FERTILIZER MARKETING IN BANGLADESH

THE PAST, PRESENT AND FUTURE

FERTILIZER DISTRIBUTION IMPROVEMENT II

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by

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Units of Measure

1 pound (lb)	= 453.59 grams (g) = 0.4862 seers
1 kilogram (kg)	= 1,000 g = 2.2046 lb = 1.07 seers
1 short ton (st)	= 2,000 lb = 0.90718 metric ton = 0.8929 long ton
1 metric ton (mt)	= 1,000 kg = 1.1023 st = 0.9842 long ton = 26.82 maunds
1 long ton (ton)[1]	= 2,240 lb = 1.01605 mt= 27.22 maunds
1 maund (md)	= 40 seers = 82.27 lb = 37.3 kg
1 seer	= 2.05675 lb = 0.9329 kg
1 square mile (mi^2)	= 2.59 square kilometers (km^2)=640 acres=259 hectares
1 U.S. Dollar	= 30.70 Taka

EXECUTIVE BRIEF

The Fertilizer Distribution Improvement Project II (FDI II) is designed to improve the fertilizer marketing and distribution system in Bangladesh which will result in increased crop production by increasing fertilizer consumption in a cost effective manner. A complete assessment of the past & present of fertilizer marketing was required so that future objective could be melded into FDI II. This report on the past, present & future of fertilizer marketing in Bangladesh has been prepared in fulfilment of the Terms of Reference (TOR) of the BADC/IFDC contract.

To facilitate review and appraisal for the implementation of the suggested reforms, the report has been broadly classified into five categories - Fertilizer Marketing Structure, Supply and Distribution, Fertilizer Utilization, Credit and Dealer Development & Training.

Marketing Structure

Use of Chemical fertilizer was introduced in Bangladesh during the ninteen fifties. In providing fertilizer to the farmers some changes in the marketing & distribution system have occurred. In the introduction phase the Government sold fertilizer direct to the farmers through its Union level seed store and Thana (Upazila) level stores. This public oriented marketing concept continued until the early sixties. During the mid-sixties BADC appointed dealers to distribute fertilizer to the farmers through Thana level retail dealers. The first private dealer participation in retail fertilizer saies was initiated in the early sixties in selected districts on an experimental basis. This Thana/Union level private dealers system proved superior to previous systems resulting in a 17% annual increase over other system. In this scheme all procurement and transportation/storage up to Thana level (Upazilla) remained the responsibility of BADC. Private dealers would buy fertilizer from Thana godowns on fixed commission and in return sell to farmers at government controlled price.

Under this system a number of control & restrictions were imposed on the dealers with regard to their sales terriroty, commission on the basis of distance, periodic verification of records by BADC officials, etc. In addition, the procedure of dealer appointment was cumbersome and highly bureaucratic.

In 1978 the GOB,with the cooperation of USAID,analyzed the Fertilizer Marketing System and recommended less restriction in dealer appointments and a broader private sector. USAID agreed to provide funding for technical assistance and warehouse construction. This became known as the "New Marketing System"(NMS). The NMS introduced in phases between December'78 and July'84 gave rise to a larger role of fertilizer dealers and also increased their financial incentives. The main features of the NMS were:

1. Instead of operating in all (400) Thanas (Upazilla) of the country, BADC would sell fertilizers from strategically located commercial and transportation centers only.. Adequate warehouse capacity would be provided at these "Primary Distribution Points" (PDP) to enable proper storage, handling and sale of fertilizer.
2. Movement of fertilizer below PDP would be left to private dealers.
3. Restrictions on number of dealers would be withdrawn to allow the growth of a competitive free-market.
4. Dealer would be allowed to move stock from one area to another in response to market demand.
5. Dealer training would be implemented to assure that the dealer who was the last person the farmer contacted prior to fertilizer use could give crop management advice.

The April 1983 nationwide price decontrol represented a significant fertilizer policy change, unique to most of the Asian Continent(at farmer level). There was a relatively large group of policy makers who were opposed to this action, claiming that fertilizer prices would skyrocket and dealers would reap windfall profits while the farmers would suffer an economic loss. On the other hand, a second group of policy makers were convinced that fertilizer prices would not increase that much and that fertilizer consumption might increase due to improved fertilizer availability and farmers might benefit.

Prices deregulation did not cause a significant change in consumper prices but in high transport cost, low use remote areas prices did increase marginally.

Price deregulation did cause a major improvement in availability because the dealer could move the fertilizer in high transport cost, low use areas and recover his costs through slightly higher consumer prices.

Retail prices and sales of fertilizer rose markedly, before and after price deregulation, under the NMS. The regulated maximum retail prices of urea, TSP, and MP stood at 70, 55, and 45 Tk/md in January 1979. According to the BADC/IFDC monthly farmer survey, they were 189, 191 and 160 Tk/md in June 1986. Fertilizer sales showed strong upward movement during that period. Combined sales of all fertilizers rose from 754 thousand mt in 1978/79 to 1.156 million mt in 1985/86; this was down modestly from their peak of 1.260 million mt set in the preceding year. During 1986/87, sales are 1.102431 through March 1987 and annual sales are expected to be about 1.330 million mt.

Future Marketing

a) The development of a competitive free market system nationwide.

b) BADC may continue to operate as a stockist and distributor of fertilizer but could be required to compete with others in the new competitive free market system.

c) Fertilizer import system should be revised in a manner that will complement the competitive free market system.

Supply and Distribution

Imports of Urea and TSP as percentage of the country's total supply, have declined as domestic production capabilities increased. The country will no longer require Urea imports and may become an exporter when the Chittagong Urea Plant comes on stream. About two-thirds of TSP demand in the country comes from imports while the entire Potash requirements are imported. Most fertilizer imports are currently provided through grants, aids, and soft loans from a variety of donors. The terms and conditions of these financing arrangements often vary, including product and product source, procurement and payment procedures, shipping restrictions, monitoring etc. These variations complicate planning and implementing of BADC's import procurement program. Efforts should continue to

persuade donors to adopt a more uniform act of standards for their financial arrangements and work closely with BADC in rationalizing its fertilizer import program. Some improvements have been made in BADC's procurement, planning and import programming with introduction of the monthly "Newsletter" on the fertilizer situation. There continues to be a need for furthering the knowledge base of BADC procurement staff and others involved in procurement, particularly on international market prices, availability, product pricing structure, organisations, methods of sale, ocean freight rate structure, shipping options and costs, bulk handling and shipments, etc. Procurement from domestic factories is made based on production and procurement schedules planned in advance by BCIC and BADC jointly.

Procurement payments are made after receipt of products. Generally BADC establishes its annual fertilizer procurement schedule based on sales taregets plus three-months requirements of buffer stocks for Urea and five-month requirements of buffer stock for other fertilizers. On an average, normal leadtime required for one consignment of imported fertilizer is 120-150 days.

In-country fertilizer is transported from supply sources (factories and ports of importation) to sales points by rail, road, and/or river crafts. Railroads are government-owned. Two types of railroads, broad-guage and meter-guage are used in transporting fertilizer. Broad-guage is used mostly in the western part of the country across the Jamuna River while meter-guage is used mainly in the eastern half of the country. Transportation by river crafts is easier and usually least cost. For relatively shorter distance, a substantial quantity of fertilizer is moved by truck. 25 percent of total fertilizer traffic is by truck, 35 percent rail and 40 percent water on average.

A number of warehouses were built under FDI-1 in order to expand fertilizer storage capacities at PDPs and transit points. Currently BADC has about 400,000 mt. of storage capacity in the country.

Fertilizer Use

Fertilizer use in Bangladesh has increased markedly since its first introduction in 1952-53 with some 8,600 mt. of materials (principally, Ammonium Sulphate), and is expected to reach 1.330 million mt. in 1986/87. Urea, TSP and MP have been the three principal fertilizers used for straight application since 1963/64.

Inspite of the impressive increase in fertilizer use in the past, fertilizer use in the country is far from reaching estimated agronomic requirements. Based on agronomic requirements, fertilizer use, for all products combined, should have reached 40.46 lakh mt. Aside from low usage per cropped acre, use of the three major nutrients, nitrogen, phosphate, and potash has been considerably unbalanced. The actual nutrient ratio in 1985/86 was 1:0.4:0.1 while the recommended ratio is 1:0.86:0.63.

Although fertilizer is used in all three crop seasons (Aman, Rabi/Boro, and Aus) and usage has generally increased in every season. Rabi/Boro is by far the heaviest use season in total usage as well as on the per cropped acre basis. It is also the season that has had the fastest use growth. In 1985/86, about 52 percent of all fertilizers was used in the Rabi/Boro season. The spectacular growth in this season has been attributed to both expanded crop acreage and rapid increase in application rates.

The Rajshahi Division used more fertilizer than any other division in 1985/86 with 390,000 mt. It was followed by the Dhaka Division (353,000 mt), the Chittagong Division (247,000 mt), and the Khulna Division (167,000 mt). On a per acre basis, fertilizer use varies from region to region, ranging from less than 50 lbs per cropped acre to more than 100 lbs per cropped acre.

In order to meet the foodgrain production target of 20 million mt. (by the end of 1989/90) set by the Government of Bangladesh in its third five year plan, fertilizer use in the country must reach 18.85 lakh mt., with an annual compound growth rate of 8.4 percent over 1984/85. To achieve this goal, several factors must be worked out as planned. These factors include

increased knowledge by the farmers about fertilizer use, adequate dealer and farmer credit, ample fertilizer supply at national level and timely availability of product to the farmers through an efficient and competitive marketing and distribution system.

Credit

FDI II seeks to expand the role of private sector in large fertilizer wholesaling, competitive procurement of fertilizer, fertilizer dealer development, and fertilizer sales promotion. In order to achieve these goals, a major portion of project fund (US$44 million out of US$65 million) has been earmarked for distribution of credit to all categories of dealers for incountry fertilizer lifting and/or direct imports, and is to be allocated to the Bangladesh Bank for use as refinance fund. Of the total credit fund earmarked, US$13 million has been stipulated as the in-kind credit loan program.

This credit loan differs from agricultural and other types of credit which are currently extended by commercial banks.

The in-kind credit loan shall be used exclusively for fertilizer trade financing by the dealers and is to be channeled through national commercial banks and the Bangladesh Krishi Bank. To ensure that this credit loan will be used exclusively for fertilizer trade by dealers, a special financing system needs to be developed. Although some credit schemes were available to dealers by BADC and its predecessors, the then East Pakistan Agricultural Development Corporation (the EADC), none of these schemes were as significant as the FDI II in-kind credit scheme in fertilizer trade financing by the dealers.

The Government was to establish the fund initially in favor of BADC. However, the fund was then moved by the Ministry of Finance. The Ministry of Finance proposed to avail cash credit facility with Agrani Bank, if necessary with the guarantee of the Government rather than establishing the fund for BADC from the Government's own resources and sought the opinions of the Bangladesh Bank and the Ministry of Agriculture. Bangladesh Bank agreed to the proposal but BADC objected. As a result, the clearance from the Ministry of Agriculture was held up and created a stalemate in reimbursement of the first tranche (US$3 million) from the in-kind credit fund pledged by USAID.

The first tranche is not yet released inspite of the fact that all procedural steps were undertaken and the revolving bank account with Agrani Bank was opened. In anticipation of fund release, BADC has formally launched the in-kind credit program and extended the credit facility to the dealers since June 1, 1986. The program is currently continuing and has made some progress. An excess of 20 million taka has been disbursed but to a limited number of (135) dealers. Formalities to obtain a bank guarantee are cumbersome and the banks demand for collateral securities from the dealers is excessive. Dealers have inadequate knowledge about the in-kind credit program, and the fund obligated for the in-kind credit program has not been drawn. These problems must be solved if the in-kind credit program for fertilizer dealers is to succeed.

Dealer Development and Training

An efficient, balanced, and proper use of fertilizer has a direct bearing not only on the increase in physical crop yields but also on the economic return to farmers from fertilizer use. One of the major ways to expand fertilizer use at the right time in right quantity by right method by farmers in the country is to provide knowledge and effective promotional activities through the vast army of fertilizer dealers. Dealers have a strong and close link with BADC and the farmers. Therefore, if the dealers are properly trained in fertilizer use and marketing as well as in business management skills, they can become effective catalysts in the proper and profitable use of fertilizer. Realizing this critical role of the dealers, BADC formally introduced the Dealer Development and Training Program in April, 1982 and established a formal organization unit, Dealer Development and Training Unit (DD&T) within its MSS Division to manage the program. The basic objective of the DD&T program is to train BADC's trainers who in turn train the dealers to expand their knowledge and skills in promoting fertilizer sales, and improving dealer/farmer management. With IFDC's technical assistance, BADC's DD&T Unit has carried out some training development and promotional activities for the dealers and BADC's trainers. The trainer's training program for BADC's trainers was conducted in September 1982, October 1983 and in April 1985.

BADC established a two-man team in each region as the trainers for the dealer training. The team consists of one Dealer Training Officer (DTO) and

one Assistant Dealer Training Officer (ADTO). The trainer's training program was designed to provide updated knowledge and skills in training techniques, training planning methodology, lesson plan preparation, product knowledge, business management, agronomy, promotion, fertilizer use management, use of audio-visual aids, fertilizer demonstration, farmers' meeting and field days. In addition to the trainer's training program, a two-day dealer training program was developed and has been conducted by each BADC trainer in all regions. Since the program was initiated in 1982, 28,103 registered dealers (local wholesalers/ retailers) have received training. The program focused on enhancing a dealer's knowledge of fertilizer use and his technical assistance capabilities for the farmers.

DD&T activities include organization of sales campaigns by trained dealers, formation of the dealer association, Sunday meeting of dealers at PDPs, the introduction of the village adoption program at thana level and sharing of fertilizer materials required for 4 demonstration plots with farmers in each Thana(Upazilla). Two local film on fertilizer promotion, "Dhan Shabuj Shawpna" and "Bhalo Fashaler Ashal Khata" were produced and one IFDC film "Making the Most of a Miracle" was dubbed. A flip chart of fertilizer application was developed and several educational and promotional posters and manuals were prepared and distributed to the dealers. A district-wide soil map was also distributed. While BADC's DD&T program has had its impact on trained dealers, it also has several problems which needs to be overcome. In order to help solve problems, a number of recommended actions to improve BADC's trainers, training programs,training aids, follow-up activities, and dealer incentives were prepared by IFDC for BADC's consideration and action such as:

1. More emphasis on follow-up visits to dealer shops.
2. An increase in participation of dealers in classroom by including:
   a. role playing;
   b. case study;
   c. discussion period;
   d. reduce number of topics;
   e. well planned field trips to demonstration plots;
   f. farm news advertising;
   g. develop promotional cassettes for use in dealer shops.

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INTRODUCTION

The purpose of this report is to assess the past, present and future of fertilizer marketing in Bangladesh. The report is prepared in fulfillment of the terms of reference (TOR) of the BADC/IFDC Consultancy Service contract under the USAID financed Fertilizer Distribution Improvement II Project (FDI II). This report is of necessity to BADC management in order to bring about further improvements in the fertilizer marketing system and policy in Bangladesh.

In order to facilitate an extensive review and assessment of the implementation of system and policy improvements, the report consists of five major areas of importance - Fertilizer Marketing System and Policy, Fertilizer Supply and Distribution, Fertilizer Use, Fertilizer Credit and Fertilizer Dealer Development and Training.

CHAPTER-I

MARKETING SYSTEM AND POLICY

Since chemical fertilizer was first introduced in Bangladesh in 1951/52, the nation's fertilizer marketing system has undergone several major changes. This is especially true during 1979-86, under the impetus of the USAID funded policy-reform project, the Fertilizer Distribution Improvement Project (FDI I). The system is expected to have further changes under the Fertilizer Distribution Improvement II Project (FDI II). FDI II is an extension of FDI I and was agreed and signed between the Government of Bangladesh (GOB) and USAID on August 30, 1984. The objective of FDI II is to further enhance the efficiency of the fertilizer marketing system by developing a competitive free market system.

The fertilizer marketing system in Bangladesh has evolved through several phases.

Phase 1 - During the fifties, fertilizer needed in the country was all imported and the Direccorate of Agriculture (DOA) of the then East Pakistan Government was solely responsible for fertilizer imports and in-country storage, sales, and distribution. The field staff of DOA at the union and thana(Upazilla) levels were charged with retail sales to farmers. This arrangement, however, did not work out satisfactorily as the field staff were ill-equipped with knowledge, motivation, and logistics support. They were also overloaded with agricultural extension work and other duties. Lack of their motivation and confidence to promote sales and the supervision of distribution operations, coupled with the inadequacy and inefficient use of transport and storage facilities, resulted in product losses, pilferage, deterioration, and little sales increase. In light of such problems and the nation's need for the accelerated development in fertilizer use, a government-owned corporation, the East Pakistan Agricultural Development Corporation (EPADC), was established in October, 1961 to procure, market, and distribute fertilizer, seeds, and irrigation equipment/services in the country. However, DOA continued to handle fertilizer procurement, marketing, and distribution on behalf of EPADC until EPADC commenced its actual operations in July 1962.

Phase 2 - EPADC, renamed as the Bangladesh Agricultural Development Corporation (BADC) in 1971, incorporated a limited commercial concept in the nation's fertilizer marketing system in the early sixties by using retail dealers in fertilizer sales at the union level. This change in system concept, often referred to as the Old Marketing System (OMS) led to the beginning of rapid growth in fertilizer sales in the country, even though a number of undesirable conditions and restrictions were imposed on retail dealers. The structure of OMS is shown in Figure 1-1.

Under the OMS, BADC remained as the nation's sole procurer and distributor of fertilizer. However, it limited its fertilizer sales to wholesaling at the thana level. Beside BADC, 97 Thana Central Co-operative Associations (TCCAs) also acted as thana-level wholesalers. BADC and TCCAs sold fertilizer to retail dealers who, in turn, sold it to farmers. Retail dealers consisted of private dealers and Krishi Samabaya (KSS) dealers. The KSS dealers were the TCCA's member cooperative stores at the village level. The TCCAs were granted the wholesale dealership by BADC because of a government policy to promote cooperatives in the country. As a general practice, BADC did not sell fertilizer in a thana where a TCCA sales center existed. In this context, the TCCAs were considered essentially as the BADC's sales agents. All retail dealers were appointed by BADC and the number of retail dealers in each thana was limited. Retail dealers were appointed upon approval by a committee composed of the BADC Thana Inspector, the Thana Extension Officer of DOA, the local Union Council Chairman at the thana level (Upazilla). Generally, BADC limited the number of private retail dealers in a union to 15 but no such limitation was given to the number of the KSS dealers. Based on BADC records, there were 42,949 registered retail dealers in the country as of July 1978 but only about one-half of them were considered active. The average sales tonnage per active dealer in 1977-78 was 32.7 tons.

After a dealer was approved, a memorandum of agreement between the dealer and BADC was drawn up and a number of conditions and restrictions were imposed on the dealer. For example, a retail dealer could only operate at his registered store address and his sales were restricted to farmers located in his specified union. He could purchase fertilizer only from a designated BADC or TCCA thana sales center and he was responsible for physical lifting of fertilizer from the

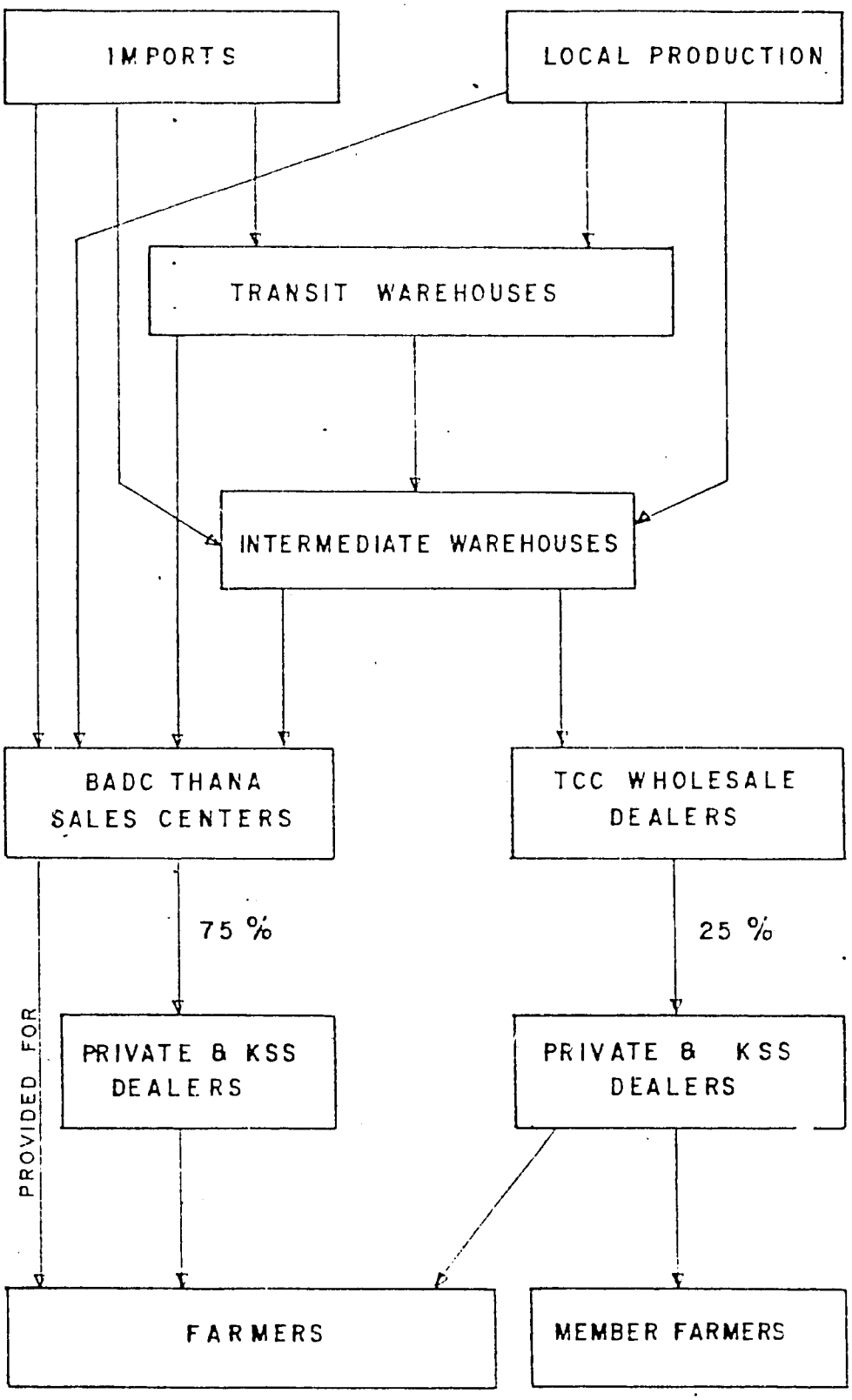

Figure 1-1. Flow Chart, BADC Fertilizer Distribution System, Old Marketing System(OMS) upto 1977-1978

thana sales center to his own store. Although there were neither the restriction on the frequency of his fertilizer purchase within a year nor the requirement for the minimum quantity per purchase, he was usually asked to purchase a limited quantity of the various available fertilizer products in some proportion per visit. The dealer must sell fertilizer only to the genuine growers and not to large tea gardens, sugar mills, government or semi-government-operated firms, or to anyone else for resale. He must sell fertilizer at a price fixed by the government. He must maintain a cash memo book, stock record book and a sales register of fertilizer sales to his customers. And such books must be open for inspection by BADC Thana Inspectors. The dealer must maintain normal business hours and sign board posting retail fertilizer prices in a noticeable place inside his store. He must also distribute leaflets and pamphlets to farmers when farmers visited his store. Any violation of such practices or failure to meet farmers' fertilizer demand constituted reasons for termination of his dealership.

