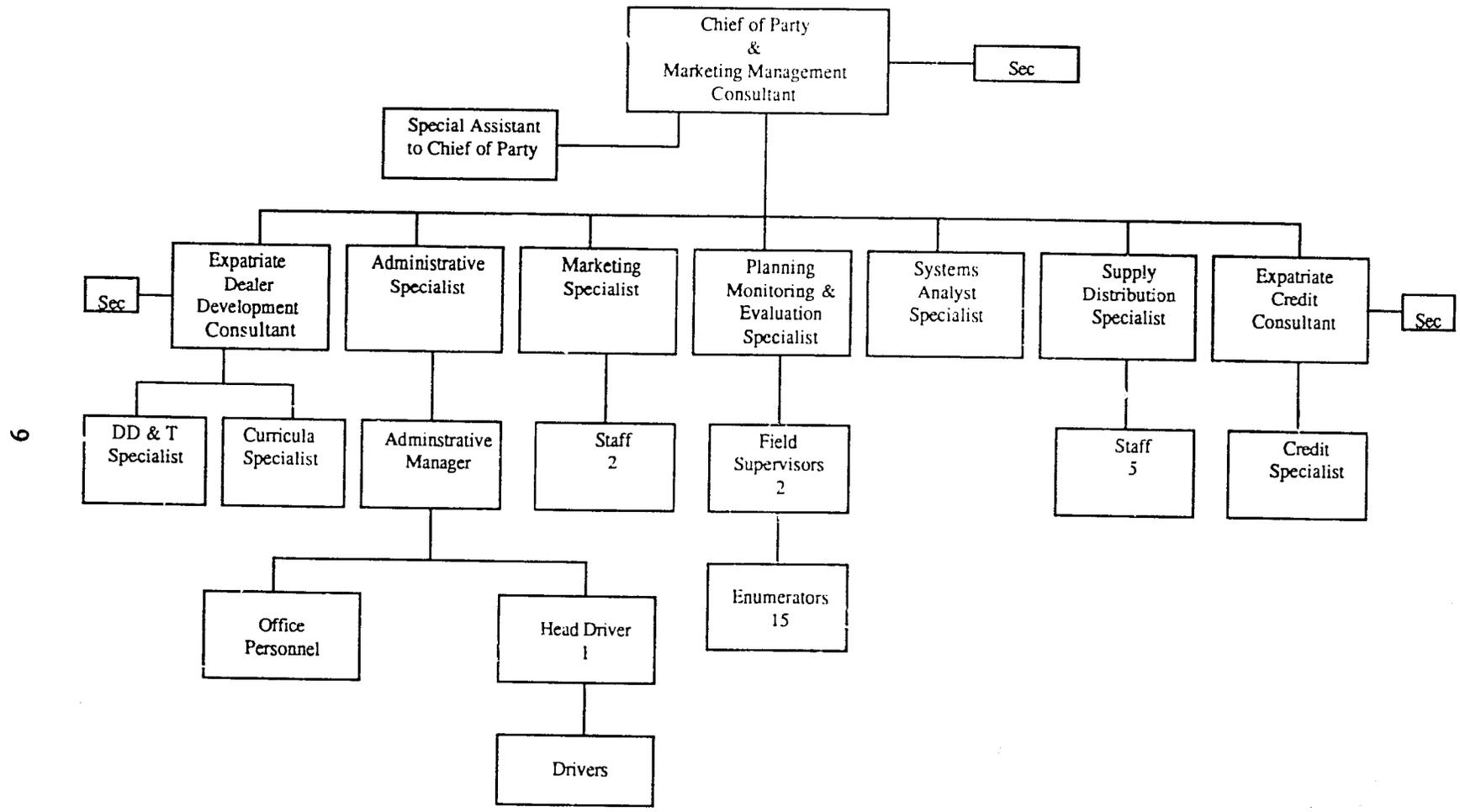
Administrative – Maintain and audit office records and files; liaise with USAID Controller's office and BADC's Administration Unit; handle procurement of supplies, equipment, accommodation and maintenance; and process papers for out-of-country training and IFDC expatriate visas, resident permits and shipping.

Marketing Management – Conduct market research; liaise with BADC and private sector; maintain flow of marketing information both to and from the field; participate in training; and assess the competitiveness of conditions in various market areas.

Planning, Monitoring and Evaluation – Identify needs for information; assist BADC in monitoring and evaluation; develop monitoring and evaluation plans, procedures and survey forms; collect data; analyze and report information on



Involving the Women of Bangladesh



6

Figure-1 : Organizational Structure of IFDC/Dhaka Technical Assistance Team.

sales, farm-level prices and other fertilizer marketing/distribution indicators; and develop and maintain pertinent data bases.

Supply, Distribution and Accounting – Up-date transportation and handling cost tables for alternative routings; develop procedures and methods to reduce transportation and inventory carrying costs and advise and assist BADC in implementing; review and verify port and transit losses of fertilizers, causes for losses and recommend corrective measures; and assist BADC in verification of financial accounts.

Dealer Development and Training – Assist BADC with program planning, curricula development, conduct of training, follow-up on effects of training, preparation of promotional materials for dealers use and conduct of field demonstration program; monitor effectiveness of training; organize and conduct training for BADC trainers.

Credit and Finance – Assist BADC and banks to develop procedures for disbursing credit, recovering payment, and monitoring credit utilization; monitor and advise on functions of credit administration; and recommend means to remove constraints on credit use by wholesalers.

Systems Analysis – This unit is planned but has not been established because computers are yet to be purchased.

Work Plans

A detailed work plan for the first year and preliminary plans for the life of the contract were prepared and submitted to BADC and USAID in June 1987. The plans are organized into a time matrix of tasks and activities based upon the objectives and terms of reference of the technical assistance contract. We have identified 20 separate tasks to effectively perform the job.

Meetings and Progress Reports

Semi-annual tripartite (BADC/USAID/IFDC) meetings are to be conducted throughout the life of the contract. The first tripartite meeting was conducted on October 9 and 18, 1987 to discuss the consultants, work plans, plans for short-term consultants, reports which had been submitted and the desirability of holding and Agricultural Symposium and dates for it.

IFDC/Dhaka staff meetings were held monthly to keep the technical staff of the team apprised of various activities, problems and accomplishments.

Quarterly progress reports concerning the teams activities were submitted to BADC and USAID on a regular basis.

Accommodations

Office space for the technical assistance team is provided by BADC. The principal office is on the 6th floor of Krishi Bhaban (BADC's headquarters). The planning, Monitoring and Evaluation Unit is located on the 3rd floor of Krishi Bhaban and the Dealer Development and Training Unit is with BADC's similarly named section at Santinagar, Dhaka.

Expenditures

The budget for the first year of operation of the technical assistance contract was for \$2,794,226. Actual expenses were \$ 1,256,901 or 45% of the budget for the first year. Broad categories for which expenditures were considerably less than the budget are short-term consultants, special project related costs and training activities. Expenditures were lower than anticipated because of slow implementation of the project by BDG.

Major items of equipment purchases have consisted of 10 jeeps; 2 cars, 37 motor cycles, 3 typewriters, 1 copying machine and numerous pieces of office furniture.



Tripartite Meeting

**Table 1. Annual Budget and Quarterly Expenditure—March 1987 Thru February 1988
EADC/IFDC Contract Under FDI - II**

Description	1st Year's Budget	Expenditure				1st Year's Total
		1st Quarter (Mar-May' 87)	2nd Quarter (Jun-Aug' 87)	3rd Quarter (Sep-Nov' 87)	4th Quarter (Dec-87-Feb'88)	
I. Resident Consultants Related Costs	\$ 460,550	\$ 70,493.52	\$ 79,250.94	\$ 79,757.34	\$ 80,006.18	\$ 309,507.98
II. Short Term Consultant Cost	159,800	-	-	-	-	-
III. Consultant Office In-Country	622,590	273,349.54	75,149.93	52,576.89	57,498.15	458,574.51
IV. IFDC Headquarters Related Costs	19,870	16,340.96	17,497.72	13,066.29	13,400.79	60,305.76
V. Special Project Related Costs	349,100	6,825.55	74,673.52	5,762.73	-	87,261.80
VI. Training Activities	365,150	-	28,209.97	2,334.25	1,358.19	31,902.41
VII. Contingencies	77,300	-	-	-	-	-
VIII. Overhead	738,866	72,073.42	107,520.60	64,677.56	65,077.35	309,348.93
TOTAL	\$ 2,794,226	\$ 439,082.99	\$ 382,302.68	\$ 218,175.06	\$ 217,340.66	\$ 1,256,901.39

MARKET DEVELOPMENT

The FDI-II project proposes completely new concepts for fertilizer marketing in Bangladesh. With changes in marketing concepts, changes in plans and changes in organizational structure are often needed. At the beginning of the technical assistance contract, IFDC initiated a study of the marketing of fertilizer in Bangladesh. From the assessment of the past and present, we developed recommendations for the future and formulated detailed work plans to provide the needed technical assistance to BADC in carrying-out the project.

Training should be a major component of technical assistance in a project which is designed to bring about change. We have made elaborate plans for many training activities, but to-date no foreign training activities have been approved for BADC staff .

Marketing Assessment

An assessment of fertilizer marketing in Bangladesh was made, considering the past, present and future in pursuance of the terms of reference for the technical assistance contract. The purposes of the study were to assist BADC management in identifying problems and prospects for the future improvement in fertilizer marketing and in formulating future policy based on experiences from the past.



IFDC-Dhaka Staff Meeting

The market structure for fertilizer has progressed through a number of phases.

1. Government sales from union and upazila stores to farmers.
2. Government sales from upazila stores to appointed upazila dealers.
3. Government sales from 75 primary distribution points (PDPs) to dealers who may sell to any buyer at any price.

Restrictions were relaxed through each phase and the structure became less cumbersome and less bureaucratic.

Price deregulation caused little change in consumer prices. The combination of price deregulation and removal of restrictions on number of dealers and dealer movement, improved product availability.

Reduction in the number of distribution points which BADC must supply has removed many constraints which could have developed, particularly with consumption now at 12 times the mid-sixties level when the public institution was selling directly to farmers. Even now constraints in supply and distribution exist in attempting to distribute almost 1.5 million M.T per annum, principally to 75 sale points.

Recommendations for the future are :

- a. Continue to develop a competitive free marketing system on a national basis with BADC and private sector competing on an equal basis.
- b. Develop market research, quality control, and credit cells within BADC to perform service functions.
- c. Strengthen BADC's dealer development and training programs.
- d. Modify the fertilizer procurement system to conform to the needs of a competitive free marketing system.
- e. Identify and develop measures to reduce fertilizer movement, handling and inventory costs.

Marketing Plan

Based upon the assessment of the fertilizer distribution and use situations a marketing plan for the year 1987-88 was submitted to BADC on September 21, 1987. The plan covers all aspects of marketing. Some changes in the existing system have been proposed to assure that the marketing is cost effective and the accessibility of fertilizer to the farmers is easier. The inventory control and management in each of the sales locations and transit points have been assessed.

The marketing plan was in two volumes. The first part deals with the overall plan for manpower development, wholesaler development, marketing management,

incentive plan, credit, supply/ distribution, procurement and monitoring. The second volume contains annual sales for 1986-87 by PDP and by commodity, sales projections for 1987-88 by PDP/TDP and by commodity and month, stock levels for PDP/TDP/shipping and transit locations and national stock level. Along with stock level the godown capacity is shown for comparison between the existing capacity and required inventory level.