Under the OMS, retail dealers received commissions in the form of a discount from the official retail prices to cover transportation, storage, handling and other incidental costs and the profit margin. The formula for establishing a dealer's gross commission was based on the distance of the dealer's registered store from the BADC or TCCA thana sales center. Different distance-tier systems were used at different points in time. A four-tier system was used in 1979 while a two-tier system was used in 1978 and 1979. In the two-tier system a retail dealer received a commission rate of Tk.4.00/md if his store was located within 6 miles from his designated thana sales center or a commission rate of Tk.6.00/md. if his store was more than 6 miles away from the thana sales center. This dealer commission system applied to all areas in the country except for Chittagong Hill Tracts where greater commission rates were given because of higher transportation costs. The dealer commission system used in 1978 and 1979 had some problems for retail dealers. The system did not account for the dealer's purchase costs for different products. As a result, a dealer's gross commission as a percentage of the official retail price varied from product to product. The system yielded very little profits for retail dealers in the later part of 1979. In August 1979 the dealer's purchase costs for Urea, DAP, MOP, Granular TSP, and Powdered TSP increased but the commission rates were not adjusted accordingly, thereby leaving very little profits for the dealers. The typical fertilizer retail dealer under the

OMS ran a small general store (the Mudi shop). He sold a variety of household and other goods along with fertilizer. He could not live on fertilizer business exclusively, especially in the off-season. A survey conducted in 1978-79 indicated that only about 38% of all active dealers was full-time fertilizer dealers while 34% was part-time fertilizer dealers with other commercial interests and the remaining 28% was the farmers who sold fertilizer as a sideline. The annual sales volume of fertilizer retailers averaged around 20-25 tons. This small volume, at an average gross margin of approximately Tk.120/ton, simply would not generate a viable income great enough to allow the retail dealers to become full-time fertilizer dealers. In addition to giving commissions for retail dealers, BADC also gave TCCAs, as wholesalers, a price discount rate of Tk.0.28/md to cover their commissions to FDP dealers, the operating and fertilizer storage costs at their thana sales centers and their profits. Furthermore, BADC offered credit to TCCAs for up to one year on fertilizer purchases and were responsible for delivering fertilizer to the TCCA thana sales centers.

Under the OMS, BADC was responsible for moving fertilizer from the supply sources to the thana sales centers of BADC and TCCAs. Typically, fertilizer was first moved from the supply sources (the domestic plants and ports of importation) to intermediary godowns directly or through larger transit godowns. The product was then moved from the intermediary godowns to BADC/TCCA thana sales centers on an as needed basis. In some instances, fertilizer was moved directly from supply sources to the thana sales centers. All thana sales centers had limited storage capacities.

Under the OMS, the promotion of fertilizer use in Bangladesh was practically absent. The promotion relied almost entirely on the Directorate of Extension and Management of DOA. BADC played a very minor role. BADC's promotional work if any, was carried out by the Thana Inspector. The Thana Inspectors were to supply information on fertilizer use to retail dealers through personal contact or literature but reportedly, their promotional work was not effective. Fertilizer dealers, in general, were not knowledgeable about the proper handling and use of fertilizer and they were not given fertilizer recommendations developed by research organisations.

BADC faced an escalation in fertilizer marketing and distribution costs under the OMS. From 1973/74 to 1977/78 BADC's total incidental costs rose 240 percent while sales volume increased 90 percent. The incidental costs also rose nearly three times as much as the costs of fertilizer to farmers (Table 1-1). The escalation in BADC's incidental costs was largely attributed to the increase in overhead charges for the fertilizer scheme (up 680 percent), staff pay and allowances (up 185 percent) and dealer commission (up 133 percent). Overhead charges for the fertilizer scheme at the BADC headquarters were heavily subsidized. The annual overhead charges were arbitrarily fixed at 2.5 percent of the adjusted annual development plan and were not related to the actual costs. In fact, Tk.49 million was charged to the fertilizer scheme as the overhead which exceeded the actual total overhead costs of the entire BADC operations. For the fertilizer scheme, BADC was probably overstaffed when compared to work requirements. During 1973/74 - 1977/78, the number of employees increased 111 percent and staff costs (pay and allowances) rose 196 percent (Table 1-2). Movement and handling costs rose sharply in 1974/75 but remained fairly constant on a cost-per-ton basis thereafter. Movement cost per ton sold appeared to be higher than cost per ton purchased in years of inventory build-up while lower in years of inventory liquidation (Table 1-3). For the five-year period, 1973/74 - 1977/78, the average movement cost per ton sold was Tk.5.5 higher than the average cost per ton purchased, even though the net inventory charge for the period was 1,000 tons. Aside from these cost increases, BADC's fertilizer inventory losses were considerably higher than the international standard. The acceptable inventory losses around the world range from 0.5 percent to 1.0 percent. BADC's average inventory losses for the period reached 3.1 percent, even though BADC budgeted only 2.0 percent in its annual development plan. Several parties, including suppliers, vessel owners, carriers, contractors and BADC employees, were reported to be responsible for such large inventory losses. Although some inventory losses were recovered, the recovery was rather negligible.

BADC(EPADC) generated fertilizer sales in the country from 73,000 product tons in 1962/63 to 719,000 product tons in 1977/78 under the OMS, with most of the sales coming from Urea. In 1977/78, Urea accounted for approximately 66 percent of BADC's total fertilizer sales tonnage while TSP, MOP, and others accounted

Table I-1. Incidental Expenses, 1973/74 - 1977/78.

	1973/74		1974/75		1975/76		1976/77		1977/78		5 years total	
Total long tons of fertilizer sold	379,888		279,572		457,785		512,600		719,053		2,348,895	
Incidental Expenses	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
Total movement and handling expenses	43,719	42.1%	48,199	40.9%	113,751	42.3%	87,220	33.3%	126,063	35.7%	418,951	37.9%
Taka per ton sold	115.0		172.4		248.5		170.2		175.3		178.4	Average
Omissions paid	17,094	16.4%	16,774	14.3%	54,465	20.2%	61,124	23.3%	72,728	20.6%	222,185	20.1%
Taka per ton sold	45.0		60.0		119.0		119.2		101.1		94.6	Average
Inventory losses*	22,376	21.5%	16,467	14.0%	26,964	10.0%	30,192	11.5%	42,353	12.0%	138,352	12.5%
Taka per ton sold	58.9		58.9		58.9		58.9		58.9		58.9	Average
Overhead	6,332	6.1%	11,194	9.5%	48,186	17.9%	27,658	10.5%	49,165	13.9%	142,535	12.9%
Taka per ton sold	16.7		40.0		105.3		54.0		68.4		60.7	Average
Staff pay & allowances	7,697	7.4%	12,097	10.2%	12,359	4.6%	14,841	5.5%	22,775	6.4%	69,369	6.3%
Taka per ton sold	20.3		43.3		27.0		28.2		31.7		29.5	Average
Physical verification and rebagging	1,402	1.3%	5,917	5.0%	1,577	.6%	8,428	3.6%	5,471	1.6%	23,795	2.1%
Taka per ton sold	3.7		21.2		3.4		18.4		7.6		10.1	Average
Rent of hired godowns	932	.9%	2,019	1.7%	3,333	1.2%	4,909	1.9%	4,772	1.4%	15,965	1.4%
Taka per ton sold	2.3		7.2		7.3		9.6		6.6		6.8	Average
Repair & Maintenance	1,073	1.0%	1,730	1.5%	1,686	.6%	8,155	3.1%	4,692	1.3%	17,336	1.6%
Taka per ton sold	2.8		6.2		3.7		15.9		6.5		7.4	Average
Establishment costs	1,214	1.2%	1,486	1.3%	2,263	.8%	3,400	1.3%	4,529	1.3%	12,892	1.1%
Taka per ton sold	3.2		5.3		4.9		6.6		6.3		5.5	Average
Cost of damage	-	-	73	.1%	212	.1%	797	.3%	902	.3%	1,984	.2%
Taka per ton sold	-	-	0.3		0.5		1.6		1.3		.8	Average
Publicity & Advertising	64	.1%	85	.1%	172	.1%	693	.3%	704	.2%	1,718	.2%
Taka per ton sold	0.2		0.3		0.4		1.4		1.0		.7	Average
Interest on working capital	991	1.0%	-	-	4,011	1.5%	6,352	2.4%	573	.2%	11,927	1.1%
Taka per ton sold	2.6		-	-	8.8		12.4		0.8		5.1	Average
Sub-total :	102,893		116,041		268,979		254,309		334,727		1077,009	
Taka per ton sold	270.9		415.1		587.7		496.4		465.5		458.5	Average
Capital expenditures	1,115	1.0%	1,604	1.4%	248	.1%	7,873	3.0%	17,946	5.0%	28,786	2.6%
Total incidental expenses	104,008	100%	117,645	100%	269,227	100%	262,242	100%	352,673	100%	1105,795	
Taka per ton sold	273.8		420.8		588.1		511.6		490.5		470.8	Average

* Inventory losses are calculated at a constant annual rate in relation to tonnage sold and consistant with the total 5 year loss calculated in Table V.

Notes : Source of information is BADC Controller of Accounts except inventory losses.

Table 1-2 Staff Pay and Allowances, 1973/74 - 1977/78

	1973/74	1974/75	1975/76	1976/77	1977/78
	----------000 Taka ----------				
Total Staff Pay & Allowances	7,697	12,096	12,359	14,440.	22,775
Number of employees sanctioned fertilizer scheme	2,440	2,420	2,420	4,931	5,157
Average cost per employee	3,155	4,999	5,107	2,929	4,416
Gross sales revenue per employee	139,510	148,400	209,330	144,740	226,350
Tons sold per employee	155.7	116	189.2	103.9	139.4
Staff cost per ton sold	20.3	43.3	27.0	28.0	31.7
Staff cost % of gross sales revenue	2.3	3.4	2.4	2.0	2.0

Table 1-3 Movement and Handling Costs, 1973/74 - 1977/78.

	1973/74	1974/75	1975/76	1976/77	1977/78	
			000 Taka			
Total Movement and Handling Costs*	43,718	48,199	113,751	87,220	136,063	
Movement cost per ton sold	115.0	172.4	284.5	170.2	175.3	178.4 5 years average
Movement cost per ton purchased	107.8	146.0	171.3	246.3	188.3	172.9 5 years average
Inventory change (In Tons)**	+11,000	+23,000	+187,000	-158,000	-62,000	+1,000 5 years net gain

* Includes port dues, landing charges, bank charges, clearing and forwarding charges, surveys, railway freight, water transport, truck transport and handling charges.

** The amount of increase or decreqse of total inventory from begining to end of each year.

for 27 percent, 6 percent, and 1 percent respectively inspite of a significant increase in fertilizer sales under the OMS.

Little change was made in the system to cope with rising fertilizer demand. In fact, the system gradually deteriorated and suffered from administrative and operational weakness, resulting in a host of problems. These problems include poorly programmed imports, improperly coordinated lifting schedules, inefficient and costly movement and handling systems, inadequate transportation capacity, limited and poorly located warehousing facilities, a poorly organised and generally inefficient retail dealer network, and the overly bureaucratic control of the limited private dealer role. The poor organisation and inefficiency of the retail dealer network stemmed from burdensome and restrictive dealer appointment policies, procedure and regulations; restrictions on a dealer's purchase source, sales territory, and selling prices; the dealer's difficulties in fertilizer purchases because of frequent product outages or shortages at the thana sales centers, lack of freedom in product choice, and the cumbersome purchase procedure; lack of the dealer's technical assistance and market development capabilities; the dealer's inadequate financial resources and profit motivation to maintain a desirable stock level and to promote fertilizer sales; and the absence of appropriate and workable dealer and farmer credit programs for fertilizer purchase. These problems, coupled with inadequate and erratic product supplies from domestic fertilizer plants, adversely affected BADC's ability to provide the necessary product supply, sales promotion and dealer development to meet the nation's food production targets.

Phase 3 - Recognizing the limitations of the OMS, the GOB undertook a significant project to improve the fertilizer marketing system and policy in the country through a USAID grant fund. This project, referred to as the Fertilizer Distribution Improvement 1 Project, was designed by USAID and agreed to by the GOB in 1978. The specific purpose of this project was "to increase fertilizer use on an equitable basis in Bangladesh". And this was to be achieved by removal of supply constraints, with the principal methods being on the relaxation of fertilizer marketing-related constraints through the introduction of a new marketing system (NMS). The project was implemented by BADC with consultancy services from the International Fertilizer Development Center (IFDC), Muscle Shoals, Alabama, U.S.A. The total financial outlay of the project was estimated at US$150 million over a period of 4 years. The overall objective of NMS,

as indicated in Figure I-2, was to improve the operating efficiency of fertilizer marketing through (1) an improvement in BADC's marketing and distribution costs from supply sources to farmer and (2) an increased availability of fertilizers to all classes of farmers throughout the country. The principal reforms under the NMS included (i) expanded role of private wholesalers and retailers, (ii) fertilizer price deregulation, (iii) creation of additional fertilizer storage facilities, (iv) streamlining fertilizer procurement through imports, (v) improving fertilizer distribution system and (vi) dealer development and training. The underlying purpose for these reforms was to reduce marketing constraints, lower fertilizer delivery costs, increased fertilizer availability in all areas and to all farmers, and increase opportunities for greater competition at all levels.

Under the NMS, BADC was to withdraw the fertilizer selling and physical delivery responsibilities from the thana level, confining its sales and storage operation to a much smaller number of the newly created wholesale centers. However, some remotely located thana sales centers which held little economic attraction for the private sector were to remain open under BADC charge. The newly created wholesale centers which was in effect an expansion of BADC's existing intermediate godowns and the adjacent thana sales centers used under the OMS plus additionally built godowns were known as the primary distribution points (PDPs). The thana sales centers where BADC discontinued sales, BADC would maintain its sales centers as the observation posts only and would not sell fertilizer unless the market prices rose excessively above the administered prices. At PDPs BADC would sell fertilizer to private wholesalers at reduced prices for large purchases. Private wholesalers could resell fertilizer anywhere at prices upto the administered price to the farmer. BADC would increase the gross operating margins of retail and wholesale dealers (from about Tk.135/ton to Tk.230/ton), thereby substantially increasing profitability and encouraging more aggressive fertilizer marketing by the private sector. BADC would treat the cooperative as private dealers and put them on an equal competitive basis with private sector individuals and businesses. BADC would also permit all private individuals, companies, farmers, associations, cooperatives, etc. to buy fertilizer from any PDP without restriction on the registration process. Instead, customer records would be maintained through purchase invoices. Private dealers were allowed to

NEW MARKETING SYSTEM (NMS) SINCE 1979-1980

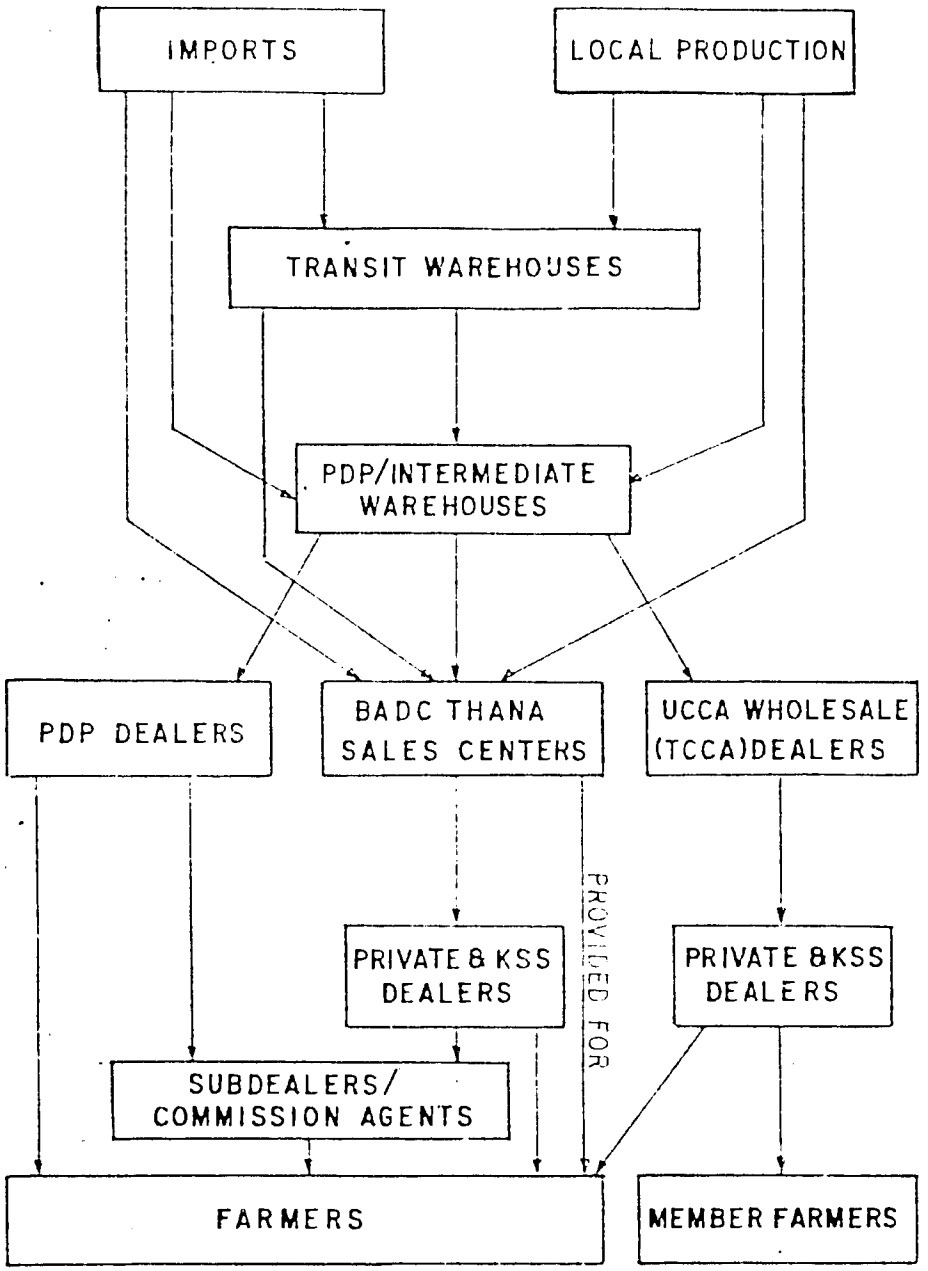

Figure I-2

move fertilizer anywhere except within five miles from the national border. BADC would develop a system through which private dealers could obtain sufficient credit from commercial banks and the Krishi Bank. If and when private dealers establish their trade association, BADC would support such an organisation.

The NMS was deemed to succeed only if there were adequate fertilizer supplies in the country. The NMS was envisaged to remove fertilizer supply constraints through improvements in transportation and storage.

In order to implement the NMS, IFDC first suggested some structural and procedural modifications to the existing marketing system. BADC's Fertilizer Division (the MSS Division) then issued its first directive on August 14,1978 to commence the implementation of the NMS in the Chittagong Division on December 1, 1978 on a trial basis. With the success in the Chittagong Division, the NMS was extended to the Dhaka and Khulna Divisions in July 1980 and to the Rajshahi Division in January 1981. The directive identified the major elements of the NMS. This circular detailed the list of BADC's intermediate godowns to be converted to PDPs and the list of the thana sales centers for immediate closure. Most PDPs consist of multiple godowns which in some cases are several miles apart. The directive included the new and simplified customer registration form and the announcement in the local newspaper regarding the introduction of the NMS. The announcement stated that:

1. Intermediate godowns will be converted to PDPs;
2. Wholesalers, retailers, and cooperatives will be considered as BADC PDP customers in the NMS;
3. The customer's minimum purchase from PDP will be 3 tons which may consist of any combination of fertilizer products available at PDP;
4. Dealer licensing requirements will be eliminated and replaced by a simplified customer registration form;
5. The registration requirement will be effective at the Thana sales centers (which remain open) as well as at PDPs.
6. Any customer may register at any or as many PDPs/TSCs as he wishes;
7. Customers may transport fertilizer to any location of choice except 5 miles from the border;

8. The minimum quantity that can be sold from a thana sales center (TSC) to a customer will be 30 mds (slightly over 1 ton) with a price discount of Tk.5.00/md except in the Chittagong Hill Tracts District where a discount of Tk.7.00/md. will be allowed.

Before and during the course of the NMS implementation, several government directives were promulgated to establish or change regulations and procedures governing the implementation process. Some of the more important directives concerning changes were:

1. Dealer will be required to purchase a minimum of 1 ton from a PDP in any combination of fertilizer products and 20 mds from an active TSC.
2. Dealer discounts will be increased from Tk.230/ton to Tk.280/ton for PDP customers and from Tk.5/md. (Tk.136/ton) to Tk.6/md. (Tk.163.3/ton) for TSC customers;
3. The Chittagong Hill Tracts Districts are to be withdrawn from the NMS and the minimum purchase quantity will be 10 mds. Dealer commissions in this district are to be Tk.7/md. within 6 miles from the TSC and Tk.9/md. if 6 miles away. Furthermore, dealers in other districts are not allowed to buy fertilizer from the TSCs in the Chittagong Hill Tracts District and the dealers in this district can not sell fertilizer in other districts.
4. A new BADC criterion for the closure of the thana sales centers allows the thana sales centers to remain open until their sales volume declines to less than 50 percent of its annual sales tonnage under the OMS (Reportedly, this directive was issued in order to assure fertilizer availability to the farmer).

Other directives issued to improve the NMS, BADC's plans for other system improvements, as expressed by the Ministry of Finance to USAID, included (a) the establishment of a staffing pattern and organizational structure to complement the NMS; (b) development and implemencation of a dealer development and training program; and (c) establishment of a dealer classification system to assist in the equitable allocation of fertilizers in time of fertilizer shortage.

Since the NMS was introduced, IFDC made three system evaluations under the FDI I project. Based on BADC's estimated requirements, 14 additional PDPs were established, of which 3 PDPs were subsequently closed. The implementation of the NMS was by no means an easy task, especially the closure of BADC thana sales centers (TSCs). The initial plan called for closing 234 TSCs and retaining 98 TSCs. This plan was made in order to reduce the number of TSCs in a phased manner so that BADC could begin to cut its incidental costs and give more sales responsibilities to private dealers. However, this plan was often changed and twisted for various but not always valid reasons. It required over 6 years to finally close down all the TSCs which were scheduled for closure. In the first year of the NMS introduction, only 11 TSCs, all in the Chittagong Division, were closed. In fact, some TSCs closed in the Chittagong Division in the first year were reopened. On repeated pressure from USAID, all the TSCs were finally closed effectively on July 1, 1985 (Memo No.BADC/MSS/Sales/17-6-80/3714(26) dated 28.5.85. Failure to close the scheduled TSCs affected the anticipated reduction in BADC's fertilizer marketing and distribution costs. The opening of PDPs under the NMS shifted the dealers' fertilizer purchases away from TSCs. In the calender year 1980 about 72 percent of BADC's fertilizer sales to dealers came from PDPs, although PDPs accounted for less than one third of BADC's total sales outlets (Table I-4). In the second half of 1980 when the NMS became fully operative, sales to the dealers from PDPs represented 78 percent of BADC's total sales volume nation-wide. For the Chittagong Division alone, sales to the dealers from PDPs rose from 81 percent of the total dealer sales in the first year of the NMS to 88 percent in the second year. Inspite of such shift, BADC continued to be reluctant in closing the TSC operations thereby incurring unwarranted costs. The significant increase in dealer sales from PDPs indicated that the NMS was fostering considerable inter-thana movement of fertilizer.

The NMS impacted the fertilizer marketing in Bangladesh in many ways. The joint evaluation by the GOB and USAID in November 1982 as well as the third evaluation of the NMS by IFDC in March 1982 conducted under the NMS, Bangladesh's private sector has successfully demonstrated their marketing potential of fertilizer at the retail level and that private dealers have established a reliable marketing network that can be utilized by the large-scale wholesalers. USAID also viewed that the most important contribution of FDI I in the Bangladesh fertilizer sector development has been the introduction of the NMS,

Table I-4 Comparison of Sales to Dealers From PDPs & TSCs, 1980

Division		Sales Volume ('000' Tons)	% of Division Total
DHAKA			
PDP		161.5	69.1
TSC		72.2	30.9
	Total:	233.7	100.0
CHITTAGONG			
PDP		217.5	87.7
TSC		30.5	12.3
	Total	248.0	100.0
KHULNA			
PDP		78.6	59.3
TSC		53.9	40.7
	Total	132.5	100.0
RAJSHAHI[a]			
PDP		93.4	63.2
TSC		54.5	36.8
	Total	147.9	100.0
National Total :			
PDP		551.0	72.3
TSC		211.1	27.7
	Total	762.1	100.0

a. NMS figures for July-December 1980 only.
OMS in operation prior to that period.