Inventory management is an integral part of the marketing plan. Three levels of inventory have been shown, i.e. re-ordering level, minimum level and maximum level. Import requirement and local lifting have been scheduled at re-order level. It is expected that the cost of maintaining inventory will be reduced to a substantial extent if recommended inventory level is practiced and shortages will be almost non-existent.

Proposed Reorganizational Structure for BADC

Changes in the organizational structure are essential in order to adapt to the changing marketing system which is needed to meet the needs of Bangladesh's farmers. An organizational set-up was prepared and submitted to BADC in October 1987. Job descriptions of all the proposed positions were prepared.

The proposed structure emphasizes concepts and activities which will permit BADC to respond to new commitments which will be needed in the future. An important philosophy imposed in the plan is to place units responsible for fertilizer related activities within the fertilizer wing, in other words more closely relate responsibility and authority. Salient features of changes in the organization which are recommended are new positions of Additional General Managers for Marketing, Development and Supply/Distribution to relieve the General Manager (Fertilizer) of many of the day to day routine matters. Also, the proposed structure provides for separate Regional Managers for PDP and TDP operations. Other salient features are the provision for the following new units:

1. **Marketing Research and Development Unit** : The market research unit will define market areas or territory, identify product and service demands and investigate constraints needs and wants.
2. **Credit Unit** : In the FDI-II project credit plays a vital role in the development of vital private sector wholesaler networks. Therefore, credit administration, both disbursement and recovery, needs to be monitored very carefully and objectively. The proposed credit unit if set up, will be able to handle the tasks required.
3. **Planning, Monitoring and Evaluation Unit (PM&E)** : Planning, monitoring and evaluation has been an active component of BADC since inception, but it is conducted outside of the fertilizer wing. With the growing importance of fertilizer in agricultural development, a unit should be established within the fertilizer wing. Sound planning can not occur without prior monitoring activities to collect information. Therefore, all of these activities are absolutely linked together. The proposed PM&E Unit should be fully cognizant of the objectives of the present fertilizer division of BADC and these objectives should be quantifiable.

- 4. Quality Control Unit :** The achievement of a standard level of quality, both BADC product sales and dealer product sales to the farmers should be accepted as the responsibility of the Government. As such, a unit should be created to look into these activities and formulate standards and suggest changes for the improvement of the existing regulations. Field staff service is essential for the quality control unit to collect samples, observe product and to check weights and measures. Effective upgrading of abilities and dedication of the quality control unit are important factors for improvement in the quality of fertilizer products being made available to the farmers.

Farmers' Surveys

IFDC has continued from FDI -I Project to conduct surveys of farmers who purchase fertilizers at dealer shops. The principal purpose of the surveys is to monitor prices which farmers pay for fertilizer which is a good indicator of fertilizer availability when considered along with wholesalers purchase price and distance from PDPs. The format for the surveys has been up-graded and geographical coverage has been expanded.

During the 12 months ending with February 1988, 9,767 farmers were interviewed. To date data was analyzed and reported for the period through January 1988.

Workshop – A 3-day workshop was conducted for our 10 field enumerators in May, 1987. The purpose of the Data Collection and Monitoring Workshop was to improve the skills of enumerators in interview techniques, collection of accurate and unbiased information, editing of questionnaires, basic mathematical calculations and use of statistical tools. The program included lectures by experts, group discussions, role play, individual tests and exercises completed outside the classroom. Pre-test and post-test scores, and, more importantly, the performance since the workshop, indicate the workshop was very successful.

Farmers' Fertilizer Prices– Prices that farmers pay for fertilizers relative to the official ex-PDP prices is an excellent indicator of fertilizer availability to farmers in a competitive marketing system. Prices in times of short supply increase because of greater costs incurred by dealers (transporting for greater distance and other reasons). Also, dealers may demand greater profit. We use results from the price survey to advise BADC to encourage more competition within selected areas or to increase supply as the situation dictates.

Month-wise national average price fluctuations for fertilizers in relation to the official ex-PDP prices are shown in Figure 2. The greatest difference in national average monthly prices for urea during the year was about Tk. 5 per 50-kg bag and actually urea supply was reasonably good during the reporting period of time. The price for TSP was more than Tk. 14 per 50-kg higher during December 1987 than in March 1987. TSP was in very short supply during November and December 1987 and January 1988.

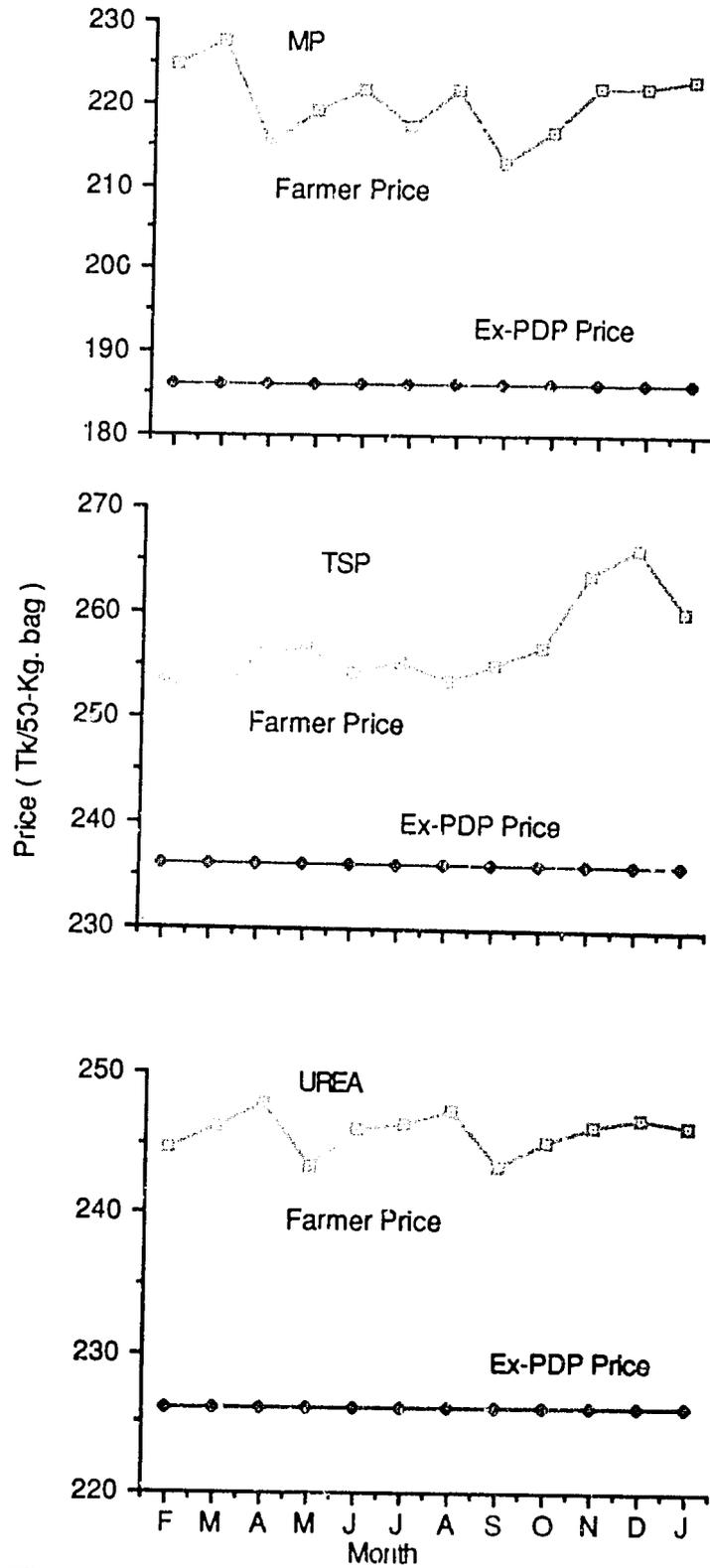


Figure 2 : Farmer's Cost for Fertilizers Relative to Ex-PDP Price by Month, February 1987-January 1988.

Fertilizer dealers' gross margin (farmers cost minus official PDP price) averaged about Tk. 20 per bag for urea and TSP or 8% of farmer price, but was Tk. 34 per bag for MP or 15.5% of farmer price. This is attributed to a greater percentage of MP sales being made in small quantities (MP sales are about 20 % of TSP sales and about 7% of urea sales).

Farmers' fertilizer prices also vary among locations because of differences in level of demand, accessibility by transportation conveyances, risks in achieving expected profit, etc. The maximum and minimum monthly prices among average regional prices are shown in Figure 3. The difference between the maximum regional price and the national average price is greater than the difference between the minimum regional price and the national average price. This results from the small portion of sales at high prices and implies that high prices are in regions of low demand. The 12-month average prices were greatest in Patuakhali, Barisal, Sylhet and Faridpur which are regions where fertilizer sales are lowest (Table 2). The differences between the highest and lowest average prices in regions for the reporting period are Tk. 19 per 50 kg. for urea and TSP and Tk. 44 per 50 kg. for MP. Thus, on the average, farmers in regions with the highest prices paid 5.8% more for urea and TSP and 13.5% more for MP than the national average. The national average dealers' margins are similar in magnitude to the spread in margins between regions. The highest margins on a regional basis were 15% of urea and TSP farmer price and 34% of MP price and the lowest margins were 6.4, 7.0 and 10.6% for urea, TSP and MP, respectively.

Farmers' Paddy and Wheat Prices— The national average prices that farmers reported for selling paddy and wheat are shown in Table 3. For the reporting period of time, HYV paddy prices fluctuated between Tk. 284 per 50 kg in July 1987 to Tk. 346 per 50 kg. in March 1987. After a price decline in November 1987, prices have increased, bringing January 1988 prices to near the price level in February 1987. Prices for local varieties (LV) paddy fluctuated in a similar manner but LV paddy prices were somewhat greater than HYV paddy during April thru June 1987.

Farmer sales of wheat were reported in the months of March thru October, 1987. Prices increased steadily from Tk. 242 to Tk. 357 per 50 kg throughout that period of time .

Urea to Grain Price Ratios— The ratio of the farmers cost of fertilizer to his selling price of grain is an indication of potential profitability of using fertilizer. The ratio is the units of grain needed to pay for a unit of fertilizer. Thus, when the use of a unit of fertilizer results in more than the ratio units of grain, that grain which is produced has a value greater than the cost of the fertilizer. In general, the Bangladesh farmer is expected to obtain from 2 to 4 kg. of paddy per kg. of fertilizer and the benefit is greater from urea than from TSP and MP.

The month-wise ratios of urea to paddy prices ranged from 0.70 to 0.87 for LV and HYV paddy (Figures 4). Of course, fertilizer is used for the crop in months prior to the month in which the crop is sold. But, since urea prices were stable during the reporting period, the ratio varies because of fluctuations in monthly prices of paddy. Thus, depending upon the time a farmer sold paddy, it took from 0.70 to 0.87 kg. of paddy to pay for the urea which is favorable to farmers using urea.

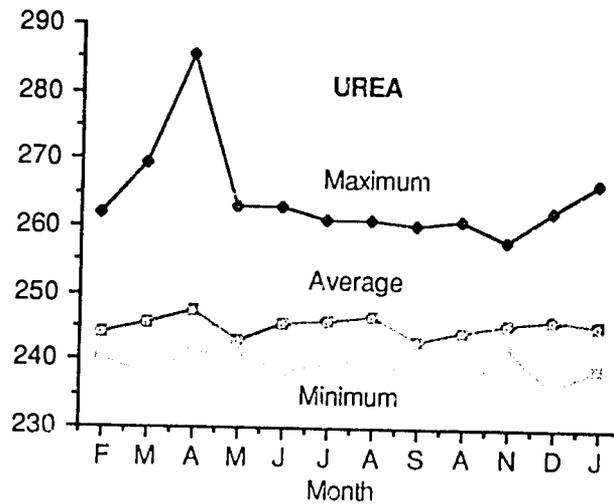
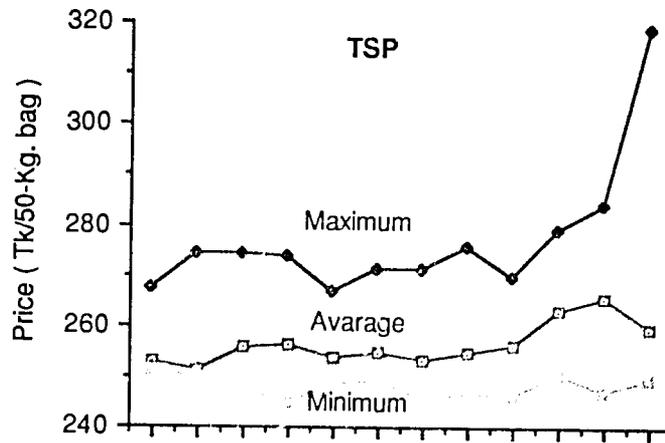
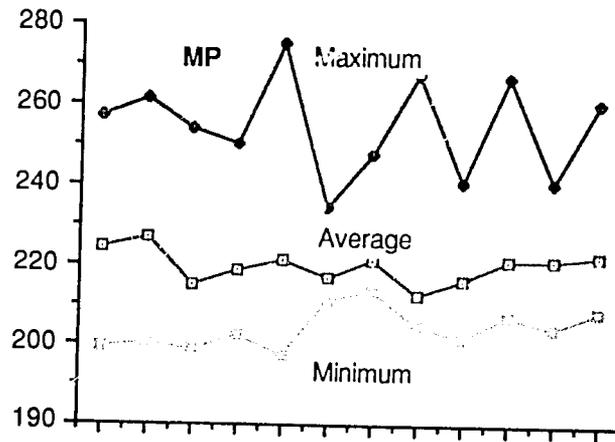


Figure 3 : Monthly Minimum and Maximum Prices (Region Average)
Farmers Paid for Fertilizers Compared to National Average.

Table -2 Regions Having the Three Highest and Three Lowest Average Monthly Farmer Fertilizer Prices, February 1987-January 1988.

Region	1986-87 Sales Quantity (M ¹)	Average Monthly Price (Tk./50 Kg.)		
		Urea	TSP	MP
Lowest Prices				
Kishoreganj	72,874	242.33	254.51	216.16
Kushtia	60,290	244.98	252.98	208.87
Rajshahi	96,207	-	252.83	206.06
Jessore	68,759	240.84	-	-
Highest Prices				
Patuakhali	8,298	259.37	269.04	250.29
Barisal	33,489	256.80	267.19	242.23
Sylhet	43,346	260.11	-	240.13
Faridpur	31,111	-	271.85	-
Average				
Bangladesh	-	245.83	256.95	220.46

Table -3 Farmer's Grain Selling Prices, February 1987 - January 1988.

Month	Grain Price (Tk./50 Kg.)		
	HYV Paddy	LV Paddy	Wheat
February	325.51	333.23	N.A.
March	346.27	349.79	242.13
April	339.25	361.11	266.21
May	289.79	328.17	271.75
June	299.47	314.81	261.92
July	283.69	281.85	290.61
August	291.58	286.01	311.73
September	332.97	326.20	341.59
October	321.56	312.06	356.66
November	292.28	297.12	N.A.
December	299.11	299.50	N.A.
January	321.66	313.17	N.A.

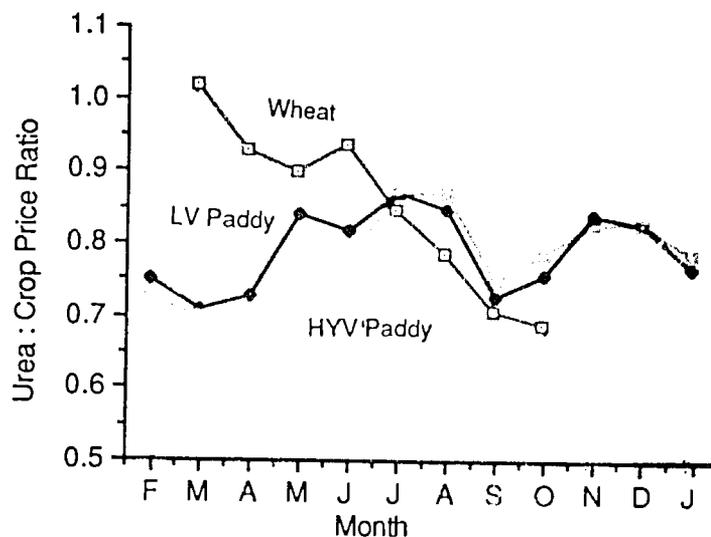


Figure 4 : Monthly Farmer Price Ratios, Urea to Paddy or Wheat.

Urea to wheat price ratios ranged from 0.69 in October 1987 to a high of 1.02 in March. Thus, it requires more wheat than paddy to pay for a given amount of urea, particularly if sold during the first two to three months after harvest.

Credit Purchase of Fertilizers- As in past years farmers report a low level of credit utilization for the purchase of fertilizers. Only 7.6% of the 9,279 interviewed farmers reported the use of credit for purchases of fertilizer. Of those, 48% obtained credit from fertilizer dealers, 24% from friends, 17% from banks and 11% from money lenders.

Minimum Lifting at Primary Distribution Points

Upon request from BADC, a study was conducted to formulate minimum lifting requirements at PDPs. Selected fertilizer dealers were surveyed in 3 regions: Rangpur, a high use area ; Kushtia, a medium use area; and Faridpur, a low use area. A number of dealer characteristics were determined which might influence the quantity of fertilizer that they might purchase at one time. Data were analyzed and it was recommended in June 1987 that three minimum lifting levels be established. These levels were 30 MT in high use areas, 20 MT in medium use areas and 15 MT in low use areas. Additionally, we suggested regions to be classified into each of the use levels. Increasing the minimum lifting requirement from the official level of 10 MT or practiced level of 3 MT would greatly reduce BADC's paper work and bring about the development of regional wholesalers. At the end of the reporting period BADC had not taken action on the recommendations.

Concept of Transportation Discount Points

The concept of marketing fertilizers through Transportation Discount Points (TDPs) is to provide a discount as compared to the ex-PDP price for large quantity purchases which would permit wholesalers' to cover transportation costs from a TDP to an unidentified service area. Wholesalers' service areas will be determined by the amount of discount, adequacy of supply, the effective price at PDPs (influence wholesalers' allowable margin), and wholesalers' cost for transportation and handling. TDPs should offer relief to BADC's burdensome distribution of almost 1.5 million MT per year of fertilizers to 75 PDPs and improve the efficiency of BADC's distribution. Fertilizer distribution in the entire sector should improve by developing competition in large-scale wholesaling among private dealers and between them and BADC.

TDPs were introduced on an experimental basis in 1985-86 to explore the effects of a few large volume sales centers on various aspects of fertilizer distribution. TDPs were open sporadically at Narayanganj, Baghabari, Shiromoni and Chittagong between August 1985 and March 1986, but were reasonably operational for full months in October, November and February. A study indicated that while TDPs were operating sales at 6 PDPs were reduced to less than 25% of estimated sales without TDPs. Further, it was predicted that sales from an additional 12 PDPs would be reduced to 25 to 55% of sales levels expected without TDPs.

After analysis IFDC recommended the following :

- 1) Reopen TDPs,
- 2) Adjust previous discounts to stated levels,
- 3) Staff TDPs according to the recommended plan,
- 4) Close 7 PDPs immediately and close additional PDPs in a phased manner as wholesalers expand to cover other PDP service areas,
- 5) Monitor TDP activities to provide a base for problem solving and readjustment of discounts as conditions indicate,
- 6) Increase limit on In-Kind credit to cover lifting at TDPs, and
- 7) Perform a detailed study to determine alternative employment opportunities for surplus staff resulting from PDP closures.



Monitoring TDP Activities

BADC's FERTILIZER SALES

Consumption (BADC's sales) of fertilizers has increased at a rate of 7.8%, compounded annually between 1982-83 and 1986-87. This is a slightly lower rate of increase than the 8.0% rate of increase for the period, 1977-78 to 1986-87. There have been increases in sales during each of the last 5 years except in 1985-86 (Figure 5).

Total Sales

BADC's sales of fertilizer reached 1.32 million MT. during 1986-87. Product-wise sales were; 915,000 MT. of urea, 236,000 MT. of TSP, 66,000 MT. of MP and 4,000 MT. of other products. Consumption is greatest in Rajshahi Division where 35% of national sales now occur. Sales in Dhaka Division accounted for 27% of national sales in 1986-87, Chittagong for 23% and Khulna for 15%.

The sales target for 1987-88 is 1.45 million MT. and month-wise accumulated target through February 1988 is 1.03 million MT. Fertilizer sales started slowly at the beginning of the year with sales below target during July, August and September. Sales equaled 82% of target at the end of September, probably largely because of the devastation of floods. During October and November sales exceeded targets, and by the end of December, 1987, accumulated sales were 22% greater than the target for that first 6 months of the year. Additionally, targets were exceeded during January and February and sales for the first 8 months were 1.13 million MT. or 25% greater than the 8-month target. Sales during the first 8 months of 1987-88 were 21% greater than sales during the same period of time in 1986-87.

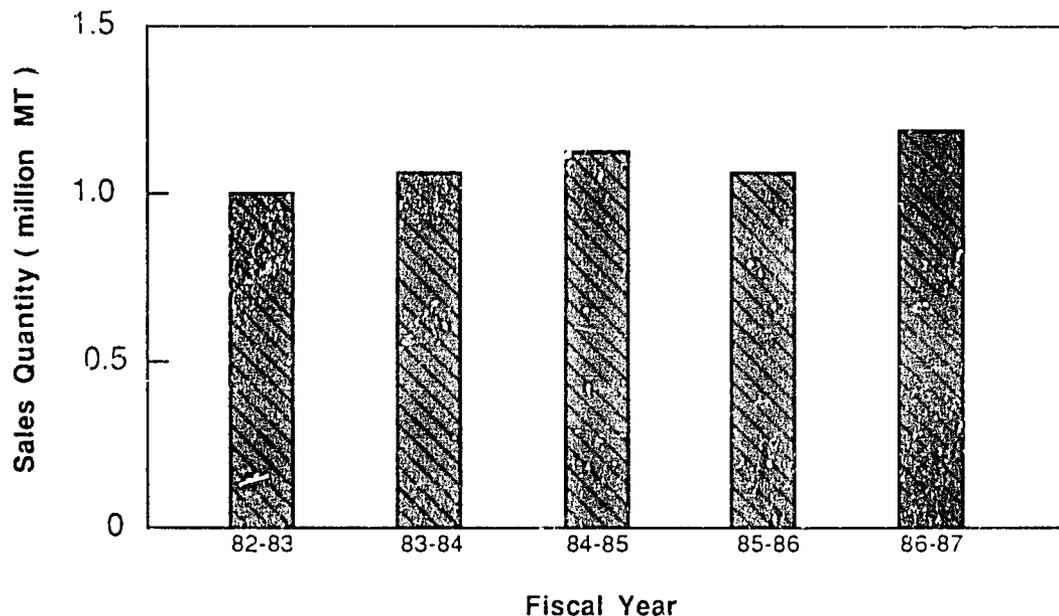


Figure 5: BADC's Fertilizer Sales, 1982/83 thru 1986/87.