Source: Third Evaluation of Bangladesh New Marketing System, IFDC.

with the development of an expanded, proficient and competitive private dealer network as the cornerstone. The NMS has improved fertilizer access by all categories of farmers on an equitable basis. IFDC's equity study of four crop seasons indicated that the proportion of small farmers (less than 2.5 acres) using fertilizer was approximately the same as that of the larger farmers and that small farmers used slightly more fertilizer per acre and obtained higher output per unit of fertilizer than large farmers. On BADC's own initiative and using its own fund, BADC hired a local consulting firm in 1983/84 to evaluate the impact of the NMS. The firm's final report indicated that by and large the NMS seems to have ensured relatively lower prices of fertilizer for the farmers, and that the farmers in remote areas are not worse off because of the NMS. The report also indicated that the effects of price deregulation in the Chittagong Division has been more or less similar to that in the Rajshahi Division. The NMS has had an impact on dealer registration and development of a dealer network. At the beginning of the NMS the liberalized dealer registration procedure caused dealer registration more upward to 48,500 of which about 22,000 registrants were found to be active on a full-time basis and another 5,000 to 6,000 registrants were active shopless, part-time "Hat type" sub-dealers. The number of full-time dealers was subsequently down to around 8,000 to 10,000 as a sub-dealer network for each dealer developed. In substance, an increasing number of retail dealers have become local wholesale dealers and the sub-dealers are now lifting fertilizer from these wholesale dealers with a credit line established. Until 1983/84, about 20 percent of the active dealers sold 60 percent of their product to sub-dealers. About 60 percent of the active dealers are now selling their fertilizers to sub-dealers. Each dealer now sells fertilizer to an average of 12 sub-dealers and buys from two sources. Under the NMS, the dealers have also made larger lifting per purchase than they were under the OMS. A study indicated that the lifting per purchase has averaged around 87 maunds under the NMS while it was less than 60 maunds under the OMS. About two-thirds of the active dealers have reported significant sales increase in the first two years of their operation under the NMS. An independent survey indicated that without exception, the dealers preferred the NMS to the OMS. The NMS has also made a positive impact on fertilizer pricing. It has helped in reducing the governments fertilizer price subsidies without adverse fertilizer use in the country. In April, 1982 GOB deregulated fertilizer retail prices in the Chittagong Division and

extended price decontrol to the remaining three divisions one year later. This deregulation represented a major and bold policy change in fertilizer marketing but it proved to be effective and has paved the way for further privatization of fertilizer trade in Bangladesh. Fertilizer use in the country has increased significantly under the NMS, inspite of price deregulation and increases in price of fertilizers. Sales of fertilizer increased from 754,000 tons in 1978/79 to 1.26 million tons in 1984/85 before falling modestly to 1.16 million tons in 1985/86. Sales of urea and TSP gained 65 percent each while sales of MOP rose by 35 percent. The NMS had a negative impact on fertilizer sales by the TCCA thana sales centers (UCCAs), which enjoyed special privileges from BADC under the OMS. These privileges were no longer there under the NMS. Under the NMS, UCCAs no longer enjoy the exclusivity of sales territory, free transportation of fertilizer from BADC's godowns, or receive wholesaler commission from BADC. However, BADC continues to provide credit to the UCCAs through bank guarantees. The UCCAs find it difficult to compete with private dealers because of high overhead and operating costs and the bureaucratic decision-making process.

BADC have made several other changes in their fertilizer business operations under the NMS. During 1984/85, BADC introduced a quantity discount program at PDPs. Fertilizer dealers were offered a quantity discount of Tk.30/ton when they lift between 15 and 25 tons or Tk.40/ton when they lift 25 tons or more. Approximately 2,000 dealers took advantage of this program and made a number of changes in their marketing strategy. They developed their sub-dealer network and shared the discount with sub-dealers. Small scale dealers were augmented by large and medium sized wholesalers. As the program began flourishing, BADC discontinued the program on the plea of fertilizer short supply. The discontinuation of quantity discount program caused a serious setback for the relatively large wholesalers who started to institutionalize fertilizer trade. They retreated from fertilizer trade because of the loss of sub-dealers(customers) and a significant amount of past-due credit causing financial losses. Based on IFDC's advice, BADC also launched an In-Kind Credit Program, a program to sell fertilizer to dealers on credit, in 1983/84. The program was designed to alleviate the capital constraint of fertilizer dealers. Under this program, any dealer could buy Tk. 1 lakh worth of fertilizer

against bank guarantee. This program also allows for a 60 day revolving credit free of interest. In case of UCCAs, the credit limit was for 100 tons. The program created a lot of enthusiasm among the dealers and functioned well, with an excellent recovery ratio. However, just as the program gained momentum, BADC suspended it after 14 months on the plea of fertilizer short supply. In order to institutionalize fertilizer trade, IFDC advised BADC to open discount sales from about 8 strategic transit points and domestic factories in late 1985. These discount sales points were referred to as the Transportation Discount Points (TDPs). Under this marketing concept, the wholesalers who would purchase 40 tons or more would be offered attractive discount prices from TDPs. This offer attracted a large number of dealers, making a significant number of PDPs(15-20) redundant. In fact, many PDPs lost their sales by 50 percent. A study indicated that the TDP concept clearly would reduce BADC's marketing and distribution costs while increasing the accessibility of fertilizer. Nevertheless, BADC suspended the discount sales from TDPs. Under the NMS, BADC introduced various Sales Drives with some proposed incentives to the dealers and BADC marketing personnel in 1985/86. These sales campaigns were successful. But unfortunately, promised incentives or awards were not given to the successful dealers. This gave rise to distrust among the dealers and the program was discontinued. The organizational structure of BADC's Fertilizer Division changed very little under the NMS(Figure I-3).This division, headquartered in Dhaka, is officially called the Movement, Storage and Sales Division (MSS Division). The division is headed by the General Manager of Supply who in turn, reports to the Member Director of Supply. The Member Director of Supply is a member of the BADC Board of Directors and is also responsible for the BADC Purchase Division. Based in Dhaka, the General Manager of Supply, assisted by the Managers of Movement, Storage and Sales, is responsible for procurement, distribution,and sales of fertilizer throughout the country. Officers and staff are maintained at the factories and ports to coordinate and expedite movements to and from these supply sources. Fertilizer distribution and sales activities are organized and executed on divisional, regional and PDP levels. There were also a number of staff situated at TDPs. For fertilizer promotion and dealer development,BADC created a new organizational unit in its Fertilizer Division, called the Dealer Development and Training Program Unit.This unit was created in order to stress the importance of dealer development and training in further

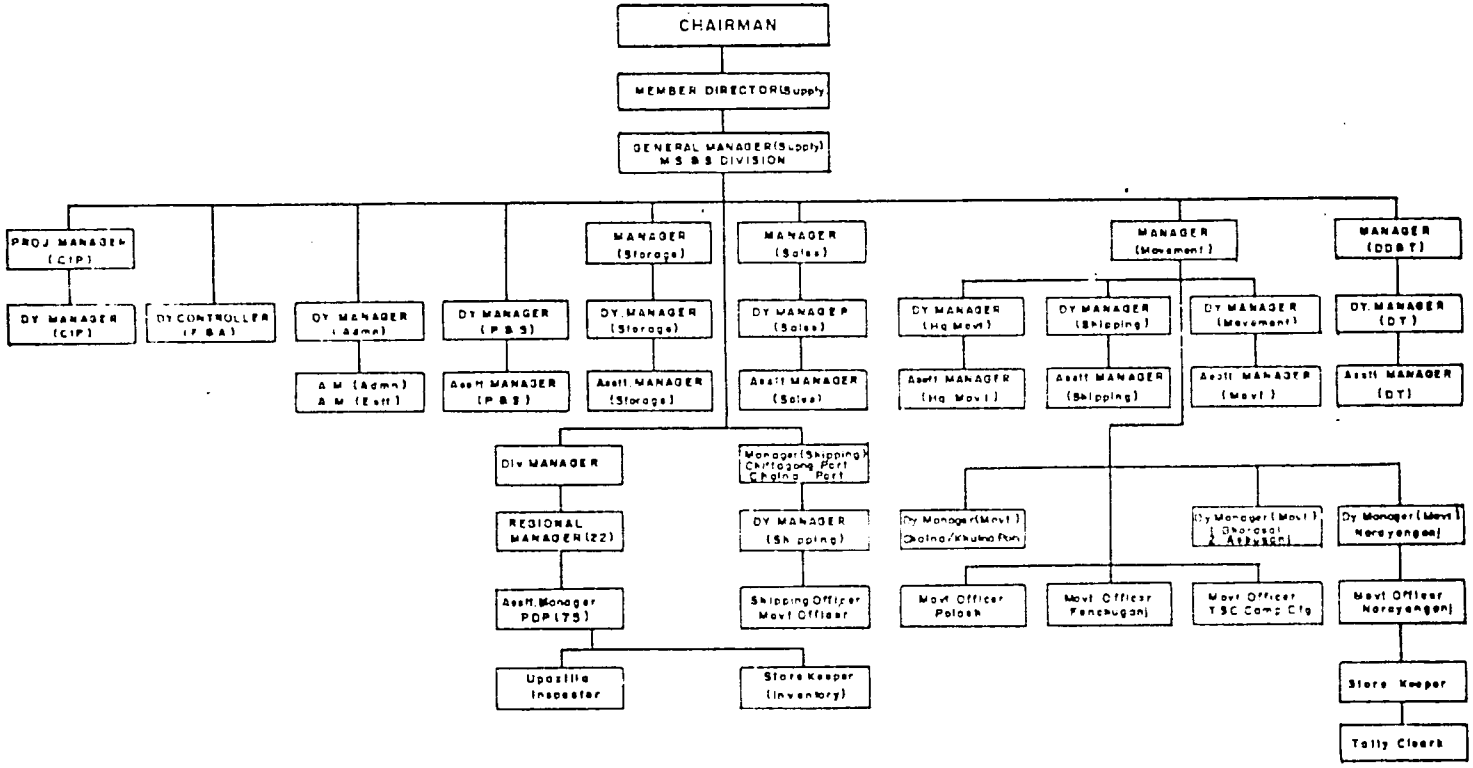

Figure I-3. Current Organizational Structure of BADC's Fertilizer Movement, Storage and Sales Division.

strengthening of the fertilizer marketing system in Bangladesh. The NMS has had several major achievements. It has prevented further increases in marketing and distribution costs inspite of spiraling inflation. This was accomplished by reduction in port/transit godowns and consolidation of sales outlets. It has increased involvement of private dealers in fertilizer market development. It has deregulated fertilizer retail prices without increase in farmers' prices. It has increased the nation's sales volume despite increased procurement costs. It has increased fertilizer storage capacities by building new warehouses. However, several shortcomings of the NMS remain. These shortcomings relate to the operational aspects of BADC and BADC's dealer policy. Dealers have reported that lack of timely product availability, particularly in the peak demand seasons, continues to hold down their sales; their lost sales in a peak season may average about 8 to 10 percent on a national basis. BADC cannot move its stock as per requirement and thus cause spot shortages throughout the country. This is in large part due to the inefficiency of the carrying contractors and lack of appropriate and timely actions by BADC's Movement Section. Dealers have also complained about the excessive interference by BADC's PDP staff and the inordinate time required to lift fertilizer purchases. Furthermore, they have complained that the dealers are not permitted to lift products of their choice. Instead, they have to accede to BADC's choice of a product mix. An IFDC survey has also indicated that the dealers lack adequate working capital to finance stock and control storage facilities. The dealer's working capital requirements have significantly increased with the increases in fertilizer price.

Phase 4 - In order to overcome the shortcomings of the NMS and to expand private sector investment in fertilizer marketing and distribution, GOB agreed and signed another policy reform project with USAID on August 30, 1984. This USAID funded project, the Fertilizer Distribution Improvement II Project (FDI II) was to be implemented through BADC with technical assistance from IFDC.

In order to attain the objectives of FDI II, a conceptual framework for marketing system and policy changes has been formulated. The salient features of this framework are as follows:

1. Develop large-scale wholesalers/distributors operating on a national scale. (assure a competitive free market system).

2. Support the organization and facilitate the operation of the large-scale wholesalers/distributors.
3. Encourage public and private sector wholesalers/distributors to compete any where through various sales channels.
4. Reduce Government sales outlets.
5. Establish TDPs at factories and a few transit points in order to save fertilizer transportation and handling costs for the government.
6. Improve distribution infrastructure at and from factores and ports.
7. Remove capital constraints of wholesalers and retailers on fertilizer purchases and maintenance of inventories.
8. Set uniform ex-factory prices of urea for all factories to determine relative competitiveness with international prices for the farmer's benefits.
9. Study the feasibility of direct imports by the companies participating in the competitive free market system.
10. Enhance dealers' knowledge and skills on fertilizer use and marketing.

To implement such a conceptual framework, a number of changes would be required of BADC. These changes, for example, are :

a) BADC should begin to sell fertilizer from the factories, ports, and transit depots at discounted prices.
b) Fertilizer buyers should be permitted to lift fertilizer from all types of BADC's sales outlets (PDPs, Transit Depots, Factories/Ports) and should be allowed to sell their product anywhere in the country at any price.
c) The fertilizer lifting price at factories and ports should be discounted below BADC's ex-PDP price in order to reflect savings in their cost of operation, as shown in Table I-5.
d) Minimum lifting quantity from TDPs by the wholesalers should be large enough to encourage the development of large-sized wholesalers throughout the country but small enough to assure participation in order to maintain the fertilizer marketing system competitiveness with an adequate number of private wholesalers.
e) Some existing PDPs may be designated as TDPs.

Table I-5 Cost Calculation for TDP Discount

Location of TDP	Estimated Service Area	Transport Cost 1/	Average Cost
1. Ashuganj	1. Bhairab	Tk. 54.00	
	2. B. Baria	77.00	Tk. 75.00
	3. Narsingdi	88.00	(N-D).
	4. Kuliarchar	56.00	
	5. Daudkandi	98.00	
2. Ghorasal/Polash	1. Narsingdi	98.00	
	2. Narayanganj/Khanpur	88.00	Tk.115.00
	3. Aliganj	98.00	(-)
	4. Mirkadim	97.00	
	5. Daudkandi	104.00	
	6. Joydebpur	205.54	
3. Fenchuganj	1. Sylhet	235.00	
	2. Ajmiriganj	275.00	
	3. Saistaganj	256.00	
	4. Kulaura	246.00	252.00
	5. Sreemongal	246.00	(-)
4. TSP Complex	1. Chittagong	74.00	
	2. Dohazari	147.00	186.00
	3. Cox's Bazar	242.00	(130.00)
	4. Feni	216.00	
	5. Chaumuhani	251.00	
5. Narayanganj/ Khanpur/Aliganj	1. Joydebpur	128.00	133.00
	2. Manikganj	175.00	(B-130.00
	3. Tangail	158.00	G-120.00)
	4. Madhupur	197.00	
	5. Mymensingh	154.00	
	6. Mirkadim	26.00	
	7. Daudkandi	33.00	
6. Shiromoni	1. Satkhira	156.00	
	2. Jessore	117.00	
	3. Kaliganj	134.00	151.00
	4. Magura	162.00	(B-130.00,G-115.00)
	5. Narail	134.00	
	6. Chuadanga	167.00	
	7. Kushtia	190.00	

1. Average cost has been worked out based on Ghorasal-N.ganj movement cost. In case of ZFCL movement, the cost will increase.

2. For movement to Ashuganj cost from Ghorasal is Tk.27 higher and from ZFCL Tk.37.00.

1/ Cost of transport after deducting the cost from movement upto N.ganj/Khulna.

Table I-5 (continued)

Location of TDP	Estimated Service Area	Transport Cost 1/	Average Cost
7. Baghabari/ Nagarbari	1. Shahjadpur	Tk. 74.00	
	2. Ullapara	126.00	
	3. Sirajganj	177.00	
	4. Pabna	128.00	Tk.160.00
	5. Natore	214.00	(B-130.00)
	6. Muladuli	150.00	
	7. Rajshahi	252.00	
8. Parbatipur	1. Saidpur	Tk. 14.00	
	2. Dinajpur	88.00	Tk. 75.00
	3. Rangpur	44.00	
	4. Shibganj	106.00	(Tk.50.00)
	5. Panchagarh	123.00	

1/ Cost of transport after deducting the cost from movement upto Baghabari/Nagarbari.

f) The credit limit to the wholesalers (for the BADC's In-kind Credit Program) should be raised to Tk.7 to 10 lakhs to accommodate the need of the larger wholesalers and to generate BADC's net income and cash flow.

g) BADC's organisational structure should be adjusted to facilitate the administration and recovery of its expanded credit loans, constant monitoring of TDP activities, and BADC's customer service at TDPs.

h) BADC needs to strengthen its market development activities by strengthening dealer development and training.

For the minimum lifting quantity by the wholesalers from TDPs, periodic adjustments will undoubtedly be needed. Previous experience indicates that more than half of the wholesalers who lifted from the TDPs lifted in excess of the then 40 tons minimum which would suggest that the minimum lifting could be raised somewhat without an adverse effect on the number of wholesalers buying from TDPs. Minimum lifting should probably tie into some number of truck loads though it is recognized that a large quantity will be moved by water and some will be moved by rail. A minimum lifting quantity of 140 tons or 20 truck loads could be considered. At present, a truck load is usually about 7 tons.

Currently, there are 75 PDPs in the country, five or six of which may be designated as TDPs. The selection of these transit depots is underway and will be based on current storage capacity, BADC's restocking costs, and the accessibility to the major transportation systems which the wholesalers and BADC are likely to use. For BADC, TDPs will mean, over a period of time, retrenchment to a more manageable network of sales outlets. TDPs will offer an opportunity for national distributors as well as the medium-scale wholesalers. Since BADC will assure the costs of supplying TDPs, the lifting price at TDPs will be determined by reducing the factory/port discount by BADC's average cost of servicing TDPs. It is anticipated that within a reasonable period of time, strong competition among the wholesalers will force the fertilizer price to a level which is not only fair to the consumer (the farmer) but also will be in line with the true cost of distribution. It is also envisioned that as nearby markets around TDPs are saturated, competition among the wholesalers will encourage them to sell their fertilizers in ever expanding distant markets.

The opening of TDPs on a permanent basis and the increased credit activities have organizational implications for BADC. BADC's total credit loan could rapidly increase to US$12-15 million. In order to assure the effective administration and recovery of this significant sum, BADC should consider establishing a small specialised credit group. BADC also should consider operating TDPs on a double-shift basis and providing necessary staff for the expanded working hours. The past experience indicated that the normal working hours at TDPs have not been sufficient to take care of incoming buyers of fertilizer. BADC should also consider adding a TDP group in its fertilizer division. TDPs will require constant monitoring. This constant monitoring will need to be independent of the current field management organization of BADC in order to assure that a conflict of interest between TDP and PDP management does not occur. The suggested organizational adjustments for BADC's fertilizer division as well as the staffing pattern for TDPs are presented in Figure 1-4. Furthermore, the suggested job descriptions for TDP management and staff are given in Appendix 1-A.

In order to promote the adequate and efficient use of fertilizer by the farmers, BADC needs to strengthen its market development activities. It needs to develop and motivate its dealers so that they can promote sales of their fertilizers to the farmers more effectively. BADC also needs to establish programs to support the activities of other national research and extension organizations charged with responsibilities for farmer assistance.

The measures stated above are by no means exhaustive. Other measures must be identified and taken to implement the conceptual framework for making the Bangladesh fertilizer marketing system more competitive. It is believed that the competitive marketing system is in the best interest of individual farmers and for the society at large. Under a competitive system BADC will remain as a major distributor and marketer of fertilizer in the country. BADC is equipped with sufficient infrastructure to conduct its business on an equal footing with other distributors/marketers. BADC can also emerge as a strong advisory institution on fertilizer know-how, quality control, soil testing, demonstrations, training, regulations, and other functions. BADC, in collaboration with other organizations can further remove marketing constraints of fertilizer in the country through system and policy changes.

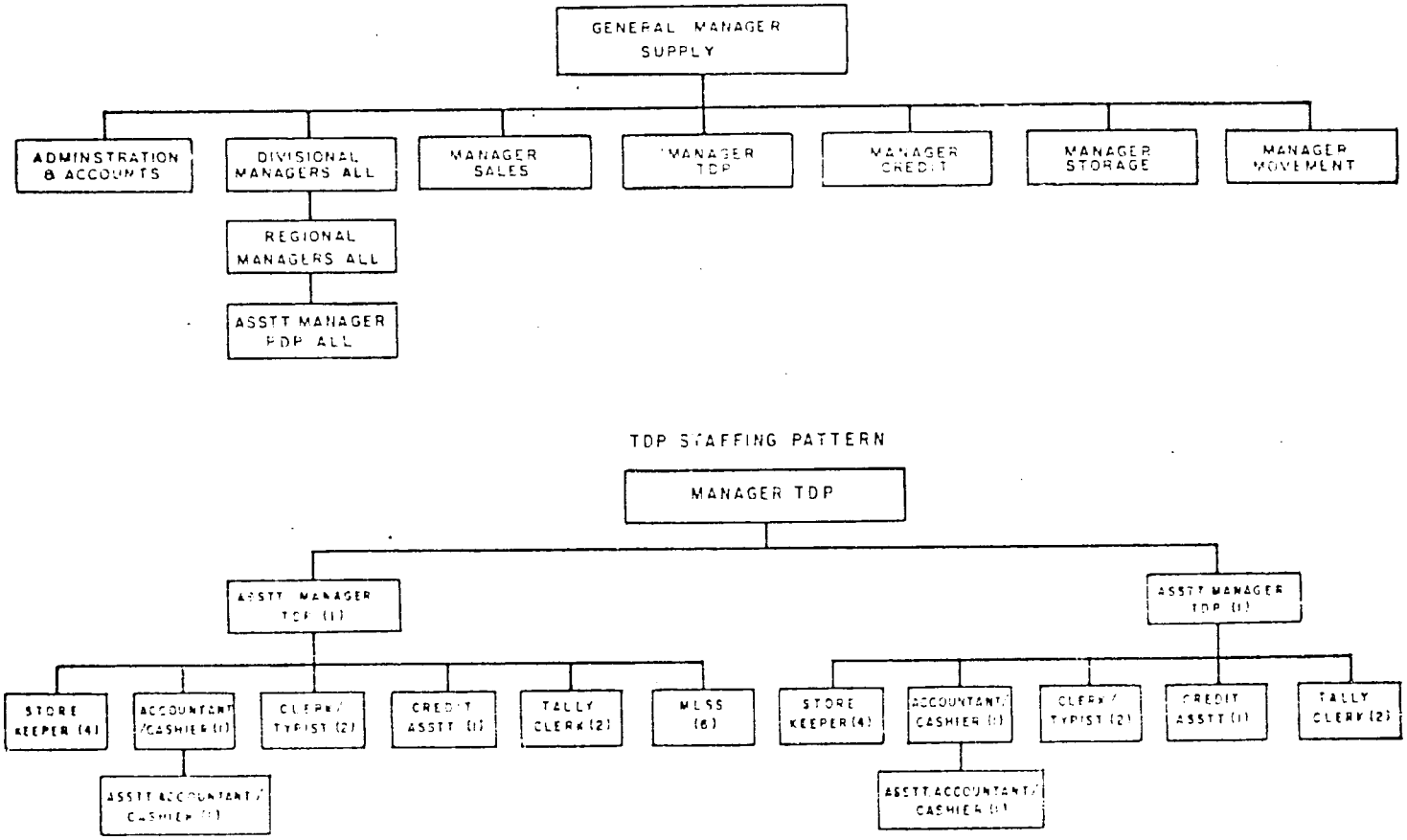

Figure I-4. Suggested Organizational Structure for TDP Operation.

APPENDIX I-A

JOB DESCRIPTION FOR TDP MANAGEMENT AND STAFF

1) Manager (TDP)

Duties

1. To remain responsible for distribution of fertilizer in the TDP.
2. To ensure availability of fertilizer on a timely basis at TDP.
3. To submit indent of fertilizer in time.
4. To direct and supervise the activities and responsibilities of the Assistant Manager (TDP).
5. To ensure deposition of sale proceeds in time and collection, transfer of the amount to central accounts.
6. Ensure up-to-date maintenance of pass books, cash books and relevant accounts registers and submission of bank reconciliation statement.
7. Conduct market survey, adopt sales promotional activities.
8. Go for routine and sporadic inspection of TDP godowns.
9. To study and review market data and preparation of action plan.
10. To organize dealer meeting periodically or improvement of TDP system.
11. Development of manpower in the TDP for better work.
12. Increase sale to achieve FDI-II purpose.
13. To carefully review all reports from AMs, store-keepers, credit assistant to assure accuracy and to counsel, assist and direct them as needed.
14. To maintain liaison with officials of other departments.
15. To ensure that policies, programmes and instruction of head-quarters are followed.
16. To arrange construction/repairs of godowns where necessary and to assure preventive maintenance of same.

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Responsibilities

1. Responsible for implementation, monitoring, supervision of the overall activities defined by MSS Division of BADC in an effective and timely manner.
2. He is responsible, assure a good BADC image within his TDP.
3. To ensure timely distribution of fertilizer in his TDP.
4. He is responsible for supervision of all those assigned under him.

Authorities

1. Full authority for implementation and supervision of market plan of the TDP both financial and administrative.
2. Full authority in respect of office and personnel management of the assigned TDP.
3. To indent stock and supplies for the TDP.
4. To prepare yearly sales program.

2) Assistant Manager (TDP)

Duties

1. Maintain contact with sales and supply personnel to ensure that adequate stocks are indented to meet sales requirements.
2. To ensure deposit of sale proceeds to bank in time and collection and transfer of proceeds to headquarter.
3. Planning personnel requirements to properly handle the anticipated work load.
4. To visit dealers' shop periodically and monitor market situation.
5. Supervising all godown operation and personnels ensuring a his standard of performance.
6. Follow up with headquarters' movement programmes and ensure timely supply.
7. Maintaining the prescribed stock and accounts records to account for stock, sales proceeds, equipments and send them to Manager in time.
8. Processing customer orders quickly and efficiently.
9. Timely completion of reports and response to communications. Ensure timely submission of reports to Manager TDP.
10. Maintaining equipment and facilities in good condition.