TDP Operations

Although TDPs officially opened in July 1987 by order of the Ministry of Agriculture and a circular issued by BADC, in fact, they were not operating until February. Parbatipur has been operating relatively continuously since July, Shiromoni operated for about one month in July and August and Baghabari for about 2 weeks in September (Table 4). Fertilizer wholesalers have shown a keen interest in purchasing from TDPs but opposition by BADC management and employees and clearing and forwarding (C&F) agents/contractors resulted in closures. Due to positive steps recently taken by BDG, 6 TDPs including 2 factory TDPs started functioning in January and February, 1988. Various constraints continue to inhibit the TDP operations (Table 4).

Table - 4 TDP Operating Periods and Extent of Problems Hindering Operation.

Name of TDP	Period of Operation	Intended to Purchase		Purchases		Major Reasons for Not Purchasing
		No.	Quantity (MT)	No.	Quantity (MT)	
Narayanganj	15-2-88 to 29-2-88	73*	12,280	35	5,604	1. BADC opposition 2. C & F opposition 3. Short supply 4. Hartal
Baghabari	6-9-87 to 22-9-87	25	2,895	18	2,012	1. BADC opposition
	and 26-1-88 to 29-2-88	246*	26,660	189	20,881	2. Short supply
Shiromoni	18-7-87 to 15-8-87	22	2,130	17	1,547	1. BADC opposition 2. Transport strike
	and 13-1-88 to 29-2-88	42	5,012	31	3,743	3. Labor strike. 4. Hartal 5. C & F opposition
Parbatipur	8-7-87 to 29-2-88	113	12,100	90	8,848	1. Bad stock 2. Hartal 3. Short supply
Ghorasal	22-2-88 to 29-2-88	8	810	6	578	1. Low discount 2. BADC opposition 3. Loading facilities
Polash	27-2-88 to 29-2-88	3	304	3	304	1. Low discount 2. BADC opposition 3. Loading facilities

* Pay orders deposited with BADC.

TDP Sales – In spite of the many constraints, sales have been vigorous, particularly at Baghabari and Narayanganj (Table 5), sales on selected days have been as great as 1,500 MT. at each of those TDPs. About 44,000 MT. of fertilizers have been sold through TDPs with almost 32,000 MT. of that during February or 14% of February national sales.

Our monitoring of wholesalers who purchase from TDPs shows that they are servicing areas as far as 125 miles from TDPs (Table 6). The areas where TDP wholesalers are selling fertilizers are illustrated in Figure 6.

Table - 5 TDP Sales Situation.

Name of TDP	Days Operated during Year	Quantity Sold (MT)					Average Sales (MT/day)
		Urea	TSP	MP	Others	Total	
Baghabari	38	19,899	2,114	880	-	22,893	602
Parbatipur	75	3,978	4,319	541	9	8,848	118
Shiromoni	28	4,555	643	74	18	5,290	189
Narayanganj	12	4,835	683	87	-	5,604	467
Ghorasal	5	578	-	-	-	578	116
Polash	2	304	-	-	-	304	152
Total	-	34,149	7,759	1,582	27	43,517	-

Savings to BADC– The concept for pricing of fertilizer from TDPs is that BADC will incur less cost for transportation and handling when moving fertilizers through TDPs' than through several PDPs within areas around the TDPs. At a minimum, those savings should be passed to wholesalers to cover their cost for transportation and handling to the PDPs within the wholesalers service areas.

Transportation discounts were recommended roughly based upon established transportation rates from TDPs to PDPs within an area which we assumed that wholesalers would service. These discount levels were modified (mostly reduced), approved by the Ministry of Agriculture and have been in effect since July 1987 (Table 7). Based upon wholesalers' movement of fertilizers from TDPs to PDP service areas, BADC's estimated cost to move that fertilizer and the discounts provided to wholesalers, BADC has realized savings of Tk.837,679 in transportation and handling costs during the time TDPs were in operation (Table 8). About 83% of the savings came from sales at Baghabari where 53% of the TDP sales were made. Shiromoni sales have resulted in a net loss because BADC restricted sales to wholesalers from distant places who wanted to purchase.

Table - 6 TDP Service Area.

Name of TDP	Service PDP	Distance PDP to TDP (Miles)	Distance of Market from TDP (Miles)
Baghabari	Shahjadpur	4	4 - 32
	Ullapara	12	12 - 50
	Bogra	60	60 - 77
	Noagaon	82	82 - 111
	Gaibandha	96	84 - 96
	Santahar	80	105 - 125
	Rangpur	105	84 - 105
	Joypurhat	95	86 - 100
Parbatipur	Parbatipur	0	0 - 12
	Sayedpur	12	12 - 27
	Dinajpur	30	23 - 27
	Shibganj	75	40 - 50
	Rangpur	38	22 - 38
Shiromoni	Boyra	10	3 - 12
	Bagherhat	32	22 - 60
	Jessor	31	15 - 70
Narayanganj	Khanpur	1	1 - 7
	Aligaanj	3	3 - 26
	Joydevpur	32	30 - 45
	Manikganj	50	30 - 50
	Tangil	70	55 - 80
	Madhupur	100	90 - 110
	Narsingdhi	30	30 - 50
	Daudkandi	26	26 - 38
	Comilla	58	50 - 70
Ghorasa/Polash	Narsingdhi	15	3 - 30

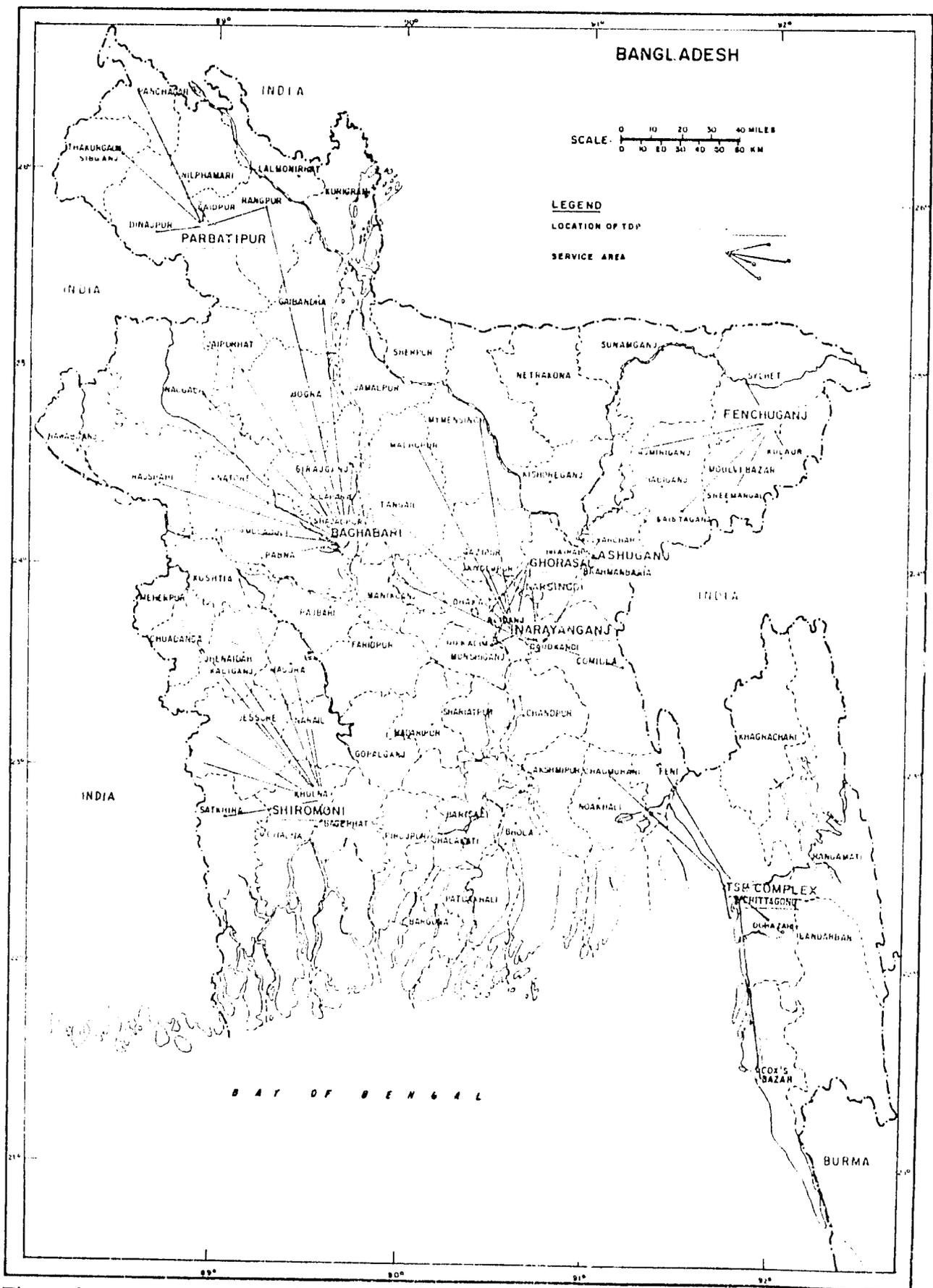


Figure 5: Illustrative Market Areas for TDPs.

Needed Actions– Major constraints that are currently hampering the smooth functioning of TDPs need to be addressed by taking the following actions :

1. Motivate BADC marketing personnel to accept the concept of TDP operation and the benefit of such operation.
2. Place all TDP activities (sales, movement, storage and accounting) under one administrative head at each TDP.
3. Establish two work shifts at high volume TDPs. This will also facilitate employment of surplus personnel in the redundant PDPs.
4. Load wholesalers transport conveyances at BADC's cost as was done during, 1985-86.
5. Supply sufficient and uninterrupted quantities of all products to the TDPs.
6. Supply wholesalers' demand for fertilizer at the TDPs before moving fertilizer to other areas.
7. Extend the In-Kind credit program to the TDP wholesalers and increase the credit limit to Tk. one million to reduce possible capital constraints of wholesalers and eliminate the need of carrying huge sums of cash to the TDP bank counter.
8. Begin infrastructure development like improving roads, loading facilities, storage, etc. for uninterrupted functioning of TDPs.

Table – 7 Recommended and Established Discount Rates at TDPs

TDP	Transportation Discount (Tk/MT)	
	IFDC Proposed	Allowed
Ashuganj	75	68
Ghorasal/Polash	115	95
Fenchuganj	252	252
TSP Complex	186	110
Narayanganj	133	110
Shiromoni	151	135
Baghabar	160	126
Parbatipur	75	50

Table – 8 BADC's Estimated Movement Cost Savings for TDP Operation.