APPENDIX I-A

11. Ensure that the godown is properly supervised in his absence.
12. Any other duties that may be assigned by his supervisor.
13. To prepare fertilizer sales promotional schedules and to give proper training to dealer for sales increase.

Responsibilities

1. The Asstt. Manager and the store-keepers shall be jointly and individually responsible for all operations in and out of the godown and the stock/inventory therein.

   The operation/transactions to and from the godown will continue regularly even in the absence of Asstt. Manager or any of the senior store-keepers according to pre-arrangement.

2. Registers/log books should be maintained on the gates to record no. of bags/packages coming in or going out of the godown on the basis of the invoice/lorry chalan/cash memo. etc. The security/ darwan at the gate shall have the right to challenge the quantity to count/verify the no. of bags/packages and to unload/reload the stocks in case of any doubt or discrepancy. On each morning the gate registers should be verified with the godown register/ books/invoice.

3. Neither the Asstt. Manager nor store-keepers should take the keys to their houses. After days work the keys should be kept in the iron safe of the office and the keys of iron safe will be kept by the Asstt. Manager(TDP.)

4. The Asstt. Manager along with the store-keeprs shall verify the stocks in the godown by counting bags as frequently as possible but not less than once in each fortnight and should record the result of the verification in the stock book.

3) Store-Keeper

Duties

1. Supervise the work of tally clerks, darwans and contractor laborers.
2. Insure that all receiving, storing, stacking, weighing and tallying is done in the prescribed manner.
3. Ensure that delivery orders are promptly and accurately completed.
4. To assign receipt/delivery to/from stocks and assure stock cards are properly maintained.
5. Maintaining good house keeping of facilities.
6. Promptly rebagging damaged bags and accounting for bags used.
7. To regularly physically verify stocks according to stack cards.
8. To maintain security and assure that unauthorised persons are not allowed in the godowns.
9. To act as Asstt. Manager and as directed by the Asstt. Manager.
10. Any other duties that may be assigned by Asstt. Manager.

Responsibilities

Responsible to Asstt. Manager for all operations under his supervision and to report any malpractions, irregularities or substandard performance.

Authorities

To verify the physical quantity of all receipts and despatches and recording any discrepancies.

4) Credit Assistant

Duties

1. Maintain the prescribed records and prepare the daily statements of sales on credit.
2. Maintains records of credit disbursement by customer.
3. Prepare the weekly, fortnightly and monthly reports on credit sales, total credit disbursed, credit realised, credit outstanding etc. on regular basis and submit it to Asstt. Manager TDP in time.
4. Any other works relating to credit activity that may assigned by his superiors.

Responsibilities

Responsible for maintaining all records relating to credit activity accurately and in prescribed manner and for reporting any irregularities to his supervisor.

Authority

None.

5) Tally Clerk

1. Ensure that all receiving, storing, stacking, weighing, tallying are done in the prescribed manner.
2. Prepares and signs the tally reports for the store-keepers verification.
3. Maintains the stock cards.
4. Any other duties that may be assigned by the store-keeper or godowns supervisor.

Responsibilities

Responsible to the store-keeper for all operations assigned.

Authorities

None.

6) Office Clerk/Typist

1. Maintains the prescribed records and prepares the weekly sales statement, weekly collection statement, and banking summary, weekly delivery statement, weekly quantity receipt statement, weekly consolidated statement of stock received from external sources, consolidated statement of stock, delivery orders, chalans, cash memos, credit memos, etc. in the prescribed manner.
2. Maintains all office files in the prescribed manner.
3. Maintains employee records.
4. Any other clerical or operational duties that may be assigned by his supervisor.
5. Do all typing works.

Responsibilities

Responsibilities for maintaining all stock and records accurately and in the prescribed manner and for reporting any irregularities to the godown supervisor.

Authorities

None.

.7) Darwan/Peon

1. Security watch for the safeguard of product, equipment and facilities during his assigned work shift.
2. During operational hours supervised the stackist of the labourers to assure that stacks are built and broken in the prescribed manner.
3. Supervises assigning to assure proper bag weighment and supervises rebagging and stitching.
4. Assures that unauthorized persons are not allowed in the godown.
5. Maintains house keeping of godown and outside area.

Responsibilities

Responsible for strict security of the stock and facilities and to notify his supervisors or the authorities in the event are irregularities are observed or have accured.

Authorities

None.

CHAPTER-II

SUPPLY AND DISTRIBUTION

As previously mentioned, prior to 1962/63, all fertilizers used in Bangladesh were imported. From 1952/53-1956-57, ammonium sulphate (AS) was the only major fertilizer imported. Other major fertilizers, such as, Urea, TSP, and Potash (MP), have been imported since 1957/58. Imports of Urea and TSP as percentage of the country's total supply have declined as domestic production capabilities increased. This is especially true for urea. Currently, the demand for urea in the country is met from domestic production. However, current domestic production may not be sufficient to meet future increased demand. About 25 percent of TSP demand in the country comes from domestic production while all potash requirements are imported. Currently, there are four urea plants and one TSP plant operating in Bangladesh. Name, location, and production capacity of these plants are as follows:

	Name of Plant	Location	Product	Annual Capacity (Lakh MT)
1.	Urea Fertilizer Factory(UFF)	Ghorasal	Urea	3.26
2.	Polash Fertilizer Factory(PFF)	Ghorasal	Urea	0.95
3.	Natural Gas Fertilizer Factory (NGFF)	Fenchuganj	Urea	1.06
4.	TSP Complex	Chittagong	TSP	1.37
5.	Zia Fertilizer Company Ltd	Ashuganj	Urea	5.28
	Total Capacity:			11.92

These plants are operated by a government-owned corporation, the Bangladesh Chemical Industries Corporation(BCIC).

The Natural Gas Fertilizer Factory in Fenchuganj is the oldest Urea Plant which commenced production in 1962/63. A large/scale urea plant is currently being built in Chittagong and is 80 percent complete. A feasibility study is also being conducted to build another large-scale urea plant in Jamalpur or near proposed Jamuna bridge. The country is expected to be more than self-sufficient when the Chittagong Urea Plant comes on stream. In fact, the country could have limited urea exports. From 1963/64 to the end of 1986, approximately 6.1 million MT of urea, 750,000 MT of TSP, and 7,250 MT of Gypsum were produced in Bangladesh.

BADC has been responsible for procuring the country's needed fertilizers from domestic and imported sources. Its procurement from domestic sources by product by year is presented in Table II-1 and the procurement through imports is shown in Table II-2. From 1952/53 to 1962/63, GOP imported about 1.3 million MT of fertilizers, of which AS accounted for nearly 80 percent of the total imports. From 1963/64 to 1985/86, BADC imported nearly 6.5 million MT of fertilizers with TSP and urea together accounting for a little over 80% of the total imports. Imported fertilizers have been mostly financed through grants, aid, loans, barters from various donor countries or agencies. Occasionally, fertilizer is imported through cash foreign exchange. The major donor countries or agencies include USA, (USAID), The Netherlands, Denmark, Norway(NORAD), IDA, ADB, UK, and Japan.

To develop the annual procurement plan for a given fertilizer product, BADC first prepares the annual sales target for the product with approval of the Ministry of Agriculture, BADC then determines the total procurement requirement based on the sales target and the buffer stock requirement, and estimated stocks currently held by BADC. After the total procurement requirement is determined, BADC then determines how much to buy from the domestic source(s) and through imports. The buffer stock requirement is based on 3-month sales for urea and 5-month sales for other products.

Currently BADC maintains 75 PDPs in 20 marketing regions. Except for the districts of Chittagong Hill Tracts and Bandarban, all fertilizers are sold through PDPs. BADC maintains thana sales centers in these districts. Fertilizer is moved from supply source (factories and ports) to PDPs and four transit locations (Narayanganj, Nagarbari, Bagabari, and Parbatipur) by one or more of the three surface transportation modes(rail, barge, and truck). The movement of fertilizer from supply sources and transit locations by mode of transportation during 1985/86 was as follows: Except for the NFGG at Fenchuganj, the rest of the supply sources (factories and ports) have access to all three transportation modes. The NGFF has only access to rail except for going to Azmariganj PDP by water and to Maizgaon by road in the Sylhet Region.

Table-II-1 Year-wise and Product-wise Procurement of Fertilizer from Local Sources

(In product metric ton)

	UREA					TSP.COMPLEX	
	NGFL	UFFL	ZFCL	POLASH	TOTAL	TSP	GYPSUM
1963-64	54125	-	-	-	54125	-	-
1964-65	69185	-	-	-	69185	-	-
1965-66	100280	-	-	-	100280	-	-
1966-67	82575	-	-	-	82575	-	-
1967-68	124130	-	-	-	124130	-	-
1968-69	82513	-	-	-	82513	-	-
1969-70	98252	-	-	-	98252	-	-
1970-71	43972	43900	-	-	87872	-	-
1971-72	56854	-	-	-	56854	-	-
1972-73	36458	153203	-	-	189661	-	-
1973-74	210479	210479	-	-	420958	-	-
1974-75	59832	23831	-	-	83663	24384	-
1975-76	47466	237532	-	-	284998	39812	-
1976-77	71328	202898	-	-	274226	43809	-
1977-78	75842	153983	-	-	229825	38360	-
1978-79	50116	228724	-	-	278840	60183	-
1979-80	84013	225263	-	-	309276	58881	-
1980-81	111565	246242	-	-	357807	74233	-
1981-82	114059	243535	61916	-	419510	59235	-
1982-83	86051	222281	118146	-	426478	66522	1473
1983-84	65997	195342	378973	-	640312	74458	1146
1984-85	108775	209111	387980	-	705866	59812	1835
1985-86	80220	258318	418066	22982	779586	91283	2800
1-7-86 to 31-12-86	32789	179945	209302	48397	470433	60811	-
Total	1946876	30134587	1574383	71379	6627225	751783	7254

Table-II-2 Year-wise & Product-wise Import of Fertilizer

(Figures are in Metric Ton)

YEAR	UREA	TSP	MP	DAP	AS	PS	ZINC	AP	AN	SP	OTHERS	TOTAL
1952-53	-	-	-	-	11925	-	-	500	500	-	-	12925
1953-54	-	-	-	-	138865	-	-	500	500	-	-	139365
1954-55	-	-	-	-	19750	-	-	-	-	-	-	19750
1955-56	20	93	150	-	48819	10	-	500	-	250	22	49864
1956-57	-	-	250	-	131704	-	-	-	-	250	-	132204
1957-58	11000	4591	350	-	116814	-	-	-	-	250	-	133005
1958-59	5700	-	200	-	86908	-	-	-	-	-	-	92808
1959-60	20000	10948	170	-	51550	-	-	-	-	-	-	82668
1960-61	55052	27400	15050	-	187405	-	-	-	5000	-	-	289907
1961-62	71772	20000	10417	-	142561	-	-	-	4925	-	-	249675
1962-63	13000	-	-	-	133088	-	-	-	-	-	-	146088
Total	176544	63032	26587	-	1069389	10	-	1500	10425	750	22	1348259
1963-64	-	-	-	-	7100	36	-	-	-	12	-	7148
1964-65	-	20384	-	-	7214	40	-	-	-	-	-	27638
1965-66	5867	49448	7315	-	7098	-	-	-	-	-	-	69728
1966-67	60350	46972	12018	-	15600	-	-	-	-	-	-	134940
1967-68	63700	58126	10160	-	-	-	-	-	-	-	-	131986
1968-69	89839	84986	24430	-	13605	-	-	-	-	-	-	212860
1969-70	115444	16244	55015	-	13608	-	-	-	-	-	-	200311
1970-71	106765	150953	1769	-	-	-	-	-	-	-	-	259487
1971-72	108829	2732	-	-	-	-	-	-	-	-	-	111561
1972-73	12558	118116	-	-	-	-	-	-	-	-	-	130674
1973-74	-	97083	41223	-	-	-	-	-	-	-	10850	149156
1974-75	142279	48180	7000	-	-	-	-	-	-	5000	30500	232959
1975-76	72310	222724	78380	-	-	2000	-	-	-	-	-	374414
1976-77	11000	20780	9188	-	-	-	-	-	-	-	-	40968
1977-78	260344	114593	17180	-	-	-	-	-	-	-	-	392117
1978-79	348200	103300	76800	83718	-	-	-	-	-	-	11436	623454
1979-80	286668	173182	60028	42234	-	-	-	-	-	-	11300	573412
1980-81	63936	193658	42335	36181	-	-	1500	-	-	-	18000	355610
1981-82	254329	147315	26000	36888	-	-	-	-	-	-	-	464532
1982-83	43009	135085	44000	71685	-	-	-	-	-	-	9400	303179
1983-84	93525	123807	60000	76420	-	-	-	-	-	-	2561	356313
1984-85	170850	407676	75000	-	-	-	1500	-	-	-	11526	666552
1985-86	195734	356092	87200	-	-	1000	-	-	-	-	-	640026
Total	2505536	2691436	735041	347126	64225	3076	3000	-	-	5012	205573	6460025
G.Total	2682080	2754468	761628	347126	1133614	3086	3000	15000	10425	6762	105595	7808284

The railroads are owned by GOB. There are two types of railroads - broad-guage (5'6") and meter-guage (3'3-3/4"). Most meter-guage rail roads are in the eastern half of the country and most broad-guage railroads are in the western half. The broad-guage line starts from Khulna supply source while the meter-guage line starts from the rest of the supply sources, Chittagong, Ashuganj, Ghorasal, and Fenchuganj. Due to lack of factory storage capacity the movement of fertilizer from the factories must be moved on a regular basis although fertilizer offtake is seasonal. In order to have regular movement, the stock is built up at BADC's godowns during the low offtake period. Due to limitation of BADC's godown capacities in the low offtake period and BADC's obligation to lift fertilizer from factories regardless of need, creates an imbalance between demand and supply for BADC. These limited storage facilities at the factories compel BADC to move fertilizer at higher cost. The low water level at river during dry season causes BADC to deviate from the lowest cost routes - that is by water. For trucking, the least cost routes often cannot be used due to non-availability of trucks. Rail wagons supplied to BADC by the railway often are of inferior quality and thus, a sizable number of wagons remain unutilized.

BADC prepares the monthly movement plan from supply sources based on the availability of transportation, the quantity they are obliged to lift from supply sources, and indented quantity by PDPs. The procedure to calculate indented quantity by PDPs is seldom followed. The procedure for inventory control at PDPs should be standardized. During 1985/86, BADC maintained a high inventory level which resulted in paying a significant amount of interest charges(Tk.19.02 crores) on working capital.

BADC has a total fertilizer storage capacity of about 4.5 lakh tons,of which 89 percent is owned and 11 percent is leased. A complete list of BADC-hired and BADC-owned godown capacities by sites is shown in Table II-3. Fertilizer godowns which are presently being built by BADC and the accompanying storage capacities are shown in Table II-4. With the completion of these godowns, BADC's own storage capacities will increase to 4.25 lakh MT.

The storage capacities at the factories are rather limited. For all factories combined, the current total capacity amounts to 139,500 MT, of which

Table II-3 PDP-wise/TSC-wise Storage Position and Stock Position
(In Metric Ton)

	Storage Capacity		
	Own	Hired	Total
1. Aligonj	-	1500	1500
2. Narsingdi	1900	1000	2900
3. Joydebpur	500	-	500
4. Mirkadim(proposed to be closed)	1400	1000	2400
5. Manikgonj	1000	600	1600
6. Sirajdikhan(closed)	1000	-	1000
7. Khanpur	-	2000	2000
Dhaka Region:	5800	6100	11900
8. Kishoreganj	6000	-	6000
9. Netrokona	5000	-	5000
10. Bhairab	4400	-	4400
11. Kuliarchar	2400	-	2400
Kishoreganj Region:	17800	-	17800
12. Mymensingh	5200	-	5200
13. Shambhuganj	2000	1000	3000
14. Gaffargaon	1000	1945	2945
Mymensingh Region:	8200	2945	11145
15. Jamalpur	6500	4000	10500
16. Melanda	5000	-	5000
17. Sherpur(Proposed to be closed)	200	400	200
Jamalpur Region:	11700	4400	16100
18. Tangail	3000	800	3800
19. Madhupur	5400	-	5400
20. Mirzapur (closed)	200	-	200
Tangail Region:	8600	800	9400
21. Tepakhola	4800	-	4800
22. Rajbari (closed) & Palong(closed)	500	-	500
23. Madaripur	1000	1250	2250
24. Takerhat	2000	-	2000
Faridpur Region	7500	1250	8750
25. Chittagong	7700	-	7700
26. Dohazari	2500	900	3400
27. Cox's Bazar	2400	-	2400
28. Sandwip	2400	-	2400
Chittagong Region:	15000	900	15900

Contd...

Table II-3 (Continued)

	Storage Capacity		
	Own	Hired	Total
29. Chittagong Hill Tracts	3300	721	4021
30. Bandarban	1000	320	1320
31. Chowmohani	3500	-	3500
32. Feni	6500	-	6500
33. Hatiya	3400	-	3400
34. Laximpur	2400	-	2400
Noakhali Region	15800	-	15800
35. Comilla	9000	-	9000
36. B. Baria	6000	-	6000
37. Chandpur	6500	-	6500
38. Daudkandi	4000	-	4000
Comilla Region	25500	-	25500
39. Sylhet	1000	1050	2050
40. Habiganj(closed)	-	2220	2220
41. Saistaganj	-	2650	2650
42. Maizgaon/Chattak/Fenchugonj	1000	382	1382
43. Azmirigonj	200	665	865
44. Sreemongal	1000	1450	2450
45. Sunamgonj	-	1080	1080
46. Kulaura	400	1000	1400
Sylhet Region	3600	10497	14097
47. Rajshahi	9200	3550	12750
48. Natore	8400	-	8400
49. Atrai	4000	-	4000
50. Amnura	6000	-	6000
51. Rohanpur	4000	-	4000
52. Naogaon(proposed to be closed)	2400	-	2400
53. Chapai N.Gonj(closed)	400	400	800
Rajshahi Division	34400	3950	38350
54. Dinajpur	7400	-	7400
55. Shibgonj	12500	-	12500
56. Panchagar	4000	-	4000
57. Parbatipur	6400	-	6400
58. Charkhai	7800	-	7800
Dinajpur Region	38100	-	38100
59. Rangpur	8500	1600	10100
60. Mohendranagar	12000	-	12000
61. Saidpur	2400	3459	5859
62. Kurigram	2200	3400	5600
63. Gaibandha	5600	-	5600
Rangpur Region	30700	8459	39159

Table II-3 (Continued)

	Storage Capacity		
	Own	Hired	Total
64. Bogra	14500	-	14500
65. Santahar	25000	-	25000
66. Joypurhat	2400	1900	4300
Bogra Region	41900	1900	43800
67. Pabna/Ishwardi	3200	2750	5950
68. Muladuli +	5000+ 1000	-	6000
69. Ullapara	8000	-	8000
70. Shahjadpur	2000	-	2000
71. Sirajgonj	5500	2000	7500
72. Raigonj (closed)	1000	-	1000
Pabna Region	25700	4750	30450
73. Khulna	2500	-	2500
74. Satkhira	3500	-	3500
75. Bagerhat	400	-	400
Khulna Region	6400	-	6400
76. Barisal	7400	-	7400
77. Bhola	9900	-	9900
78. Kawkhali	4000	-	4000
Barisal Region	21300	-	21300
79. Patuakhali	3500	-	3500
80. Barguna	3200	-	3200
Patuakhali Region	6700	-	6700
81. Jessore	6500	-	6500
82. Kaligonj	5500	-	5500
83. Magura	2200	-	2200
84. Narail	1500	-	1500
Jessore Region	15700	-	15700
85. Kushtia	4000	-	4000
86. Chowadanga	7000	-	7000
Kushtia Region	11000	-	11000
All Regional Total :	356400	46992	403392

Table II-3 (Continued)

	Storage Capacity		
	Own	Hired	Total
Transit Points			
Narayanganj	-	700	700
Khulna	16000	-	16000
Chittagong	25000	-	25000
Bagabari	4000	-	4000
Total Transit Point	45000	700	45700
Total BADC Capacity	401400	47692	449092

Table 11-4. Progress of Fertilizer Godown Construction

Source of Fund and allocation	Location of Godowns with Capacity		Progress achieved
1. Ctg. H. Tracts Development Project (ADB financing)	Matiranga	200 MT	Completed.
	Marung	200 MT	85%
	Panchari	200 MT	85%
	Diginala	200 MT	Completed.
	Mohalchari	200 MT	90%
	Total	1000 MT	
2. CIP-II			
ADB Financing (US$ 2.335 million)	Shambhugonj	2000 MT(additional)	45%
	Shambhugonj	4000 MT	Substantially completed.
	Parbatipur	6000 MT	45%
	Total	10,000 MT	
3. Construction of Fert. godowns under Dutch grant(Phase-III).	Kotowali	2000 MT	92%
	Kulaura	1000 MT	Nil
	Shunamgonj	3000 MT	89%
	Sayestagonj	3000 MT	94%
	Ajmirigonj	3000 MT	85%
	Total	12,000 MT	
4. Construction of Fert. godowns under special Govt. Project in Ctg. H. Tracts.	Kawkhali	200 MT	60% *
	Ali Kadam	200 MT	60% *
	Paithong	200 MT	30% *
	Maniksori	200 MT	30% *
	Total	800 MT	
	Grand-Total=	23,800 MT	

* Under this program originally it was planned to construct six godowns with 1000 MT capacity. But due to nonavailability of suitable land at Rajashhali and Bagaichari work could not be started at these two places.

24,500 MT is the bagged storage. The current storage capacity by factory is as follows:

	Bagged	Bulk	Total
---	---	---MT---	
ZFCL	8,000	40,000	48,000
UFFL	10,000	50,000	60,000
NGFFL	2,500	10,000	12,500
Polash	NA	NA	NA
TSP Complex	4,000	15,000	19,000
Total	24,500	115,000	139,500

Due to BADC's obligations to lift fertilizer from the factories, the actual inventory in a godown frequently exceeds godown capacity and implementation of the best storage and movement plan is not possible.

A stock control and accounting system designed with assistance from IFDC was introduced by BADC's MSS Division(Fertilizer Division) in July 1981. With full implementation of the system, the accountability for fertilizer will be maintained at all levels and information reporting on sales, stock positions, despatch, and other items of interest will be more relaible, accurate, complete, and timely. Data required in this system is already being collected and thus, can be handled with the current BADC staff. This system has replaced BADC's old method of reporting.

However, due to late and incorrect reporting, consolidation of reported data in Accounts forms at BADC headquarters has become very difficult and sometimes impossible. Currently, about 80 percent of the reports are correct and are submitted on a timely basis. The remaining 20 percent are either incorrect or delayed, which causes a delay in consolidation of national data. IFDC assisted with several training programs on stock accounting and reporting as well as on physical verification of stock. The BADC officers and staff who have participated in the training programs include regional manggers, assistant managers, thana

inspectors, senior and junior storekeepers, clerks and assistant accountants of the regional controllers' offices.

BADC has made good use of the stock control and accounting system. It has published several reports, including the Sales Quantity Report (by PDP,by region,by product); the Cash Book Summary and Bank Reconciliation (by PDP by region); the Mode-wise Movement Report (by consigner and by destination); the Despatch Report (by destination,by product,by consigner); the Receipt Quantity Report (by source,by commodity,by PDP,by region); the Credit Sales Realization and Outstanding Report (by PDP, by customer group, by region); the Stocks-in-Transit Report (by invoice, by PDP, by source, by region, by product); and the Transit Loss Report (by PDP, by region, by source, by product, by mode).

These and other reports need to be published on a regular basis. However, due to incorrect or late reporting, they cannot be finalized as scheduled, thus diminishing the value. Nevertheless, the reports have revealed some major findings. These findings include:

a. There was discrepancy in stocks in transit on June 30, 1984 per the newsletter (59,602 mt) versus per invoice-wise list prepared by IFDC (50,075 mt), as shown in Table II-5.
b. There was a transit loss of 1,926 mt in 1983/84 (Table II-6).
c. The Bank Reconciliation Statement had many errors which were brought to the attention of BADC but no definitive action has occurred. One notable exception, IFDC on request of BADC, started reconciliation of Bank Account in February 1987 and completed the reconciliation of Bank account for the Dhaka Region, the Comilla Region (except for B. Baria), and the Chittagong Division. Discrepancies were reported to BADC.