TDP/ Serviced PDP	Sale Quantity (MT)	BADC's Transport Cost to PDP (TK/MT)	Discount Rate (TK/MT)	BADC's Movement Cost Savings	
				(TK/MT)	Taka
BAGHABARI					
Shahjadpur	4361	76.50	126	- 49.50	- 215,870
Ullapara	695	98.10	"	- 27.90	- 19,390
Bogra	9266	156.24	"	30.24	280,204
Noagaon	2587	189.00	"	63.00	162,981
Santahar	2428	184.80	"	58.80	412,766
Gaibandha	1897	249.00	"	123.00	233,331
Rangpur	862	207.50	"	81.50	70,253
Joypurhar	797	212.40	"	86.40	68,860
					696,207
PARBATIPUR					
Parbatipur	2167	-	50	- 50.00	- 108,350
Sayedpur	1473	14.00	"	- 36.00	- 53,028
Dinajpur	1741	88.00	"	38.00	66,158
Rangpur	3293	90.00	"	40.00	131,720
Shibganj	174	105.00	"	55.00	9,570
					46,070
SHIROMONI					
Boyra	394	36.93	135	- 98.07	- 38,640
Bagerhat	449	195.00	"	60.00	26,940
Jessore	4447	126.80	"	- 8.20	- 36,465
					- 48,165
NARAYANGANJ					
Khanpur	204	-	110	- 110.00	- 22,110
Aliganj	704	10.00*	"	- 100.00	70,440
Joydevpur	402	128.70	"	18.07	7,518
Manikganj	251	175.50	"	65.50	16,440
Tangail	2010	158.00	"	48.00	96,480
Madhupur	1026	197.00	"	87.00	89,262
Narsingdi	255	150.00*	"	40.00	10,200
Daudkandi	150	33.00*	"	- 70.00	- 10,500
Comilla	602	150.00*	"	40.00	24,080
					140,930
GHORASAL/ POLASH					
Narsingdi	882	97.99	95	2.99	2,637
Total	43,517				837,679

* No rate is available, Estimated rate has been used.

Special Wholesaler Survey – A survey was conducted among wholesalers in Comilla, Sylhet, Dhaka, Kishoreganj, Khulna, Jessore, Pabna, Rangpur and Dinapur during November and December 1987. The purpose of the survey was to determine wholesalers awareness of TDPs and their interest and capability in purchasing from TDPs. Seven TDP enumerators having their postings at different TDPs conducted the interviews in addition to their normal duties. Each enumerator covered several markets around their own TDP serviced area.

A total of 207 wholesalers were interviewed of which 180 were aware of the TDP program. A little over 50% of the wholesalers interviewed are capable of lifting the minimum single lifting quantity of 84 MT. The majority of the capable wholesalers attempted to lift from a TDP, but were unable to lift due to the following reasons:

1. Un-willingness of BADC personnel at TDP level to sell fertilizer,
2. Low discount,
3. Transportation problem.

Only 8 out of the total 207 wholesalers interviewed were able to purchase fertilizer from a TDP. The average number of purchases was 3 times per wholesaler and the average quantity of purchase per lift was 89 MT

SUPPLY AND DISTRIBUTION

One of the major problems encountered by BADC during this reporting period was distribution of fertilizer on timely and cost effective bases. Some problems were caused by large requirements for transportation of imported food grains following the disastrous floods in August 1987. Priority was given to food grains shipments and the shortage of transportation conveyances resulted in increased rates and even refusal by some clearing and forwarding (C&F) agents/carrying contractors to honor contracts. Other problems were caused by improper attention to developing situations and slow action to take corrective measures.

IFDC has attempted to assist BADC with solving supply and distribution problems through the following activities, as well as, by continuous monitoring supply/demand conditions and advising BADC of potential problems and alternative solutions.

Minimizing Movement Costs

BADC's responsibility for fertilizer movement is illustrated in Figure 7. BADC's average purchases were 1.3 million M.T. during 1985/86 and 1986/87. About 900,000 M.T. came from 5 domestic factories and 400,000 M.T. were imported through 2 ports. Those fertilizers were distributed to 75 PDPs plus 26 Upazila, Sales Centers in Chittagong Hill Tracts. About 40% of the fertilizer is moved on rivers, 35% on rail and 25% on roads.

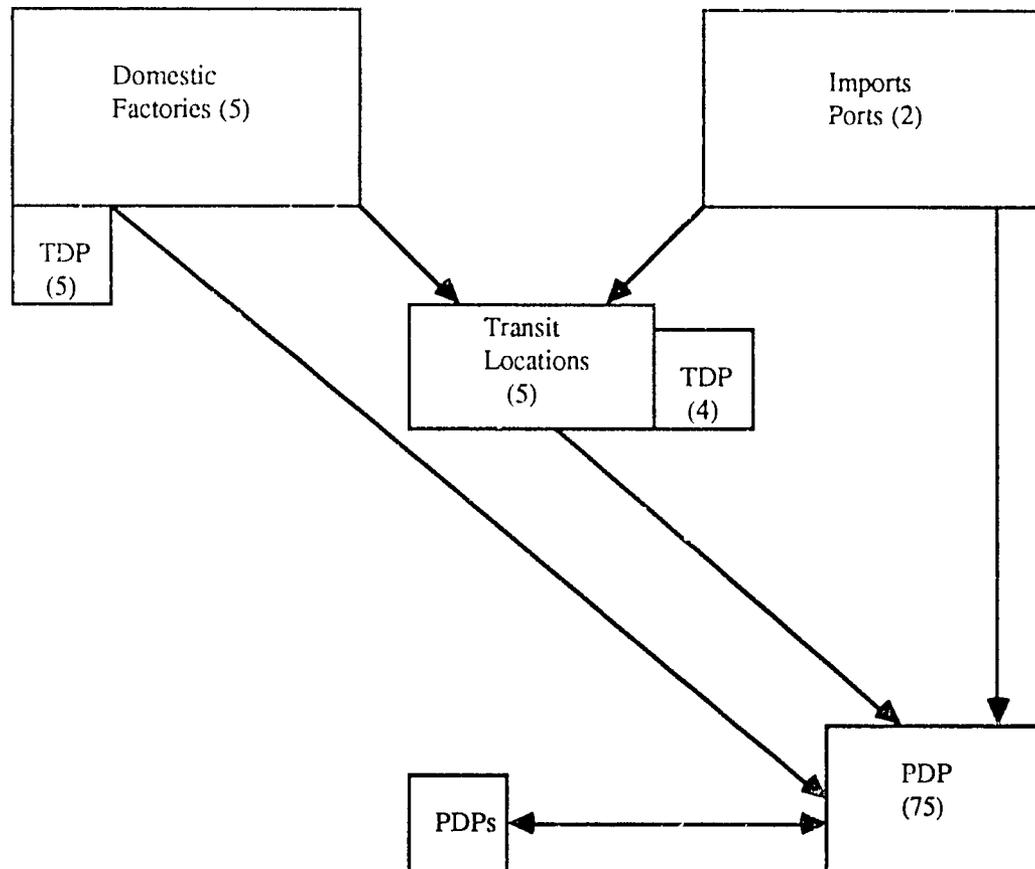


Figure -7 : Generalized Flow Chart for Fertilizer Movement by BADC.

Fertilizer demand has increased rapidly (about 8% per annum) during the last few years and distribution has become more complex. To meet the needs of the future BADC must modernize fertilizer movement planning and implementation and streamline the distribution of fertilizer, such as fully supporting the TDP system. Reducing the number of locations to which movement is required should minimize the planning and implementing of movement schedules

The major portion of marketing margins (55–60%) consists of movement and handling costs (Figure 8). IFDC assists BADC in preparing movement cost tables for destinations tabulated for several supply sources and alternative routes and modes of transport. In the past BADC has used those tabulations of least cost routing in planning and tendering for fertilizer movement. Problems associated with this method are :

1. Demand quantities at sales centers for given products from least cost sources may not equal the quantity available,
2. The required volume of transport at supply points may not be available to follow the least cost routes, and
3. Other limiting factors, i.e. water depth too shallow for barge traffic at selected times, may limit the use of least cost routes .

The use of a linear programming model to plan for minimum transport costs was recommended to BADC. We proposed to train appropriate staff in the use of linear programming.

Fertilizer movement and handling costs along with purchased quantities during the past 4 fiscal years are shown in Figure 9. Some relationship is seen between total movement costs and quantities purchased during a year which should be nearly proportional to quantity moved. It also appears that movement cost per ton has increased over time. The probable major cause for the decrease in total movement cost during 1986/87 versus 1985/86 was a decrease in the quantity of fertilizer moved.

A study was initiated to determine the reasons for variance in transportation and handling costs during the last 3 years. Problems encountered so far are :

1. BADC does not report actual costs paid for identified quantities by origin, destination and mode of transport,
2. Dispatch reports are often submitted late, and
3. BADC uses a cash basis accounting system which makes it difficult to determine costs associated with movement during a given time period.

The study will require a great deal of time to identify quantities shipped by origin, mode and destination and actual costs paid. However, we hope to determine locations where costs have increased or decreased due to changes in rate, volume, route or mode of transportation. A system will be developed for monthly reporting to show costs incurred at dispatching as well as receiving locations by quantity and product.

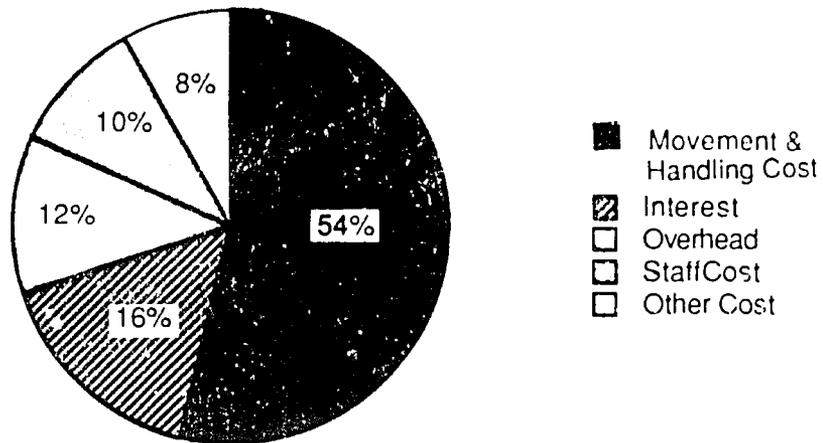


Figure 8 : Distribution of Categories of BADC's Marketing Costs, 1986-87

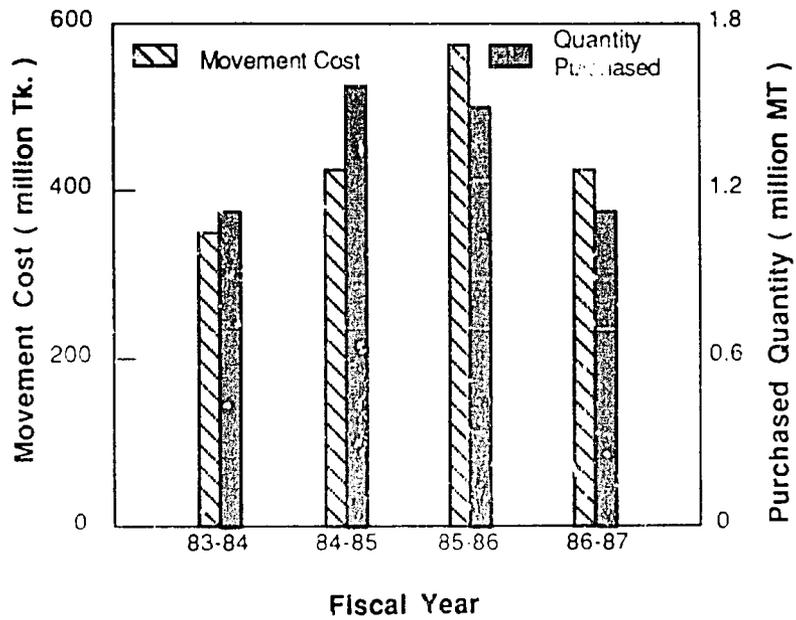


Figure 9: BADC's Fertilizer Movement Cost and Quantities Purchased 1983/84 thru 1986/87.

Stock Inventory Management

BADC has encountered considerable problems in managing stock inventories during the last few years both at the national level and at PDPs. Some of the constraints are :

1. Storage capacities at a number of locations are disproportionate to demand quantities. Adverse examples are : At Mohendranagar and Santahar storage capacities equal sales quantities in 1986/87. At Joydebpur sales quantity was 30 times greater than storage capacity.
2. Implementing buffer (operational) stock policy results in high or low stock levels at certain locations.
3. The above mentioned two constraints result in movement from one PDP to another.

Reporting stock inventories on a national or regional basis does not provide adequate information on availability at sales centers. High inventory levels cause increased costs for interest and rebagging and losses from the deteriorated quality of products. Low inventories disrupts marketing operations as well as increase movement costs because of trans-shipment among PDPs.

BADC's cost for interest on working capital has increased greatly during the last 2 years (Figure 10). One reason for that is the increased levels of stock inventories at the beginning of each year.

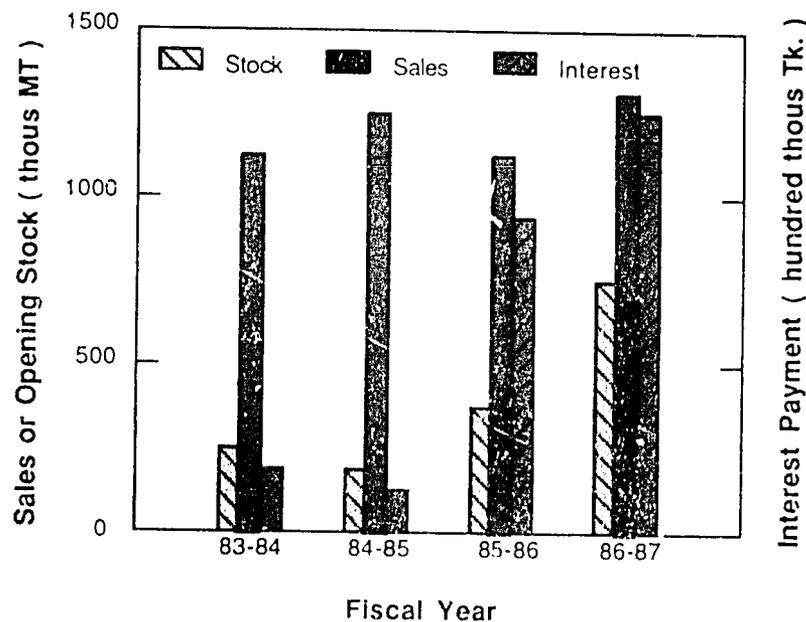


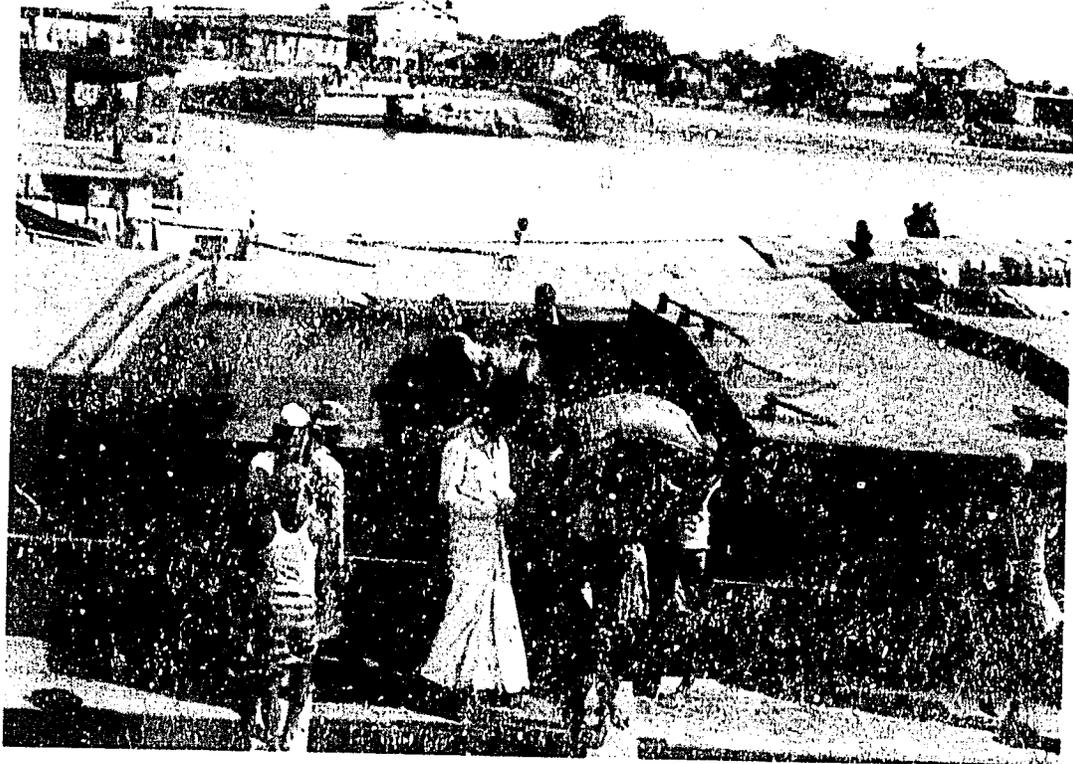
Figure 10. BADC's Opening Stock Inventory, Sales and Interest Charges, 1983/84 thru 1986/87

An example of inadequate inventory control at PDPs is illustrated by the finding that at specific times actual inventory of urea varied from 12% to 400% and TSP from 2% to 258% of recommended levels at various PDPs.

IFDC recommended to BADC an Inventory Management System which, if implemented, would provide better stock control, minimize need for working capital, avoid excess losses through deterioration of quality and pilferage and to better identify warehouse needs at various locations. Such steps would ensure smooth marketing operations and reduce costs for distribution.

Inventory Accounting and Verification

IFDC assisted BADC in conducting of workshops for Assistant Managers, Upazila Inspectors, storekeepers and clerks at 7 regional headquarters. Assistance was provided for preparation, printing and distribution of report forms and books for accounting and physical verification of inventories. Also, we assisted in preparation and publication of :1)Transit Loss Report, 2) Summary of Cash Book, 3) Summary of Bank Reconciliation and 4) Sales Quantity Report.



Unloading Barge to Awaiting Trucks

DEALER DEVELOPMENT AND TRAINING

The Dealer Development and Training (DD&T) program, formally introduced in 1982, covers a wide range of development and training activities for fertilizer dealers and BADC's dealer training officers. A great deal of work was accomplished, inspite of several uncontrollable events which hampered activities during the year.

Dealer Training Programs

Although some programs were held at the regional level the major emphasis for the year was to advise and assist BADC in program evaluation and follow up and in new program development. Evaluation helps BADC determine the performance and achievements of the program while the follow up of trained dealers ensures that knowledge and skills gained by the dealers have actually been put to work.

Program Conducted – Assistance was provided to BADC's DD&T staff and field training officers who conducted a two-day regional-level program in March, April, September and October, 1987. All four programs were somewhat special in nature. The March-April programs focused on fertilization and other cultural practices for Aus rice crop while the September-October programs focused on the Government's post-flood agricultural rehabilitation program (ARP) and its implications on fertilizer use.

The March-April programs covered fundamentals of plant nutrition, types and role of organic manure, fertilizer demonstration plots program, salesmanship, In-Kind credit for dealers, use of HYV seed for Aus crop and fertilizer management and pest control practices for Aus crop. The March-April programs were conducted at 29 locations for 559 dealers in 20 regions.

The September-October programs covered the objectives and implementation procedures of ARP, dealer/farmer credit under ARP, fertilizer management practices and plant protection measures for Boro and Rabi crops, and the role of dealers in fertilizer sales under ARP. The September and October programs were held at 22 flood-affected locations in 18 regions for a combined total of 969 dealers.

Our staff advised and assisted BADC's DD&T staff in program development and implementation. We also attended the programs in several locations for observation and technical guidance.

Program Evaluation and Follow Up – We met alone or accompanied BADC's DD&T staff, with trained dealers in groups or individually in a number of market locations in the country in order to assess the effectiveness and the impact of training programs and dealers follow up by Dealer Training Officers (DTOs) or Assistant Dealer Training Officers (ADTOs). BADC Regional Managers (Fertilizer), DTOs and large-scale farmers were visited for similar purposes. In order to facilitate discussions with trained dealers, a proforma was developed and used. Proformas were also sent to DTOs by BADC's DD&T Manager (through Regional Managers) for their use in dealer followup visits. DTOs were requested to

return completed proformas to BADC's DD&T office for analysis purposes, but returns have been few. A motor cycle was provided to each DTO in 20 regions in December 1987 in order to facilitate follow up visits to trained dealers and to fertilizer demonstration plots. Equipped with motor cycles, DTOs are expected to step up their follow up activities.

IFDC will continue to advise and assist BADC's DD&T office in close monitoring of follow up activities. A workshop on dealer development and training follow up, originally scheduled for August, 1987, has been postponed. The workshop, intended for DTOs and Regional Managers (Fertilizer), aims at establishing effective dealer follow up mechanisms for DTOs/ADTOs and developing the criteria for evaluating the follow up impact on dealers and farmers. Based on feedback from trained dealers, the regional-level training programs have been useful and program length has been adequate. However, most dealers are believed to be ready for updated curricula and reorientation as they have attended similar programs for more than once since 1982.

New Program Development – Ways to improve program effectiveness and impact have been discussed with BADC's DD&T staff, DTOs, Regional Managers (Fertilizer), and trained dealers. Aside from better selection of program participants, dealer follow up, and increased support from BADC's high-level officials, two types of new training programs were identified to be relevant. The first type is a training program for TDP customers, the wholesalers who service a region or division. The second type is to reorient the traditional monthly programs into 6 crop-wise training programs per year for PDP dealers. Crop-wise programs being considered are the programs for Aus, Aman, Boro, Wheat, winter vegetables potato, and summer vegetables. Except for Aman and Boro, other crop-wise programs would be conducted in selected regions only. Tentative curricula for the TDP customers training program have been identified. However, program length, time allocation among topics, and methods /materials for training are yet to be determined. For crop-wise programs, one-day program length is being considered and curricula are being developed.

Fertilizer Demonstration Plot Program

A demonstration plot program for wheat consisted of 45 plot sites in 20 regions of the country. The plots are cultivated by farmers or dealers and are supervised by BADC's Assistant Managers for Fertilizer or Upazila Inspectors for Seed in each region. The program demonstrates to farmers the benefit of recommended practices as compared with the "traditional farmer practice". The "see-for-yourself" approach is one of most effective ways in which a fertilizer dealer can persuade farmers to adopt a new practice. Minikits, sign boards, and demonstration plot manual for the wheat program were prepared and delivered to the offices of BADC's Regional Managers for Fertilizer or Seed for redistribution to dealers or farmers in late November. The IFDC staff, alone or accompanied by BADC's DD&T staff, have monitored and inspected the plots. Plots were photographed and plot evaluation proformas were completed. Most sites are satisfactory in terms of site selection, land preparation, weed and pest control, water management, plot supervision and record keeping. At the satisfactorily maintained demonstrations, plots with recommended fertilization practices show better plant growth as compared to the

cooperating farmer plots or surrounding farmer fields. Field days with farmers, dealers and concerned officials were recommended at 39 out of 45 demonstrations. High level officials from BADC Headquarters and USAID will be invited to participate in the crop-cutting ceremony at 5 of the best demonstrations. Assistance is being given to BADC's DD&T office and the offices of concerned Regional Managers in preparation for field days to be held between mid-March through early April.