At the request of BADC an assessment of credit sales realization, and outstanding were made by IFDC in 1984/85 and 1985/86 and is summarized in Table II-7 and Table II-8. A study on BADC's incidental costs of fertilizer distribution for the period 1973/74 through 1977/78 was made by IFDC in 1981. The incidental cost increased from Tk.104 million in 1973/74 to Tk.353 million in 1977/78 while fertilizer sales increased from 380 thousand long tons to 715 thousand long tons in 1977/78. On the per ton basis, the incidental costs

Table II-5. BADC Stock-in-Transit on 30.6.84.

(As per this report and Newsletter)

Name of Consignor	UREA	GTSP	PTSP	DAP	MP	GYPSUM	OTHERS	TOTAL
1. Chittagong	299.25							299.25
2. Khulna	5,417.00	2,556.10			820.25			8,793.35
3. Narayanganj	644.50							644.50
4. Ghorasal	7,700.00							7,700.00
5. Ashuganj	13,305.57							13,305.57
6. Fenchuganj	4,651.21							4,651.21
7. TSP Complex		1,404.43	17.50			165.36		1,587.29
Sub-Total	32,017.53	3,960.53	17.50	-	820.25	165.36	-	36,981.17
Stock at ship at Khulna	13,094.00	-	-	-	-	-	-	13,094.00
Total	45,111.53	3,960.53	17.50	-	820.25	165.36	-	50,075.17
Stock in transit as per Newsletter	46,647.00	6,350.00	2,613.00	3,977.00	15.00			59,602.00
(Excess) short qty. shown in N.letter.	(1,535.47	(2,389.47)	(2,595.50)	(3,977.00)	805.25	165.36		(9,526.83)

Table II-6. Inter Transit Loss, 1983-84, Region-wise, Origin-wise & Mode-wise

Name of Region (Origin-wise)	Chittagong			Khulna			Ishurdi			Ghoraal		Ashuganj		Fenchuganj		TSP Complex			Total		
	Barge	Truck	Rail	Barge	Truck	Rail	Barge	Truck	Rail	Barge	Truck	Barge	Rail	Barge	Rail	Barge	Truck	Rail	Barge	Truck	Rail
Dhaka	2.892	-	-	-	-	-	-	-	-	0.282	-	2.847	-	-	-	6.450	-	0.831	13.971	-	0.831
Khulna(Region)	0.514	-	5.919	-	-	-	-	-	-	-	-	2.611	20.031	-	0.560	-	-	11.022	3.125	-	50.032
Jamalpur	-	-	1.700	-	-	-	-	-	3.550	-	-	-	14.614	-	1.146	-	-	36.805	-	-	59.817
Mymensingh	-	-	0.250	-	-	-	-	-	0.328	-	-	-	11.518	-	0.150	-	-	17.022	-	-	29.268
Tangail	-	-	-	-	-	-	-	0.582	-	-	0.021	-	-	-	-	-	-	-	-	0.603	-
Faridpur	-	-	-	-	-	0.270	0.248	-	-	0.576	-	25.436	-	-	-	-	-	-	26.231	-	0.270
Chittagong	-	429.172	-	-	-	-	-	-	-	-	-	-	-	-	1.975	-	-	-	-	429.172	1.975
Chg.H.Tracts	-	48.481	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.481	-
Bandarban	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Noakhali	-	8.002	-	-	-	-	-	-	-	-	-	-	7.920	-	21.111	-	-	-	-	0.005	29.031
Comilla	0.110	10.000	8.000	-	-	-	-	-	-	-	-	13.091	22.800	-	39.432	-	-	11.400	13.201	18.000	74.232
Sylhet	-	-	6.100	-	-	-	-	-	-	-	-	-	-	0.150	14.005	-	-	0.050	0.150	-	14.155
Rajshahi	-	-	6.020	-	-	2.700	-	-	-	-	-	-	25.097	-	-	-	-	-	-	-	33.813
Dinajpur	-	-	35.568	-	-	1.545	-	-	0.750	-	-	-	207.752	-	7.036	-	-	57.927	-	-	308.597
Rangpur	-	-	40.632	-	-	2.571	-	-	4.586	-	-	-	153.212	-	23.085	-	-	30.063	-	-	254.149
Bogra	-	-	23.644	-	-	-	0.050	-	0.400	3.534	-	182.036	10.166	-	-	-	-	58.461	85.620	-	92.671
Pabna	-	-	-	-	0.053	0.022	-	-	-	1.813	-	49.065	-	-	-	-	-	-	50.878	0.053	0.022
Khulna	-	-	-	-	0.459	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.459	-
Barisal	0.490	-	-	2.177	-	-	-	-	-	0.600	-	19.799	-	-	-	-	-	-	23.226	-	-
Patuakhali	-	-	-	-	-	-	-	-	-	-	-	1.719	-	-	-	-	-	-	1.719	-	-
Jessore	-	-	-	-	0.120	0.050	-	-	-	-	-	-	0.165	-	-	-	-	-	-	0.126	0.215
Kushtia	-	-	-	-	1.084	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.084	-
Total All Region	3.966	495.654	112.553	2.177	1.722	7.164	0.298	0.582	9.614	7.005	0.021	298.098	479.265	0.150	114.501	6.450	-	226.181	318.121	497.983	949.278
Chittagong Shipping	-	5.496	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.496	-
Khulna Shipping	-	-	-	-	-	-	-	-	-	2.373	-	119.448	-	-	-	2.950	-	-	124.771	-	-
Narayangonj (Movement)	16.200	-	7.625	-	-	-	-	-	-	1.446	-	8.407	-	-	-	4.500	-	-	30.553	-	0.025
Grand-Total	20.166	501.154	117.573	2.177	1.722	7.164	0.298	0.582	9.614	10.824	0.021	423.953	479.265	0.150	114.501	15.900	-	226.181	473.445	503.479	949.303

Total Transit Loss
1983-84

Barge = 473.445 M. Tons
Truck = 503.479 M. Tons
Rail = 949.303 M. Tons
Total =1926.227 M. Tons

Table II- 7. Classified Statement of Credit Sales Realisation and Outstanding,1984/85

Figures rounded upto nearest Taka.

Classification of Credit sales	Opening balance on 1-7-84	Net Credit sales during 1984-85	Realisation during 1984-85	Closing balance on 30-6-85
Against Bank Guarantee	3,85,11,570	16,81,19,385	19,17,75,158	1,48,55,797
Demonstration Plot	15,47,413	11,30,466	3,01,973	23,75,906
Cooperative	14,15,752	26,49,188	15,29,207	25,35,733
Agr. Relief & Rehabilitation	3,89,259	7,83,29,909	45,11,002	7,42,08,166
Seed Multiplication	13,34,420	48,50,741	12,24,939	49,60,222
Cattle Farm	18,244	2,50,347	18,244	2,50,347
BADC Farm	1,29,670	4,13,119	1,90,631	3,52,158
Supervised Credit	1,01,99,509	9,68,358	25,12,956	86,54,911
IRCP	4,07,867	3,04,910	4,26,994	2,85,783
ITTAP	4,99,727	45,864	49,180	4,96,411
FAO/UNDP	4,193	4,381	7,364	1,210
Jute Loan	14,040	1,460	3,685	11,815
Agricultural University	54,386	59,961	73,063	41,284
ADE	6,559	39,874	45,707	726
ASC BADC	-	11,354	10,272	1,082
Sugarcane	-	41,861	41,861	-
Others	-	86,220	77,460	4,760
Grand Total	5,45,32,609	25,73,07,398	20,27,99,696	10,90,40,311

Table II-8. National Summary of Credit Sales Realization and Outstanding, July 1985-June 1986.

"Figures rounded upto nearest Taka"

Classification Credit Sales	Opening Balance on 1.1.85	Net Credit Sales During July'85-June'86	Realization During July'85 to June 1986	Closing Balance on 30.6.86
Agr. Relief & Rehabilitation	5,20,51,918	77,04,170	2,17,51,706	3,80,04,382
Cooperative	69,66,644	57,16,642	55,65,529	71,17,757
Supervised Credit	75,05,573	1,34,740	17,90,598	58,49,715
Agril.Extension Dept.	46,78,541	9,51,707	4,66,574	51,63,674
Bank Guarantee	1,07,72,430	71,40,985	1,33,96,645	45,16,770
Rubber Estate	16,09,874	26,34,390	-	42,44,264
Seed Multiplication	16,84,971	40,80,217	19,97,074	37,68,114
Demonstration Plot	17,21,106	8,08,584	1,15,657	24,14,033
U.N.O.	23,74,735	49,347	33,597	23,90,485
BADC Farm	20,83,378	19,88,591	27,70,007	13,01,962
IRCP	8,16,223	1,346	91,489	7,26,080
ITTAP	6,99,124	10,37,181	11,33,040	6,03,265
Jute Loan	4,17,318	-	17,842	3,99,476
Dairy Farm	2,50,347	97,441	-	3,47,788
Sharisha Bari TSC	2,43,409	-	879	2,42,530
Horticulture Farm	1,10,471	10,875	-	1,21,346
IRDB	-	1,20,577	-	1,20,577
ADE	16,792	1,82,986	82,766	1,17,012
IAPP	1,30,806	6,014	25,929	1,10,891
UNDP	-	1,35,904	56,589	79,315
ASC BADC	19,789	90,745	37,072	73,462
Agri. University	48,641	33,466	48,641	33,466
ARP	13,372	-	-	13,372
BADC Sales Center	12,158	31,298	32,369	11,087
Thana Inspector	10,287	-	-	10,287
Deputy Commissioner	-	7,878	-	7,878
Rajshahi Army	-	6,815	-	6,815
BARC	1,237	-	-	1,237
Chairman,Sandwip	-	1,86,000	1,86,000	-
R.A.Traders	99,877	-	99,877	-
BRRI	21,253	-	21,253	
CERDI	-	49,075	49,075	-
NATIONAL Total	9,43,60,274	3,32,06,974	4,97,70,208	7,77,97,040

rose from Tk.273.8 per ton sold to Tk.490.5 per ton sold (Table II-9). Of the incidental cost, movement and handling expenses were the largest. Other significant costs were dealer commissions, inventory losses, overhead and staff pay and allowances. A complete study on incidental costs by PDP would be needed in order to determine true potential cost savings from closing a PDP.

A route cost manual referred to as the Least Cost Routing, was initially prepared by IFDC in 1985 and was updated in December 1986. The manual has been adopted by BADC in planning fertilizer movements. This manual gives reasonable movement costs from product sources to destination based on volume to be moved. In order to minimize total movement costs from all sources to all destinations, the linear programming technique should be used and a draft is being developed.

The new system of physical verification for stock at godowns was developed with assistance from IFDC to correct the deficiency of the old practice of physical verification. BADC has introduced this new system but the Physical Verification report at national level remains unpublished for a long time because of delay in submitting some local reports.

The following are some suggested actions for improving BADC's distribution operations for fertilizer:

a. The valid periods for all transportation and handling contracts should be uniform. This will enable BADC to implement its cost minimization program. BADC should also meet with contractors' frequently to solve movement constraints.
b. Unit Train Operation should be given priority to avail proposed discount of rail freight.
c. The linear programming and differential cost technique should be applied to minimize BADC's movement costs.
d. BADC officers should be more vigilant at loading and unloading points in order to reduce the transit loss. If railway does not take the responsibility for the transit loss, the unit trains from sources should be operated under BADC's control.
e. Overstocking of fertilizer at PDP godowns should be avoided. The TDP operation may reduce the overstocking at PDPs.

Table II-9 . Incidental costs FY 1973/74 through FY 1977/78

(Figures shown in '000' Taka

Total long tons of fertilizer sold	1973-74 379,885		1974-75 279,572		1975-76 457,785		1976-77 512,600		1977-78 715,053		5 Years Total 2,348,895	
Incidental Expenses	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
Total movement and handling expenses	43,718	42.1%	48,199	40.9%	113,751	42.3%	87,220	33.0%	126,068	35.7%	418,956	37.9%
Taka per ton sold	115.0		172.4		248.5		170.2		175.3		178.4	Avg.
Commissions paid	17,094	16.4	16,774	14.3	54,465	20.2%	61,124	23.0	72,728	20.6	222,185	20.1
Taka per ton sold	45.0		60.0		119.0		119.2		101.1		94.6	Avg.
Inventory losses*	22,376	21.5	16,467	14.0	26,964	10.0	30,192	11.5	42,359	12.0	138,358	12.5
Taka per ton sold	58.9		58.9		58.9		58.9		58.9		56.9	Avg.
Overhead	6,332	6.0	11,194	9.5	48,186	17.9	27,658	10.5	49,165	13.9	142,535	12.9
Taka per ton sold	16.7		40.0		105.3		54.0		68.4		60.7	Avg.
Staff pay & allowances	7,697	7.4	12,097	10.2	12,359	4.6	14,441	5.5	22,775	6.4	69,369	6.3
Taka per ton sold	20.3		43.3		27.0		28.2		31.7		29.5	Avg.
Physical verification and rebagging	1,402	1.3	5,917	5.0	1,577	.6	9,428	3.6	5,471	1.6	23,795	2.1
Taka per ton sold	3.7		21.2		3.4		18.4		7.6		10.1	Avg.
Rent of hired godowns	932	.9	2,019	1.7	3,333	1.2	4,909	1.9	4,772	1.4	15,965	1.4
Taka per ton sold	2.5		7.2		7.3		9.6		6.6		6.8	Avg.
Repair & Maintenance	1,073	1.0	1,730	1.5	1,686	.6	8,155	3.1	4,692	1.3	17,336	1.6
Taka per ton sold	2.8		6.2		3.7		15.9		6.5		7.4	Avg.
Establishment costs	1,214	1.2	1,486	1.3	2,263	.8	3,400	1.3	4,529	1.3	12,892	1.1
Taka per ton sold	3.2		5.3		4.9		6.6		6.3		5.5	
Cost od dunnage	-	-	73	0.1	212	.1	797	.3	902	.3	1,984	.2
Taka per ton sold	-		0.3		0.5		1.6		1.3		.8	Avg.
Publicity & Advertising	64	.1	85	.1	172	.1	693	.3	704	.2	1,718	.2
Taka per ton sold	0.2		0.3		0.4		1.4		1.0		.7	Avg.
Interest on working Capital	991	1.0	-	-	4,011	1.5	6,352	2.4	573	.2	11,927	1.1
Taka per ton sold	2.6		-		8.8		12.4		0.8		5.1	Avg.
Sub-Total	102,893		116,041		268,979		254,369		334,738		1,077,020	
Taka per ton sold	270.9		415.1		587.7		496.4		465.5		458.5	Avg.
Capital Expenditures	1,115	1.0	1,604	1.4	248	.1	7,878	3.0	17,946	5.1		2.6
Total incidental Exps.	104,008	100%	117,645	100%	269,227	100%	262,247	100%	352,684	100%	1,105,811	
Taka per ton sold	273.8		420.8		588.1		511.6		490.5		470.8	Avg.

* Inventory losses are calculated at a constant annual rate in relation to tonnage sold and consistant with the total 5 year loss calculated

Note: Sources of information is BADC Controller of Accounts except inventory losses.

f. The outstanding credit sales for fertilizer should be verified and confirmed by the parties concerned so that correct credit accounting and reporting can be assured.

g. Bank balances should be reconciled between PDPs, Bank A/c. and Headquarters Bank A/c. and the balances should be confirmed and discrepancies identified.

h. A mobile audit team could be formed to conduct physical verification of stock at selected PDPs without advance notice to PDP management. The year-end reports on physical verification should be promptly published and distributed.

i. A team of accounting & reporting responsibility with one staff member from each reporting location should be formed & the transfer of staff member should be done within the team in order to ensure correct reporting.

j. The ship discharge reports should be completed immediately after completion of discharge and distributed to all consignees for confirmation of despatched quantity.

k. The income statement and balance sheet should be prepared for each PDP. This will enable BADC to measure the efficiency of each PDP.

l. Projected financial sources and use of revenue for BADC should be made for the next five years.

CHAPTER-III

FERTILIZER USE

Fertilizer use in Bangladesh has increased markedly since its first introduction in 1952/53 with some 8600 MT of materials(principally AS) and is expected to reach 1.33 million MT in 1986/87. (See Table III-1).

Urea, TSP, and MP have been the three principal fertilizers used since 1963/64. These fertilizers together supply virtually all of the annual chemical fertilizer plant nutrients used in Bangladesh; Urea accounted for 69 percent, TSP for 26 percent and MP for 5 percent in 1985/86. The rate of growth in fertilizer use has varied from year to year, ranging from 131 percent in 1956/59 to 36 percent in 1955/56. From 1952/53 to 1959/60, total consumption of fertilizer increased only a little over 40,000 MT but it increased rapidly during 1959/60 - 1970/71. Consumption was somewhat erratic during 1970/71-1974/75 but nearly tripled from 1974/75 to 1977/78. In terms of individual nutrients, as shown in Figure III-1, use of nitrogen(N) has increased the most since 1974/75, followed by phosphate (P_2O_5) and potash (K_2O). Use of fertilizer continued to grow through 1984/85 but declined slightly in 1985/86. Consumption rate has recovered in 1986/87. The growth in fertilizer use was disrupted in the early seventies due to the liberation war, diversion of the nation's financial resources for reconstruction of the economy, successive bad weather, and supply shortage during 1973/75. The drop in consumption in 1974/75 was also partly due to supply disruption from the Ghorasal Urea Plant, when the plant was shut down for four months.

Use potential - Inspite of the impressive increase in fertilizer use in the past and the report that nearly all farmers have tried fertilizer at one time or another, fertilizer use in Bangladesh is far from reaching estimated agronomic requirements. For all fertilizer combined, the actual usage represented 29 percent of estimated agronomic potential in 1985/86. Product-wise, the actual use of urea represented 46 percent of estimated potential while TSP and MP represented 20 percent and 5 percent respectively (Table III-2). In terms of product tonnage, estimated agronomic requirements for the country in 1985/86 should have been around 40.46 lakh MT, with 17.29 lakh

Table III-1: Fertilizer Consumption by Product and By Year
(In Metric Tons)

Year	PRODUCT					% Change Over Previous Year				
	UREA	TSP/DAP	MP	OTHERS	TOTAL	UREA	TSP	MP	OTHERS	TOTAL
1952-53	-	-	-	8571	8571	-	-	-	-	-
1953-54	-	-	-	12857	12857	-	-	-	50	50
1954-55	-	-	-	17143	17143	-	-	-	33	33
1955-56	-	-	-	10952	10952	-	-	-	-36	-36
1956-57	-	-	-	25290	25290	-	-	-	131	131
1957-58	1232	830	-	25417	27479	-	-	-	1	1
1958-59	3779	516	-	26452	30747	207	-38	-	4	12
1959-60	9375	2184	-	38243	49802	-4	323	-	45	62
1960-61	30869	6608	1677	27820	66974	229	203	-	-27	34
1961-62	29479	6089	1041	31408	68017	-5	-8	-38	13	2
1962-63	41780	3130	1427	4552	50889	42	-49	37	-86	-25
1963-64	76150	23352	3473	1059	104034	82	646	143	-77	104
1964-65	72143	19279	3369	542	95333	-5	17	-3	-49	-8
1965-66	84612	20347	2743	192	107894	15	6	-18	-65	13
1966-67	122758	34304	7427	200	164689	45	69	171	15	53
1967-68	154525	48918	10989	86	214518	26	43	48	-57	30
1968-69	102496	53785	12632	--	228913	5	15	-	-	7
1969-70	199606	66584	15350	-	281540	22	24	22	-	23
1970-71	215756	76098	17386	-	309240	8	14	13	-	10
1971-72	172487	61101	14155	-	247743	-20	-20	-19	-	-20
1972-73	280700	90337	18763	-	389800	63	48	33	-	57
1973-74	271910	95322	18687	-	385916	-3	6	-	-	-1
1974-75	176982	76378	17789	12893	284042	-35	-20	-5	-	-26
1975-76	316917	111674	22466	14053	465110	79	46	26	9	64
1976-77	358882	127594	22738	11587	520801	13	14	1	18	12
1977-78	487526	195108	41890	6036	730560	36	53	84	-48	40
1978-79	476494	215298	44715	8990	74597	-2	10	7	49	2
1979-80	541848	251439	46692	11540	851519	14	14	4	28	14
1980-81	559766	256797	45204	13412	875179	3	2	-3	16	3
1981-82	518775	256226	44836	8716	829323	-7	-	-1	-35	-5
1982-83	629058	279160	50420	9780	968418	21	9	12	12	17
1983-84	708070	354560	63222	3208	1129060	13	27	25	-67	17
1984-85	831801	346073	69271	13075	1160220	17	-2	10	308	12
1985-86	794946	297471	59867	4153	1156437	-7	14	-14	-68	-8
1986-87 (Target	895000	360000	70000	-	1325000	13	21	17	-	15

FIGURE III-I. CONSUMPTION OF FERTILIZER BY DIFFERENT NUTRIENTS

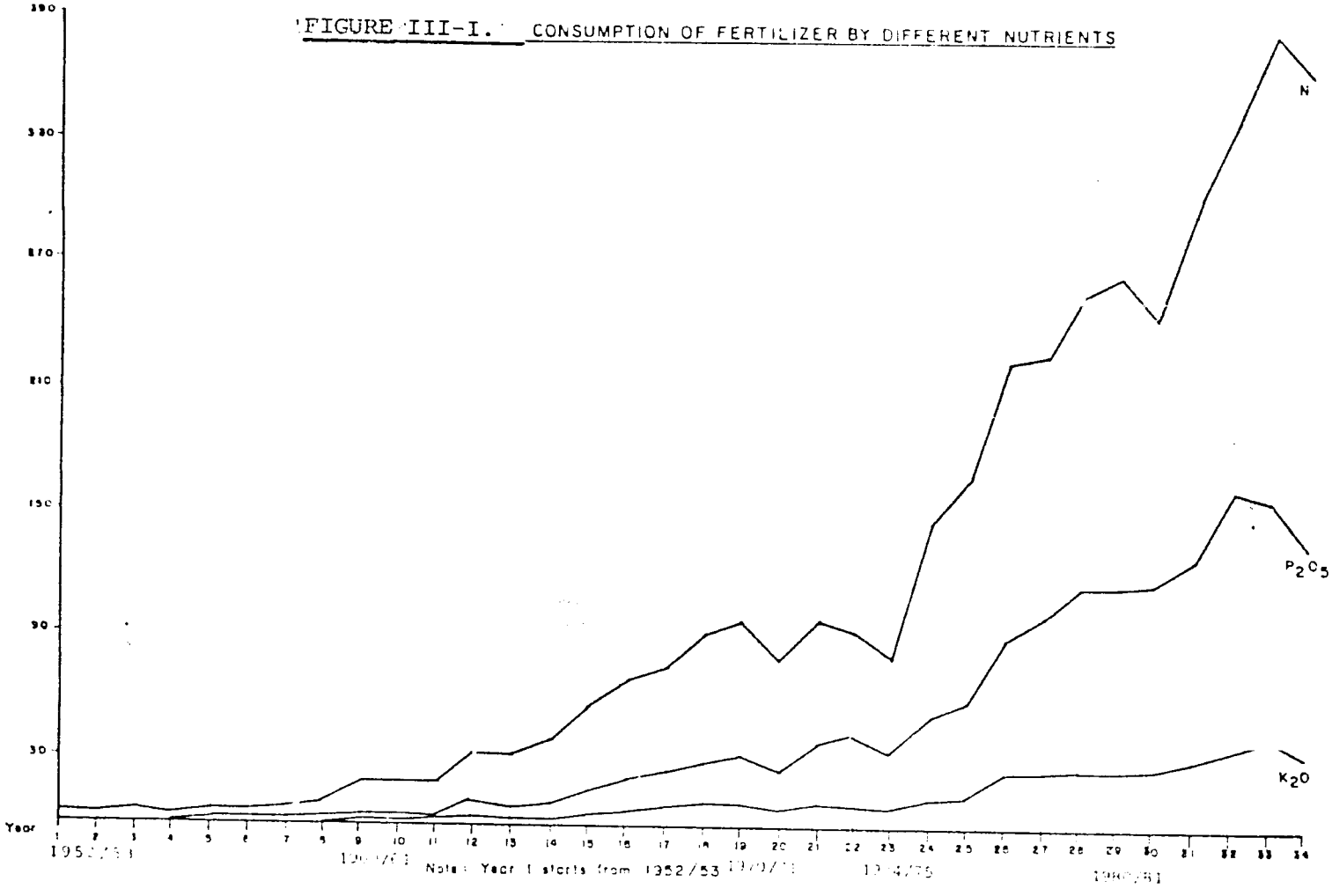


Table 2. Agronomic Requirement of Fertilizer vis-a-vis 1985-86 use level

Region	Agronomic Requirement ('000' MT)				% Consumed in 1985-86 compared to agronomic requirement			
	Urea	TSP	MP	Total	Urea	TSP	MP	Total
Dhaka	104	85	51	240	92	42	14	58
Mymensingh	95	78	43	216	36	08	02	20
Jamalpur	61	52	27	140	52	17	06	31
Kishoreganj	81	66	40	187	53	19	04	31
Tangail	57	50	29	136	46	25	08	30
Faridpur	76	73	44	193	25	10	04	15
Chittagong	79	66	35	180	58	17	02	32
CTG.H.Tracts	16	12	06	34	63	30	03	40
Noakhali	84	75	40	199	30	20	01	17
Comilla	112	98	58	268	59	34	09	39
Sylhet	124	104	67	295	20	07	04	12
Rajshahi	118	113	63	294	43	21	09	27
Pabna	65	62	35	162	81	31	10	47
Bogra	72	64	35	171	85	38	20	54
Rangpur	167	132	78	377	35	12	06	22
Dinajpur	84	72	36	192	38	28	17	38
Khulna	72	55	25	152	29	11	03	18
Jessore	74	69	37	180	48	21	07	29
Kushtia	41	37	19	97	86	42	22	57
Barisal	98	86	43	227	20	06	01	11
Patuakhali	49	39	18	106	09	01	00	05
Total:	1729	1488	829	4046	46	20	07	29

Source: Dr. Amirul Islam (IFDC Consultant), April 1980. A Micro Study of Potential Agronomic Requirement for Bangladesh.

Note : BADC Monthly Fertilizer Newsletter No. 100.

MT for urea, 14.88 lakh MT for TSP, and 8.29 lakh MT for MP. In terms of total nutrient, the agronomic requirement should have been slightly below 2 million MT. Aside from low usage per cropped acre, use of N, P_2O_5, and K_2O has also been unbalanced (Table III-3). The recommended nutrient ratio by IFDC based on agronomic potential is 1:0.86:0.63 while the actual ratio was 1:0.4:0.1.

Seasonal Demand - As shown in Table III-4 , fertilizer is used in three distinct crop seasons, Aman (July-October), Rabi/Boro (November-March) and Aus (April-June). While tonnage has generally increased in every season. Rabi/Boro is by far the heaviest use season in terms of total use and per cropped acre. It is also the season that has had the fastest growth. In 1985/86, about 52 percent of all fertilizers was used in the Rabi/Boro season and the use in that season has increased five-fold during 1971-85. Fertilizer use in the Aman season and the Aus season has increased three times each during the comparable period. The Spectacular growth in the Boro season has been attributed to an expansion in cropped acreage and a rapid increase in application rates.

Geographication Variation - For all fertilizers combined, the Rajshahi Division consumed the most among four divisions in the country in 1985/86, with 390 thousand MT used. It was followed by the Dhaka Division with 353 thousand MT, the Chittagong Division with 247 thousand MT, and the Khulna Division with 167 thousand MT (Table III-5). However, the fastest growth has come from the Khulna Division, followed by the Rajshahi Division, the Dhaka Division, and the Chittagong Division (Table III-5, Figure III-2).

On the per acre basis, several regions in the country used more than 100 lbs. per acre of cropped land in 1985/86. These regions are Dhaka, Comilla, Chittagong Hill Tracts, Bandarbon, Bogra, Pabna, and Kushtia. They, together accounted for 42 percent of the total consumption tonnage in the country even though their total crop area accounted for only 23 percent of the country's total. Several regions used less than 50 lbs. per cropped acre in the same year. These regions are Faridpur, Sylhet, Khulna, Barisal, and Patuakhali. They together accounted for 27 percent of the country's total cropped land and 11 percent of the nation's total fertilizer consumption.

Table III-3. Fertilizer Nutrient Consumption in Bangladesh, 1952/53 to 1985/86

Ye	N	P_2O_5	K_2O	Total	N:P_2O_5: K_2O
		(1,000 Metric Tons)			
1952/53	1.8	-	-	1.8	1:0.00:0.00
1953/54	2.7	-	-	2.7	1"0.00:0.00
1954/55	3.6	-	-	3.6	1:0.00:0.00
1955/56	2.3	-	-	2.3	1:0.00:0.00
1956/57	5.2	-	-	5.2	1:0.00:0.00
1957/58	5.9	0.4	-	6.3	1:0.07:0.00
1958/59	7.4	0.3	-	7.7	1:0.04:0.00
1959/60	10.5	1.0	-	13.5	1:0.08:0.00
1960/61	20.0	3.0	1.0	24.0	1:0.15:0.05
1961/62	19.8	3.1	0.6	23.5	1:0.16:0.03
1962/63	20.0	1.4	0.9	22.3	1:0.07:0.04
1963/64	35.1	10.8	2.0	47.9	1:0.30:0.06
1964/65	33.3	8.9	2.0	44.2	1:0.27:0.06
1965/66	38.9	9.4	1.6	49.9	1:0.24:0.04
1966/67	55.6	15.8	4.5	75.9	1:0.28:0.08
1967/68	71.1	22.5	6.6	100.2	1:0.32:0.09
1968/69	74.7	24.7	7.6	107.0	1:0.33:0.10
1969/70	91.8	30.6	9.2	131.6	1:0.33:0.10
1970/71	99.2	35.0	10.4	144.6	1:0.35:0.10
1971/72	79.3	28.1	8.5	115.9	1:0.35:0.11
1972/73	129.1	41.5	11.3	181.9	1:0.32.0.09
1973/74	125.1	43.8	11.2	180.1	1:0.35:0.09
1974/75	81.6	35.7	10.7	128.0	1:0.44:0.13
1975/76	147.0	53.1	14.7	214.8	1:0.36:0.10
1976/77	166.0	60.0	14.6	240.6	1:0.36:0.08
1977/78	224.4	90.4	25.3	340.1	1:0.40:0.11
1978/79	226.7	99.8	27.4	353.9	1:0.44:0.12
1979/80	258.2	116.9	29.3	404.4	1:0.45:0.11
1980/81	266.7	118.5	28.8	414.0	1:0.44:0.11
1981/82	248.5	119.4	28.1	396.0	1:0.48:0.11
1982/83	303.9	129.8	31.7	470.4	1:0.42:0.10
1983/84	342.6	163.4	37.9	543.9	1:0.48:0.11
1984/85	384.3	160.8	43.2	588.3	1:0.42:0.11
1985/86	365.7	136.8	35.9	538.4	1:0.37:0.11
1986/87 (Target)	411.7	165.6	42.0	619.3	1:0.40:0.10

Table III-4. Fertilizer Consumption By Seasons, 1965/66-1985/86

Year	Aman Season (July-October) Total sales (1,000 metric tons of materials)	Aman Season (July-October) Lbs/per cropped acre	Rabi & Boro Season (November-March) Total sales (1,000 metric tons of materials)	Rabi & Boro Season (November-March) Lbs/per cropped acre	Aus Season (April-June) Total sales (1,000 metric tons of materials	Aus Season (April-June) Lbs/per cropped acre
1965-66	44 (41.7)	6.4	28 (25.9)	13.4	35 (32.4)	8.2
1970-71	109 (35.0)	15.9	130 (41.8)	45.2	72 (23.2)	23.2
1977-78	214 (28.8)	31.3	326 (43.9)	111.0	202 (27.2)	46.3
1980-81	265 (29.8)	37.2	429 (48.3)	125.9	195 (21.9)	46.3
1982-83	245 (25.6)	34.7	508 (52.4)	138.0	216 (22.3)	51.6
1983-84	267 (23.6)	37.3	629 (55.7)	170.7	233 (20.6)	55.9
1984-85	365 (29.0)	55.1	668 (53.0)	164.6	227 (18.0)	55.9
1985-86	362 (31.3)	52.0	601 (152.0)	164.2	193 (16.7)	45.6

Table III-5. Region-wise and Year-wise Sale of Fertilizer From 1962/63-1985/86

(000 Product Metric Ton)

Name of Region	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75
DHAKA DIVN.	14.0	20.6	20.2	26.7	41.5	48.6	53.5	68.4	84.7	56.5	112.8	107.2	67.5
DHAKA	6.4	8.3	8.0	10.8	14.4	17.7	21.2	27.8	35.7	27.8	40.2	40.2	24.3
KISHOREGANJ	3.4	9.4	6.3	7.7	11.3	14.3	13.1	16.5	19.0	9.1	29.6	26.9	16.4
JAMALPUR	-	-	-	-	-	-	-	-	-	-	-	-	-
MYMENSINGH	2.4	7.5	4.6	7.6	14.1	14.9	16.2	14.3	17.5	11.0	20.3	23.5	17.3
TANGAIL	-	-	-	-	-	-	-	6.2	7.6	4.7	9.3	10.0	5.7
FARIDPUR	0.8	1.4	1.3	0.8	1.7	1.7	3.0	3.6	4.9	6.9	7.1	16.6	3.8
CTG. DIVISION	20.7	34.6	33.2	47.7	62.9	90.1	83.0	110.4	106.4	104.0	154.6	143.9	109.5
CHITTAGONG	11.1	13.3	17.1	21.3	29.7	46.0	32.2	45.7	42.4	42.2	59.1	53.0	39.7
CTG. H. TRACTS	0.4	0.9	0.4	0.4	1.0	1.9	2.5	3.4	1.6	2.6	1.8	2.6	2.6
BANDARBAN	-	-	-	-	-	-	-	-	-	-	-	-	-
NOAKHALI	2.9	8.2	4.0	4.7	8.5	9.5	11.1	14.3	16.8	10.7	20.3	21.9	15.6
COMILLA	5.4	8.8	8.6	12.5	17.9	22.6	27.1	34.1	35.8	30.6	52.3	53.4	36.8
SYLHET	1.5	2.9	3.1	3.8	5.8	10.1	10.1	12.9	9.8	17.9	21.1	13.0	14.8
RAJSHAHI DIVN.	13.2	31.3	28.1	25.3	42.8	54.7	64.8	65.2	72.3	44.3	67.6	80.2	69.5
RAJSHAHI	3.5	10.9	10.4	10.5	11.0	11.9	12.3	13.5	15.7	8.3	13.8	17.7	16.2
DINAJPUR	2.7	4.8	3.1	2.2	7.0	11.1	13.4	14.1	12.4	8.2	13.9	14.3	14.3
RANGPUR	2.1	6.6	6.1	4.4	8.1	11.9	16.2	12.9	15.2	11.8	13.8	16.9	14.6
BOGRA	4.1	6.0	5.2	5.6	12.4	17.7	16.6	17.6	20.0	10.0	14.4	19.6	16.2
PABNA	0.7	3.0	3.3	2.6	4.3	5.1	6.3	7.1	8.9	6.0	11.7	11.7	8.2
KHULNA DIVN.	4.0	12.1	13.9	13.0	17.5	21.1	27.6	37.5	45.8	42.9	55.0	54.7	37.5
KHULNA	1.3	4.2	2.3	2.6	3.2	3.9	5.9	7.8	7.8	6.8	6.6	7.5	4.3
BARISAL	0.9	3.4	2.9	2.5	4.3	5.2	7.1	11.0	15.0	16.6	23.9	21.3	12.5
PATUAKHALI	-	-	-	-	-	-	1.6	2.4	7.5	5.7	5.7	5.3	3.1
JESSORE	1.9	3.5	4.8	5.0	5.3	7.3	7.8	8.4	8.2	7.7	8.1	10.8	9.3
KUSHTIA	0.9	1.0	3.9	2.9	4.7	4.7	5.2	7.9	7.3	6.1	10.7	9.8	8.3
COUNTRY TOTAL	50.9	104.0	95.4	107.9	164.7	214.5	228.9	281.5	309.2	247.7	390.0	386.0	284.0

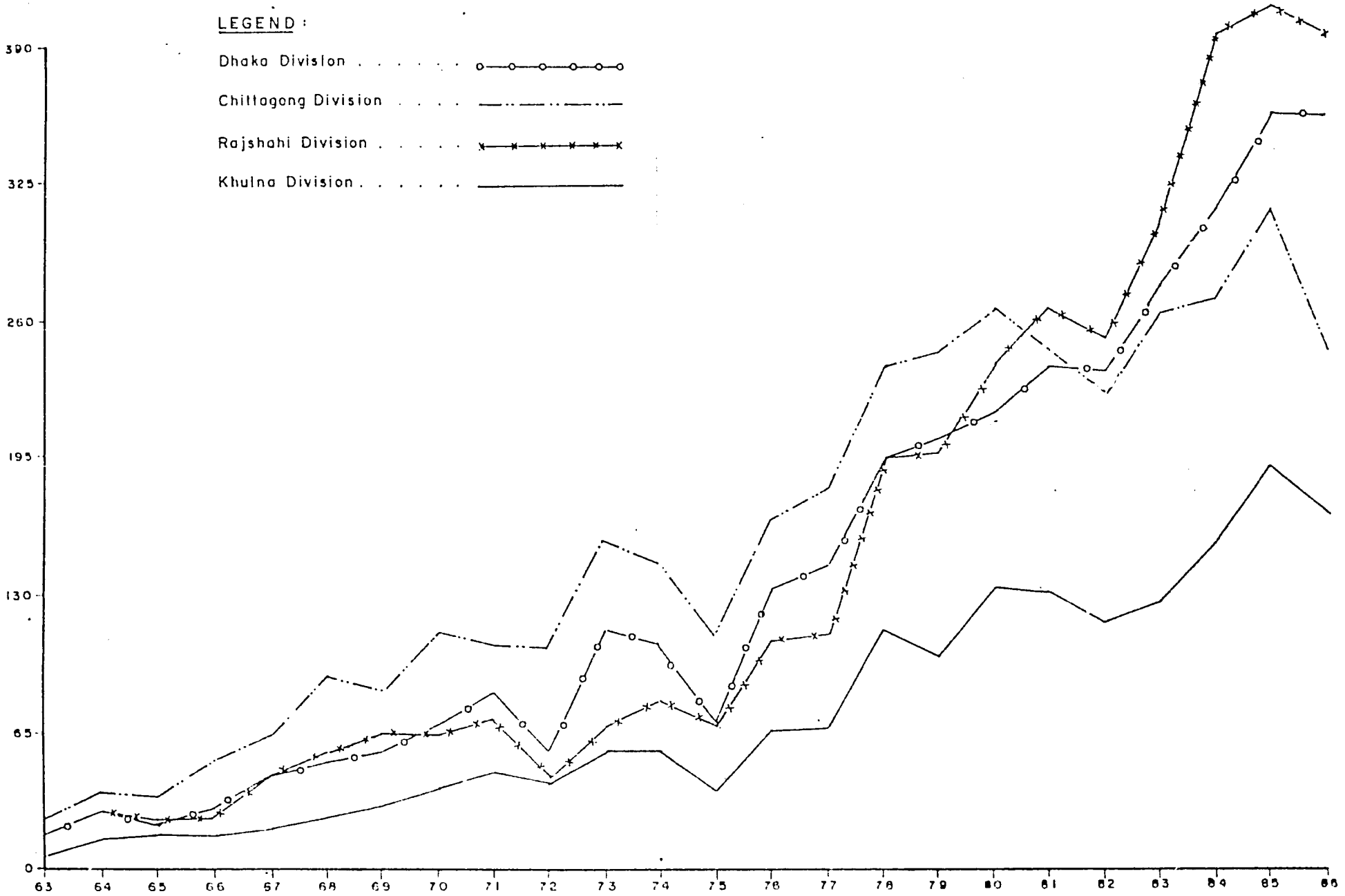
(Continued)

Table III-5 (Continued)

Name of Region	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	%Increase in 85/86 over 82/83
DHAKA DIVN.	141.9	142.2	190.1	203.7	215.9	237.4	236.5	274.5	313.5	355.3	352.8	2420
DHAKA	51.0	55.8	66.8	69.3	70.8	80.7	87.6	91.3	108.1	113.9	139.0	2072
KISHOREGANJ	31.8	30.9	41.0	41.5	45.3	53.2	46.6	52.8	55.9	65.5	57.8	1600
JAMALPUR	-	-	-	-	-	-	24.8	30.0	38.3	42.1	43.0	-
MYMENSINGH	28.7	30.9	32.3	50.2	52.0	53.9	24.1	34.2	37.8	53.8	42.5	5179
TANGAIL	14.9	16.4	22.9	27.9	29.8	35.2	37.7	46.2	48.5	50.5	41.2	-
FARIDPUR	15.5	8.9	13.1	14.8	16.0	14.4	15.7	20.0	24.9	30.5	29.3	3563
CHITTAGONG DIVN.	102.3	120.7	230.8	248.8	263.0	243.2	224.1	262.5	268.5	312.0	247.0	1093
CHITTAGONG	55.3	59.4	70.2	73.3	64.8	59.8	55.1	75.5	74.7	65.2	58.0	423
CHT.HILL TRACTS	2.7	2.5	2.8	3.0	3.5	4.4	5.0	3.8	7.7	8.6	10.0	3300
BARBARBAN	-	-	-	-	-	-	-	-	-	4.5	3.6	
NOAKHALI	25.3	27.8	33.3	31.0	37.6	32.7	29.0	28.5	26.7	39.4	34.7	1346
COMILLA	63.3	70.2	100.4	115.4	129.3	119.8	111.2	125.0	121.5	127.7	105.4	1161
SYLHET	15.7	16.8	24.1	20.5	27.8	26.5	25.8	29.7	37.9	46.6	35.3	2253
RAJSHAHI DIVN.	150.4	134.7	193.2	199.5	238.6	264.8	252.1	304.3	390.8	404.1	390.0	2855
RAJSHAHI	31.4	28.2	42.3	42.5	55.6	58.7	56.2	65.9	87.2	94.9	80.4	2197
DINAJPUR	20.6	24.6	[illegible]	30.4	44.2	45.1	40.8	52.1	68.7	79.2	57.4	2396
RANGPUR	21.6	27.7	[illegible]	42.0	44.2	56.0	50.6	63.4	85.5	84.1	83.3	3522
BOGRA	24.8	34.2	43.7	47.1	59.2	69.8	71.1	74.2	91.4	84.3	93.1	2016
PABNA	17.9	19.0	32.1	29.5	32.4	34.8	33.4	48.7	58.0	61.6	75.8	10729
KHULNA DIVN.	61.3	68.2	110.5	101.5	134.6	130.2	116.6	127.1	150.3	188.8	166.6	4065,
KHULNA	7.8	8.3	12.1	9.7	12.4	16.6	15.1	17.5	19.8	27.6	28.1	2242
BARISAL	11.3	13.5	25.7	23.1	20.2	24.1	20.0	25.2	24.6	27.7	25.3	-
PAT ACHALI	5.9	5.5	7.9	7.8	9.8	6.2	4.9	7.0	5.1	6.2	4.9	3255
JESSORE	15.6	21.9	33.4	32.9	42.0	40.6	39.6	41.1	55.1	60.8	52.9	5190
KUSHTIA	14.9	21.6	31.4	28.2	44.4	42.7	37.0	36.3	51.7	60.5	55.4	6056
COUNTRY TOTAL	455.9	526.8	730.6	749.5	851.5	875.1	829.3	968.4	1129.4	1260.2	1156.4	2172

FIGURE III-2: DIVISIONAL GROWTH IN FERTILIZER CONSUMPTION

(Thousand MT of Product)



The remaining regions which used between 50 lbs. and 100 lbs. per cropped acre accounted for one-half of the nation's total cropped land and consumed about one-third of fertilizer used in the country. (Table III-6). The Dhaka region was the largest fertilizer-consuming region in 1981/82, with 172 lbs. per cropped acre. If other regions could be brought up to the Dhaka region level, the total fertilizer use for the country would amount to approximately 2.57 million MT which is more than double the current usage. Table III-7 shows the actual fertilizer usage versus the agronomic requirement in various regions on the per cropped acre basis. Kushtia attained the highest agronomic potential of fertilizer use with the actual usage being about 60 percent of agronomic requirement. The regions such as Dhaka, Kishoreganj, Jamalpur, Tangail, Chittagong, Sunderbon, Comilla, Rajshahi, Dinajpur, Bogra, Pabna, and Jessore attained 30 to 50 percent of the agronomic requirement. Faridpur, Sylhet, and portions of Patuakhali are the low land regions where a major portion of land remains submerged under water for much of the year. Flood depth are so high that farmers grow deep water rice on submerged land where the effectiveness of fertilizer use is reduced. The nutrient requirement of the soil, especially for potash, may also be lower in these regions relative to other regions because of siltation from flooding. Nevertheless, if effective programs for flood control and for management practice to improve fertilizer use efficiency and crop yields could be developed, the fertilizer application rates in these regions would increase rapidly.

Fertilizer Use-Intensity - Updated data on fertilizer use efficiency in Bangladesh is not available. However, Table III-8 shows the rates of fertilizer application per acre of fertilized land by crop for 1969/70 through 1982/83. These rates were estimated by the Fertilizer pricing policy study team of the International Food Policy Research Institute (IFPRI) and the Bangladesh Institute of Development Studies. According to this table, fertilizer application rates have improved for HYV paddy, wheat, and certain Rabi crops(potato, tobacco, oil seeds, and vegetables). The rates on the rainfed broadcast paddy were about one half of the rates for HYV variety which is transplanted and irrigated. Application rates for local varieties are about one-third of the HYV rate. Estimated fertilizer use per acre of cropped land by crop by season for selective years, 1969/70 through 1981/82 was also developed by IFPRI and is

Table III-6. Fertilizer Consumption per Cropped Acre by Region, 1962/63-1985/86

	1962/63	1970/71	1977/78	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
DHAKA	6.7	43.4	80.9	97.6	105.3	110.9	133.5	148.3	171.7
FARIDPUR	6.2	27.5	66.9	75.2	65.2	72.5	90.0	85.5	81.5
JAMALPUR	-	-	-	-	48.1	57.6	74.8	77.7	84.7
MYMENSINGH	1.7 a/	17.4 a/	47.5 d/	47.2 d/	36.8	50.8	56.3	73.2	60.6
TANGAIL	-	-	45.2	62.5	69.6	85.9	96.4	108.4	90.4
FARIDPUR	1.0	5.5	15.4	18.1	16.2	22.2	28.0	43.5	36.9
CHITTAGONG	23.3	92.1	136.9	131.8	105.2	147.1	145.2	147.5	74.4
CHT.H.TRACTS	4.6 b/	12.0 b/	24.6 b/	40.7 b/	44.4 b/	35.2 b/	71.6 b/	106.9	102.6
BARISARBAN	-	-	-	-	-	-	-	176.0	136.2
NOAKHALI	4.9	28.6	54.9	54.6	49.6	47.0	44.4	59.4	51.6
COMILLA	6.0	36.4	110.6	121.6	111.1	122.7	123.0	132.0	105.5
SYLHET	1.6	8.5	25.0	23.8	22.7	26.0	34.0	42.5	29.6
RAJSHAHI	3.7	15.6	42.8	63.3	58.1	69.9	85.2	93.1	79.1
DINAJPUR	4.3	15.4	49.3	53.6	50.9	73.1	87.0	96.6	72.3
RANGPUR	2.3	11.3	26.2	41.2	35.8	45.2	62.0	59.2	58.8
BOGRA	10.7	38.8	84.0	130.4	129.4	132.6	157.3	136.1	149.0
PABNA	1.3	15.0	50.1	53.5	51.8	71.4	86.0	103.7	126.6
KHULNA	2.2	13.9	20.4	28.0	24.6	28.5	32.0	43.1	42.1
BARISAL	0.6 c/	18.5 c/	29.2 c/	30.7	27.4	33.4	33.0	34.4	30.5
PATUAKHALI	-	-	-	14.7	11.6	16.5	11.5	12.3	9.3
JESSORE	1.7	11.3	42.7	49.8	48.9	46.1	70.7	105.2	79.6
KUSHTIA	2.4	18.8	86.9	108.3	92.5	101.6	132.2	172.9	156.4
MEAN	6.	23.9	55.2	59.3	56.00	64.8	76.0	85.4	77.2

a/ Includes Tangail and Jamalpur

b/ Includes Barisarban

c/ Includes Patuakhali

d/ Includes Jamalpur

Table III-7. Actual Fertilizer Consumption Versus Agronomic Requirement Per Cropped Acre in 1984/85.

Region	Actual Consumption (Lbs)	Agronomic Requirement (lbs)	Actual As Percent of Agronomic Requirement
DHAKA	148.3	312.4	47.5
KISHOREGANJ	85.5	244.0	35.0
JAMALPUR	77.7	258.4	30.1
MYMENSINGH	73.2	299.4	24.4
TANGAIL	108.4	291.9	37.1
FARIDPUR	43.5	275.5	15.8
CHITTAGONG	147.5	311.6	47.3
CTG. HILL TRACTS	106.9	432.3	24.7
BANDARBAN	188.0	468.3	40.1
NOAKHALI	59.4	299.8	19.8
COMILLA	132.0	276.9	47.7
SYLHET	42.5	269.0	15.8
RAJSHAHI	93.1	288.4	32.3
DINAJPUR	96.6	234.2	41.2
RANGPUR	59.2	265.5	22.3
BOGRA	138.1	280.2	49.3
PABNA	103.7	272.8	38.0
KHULNA	43.1	235.9	18.3
BARISAL	34.4	281.7	12.2
PATUAKHALI	12.3	209.9	5.9
JESSORE	105.2	284.4	37.0
KUSHTIA	172.9	277.3	62.3
TOTAL	85.4	174.4	31.1

Table III-8. The Rate of Fertilizer Application Per Acre of Fertilized Land By Crop, 1969/70-1981/82.