Promotional Materials

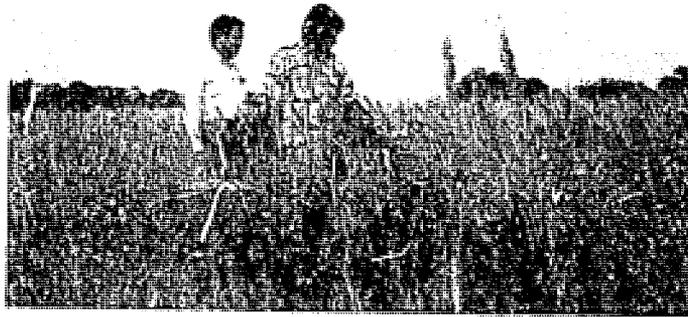
IFDC has advised and assisted BADC's DD&T office in production and distribution of promotional materials for dealers' use. Additional materials were also studied in varying degrees to assess their effectiveness and practicality. For some materials, sample design is being developed for further consideration.

Materials Distributed – Two hundred thousand copies of brochures each on zinc and on sulphur and 100,000 copies of a poster on zinc and sulphur deficiencies were printed and handed over to BADC's DD & T office for distribution to dealers through the offices of Regional Managers (Fertilizer). As of February 29, 1988, 114,000 copies of the zinc brochure, 117,000 copies of the sulphur brochure and 56,800 copies of the poster were taken by the Regional Managers (Fertilizer) in 20 regions for redistribution to dealers. By design, these materials are being distributed in time phases in order to meet the need for different crop seasons and ensure productive use. To ensure that the materials are productively used or properly displayed by dealers, increased follow up efforts by DTOs and ADTOs are necessary. Furthermore, the DD&T Manager was encouraged to monitor the actual distribution of the materials from the offices of Regional Managers (Fertilizer) to dealers more closely.

New Materials Development – The initial design of a 12-page **crop calendar** for potential use by dealers was drafted. This wall calendar, one page per month, is proposed to include dates, key messages on fertilization and other cultivation practices in Bangla (especially for Aus, Aman and Boro rice crops), and pertinent photographs of relevant crops. The calendar is designed to increase knowledge on fertilization and crop production practices and promote adequate and balanced use of needed fertilizers. To date, somewhat generalized messages have been prepared. However, the messages will require modifications if region-specific calendars are to be developed.

Relevant information to be covered in a proposed pocket-size or desk-top **fertilizer diary** is being identified and available information collected. Information being considered include crop calendar, weights and quantities, nutrient contents and properties of fertilizer products, a map of fertilizer factories and major sales locations in Bangladesh, fertilizer recommendations for major crops, symptoms of nutrient deficiencies, and fertilizer-related organizations in the country. The proposed diary would be intended for use by selected fertilizer wholesalers only.

Two **educational movie films** were obtained from IFDC headquarters in the United States in November, 1987 for possible dubbing. The films, "What is



Dealer Development & Training Activities

Marketing" and "Closing the Sale", have not been reviewed by BADC's DD&T Office and IFDC/Dhaka staff due to the time scheduling problem for collective review.

Possible production of a 5-minute daily **radio advertising** program and 500 cassette tapes to be used by selected dealers was explored early in the year. Preliminary cost estimates were obtained but no further actions have been taken.

The dealer development program should be on the frontier in technology transfer to dealers and farmers. **Urea deep placement for paddy** has shown encouraging results for improving urea efficiency in research trials in Bangladesh and other Asian countries. The urea placement requires a source of large particles of urea and much more labor than is required for broadcasting urea. IFDC has developed a small machine for producing large urea particles at the dealer level. Farmer reaction toward use of additional labor to obtain greater efficiency from urea fertilization is yet to be determined. Nineteen farmer-conducted demonstrations were established in liaison with dealers in Bogra and Noagaon in order to obtain farmer reaction to the practice. If farmers appear to be interested after seeing yield results, production of large particles will be tested with dealers.

Trainers' Training program

A trainers' training program to train BADC's dealer trainers (DTOs and ADTOs) was planned for 1987-88, but did not materialize. However, a manual for the program was prepared at the request of BADC's DD&T Manager. The manual remains largely in a rough form and, thus, a considerable amount of further work is needed for finalization.

Dealer Profile Development

An attempt was made to develop profiles of active dealers in the country in order to assist BADC's DD&T office to better identify effective participants for the future dealer training programs. BADC's DD&T Manager requested Regional Manager (Fertilizer) to submit registration forms for the participants of the regional programs held in September and October, 1987, but little progress has been realized. Also dealer follow up proforma will be used as a source of information for development of dealer profiles. From a list of fertilizer lifting quantities for June-December, 1985 and 1986, a list of six leading customers at each PDP was compiled.

SERI- 82 Wheat Technology Dissemination

SERI- 82 (a wheat variety from Mexico) was introduced in Bangladesh under a USAID grant to assist in the Government's post-flood agricultural rehabilitation program and was distributed to farmers through BADC. Assistance was provided to BADC and USAID in dissemination of information about SERI-82 to fertilizer dealers, farmers, field extension workers, and BADC's fertilizer and seed personnel at upazila and district levels in target regions in October, 1987. A leaflet was prepared with the approval of the wheat experts at the Bangladesh Agricultural Research Institute (BARI) and 400 copies were distributed. The leaflet covered variety characteristics, cultural practices, and fertilizer application with use of SERI-

82. Targeted regions were Rajshahi, Jessore, Pabna, Bogra, Kushtia and Dinajpur. The leaflet was much appreciated by the people in the areas, as it was the first information received by them on SERI-82. Physical monitoring of the progress on seed distribution was conducted in November and December, 1987. Seed distribution appeared successful and seed performance in terms of germination, plant growth, and plant health looked satisfactory.

Agricultural Symposium for South/Southeast Asia

An agricultural symposium, with invited speakers and delegates from or concerned with South/Southeast Asia, has been proposed as a special activity under the FDI-II project. The objective of the symposium is to identify key agricultural development constraints and issues in participating countries and recommend solutions in coping with constraints and issues, with special emphasis on fertilizer marketing and use. Consideration has been given to conducting the symposium in Dhaka during October, 1988, but approval has not yet been granted by BADC.

CREDIT FOR FERTILIZER WHOLESALERS

The project provides for \$13 million as a soft loan to establish In-Kind credit (delayed payment plan) administered by BADC and \$ 31 million in grant funds to finance commercial credit (loans) through banks for wholesalers to purchase fertilizers from both domestic and imported sources. To date none of the funds have been released to the BDG because : 1) BADC, at the last moment , did not agree to accept the In- Kind credit funds from the soft loan and 2) the BDG has not met conditions which are required by USAID for the release of the grant funds.

BADC's Current In-Kind Credit

BADC has administered a small In-Kind credit program since July 1986. The program is a 60-day delayed payment plan for fertilizer wholesalers who purchase from PDPs . Credit repayment to BADC is guaranteed by banks which hold collateral on properties fixed deposit receipts (investment accounts) or insurance bonds.

Status of In-Kind Credit – Between July 1, 1986 and June 30 , 1987, 155 bank guarantees were issued for fertilizer purchases under BADC's own financing for In-Kind credit in 20 regions (Table 9). Total value for the 155 guarantees was Tk.23,581,000. The greatest number of guarantees were issued in Dhaka Region and the smallest number were issued in Rajshahi and Dinajpur, of major fertilizer consumption areas. Country-wide the average amount of a guarantee was Tk. 152,135 but the average in Chittagong region was about Tk. 200,000 and the single guarantees in Noakhali and Patuakhali were for Tk.200,000 and Tk. 250,000, respectively.

BADC does not consolidate information on total fertilizer sold under In-Kind credit or value of such sales . IFDC made a study in Munshiganj District to ascertain the nature of credit sales, levels of recovery and reasons for non-payment and to estimate the level of national credit sales. Wholesalers holding 19 guarantees (wholesalers obtain more than one guarantee) purchased on credit 3,140 M.T. of fertilizer valued at Tk. 14,391,826 for a turn-over of 3 times during the year . Credit sales were 14.6% of the fertilizers sold at the Mirkadim PDP which services the Munshiganj area. Service charges collected by BADC totaled Tk. 112,797 and penal interest realized from 2 defaulting wholesalers was Tk.4,531. Additional penal interest was realized when 7 other defaulting wholesalers settled their accounts in full after the IFDC study.

Reasons given for late repayments included sudden drop in sales and non-recovery of credit extended to retailers and farmers.

Assuming that on a national basis each wholesaler who obtained a bank guarantee made credit purchases similar to the average credit purchase by Munshiganj wholesalers, the 155 bank guarantees would result in credit purchases of 25,616 M.T. of fertilizers valued at Tk.117,407,003. That would result in realized service

Table - 9 Region-Wise Bank Guarantees Issued for BADC's In-Kind Credit Program, July 1986-June 1987.

Region	No. of Bank Guarantees			Amount (thousand Tk.).	
	Total	Collateral	Investment Account	Total	Averages
DHAKA	43	41	2	8,106	188.5
Kishoreganj	6	6	-	1,050	176.0
Jamalpur	11	9	2	1,250	113.6
Mymensingh	2	1	1	140	70.0
Tangail	8	8	-	1,100	137.5
Faridpur	2	2	-	200	100.0
CHITATAGONG	10	7	3	1,995	199.5
Noakhali	1	1	-	200	200.0
Comilla	7	5	2	866	123.7
Sylhet	2	1	1	300	150.0
RAJSHAHI	1	1	-	120	120.0
Dinajpur	1	1	-	125	125.0
Rangpur	10	6	4	1,316	131.6
Bogra	20	10	10	2,074	103.7
Pabna	2	2	-	200	100.0
KHULNA	4	3	1	630	157.5
Barisal	3	3	-	250	83.3
Patuakhali	1	1	-	250	250.0
Jessore	18	18	-	3,129	173.8
Kushtia	3	3	-	280	93.3
TOTAL	155	129	26	23,581	152.1

charges of Tk. 920,236 and if late payments were similar to the Munshiganj experience, penal interest would amount to Tk.35,221. On the above basis about 2% of national sales by BADC were made on credit.

FDI-II Project In-Kind Credit

The project funding provides for a soft loan of \$ 13 million for the establishment of an interest bearing revolving fund to finance In-Kind credit to wholesalers for the purchase of fertilizers. The terms for the loan are payment of interest at a rate of 2% per annum for the first 10 years and, thereafter, for 30 additional years, payment of interest at a rate of 3% per annum plus one-thirtieth of principal each year.