Crops	1969/70	1976/77	1979/80	1980-81	1981/82
	(Pounds of Materials Per Acre)				
Paddy					
Local Aus	59	41	95	89	70
HYV Broadcast Aus	-	-	132	108	123
HYV Transplanted Aus	264	161	251	274	251
Local Broadcast Aman	-	-	149	85	80
Local Transplanted Aman	62	51	128	83	99
HYV Aman	-	168	169	167	190
Local Boro	-	60	108	108	163
HYV Boro	244	209	257	255	289
Wheat	83	167	173	182	164
Jute	50	136	76	119	78
Sugarcane	80	150	-	-	352
Oilseeds	24	-	117	224	220
Potato	-	618	246	439	456
Tobacco	338	160	291	164	314
Chilli	-	-	98	221	218
Vegetables	-	-	184	275	193

presented in Table III-9. The difference in application rate between local paddy and HYV variety is larger on the cropped acre basis than that on the fertilized acre basis since diffusion has been significantly less extensive for local varieties. Nevertheless, the difference has narrowed somewhat in recent years. Still, the application rates on local varieties are about one third of that for HYV in the Aman season and as little as one-tenth in the Aus season. The present rates of fertilizer application are considerably below the recommended rates for almost all foodgrain crops. During 1979/80, the application rates as percentage of recommended rates were 60 percent for BORO, Aus and local transplanted Aman and 45 percent for local Aus. Accordingly there is a substantial scope for improving fertilizer use on fertilized land. Table III-10 shows the relative shares of the country's total sown area and total fertilizer consumption by crop in three different seasons for selected year, 1969/70 through 1984/85. Percentages of the country's total sown area and total fertilizer consumption particularly for Boro HYV have been steadily increasing; so is wheat.

Pricing Mechanism - At the initial introductory stage of chemical fertilizer in Bangladesh, fertilizer products were distributed to farmers at a nominal price. Prices have gradually increased since then but remained heavily subsidized. Sales prices to farmers are set by a high level government committee and are adjusted periodically, based on demand and costs of product, the Government policy and program, Government funds available, the farmers' purchasing power, and other factors. Although prices have been increasing over the years, they remain subsidized (Table III-11). Nevertheless, percent subsidies have been declining in recent years. In fact, urea price was not subsidized in 1985/86 but TSP and MP were subsidized by 21 percent and 11 percent respectively (Table III-12).

Costs of Fertilizer - Costs of fertilizer to BADC consist of procurement from domestic factories and imports, the in-country marketing costs, and the costs of maintaining stocks. Ex-factory price of domestically produced urea varies from factory to factory and all ex-factory prices have been rising, especially for ZFCL (Table III-13). Costs of imported fertilizers have varied widely due to various funding sources (grants, aids, loans, barter and use of available foreign exchange) and the fluctuation in international prices (Table III-14). BADC in-country marketing costs of fertilizer, as shown

Table III-9. Fertilizer Use Per Acre of Cropped Land for Selected Years

Season and crop	1969-70	1976-77	1979-80	1980-81	1981-82
	(Pounds of materials per acre)				
Aman Season					
Local broadcast paddy	-	-	42	6	23
Local transplanted paddy	13	26	72	45	52
HYV paddy	n.a.	146	146	140	159
Sugarcane	49	84	n.a.	39	257
Boro & Rabi Season					
Local paddy	-	29	14	10	36
HYV Paddy	237	205	242	246	280
Local wheat	35	23	38	-	-
HYV wheat	n.a.	90	142	142	114
Pulses	2	2	9	2	6
Oilseeds	16	34	34	70	110
Potato	-	352	138	168	201
Tobacco	267	104	279	107	305
Chilli	-	-	50	148	157
Vegetables	-	118	114	162	103
Spices	-	53	16	15	48
Aus Season					
Local paddy	19	23	42	39	33
HYV broadcast paddy	-	142	87	91	88 } 180
HYV transplanted paddy	198	-	243	265	247 }
Jute	13	53	25	33	33

Source: IFPRI report on Fertilizer Pricing Policy and Foodgrain Production Strategy in Bangladesh.

Table III-10. Relative Shares of Total Sown Area and Fertilizer Consumption by Crop by Seasons, for Selected Years

Season & Crops	Percent of Total Sown Area				Percent of Total Fertilizer Consumption			
	1969-70	1977-78	1983-84	1984-85	1969-70	1977-78	1983-84	1984-85
Aus Season:	35.6	33.3	29.5	29.3	30.8	27.4	17.7	16.7
Local Aus	27.5	23.1	20.9	18.8	24.6	10.6	7.0	7.2
HYV Aus	0.14	3.3	4.0	3.5	1.3	9.4	8.8	7.5
Jute	8.0	6.9	4.6	7.0	4.9	7.4	1.9	2.0
Aman Season:	49.7	49.5	48.8	44.6	33.5	37.3	39.1	25.4
Broadcast Aman	16.8	14.1	11.6	9.4	-	-	0.9	1.0
Local transplanted Aman	31.5	29.9	27.5	25.8	29.6	22.9	17.7	8.3
HYV Aman	0.10	4.2	8.4	8.2	0.9	12.2	16.5	12.4
Sugarcane	1.3	1.3	1.3	1.2	3.0	2.2	4.0	3.7
Boro Season:	14.6	17.3	21.7	26.1	35.7	35.3	43.3	57.9
Local Boro	5.2	3.8	2.7	2.6	7.1	2.2	1.2	1.1
HYV Boro	1.9	5.4	8.4	8.6	21.0	22.0	29.2	30.6
Wheat	1.0	1.6	4.3	5.1	1.6	2.5	6.1	6.9
Other Rabi crops	6.5	6.5	6.3	9.8	6.0	8.6	6.8	19.3
TOTAL	100.00	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HYV Paddy & Wheat	2.1	14.5	25.1	25.4	24.8	46.1	60.6	57.4
Irrigated crops	6.7	10.7	14.0	15.8	28.2	39.0	44.1	37.7

Source: Developed by applying crop-level fertilizer application rates (Table 8) to the official crop acreage data for the corresponding years, published by the Bangladesh Burea of Statistics.

Table III-11. Subsidised Sale Prices of Fertilizer

(Taka per metric Ton)

Date of effect	UREA	GTSP	PTSP	MP	HP	NPK	SP	AS	PS	DAP	TP	ZINC	GYP
1960 to 1961-62	275.50	275.50	-	173.40	-	-	-	-	-	-	-	-	-
1-7-61	275.50	275.50	-	173.40	-	-	153.00	173.40	-	-	-	-	-
1-7-72	544.40	394.70	-	272.20	-	-	153.00	173.40	-	-	-	-	-
1-7-73	1088.80	816.60	-	544.40	-	-	153.00	173.40	-	-	-	-	-
10-7.73	816.60	544.40	-	408.30	-	-	153.00	173.40	-	-	-	-	-
1-4-74	1361.00	1088.80	-	816.60	-	-	153.00	173.40	-	-	-	-	-
9-7-74	1361.00	1088.80	-	816.60	680.50	-	153.00	173.40	-	-	-	-	-
5-2-75	1361.00	1088.80	-	816.60	680.50	1088.80	153.00	173.40	-	-	-	-	-
17-6-75	1361.00	1088.80	-	816.60	680.50	1088.80	544.40	173.40	-	-	-	-	-
1-7-76	1633.20	1306.56	-	1088.80	680.50	1088.80	544.40	173.40	-	-	-	-	-
3-9-76	1633.20	1306.56	-	1088.80	680.50	1088.80	544.40	173.40	1905.40	-	-	-	-
15-12-76	1633.20	1306.56	-	1088.80	816.60	1224.90	598.84	173.40	1905.40	-	-	-	-
1-7-78	1905.40	1497.10	-	1224.90	816.60	1224.90	598.84	173.40	1905.40	-	-	-	-
3-10-78	1905.40	1497.10	-	1224.90	816.60	1497.10	598.84	173.40	1905.40	1905.40	-	-	-
16-10-78	1905.40	1497.10	-	1224.90	816.60	1497.10	598.84	173.40	1905.40	1905.40	-	-	-
31-10-78	1905.40	1497.10	-	1224.90	1497.10	1497.10	598.84	173.40	1905.40	1905.40	-	-	-
21-11-78	"	"	-	"	"	"	"	"	"	"	1497.10	-	-
27-8-79	2449.80	1905.40	1633.20	1497.10	1497.10	"	"	"	"	2449.80	"	-	-
25-10-79	"	"	1633.20	"	"	1905.40	"	"	"	"	1905.40	-	-
2-11-80	2994.20	2449.80	2177.60	1905.40	"	2449.80	598.84	"	"	2994.20	"	-	-
1-1-81	"	"	2177.60	"	1633.20	"	816.60	"	2449.80	"	"	-	-
7-12-81	3593.04	3130.30	2585.90	2449.80	"	3130.30	"	"	"	3593.04	"	-	-
1-7-82	3966.40	3752.00	2948.00	2948.00	"	3752.00	804.00	"	2412.00	3966.40	"	-	-
7-7-84	4360.00	4130.00	3240.00	3240.00	"	"	4130.00	"	6415.03	4360.00	"	15,200	1200
1-1-85	4665.20	4419.10	3466.80	3466.80	"	4419.10	"	"	"	4665.20	"	"	"
1-7-85	4800.00	4550.00	3575.00	3575.00	1633.20	4550.00	"	"	6415.03	4800.00	"	"	"
1-10-85	5000.00	5000.00	5000.00	4000.00	"	5000.00	"	"	8220.25	5000.00	"	"	1435
1-7-86	4800.00	"	"	"	"	"	"	"	"	"	"	"	"
16-9-86	"	"	"	"	"	"	"	"	"	"	"	"	1185
12-10-86	"	"	"	"	"	"	"	"	"	"	"	17,250	"

Table III-12. Percentage of Subsidy

YEAR	Level of Subsidy (% of Total Costs)				
	UREA	TSP	DAP	MP	TOTAL
1962-63	60	60	-	47	59
1963-64	58	58	-	58	58
1964-65	56	56	-	61	56
1965-66	56	57	-	65	57
1966-67	57	59	-	66	58
1967-68	57	60	-	67	58
1868-69	59	60	-	68	60
1969-70	56	55	-	67	68
1970-71	56	55	-	67	59
1971-72	56	55	-	67	59
1972-73	41	62	-	61	54
1973-74	22	58	-	55	45
1974-75	48	66	-	54	56
1975-76	52	74	-	71	66
1976-77	45	67	-	64	59
1977-78	36	67	-	51	51
1978-79	41	66	54	44	50
1979-80	28	61	52	55	48
1980-81	9	58	55	48	33
1981-82	13	54	46	42	30
1982-83	5	43	42	32	21
1983-84	11	40	47	32	25
1984-85	2	31	-	24	13
1985-86	-4.82	+21.36	-	10.82	4.30

Table III-13. Ex-Factory Prices of Domestically Produced Fertilizers
(Taka in Metric Ton)

Period	UREA				TSP COMPLEX	
	NGFF	UFFL	ZFCL	POLASH	TSP	GYPSUM
1961-62 to 1972/73	500.00	500.00	-	-	-	-
1973-74	762.00	762.00	-	-	-	-
1974-75	762.00	762.00	-	-	2032.00	-
1975/76(Av.)	961.70	961.70	-	-	2584.70	-
1.7.75 to 31.3.76	762.00	762.00	-	-	2032.00	-
1.4.76 to 30.6.76	1734.00	1734.00	-	-	4350.00	-
1976/77	1734.00	1734.00	-	-	4350.00	-
1977-78	1734.00	1734.00	-	-	4350.00	-
1978/79	1734.00	1734.00	-	-	4350.00	-
1979/80 (Av.)	1882.93	1882.93	-	-	4350.00	-
1.7.79 to 31.8.79	1734.00	1734.00	-	-	-	-
1.9.79 to 30.6.80	1900.00	1900.00	-	-	-	-
1980/81(Av.)	2076.00	2076.00	-	-	4350.00	-
1.7.80 to 30.4.81	1900.00	1900.00	-	-	4350.00	-
1.5.81 to 30.6.81	2400.00	2400.00	-	-	4350.00	-
1981/82 (Av.)	2492.94	2492.94	2800.00	-	4675.50	-
1.7.81 to 6.12.81	2400.00	2400.00	-	-	4350.00	-
7.12.81 to 30.6.82	2600.00	2600.00	2800.00	-	5000.00	400.00
1982/83 to 1984/85	2800.00	2800.00	3860.00	-	5735.00	400.00
1985/86-Todate	3039.00	3039.00	4054.65	3039.00	6619.00	400.00

Table III-14. Costs of Imported Fertilizers
(Taka per ton)

Year	UREA	TSP	MP	DAP	AS	PS	ZINC	AP	AN	SP	OTHERS
1952-53	-	-	-	-	216.8	-	-	416.1	412.3	-	- -
1953-54	-	-	-	-	175.7	-	-	403.8	-	-	-
1954-55	-	-	-	-	213.6	-	-	-	-	-	-
1955-56	650.2	425.9	292.5	-	333.3	343.1	-	263.0	-	206.6	367.0
1956-57	-	-	278.0	-	331.9	-	-	-	-	201.6	-
1957-58	598.9	437.5	299.0	-	309.1	-	-	-	-	199.9	-
1958-59	437.8	-	298.7	-	272.8	-	-	-	-	-	-
1959-60	486.0	393.8	288.0	-	213.8	-	-	-	-	-	-
1960-61	473.0	392.9	250.2	-	222.7	-	-	-	242.3	-	-
1961-62	401.5	407.1	349.8	-	221.7	-	-	-	251.1	-	-
1962-63	443.8	-	-	-	410.1	-	-	-	-	-	-
1963-64	-	-	-	-	279.8	329.5	-	-	-	269.5	-
1964-65	-	463.1	-	-	404.4	340.1	-	-	-	-	-
1965-66	440.6	537.1	396.3	-	421.6	-	-	-	-	-	-
1966-67	425.9	286.0	298.2	-	334.9	-	-	-	-	-	-
1967-68	433.0	482.8	434.7	-	-	-	-	-	-	-	-
1968-69	504.1	476.9	414.4	-	-	-	-	-	-	-	-
1969-70	362.5	464.1	263.3	406.1	-	-	-	-	-	-	-
1970-71	430.0	330.9	267.4	-	-	-	-	-	-	-	-
1971-72	575.2	330.9	-	-	-	-	-	-	-	-	-
1972-73	813.5	991.3	-	-	-	-	-	-	-	-	-
1973-74	-	1472.3	779.9	-	-	-	-	-	-	-	1251.1
1974-75	3494.1	3498.2	1171.8	-	-	-	-	-	-	NA	2235.6
1975-76	4284.7	3097.5	2408.5	-	-	NA	-	-	-	-	-
1976-77	2662.5	2086.3	1845.0	-	-	-	-	-	-	-	-
1977-78	2662.5	2874.1	2488.3	-	-	-	-	-	-	-	-
1978-79	3439.4	3072.3	1817.5	3628.8	-	-	-	-	-	-	2223.2
1979-80	3675.1	4386.9	3360.5	5653.3	-	-	-	-	-	-	2396.2
1980-81	3814.0	5059.5	3294.7	3894.2	-	-	-	-	-	-	-
1981-82	4136.1	4840.7	3256.5	5068.1	-	-	-	-	-	-	-
1982-83	5339.2	4191.7	3606.6	6440.2	-	-	-	-	-	-	5032.3
1983-84	5190.4	4829.7	3532.4	6871.0	-	-	-	-	-	-	10979.5
1984-85	6024.4	5220.6	3628.3	-	-	-	11849.3	-	-	-	4568.7
1985-86	5444.4	5026.7	3628.3	-	-	7420.2	-	-	-	-	-

in Table III-15, consist of 14 items. These costs, on the per ton basis, have been down since 1982/83, primarily attributable to the shifting of some costs to the dealers and to closing of godowns under the NMS. Further reduction in BADC's marketing costs could be accomplished through additional closing of PDPs and organizational adjustments.

Future Fertilizer Use - GOB has set a foodgrain production target of 20.7 million MT by the end of the Third Five Year Plan (1985/86-1989-90) which requires an annual growth rate of 5.2 percent. In order to achieve this target GOB has stressed the importance of irrigation, HYV seed, agricultural credit, land use by crop and fertilizer. Table III-16 shows targeted agricultural credit, land use (by major crop), irrigation (by major device), and distribution of HYV seed, which are needed to help achieve the foodgrain production target. Table III-1 shows the annual targets for fertilizer use needed under the Third Five Year Plan (TFYP). In order to meet the foodgrain production target, fertilizer use in the country must reach 18.85 lakh MT by 1989/90, with an annual compound growth rate of 8.4 percent over 1984/85. On an individual product basis, the annual growth rate for use of urea must be 7.7 percent while those of TSP and MP must be 9.9 percent and 8.9 percent respectively. These targeted growth rates are low relative to what might be recommended agronomically but they are considered reasonable in light of recent sales trends and can be achieved provided that several factors work out as planned. These factors include increased knowledge about fertilizer use by farmers, adequate credit for farmers, the ample supply of fertilizer at the national level, timely availability of fertilizer to farmers through an efficient distribution system, and favorable input/output ratios.

Sales Projections - Fertilizer sales projections have been made by BADC, USAID, and IFDC for 1985/86 through 1989-90. Projections made by BADC, USAID, and IFDC are presented in Table III-18, Table III-19 & Table III-20) respectively. BADC prepared projections based on past experience and projected sales are slightly below the TFYP targets. Projected sales for 1987/88 may be overly optimistic but achievable if a competitive free market system is implemented and adequate credit is made available to the system. USAID made projections for the period 1983/84-1987/88 during the preparation of FDI II project paper (1984). Its projections were based on the annual compound growth

Table III-15. In-Country Marketing Costs of Fertilizer

	Costs	1980-81		1981-82		1982-83		1983-84		1984-85		1985-86	
		Tk/Ton	%	Tk/Ton	%	Tk/Ton	%	Tk/Ton	%	Tk/Ton	%	Tk/Ton	%
1.	Movement & handling	216.2	52.6	301.6	55.1	322.5	48.8	312.0	57.2	314.8	63.6	371.8	66.1
2.	Staff pay & allowance	41.2	10.1	61.8	11.3	62.3	9.4	59.9	11.0	53.1	9.9	54.8	9.7
3.	Overhead	72.0	17.5	104.0	19.0	93.6	14.2	108.5	19.9	81.4	15.2	57.7	10.3
4.	Establishment cost	8.3	2.0	9.5	1.7	9.8	1.5	9.7	1.8	15.7	2.9	9.9	1.8
5.	Godown rent	10.0	2.4	12.1	2.2	15.7	2.4	7.5	1.4	4.9	0.9	3.5	0.6
6.	Physical verification & re-bagging	1.3	0.3	2.0	0.4	1.1	0.2	2.5	0.5	1.7	0.3	0.2	-
7.	Cost of Dunnage & tarpulin	1.2	0.3	0.7	0.1	0.1	-	0.4	0.1	-	-	-	-
8.	Repair & Maintenance	1.7	0.4	5.6	1.0	3.2	0.5	3.3	0.6	3.9	0.7	3.0	0.5
9.	Stock losses	10.4	2.5	15.0	2.7	15.0	2.3	15.0	2.8	-	-	-	-
10.	Publicity, promotion & training	3.0	0.7	3.2	0.6	5.5	0.8	4.4	0.8	6.3	1.2	1.4	0.2
11.	Interest on working capital	36.0	8.8	25.0	4.5	100.5	15.2	15.8	2.9	9.6	1.8	60.0	10.8
12.	Capital depreciation	5.0	1.2	6.7	1.2	6.1	0.9	6.0	1.0	3.5	0.7	-	-
13.	Marine insurance	5.0	1.2	0.2	-	25.4	3.8	0.2	-	15.3	2.8	-	-
Sub-Total (Distribution)		411.3	100.0	547.4	100.0	660.8	100.0	545.2	100.0	537.2	100.0	562.3	100.0

(continued)

Table III-15 (Continued)

Costs	1980-81		1981-82		1982-83		1983-84		1984-85		1985-86	
	Tk/Ton	%	Tk/Ton	%	Tk/Ton	%	Tk/Ton	%	Tk/Ton	%	Tk/Ton	%
14. Dealer's Commission	208.3	-	235.1	-	300.0	-	290.0	-	212.8	-	273.2	-
15. Total Marketing Cost	619.6	-	782.5	-	960.8	-	835.2	-	750.0	-	835.5	-
Quantity Distributed in Tons	875179	-	829323	-	968418	-	1129060	-	1260220	-	-	-
Quantity procured in Tons	-	-	-	-	-	-	-	-	-	-	1513695	-

Table III-16. Targets for Agricultural Credit, Land Use by Crop, Irrigation by Device, HYV Seed Distribution Under the Third Five Year Plan

		Unit	Base Year 1984/85	Target Year 1989/90	Annual Growth Rate(%)
A.	Agricultural Credit	Tk.in Crores			
i)	Crops		626	1464	18.50
ii)	Tea		34	40	3.30
iii)	Irrigation equipment		145	343	18.80
iv)	Others		326	636	14.30
	Sub-Total 'A'		1131	2483	17.00
B.	Land Use by Major Crop	In Million Acres			
i)	Aus		7.26	7.2	-
ii)	Aman		14.12	14.4	-
iii)	Boro		3.00	3.85	5.30
iv)	Wheat		1.62	2.35	7.75
v)	Jute		1.49	1.50	0.10
vi)	Sugarcane		0.41	0.45	1.50
vii)	Potato		0.27	0.30	2.10
viii)	Mustard		0.73	0.80	1.90
ix)	Lentil		0.74	0.80	1.80
x)	Cotton		0.04	0.15	30.00
	Sub-Total 'B'		29.68	31.80	1.40
C.	Irrigation by Major Device				
i)	Surfacewater irrigation	In Lakh Acres			
	LLP		17.60	21.00	2.60
	Upazilla project		-	3.45	-
	Traditional		8.50	8.0	-1.20
	Gravity flow		4.75	14.94	25.80
	Sub-Total C(i)		30.85	47.39	8.90
ii)	Groundwater irrigation				
	HTW		0.90	1.35	8.40
	STW		19.25	25.00	5.40
	DTW		10.20	18.00	12.00
	Sub-Total C(ii)		30.35	44.35	7.9
iii)	Command area development		-	4.70	-
	Sub-Total C(i-iii)		61.20	96.44	9.5
D.	HYV Seed Distribution Target	'000' Tons			
i)	Paddy		3.28	10.30	25.70
ii)	Wheat		19.52	27.60	7.20
iii)	Potato		3.61	4.00	2.01
iv)	Jute		1.24	3.00	20.00
	Total		27.65	44.90	10.18

Table III-17. Fertilizer Use Target Under the Third Five Year Plan
('000' Metric Ton)

Fertilizer	Base Year 1984/85	The Third Five Year Plan Period						Annual Growth Rate
		1985/86	1986/87	1987/88	1988/89	1989/90	Total	
1. Urea	832	896	965	1039	1119	1206	5225	7.7
2. TSP	346	380	418	459	505	554	2316	9.0
3. MP	69	75	82	89	96	105	447	8.9
4. Others	13	14	15	17	18	20	84	6.8
5. Total	1260	1365	1480	1604	1738	1885	8072	8.4
6. Application rate Kg/ hectare of nutrient	44	49	53	57	63	68		

Table III-18. BADC's Fertilizer Sales Projections for Bangladesh, 1985/86-1989/90
('000' Metric Ton)

Fertilizer	Actual 1984/85	Projections 1985/86	1986/87	1987/88	1988/89	1989/90	Total	Annual Growth Rate
1. Urea	832	850	895	980	1040	1080	4845	5.38
2. TSP	346	360	360	436	465	525	2146	8.94
3. MP	69	70	70	80	90	95	405	6.76
4. Others	13	4	-	4	5	5	18	-8.80
5. Total	1260	1248	1325	1500	1600	1705	7414	3.32
6. Per hectare application rate in nutrient Kg.	44.0	47.0	48.0	54.0	58.0	62.0		
7. Percentage of required potential application rate.	23.3	31.3	32.0	36.0	38.7	41.3		

Table III-19. USAID's Fertilizer Sales Projections, 1985/86-1989/90.
('000' Metric Ton)

Year	N	P_2O_5	K_2O	Total	Urea	TSP	MP	Total	Nutrient Application Kg/Hectare
1985/86	381	166	39	586	830	360	65	1255	46.0
1986/87	412	181	42	635	896	394	70	1360	49.0
1987/88	445	197	46	688	968	428	76	1472	54.0
1988/89	480	215	50	745	1044	467	83	1594	58.0
1989/90	519	230	55	808	1128	509	91	1728	63.0
Total	2237	993	232	3462	4866	2158	385	7409	54.0

Table III.20. IFDC's Fertilizer Sales Projections, 1986/87-1989/90

Year	Product					Crop Season			
	Urea	TSP	MP	Others	Total	Aus	Aman	Boro	Total
1985/86 (Actual)	795	297	60	4	1156	193	362	601	1156
1986-87	890	350	70	5	1315	196	405	714	1315
1987-88	950	375	75	5	1405	199	412	794	1405
1988-89	1010	410	82	8	1510	208	457	845	1510
1989-90	1075	450	90	10	1625	230	500	895	1625
Total	4720	1882	377	32	7011	1026	2136	3849	7011

rates of 8 percent for N, 9 percent for P_2O_5, and 9 percent for K_2O over the base year 1982/83. Using the same growth rates, IFDC extended the USAID projections to 1989/90. USAID's projections were based on a broad GOB policy to cultivate a free competitive fertilizer marketing system in Bangladesh under FDI II. However, these projections may be optimistic because of delay in implementation of FDI II by BADC. After having reviewed projections made by BADC and USAID, IFDC made its own projections based on the following assumptions:

a) Irrigation facilities and distribution of HYV seeds will be expanded as planned.

b) A competitive free market system for fertilizer marketing will be established in two phases. Phase 1 is to open TDPs, reduce PDPs, and allow the dealers' lifting of fertilizer from factories and ports. Phase 2 is to allow direct imports of fertilizer by private sector.

c) Adequate credit facilities will be made available to fertilizer dealers and farmers for fertilizer purchases.

d) Adequate and timely supply to farmers will be maintained.

e) Farmers' knowledge on fertilization know-how will be enhanced through Agricultural Extension of GOB and through the competitive free market system (fertilizer wholesalers).