Procedures – The project In-Kind credit program is conceptually shown in Figure 11. Agreement was reached whereby an In-Kind credit account (no interest payable) was established with the Agrani Bank, BADC could draw on the account upon presentation of invoices for credit sales which had been made to wholesalers and USAID would provide funds to be deposited to the account. BADC would continue to receive payment from that account for fertilizer sold on credit until the \$ 13 million was utilized. When fertilizer wholesalers paid BADC for the credit purchases, BADC would deposit the proceeds (credits, service charges and any penal interest) to an interest bearing revolving In-Kind credit account. After full utilization of the original \$ 13 million, the revolving fund account would be utilized to finance In-Kind credit.

The salient features of the proposed In-Kind credit program are :

1. Every fertilizer dealer registered by BADC is eligible for consideration to receive In-Kind credit .
2. BADC will honour all bank guarantees issued for In-Kind credit from any scheduled bank.
3. The validity of a bank guarantee will be for a period of one year from the date of issue (with option to renew for further periods).
4. The maximum value of a bank guarantee for In-Kind credit is Tk. 250,000. The range in quantity of fertilizer which may be purchased is from 20 to 50 MT. The dealers may be allowed to purchase on cash payment, fertilizers in addition to that purchased on credit.
5. The full amount of credit outstanding must be repaid by a dealer before any subsequent lifting (either on credit or for cash) but in any case the amount of credit issued must be repaid in full within 60 days of the time of credit purchases.
6. There will be a 2 percent service charge when the credit account is paid in full within the allowable time limit of 60 days. Credit accounts which are not repaid for any reason within 60 days will be charged simple interest at the rate of 5 percent per month or part thereof. Part of a month will be treated as a full month.

7. If the loanee fails to make repayment within 60 days and does not request in writing, an extension of time for repayment, BADC will encash that bank guarantee from the issuing bank on the 61st day. If, however, an extension of time is granted, the loanee shall have to pay in advance with a pay order the interest for the period he wants to extend.
8. BADC will not honor a bank guarantee which will expire within 45 days of the time of an attempted credit purchase. BADC will encash bank guarantees within the last 45 days of validity to adjust the liabilities if any.
9. Purchases on credit may be made if the loanee submits a new bank guarantee or renews the pledged bank guarantee for another period of one year from the date of its expiration.

The administration of the proposed In-Kind credit program includes the following aspects. Assistant managers (PDPs) accept bank guarantees and repayments from dealers. Assistant Managers report details on credit deliveries and repayments to Regional Managers (Fertilizer) who consolidate statements monthly and report to the Credit Operations Cell under the Manager (Credit) at BADC headquarters. The Credit Operation Cell prepares monthly abstracts of credit sales, credit repayments, service charge and penal interest realized and bank guarantees encashed. That information is submitted to the Credit Account Cell under the Controller of Accounts who provides information for the Book of Accounts and to designated banks for adjustments to In-Kind credit accounts. Detailed-procedures for monitoring and follow-up are yet to be formulated.

Potential Benefits— A major benefit to BADC would be the receipt of payment for credit sales almost immediately from the loan fund. Although BADC can not earn income (interest) from the initial In-Kind credit account, it can earn interest from the revolving account which consists of funds from wholesalers' repayments for credit. The rate of interest could be a minimum of 13% per annum and the time period for earnings could be 5/12 of a year for the total amount which is collected from credit sales during the year. Additionally, BADC could earn interest at a rate of 4% per annum on the funds collected from the original In-Kind credit account for the 2 months before wholesalers repayments. Thus, if BADC had used the project In-Kind credit loan funds during 1986/87, monetary benefits could have been :

Income from revolving account			
Tk. 117.43 million	* 5/12	* 0.13	= Tk. 6.36 million
Income from standard account			
Tk. 117.43 million	* 2/12	* 0.04	= Tk. 0.78 million
Cost for USAID loan interest			
Tk. 117.43 million	* 0.02		= Tk. 2.35 million
Net Gain (could have been achieved)			= Tk. 4.79 million

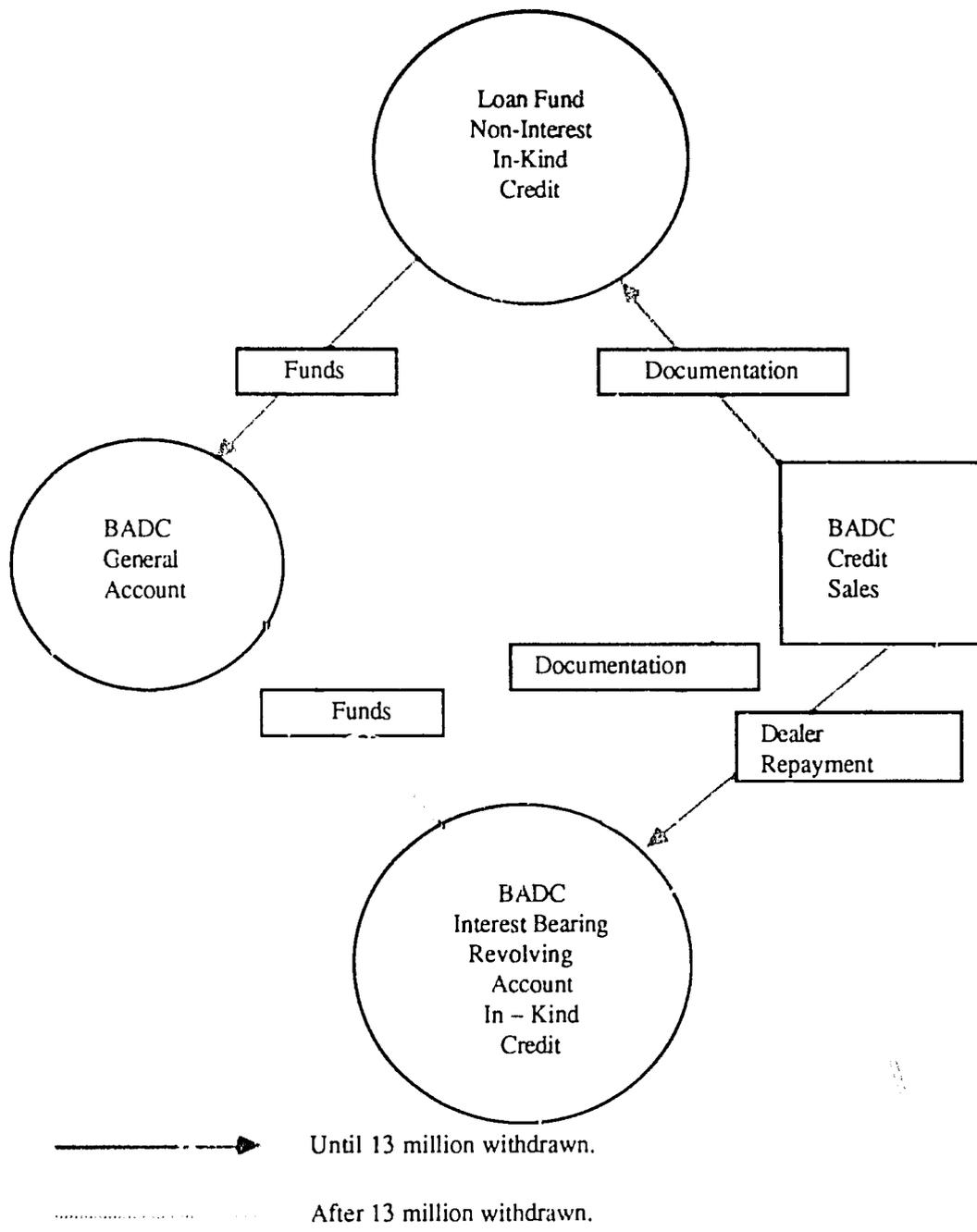


Figure 11 : Conceptual Illustration of Project In – Kind Credit Program.



Discussing Credit for Fertilizer Wholesalers with Bank and Finance Ministry Officials

BADC has expressed two principal concerns in opposition to accepting the loan funds for In-Kind credit, namely, 1) apprehension of accruing interest and service charges on the initial In-Kind credit account due to delay between BADC withdrawal and USAID deposit and 2) the general feeling that in the long run requirements for loan repayments and adverse Tk./\$ exchange fluctuations might cost more than earnings. IFDC has attempted to repel those fears by estimating earnings, costs and reserve requirements. If the loan were taken in tranches over 3 years and rolled over thru In-Kind credit into an interest bearing revolving fund, accumulated net income would be more than Tk.110 million at the end of 4 years and could exceed Tk.700 million within 10 years. Allowing 1% of loan amount for reserve to cover foreign exchange fluctuations, bad debts and contingencies, could reduce net income by Tk.12.64 million and Tk. 38.56 million for the 4-and 10-year periods respectively. Net income would be about Tk.130 million during the 11th year when principal repayment begins and interest is increased to a rate of 3% per annum. Thus, it is clear that utilizing the soft loan which is offered for In-Kind credit could be greatly beneficial to the BADC. Of course, achieving the purpose of the loan (encourage a free competitive market to provide improved availability of fertilizers at lower marketing margins) would be a primary benefit to agriculture production.

FDI-II Commercial Credit

USAID has obligated \$ 15 million of the \$ 31 million in grant funds for commercial credit but release of the funds have been delayed pending the BDG meeting conditions precedent for receipt of grant funds. IFDC has discussed availability, needs, problems and interest structures for credit for commercial commodities and their trade with financial institutions, importers, wholesalers and dealers. Procedures have been drafted for disbursement of commercial credit for fertilizer purchases under the project. At the end of the reporting period, initial discussions were held with several institutions concerning the procedures in the draft.

Assessment of Credit Needs

Credit is considered one of the most important inputs for growth in the production process and economic development. BADC's In-Kind credit is seen to address the financial constraint of fertilizer wholesalers in building adequate level of fertilizer stock and meeting transportation costs which helps to ensure timely availability fertilizer to retail dealers and farmers. No independent reliable figures are available to assess the actual amount of credit required for fertilizer. On the basis of a joint BDG/IDA agriculture credit study, it is estimated that the total requirement of agriculture credit will be about Tk. 9,630 million in the year 1987-88. The study projected that 40% of institutional credit (Tk. 3,855 million) will be for HYV production.

During the financial year 1987-88, the first fertilizer sales target was fixed at 1.48 million M.T., Urea at 1.006 million, TSP at 0.370 million and MP at 0.072 million M.T. The total sale value of these fertilizers at the existing prices would be about Tk. 6,554 million.

In-Kind credit introduced by BADC from July, 1986 for wholesalers' fertilizer trade credit indicates that thru June 1987, 155 dealers used the credit. We estimate that fertilizers valued at Tk. 117.4 million were sold under In-Kind credit. It is anticipated that In-Kind credit volume, under the program will be substantially increased and is likely to be more than double that for the previous year and reach Tk. 250 million.

With the introduction of the TDP system, it is anticipated that 25% of the total sales target will be lifted from TDPs. The amount of sale from TDPs may be around Tk. 1,630 million. Lifting from TDPs will be of large quantities and the credit needs will be high. For the initial year, the projection of credit requirement at TDPs will be at least 25% of the total sales from TDPs or about Tk. 410 million. The credit requirement for both In-Kind and commercial credit is, therefore, forecasted to be Tk. 660 million.

LIST OF REPORTS

1. Fertilizer Marketing in Bangladesh – Past, Present and Future
2. BADC Fertilizer Marketing Plan, 1987/88
3. Study on Minimum Lifting Requirement from PDP
4. Study on Further Reduction of Primary Distribution Points and Opening of Transportation Discount Point Program
5. Management Information System for the Bangladesh Fertilizer Sector
6. Recommended In-Kind Credit Procedures
7. Monthly Price and Availability Survey Results
8. Quarterly Progress Reports