CHAPTER-IV

FERTILIZER CREDIT

FDI-II seeks to expand the role of the private sector in large fertilizer wholesaling, competitive private procurement of fertilizer, rationalization of fertilizer price, fertilizer dealer development, and fertilizer sales promotion. To achieve these goals, the project fund (US$65 million) will be used to finance:

1. Credit programs for fertilizer wholesalers and retailers and/or fertilizer imports.
2. Technical assistance and training.
3. Infrastructural improvements to ease physical constraints in the distribution network of fertilizer wholesalers.

During the life of FDI-II, fertilizer retailers and wholesalers of all sizes will need commercial credit. Therefore, a major portion of project fund is designated for distribution of credit to all categories of dealers and allocated to the Bangladesh Bank for use as a refinance fund within the framework of sound banking practices. The FDI-II funding will serve to expand the available credit exclusively for fertilizer purchases.

Of the total project fund, US$13 million is stipulated as soft loan while US$52 million is grant. The project financial plan for USAID funding is as follows :

	US Dollars
Credit program/imports	44,000,000
Construction and A&E sources	5,950,000
Technical assistance	4,125,000
Training, equipment, survey & evaluation	1,175,000
Contingencies	9,950,000
Total US$	65,000,000

The financial plan is illustrative and subject to change. The total project cost estimate and financial plan is given in Appendix IV-A.

A major portion of project fund targetted for dealer credit program signifies greater importance for credit to be made available to fertilizer dealers for trade financing as a short-term commercial credit. This credit differs from agricultural and other types of credit extended from other sources by commercial banks. Accordingly, emphasis has been placed on use of this credit as short-term loans (exclusively for fertilizer trade) to be channeled through national commercial banks and Bangladesh Krishi Bank. These banks will be authorized to rediscount the loans made to fertilizer retailers/wholesalers, under the refinance program of the Bangladesh Bank. The development of a special refinancing system will be necessary to ensure that the FDI-II project fund will be used exclusively for fertilizer trade and that the FDI-II loans will be competitive with other available commercial or refinancing loans.

Past Background On Fertilizer Credit

After (then EPADC) assumed the nation's fertilizer marketing and distribution responsibilities, Dealers at village and thana levels entered the fertilizer business for the first time. For the implementation of a fertilizer sales drive the GOB introduced the "Grow More Food" campaign, BADC launched a sales drive in the selected 4 areas of Chittagong, Comilla, Bogra, and Rajshahi in 1963/64, under the sales drive, a price discount of 6.25 percent was allowed. The results of the sales drive was spectacular a achievement was over 102 percent as shown in Table IV-1 and Table IV-2 (Comparative sales figures of 1962/63 and 1963/64).

With a gradual increase in subsequent years, the sales drive was abandoned by BADC partially due to financial stringency and complacency but BADC continued to move forward achieving sales targets and boosting sales without any tangible financial support or incentive other than "Taccavi" loans* which were extended especially for the distressed farmers.

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* Taccavi loan was only loan available in undivided India for distribution in areas affected by flood, drought, and other natural calamities. This was inherited in the country and continued as guasi-political agricultural loan until emergence of Bangladesh Bank.

Table IV-1 Region-wise Fertilizer Sales for 1962/63

(In Long Ton)

Sl No.	District	Urea	TSP	SP	MP	AS	Total
1.	Dhaka	5,131	482	149	432	77	6,271
2.	Faridpur	318	135	7	103	210	773
3.	Mymensingh	1,859	15	205	15	294	2,388
4.	Kishoreganj	3,137	47	1	9	102	3,296
5.	Tangail	-	-	-	-	-	-
6.	Chittagong	9,970	286	236	133	256	10,881
7.	Chittagong Hill Tracts	282	70	3	6	28	389
8.	Noakhali	1,983	116	15	33	178	2,325
9.	Comilla	4,914	226	1	48	74	5,263
10.	Sylhet	690	96	363	190	173	1,512
11.	Rajshahi	2,451	406	19	93	397	3,366
12.	Dinajpur	1,346	449	4	102	396	2,297
13.	Rangpur	1,668	287	-	130	239	2,324
14.	Pabna	509	56	1	30	106	702
15.	Bogra	3,505	71	4	26	727	4,333
16.	Khulna	1,077	91	-	32	17	1,217
17.	Jessore	733	62	3	3	206	1,007
18.	Kushtia	709	127	-	6	50	892
19.	Barisal	840	59	10	14	1	924
20.	Patuakhali	-	-	-	-	-	-
TOTAL:		41,122	3,081	1,021	1,405	3,531	50,160

Table IV-2 Region-wise Fertilizer Sales for 1963/64

(In Long Ton)

Sl. No.	District	Urea	TSP	SP	MP	AS	Total
1.	Dhaka	5,827	2,055	34	265	15	8,196
2.	Faridpur	645	449	33	217	78	1,422
3.	Mymensingh	6,067	1,179	1	135	12	7,394
4.	Kishoreganj	7,506	1,585	16	97	-	9,204
5.	Tangail	-	-	-	-	-	-
6.	Chittagong	10,925	2,003	51	140	-	13,119
7.	Chittagong Hill Tracts	487	240	1	24	1	753
8.	Noakhali	5,430	2,091	62	487	8	8,078
9.	Comilla	6,821	1,708	-	164	-	8,693
10.	Sylhet	1,781	947	11	144	14	2,897
11.	Rajshahi	7,019	2,719	225	694	33	10,690
12.	Dinajpur	2,631	1,588	15	263	191	4,688
13.	Rangpur	4,201	1,804	25	409	68	6,507
14.	Pabna	2,069	683	11	138	67	2,968
15.	Bogra	5,105	707	2	96	4	5,914
16.	Khulna	1,782	296	-	67	5	2,150
17.	Jessore	2,336	1,065	-	24	54	3,479
18.	Kushtia	1,894	930	-	38	5	2,927
19.	Barisal	2,425	876	-	16	-	3,317
20.	Patuakhali	-	-	-	-	-	-
TOTAL		74,951	22,985	487	3,418	555	102,396

Taccavi Loan - The Government used to distribute this loan, at a nominal rate of interest, to the farmers who were affected by natural calamities such as flood and draught. Most of this loan remained unrecovered for years because of the Government's reluctance to take appropriate measures for recovery. It created a bad precedent and may have influenced farmer behaviour on subsequent loans. The Taccavi loan program was administered by the Deputy Commissioners in the Districts. Farmers were allowed credit slips for lifting fertilizer on production recommendations from the dealers. The farmers who received the loan would present the slip to their nearby dealers and get fertilizer as per the amount sanctioned on the credit slip. The dealer, after delivery, would present the slip to BADC and take delivery of fertilizer supplied on credit.

Supervised Credit

Under the "Grow More Food Campaign" of the Government, a package credit arrangement was made for cultivation of High Yielding Variety (HYV) paddy during the winter season of 1967/68. To ensure balanced fertilizer application in the irrigated fields, a supervised credit program as a package loan to farmers was provided during the winter seasons. Fertilizer was the important component of the package loan along with other agricultural inputs.

In an effort to assure adequate use of balanced fertilizer to increase food production particularly in the irrigated areas where HYV paddy were cultivated, the credit package was arranged to extend in-kind and cash credit to small farmers. Under this arrangement, BADC (the then EPADC) had arranged with the Agricultural Development Bank of Pakistan (ADBP) a loan ceiling of upto Rs.330 million. This was the first time credit was extended to the farmers linked with agricultural inputs partly in-kind. This credit was termed supervised credit. Both officials of BADC and ADBP were responsible for the supervision of the credit disbursement. The quantum of total disbursement of credits for fertilizer under the supervised credit system was disappointing, first-year total disbursement was as follows:

a.	Loan In-Kind	- Rs. 3.06 millions
b.	Loan In-Cash	- Rs. 0.71 millions
	Total	- Rs. 3.77 millions

The program, however, continued officially thru 1968/69.

Reasons for discontinuation of this program are identified as :

1. Lack of co-operation on the part of ADBP officials.
2. Imposition of numbers of embargoes on distribution of loans viz., disallowing new loan below Rs. 50.00 and rejection of further loans to all types of defaulters.
3. Inordinate delay in processing loans applications.
4. High percentage of defaulters.

One of the important factors for the recovery failure was that the loan was intended and disbursed to marginal and small farmers for borrowing in-kind credit of seeds and fertilizer and other inputs to improve their socio-economic position along with a small portion in cash to meet other expenses for boro cultivation. To meet costs of other family necessities, such as social functions, marriage and other day to day family consumptions, the small farmer often sold the inputs received in-kind to large farmers or to the dealers in cash at reduced prices. As a result, these loans did not help their agricultural production, no income was derived for improvement of their economic conditions, the burden of their liabilities was multiplied, and their loans became overdue and finally had to be written off as bad debt. One could deduce from this that the term supervised credit was not accurate

Cooperative Credit

In addition to supervised credit, BADC also simultaneously arranged short-term loans through the Cooperative Directorate. The loans under cooperatives were distributed in-kind in the form of fertilizer, seeds, water pump etc. This program started from first of June, 1968.

From the statistics available in the Sales Division of BADC, it shows that through June 30, 1986 fertilizer(value at Tk 7.86 millions) has been distributed under the cooperative loans of which Tk 3.95 millions have been recovered leaving an accumulated overdue of Tk 3.90 millions. The percentage of overdue is about 49% of total amount distributed. But fertilizer distributed under cooperative loans, in terms of total volumes of the sales in financial figures, comes to about 1% thereby having an insignificant effect on total fertilizer sales.

Institutional Agricultural Production Credit

Under the Government's agricultural credit policy various institutions such as BKB, Cooperative Banks and Commercial Banks participated in dispensing credit and providing financial services to the rural people, including farmers. During 1976/77, a special agricultural credit program totaling 1 billion taka for irrigation credit in rural areas was launched by the Government. Apart from disbursing credit under SACP, commercial banks, BKB and IRDP (BRDB) carried their own credit operations simultaneously. A small portion of their credit funds was utilized for the purchase of fertilizer and other inputs by farmers while the major portion went for other agricultural needs viz., for agricultural implements, purchase of animals, establishment of dairy and poultry farms, ponds fisheries etc. No such credits were made available to the dealers for purchase of fertilizers.

Fertilizer Distribution Credit

The Government, has encouraged institutional credit to improve the agricultural sector recently, however non-institutional credit has continued to serve a major role. An average of 85% of the total credit requirements in rural areas,at a very high rate of interest,was met from non-institutional sources for both agricultural and non-agricultural purposes*. To mitigate the situation and to make credit available to finance fertilizer purchases, a country-wide credit program for purchase of fertilizer by wholesale dealers was introduced at the end of 1982 by BADC. This program was referred to as BADC dealers' In-kind Program and made accessible to Thana wholesale dealers upon meeting certain criteria. The main features of the program were as follows:

1. Credit was granted In-Kind against a bank guarantee on a revolving basis and turned over a number of times within the validity period of the bank guarantee.
2. Credit was granted for purchase of 15 to 25 M/Tons of fertilizer within the credit limit of Tk. One lakh (one hundred thousand). The credit was granted against the bank guarantee received from scheduled banks. Wholesalers were required to make full payment of outstanding balances to BADC before purchasing any additional fertilizer from BADC.

* Source - Bangladesh Bank's papers on rural credits.

3. The "In-Kind Credit Program" provided interest-free loans for 60 days from the date of lifting but any extension beyond 60 days required approval and was subject to interest at 5% per month. No credit was to be guaranteed for a period of 60 days prior to the expiration of bank guarantee.

This program was withdrawn by BADC in October, 1984 in order to minimize the financial burden and to overcome the crisis of fertilizer shortage.

This In-Kind Credit System started slowly. Only a small portion of BADC's total fertilizer sales were made against the loans granted (about 200 applications received by December, 1983). The difficulties in utilizing the loans from the In-Kind Fertilizer Distribution Credit program occured as a result of institutional sources reluctance to provide bank guarantee. Other constraints to use of In-Kind credit by the dealers was their lack of procedural knowledge and their easy accessibility of loans thru local money lenders, etc. However, the recovery position of the loans granted under In-kind Credit was superior to most other agriculture credit schemes standing at about 90% recovery.

To popularize and boost fertilizers sales in line with the Government's "Grow More Food Campaign" credits/loans were available mostly in integrated packages for fertilizer and inputs such as seed, pump, tillers, tractors and tubewells, except for wholesalers credit against bank guarantees. The realisation positions as worked out from a consolidated statement prepared by BADC's MS&S Division upto June 30, 1986 depict the following position.

Distribution of fertilizer under Institutional Credits upto 30-6-86 (as obtained from Sales Division)

Sl. No.	Types of loans	Total amount distributed	Total amount realised	Overdues	Percentage of recovery
1.	Taccavi	307,968	-	307,968	0%
2.	Supervised credits	74,048,298	60,456,017	13,592,284	81.6%
3.	Cooperatives	7,858,950	3,953,936	3,905,010	50.3%
4.	Bank Guarantee	1,725,642	1,710,642	15,000	90.1%*

* Figures are apparently mistaken. IFDC credit analysis conducted for the period of July, 1985 to 30th June, 1986 indicates that during the period Tk 7,140,985 has been distributed as credit against bank guarantee & including opening balance of credit due as on July 1, 1985. Tk 17,913,415 leaving a closing balance Tk4,516,770 millions. The percentage of the realisation of credit against bank guarantee, therefore, is 75%.

FDI-II Credit Program (present status)

FDI-II project became effective as of August, 1984 since then, two amendments have been made, Amendment No. 1 dated November 27, 1985 and Amendment No.2 dated July 31, 1986.

Consequent upon project Amendment No. 1 and fulfilment of conditions precedent to disbursement of project funds in pursuance to Articles 5 of the project agreement, first year's obligation of US$14 million - US$1 million in grant funds for technical assistance and remaining US$13 millions in loan funds are committed for release through PIL No. 1 dated December 2, 1985.

In-Kind Credit Loan Fund (US$13 millions)

In pursuance to project implementation letter No. (PIL/1) for withdrawal of US$13 million loan funds, detailed procedures have evolved with the assitance of IFDC in consultation with Bangladesh Bank, MOA and MOF. Agreed procedures have been approved after a series of meetings and discussions held at the level of Minister of Agriculture, Presidential Adviser for Finance, Secretaries, Ministry of Agriculture and External Resources Division,and USAID.

Procedures outlined agreed upon by USAID are as follows:

1. The Bangladesh Bank will set up a local currency non-interest bearing In-Kind Credit account in the name of BADC either in the Bank's Agriculture Credit Department or General Banking Department, or with any commercial bank nominated by BADC, as agreed between BADC and the Bangladesh Bank.

2. BADC will grant In-Kind Credit to fertilizer dealers for fertilizer offtakes against a bank guarantee(or other suitable security) which will be valid for a period of one year from the date of issue. The credit minimum will be 20 metric tons of fertilizers, in any combination requested by the dealer. The BADC's Regional Manager(Fertilizer), who issues the sanction order for the credit, indicates the location of the PDP from which the dealer is to lift the fertilizer. Credit must be repaid in sixty days, including a service charge. Five percent per month simple interest will be charged for any past due credit. If no application for extension over 60 days is made, the bank guarantee will be encashed on 61st day. No new credit applications

will be processed before all prior credit has been paid and no new credit will be provided if an applicant's prior bank guarantee was encashed.

3. Reflows of principal, interest, service charges and encashment of bank guarantees will be placed in a revolving interest-bearing account to continue the In-Kind Credit Program.

Other operational procedures are as follows :

1. US$13 million to support BADC in-kind credit program will be soft loan fund.
2. USAID continues to support the in-kind credit program managed by BADC.
3. The Bangladesh Government will establish a fund in BADC to support in-kind credit.
4. USAID will tranche reimbursement to Bangladesh Government for establishing the in-kind credit program in BADC for the FDI-II loan fund.
5. Tranches should follow granting credit for all wholesaler/retailers credit applications and fertilizer sales.
6. BADC's cost for the fund will be identical to that USAID charges to Bangladesh Government under FDI-II loan.
7. BADC's fund for credit program will not be interest-earning until it is rolled over.
8. Remaining credit allocations from the FDI-II fund should be used by banks to establish commercial credit for large wholesale fertilizer dealers.

The fund earmarked for in-kind credit was cleared and Project Implementation Letter (PIL/2) dated August 14, 1986 was issued. Unfortunately the clearance of the PIL by the Government took considerable time and it was finally cleared on January 5, 1987. For withdrawal of fund under PIL/2, a fund required to be established by Bangladesh Government in favour of BADC initially was moved from the Ministry of Agriculture to the Ministry of Finance. The Ministry of Finance, however, suggested to avail cash credit facility with Agrani Bank if necessary with the guarantee of the Government instead of establishing the fund for BADC from the Government's own resources and sought the opinion of the Bangladesh Bank and the Ministry of Agriculture to the proposition. Bangladesh Bank agreed to the proposal and communicated its decision to the Government. BADC could not agree to that proposition and declined to accept the proposal of the Ministry of Finance on the

apprehension of involvement of interest in the process. As a result, clearance from the Ministry of Agriculture on the proposition was held up and created a stalemate in the reimbursement of the first tranche of US$3 millions from the US$13 millions pledged for BADC's in-kind credit operation. The fund, though released for operation, is actually not available at this stage even though all procedural steps were completed and the revolving bank account with the designated bank (Agrani Bank) was opened.

In anticipation of the funds being released, BADC formally launched the program and extended in-kind fertilizer credit facility to the dealers begining 1 June, 1986. The program is continuing and the following achievements have been made up to March, 1987 :

Report on "In-kind Credit Program
(June, 1986 to March, 1987)

Sl. No.	Region	No.	B.G.	FDR	Total (In Lakh Taka)
1.	Dhaka	47	45	2(2.80500)	88.05500
2.	Kishoreganj	6	6	-	11.50
3.	Jamalpur	10	7	3(3.00)	10.50
4.	Mymensingh	1	1	-	0.39700
5.	Tangail	8	8	-	11.00
6.	Chittagong	3	2	1(2.26250)	5.99972
7.	Chittagong Hill Tracts	-	-	-	0
8.	Bandarban	-	-	-	-
9.	Noakhali	1	1	-	2.00
10.	Comilla	7	5	2(.30)	8.66
11.	Rajshahi	1	1	-	1.20
12.	Dinajpur	-	-	-	-
13.	Rangpur	7	4	3(2.50)	5.77
14.	Bogra	19	10	9(8.89)	19.49
15.	Pabna	2	2	-	2.00
16.	Khulna	4	3	1(1.00)	6.30
17.	Barisal	3	3	-	2.50
18.	Patuakhali	1	1	-	2.25
19.	Jessore	9	9	-	16.72500
20.	Kushtia	2	2	-	1.80
21.	Sylhet	2	2	1(1.00)	3.00
22.	Faridpur	2	2	-	2.00
Total		135	113	22(23.7550)	201.03672

Only 22 FDR were assigned as per PIL/2 evolved system favouring BADC as colateral guarantee of the credit. The percentage of credit availed of by the dealers in comparison with number of dealers seems negligible (0.67%).

It is anticipated that the program would be effective in supporting to credit needs of wholesale dealers, however the following constraints will have to be addressed :

a) Lack of information about program.
b) Formalities required to obtain a bank guarantee from the banks are cumbersome and demand for colateral excessive.
c) Dealers have inadequate knowledge about the benefits of the in-kind credit program.
d) BADC's field officials might not be supporting this program.
e) Project fund obligated for the in-kind credit program needs to be drawn.

These reasons were cited based on recent discussions with a few dealers at the BADC's Dealer Training Center. For the program to be successfully implemented, these problems would have to be removed. Also, the program should be provagated and explained to the dealers more fully and formalities for obtaining the bank guarantee must be simplified. The following action is recommended:

a. The ready fund for reimbursement by USAID should be drawn and placed in the revolving account with Agrani Bank to speed up the system so that the financial burden to BADC can be eliminated.
b. BADC's Regional Managers should prepare to take prompt actions in processing loan applications and extend their support to prospective dealers for obtaining the bank guarantee.
c. Formalities for obtaining guarantee from scheduled commercial banks and requirements for colateral securities by banks in issuing the bank guarantee should be simplified and the margin required for the bank guarantee should be minimized.
d. The initial margin for the bank guarantee should be limited to a maximum of 20 percent of the guarantee.
e. No loan adjustment should be made within the valid period of the guarantee(i.e. one year).
f. Interest rate for the guarantee should be minimum and should not exceed a maximum of 13 percent including bank's service charge.
g. Dealers should be motivated to open a bank account with commercial banks so that the bank's will be satisfied with credit worthiness of the dealers who intend to avail credit facilities through bank guarantees.

h. Publicity should be through newspapers, circulars and leaflets.

i. BADC's dealers training program should include a topic on the in-kind credit to explain to the dealers, the advantages and methodologies involved in obtaining the in-kind credit.

j. Brochures should be prepared and distributed to the dealers and others interested parties, regarding the in-kind credit program.

IFDC's credit and finance unit will extend its support in achieving BADC's desired goals and shall assist development of the guidelines.

Action Plan for the In-Kind Credit Program

IFDC's credit and finance unit(In cooperation with BADC), to modify the procedures already developed further as soon as the fund for the in-kind credit program is drawn. The action plan includes the following:

a. Develop and modify detailed procedures and formats for withdrawal and adjustment of funds in the revolving account and help BADC submit quarterly progress reports to USAID according to procedures outlined by USAID/Dhaka vide para C of PIL/2.

b. Assist BADC's MS&S Division and Accounts Division for creation of Cell and to help them in preparation of statements of credit sales, realisation of credit proceeds, service charge and penal interest etc. for obtaining reimbursement.

c. Design formats for monitoring the progress of the in-kind credit program and revolving fund operations.

d. Assist the designated bank in withdrawal of funds and in deposit of the realised proceeds (after rolling over to a special account for discharging a DSL) and help solve problems, if any, that may come up at the time of implementation.

e. Assist BADC in obtaining the Government orders to establish fund/ cash credit facility for operation of the in-kind credit program and to claim reimbursement from USAID.

f. Study the following procedures in the field and Headquarters.

g. Evaluate all procedures vis-a-vis calculation of interest factors and service charges.

h. Assist other units for the preparation of guidelines related to credit.

i. Follow up and obtain feedback on the in-kind credit program.

Commercial Credit

USAID in its letter dated May 20, 1986 has indicated that it plans to obligate the second tranche of grant fund (US$15 million) for fertilizer dealers, to be channeled through Bangladesh Bank, Bangladesh Krishi Bank, nationalised commercial banks and private banks. For this, the project loan and grant agreement has been amended (Amendment No. 2 dated 31st July, 1986). Utilisation of the grant fund is subject to fulfilment of conditions for release, which are currently being discussed. After decision by the Government and USAID, the fund obligation will be finalized and a PIL for the purpose will be issued. Before the issues are resolved, and the induction of medium-and large-scale wholesale dealers is finalized, development of procedures for the grant fund is obscured. IFDC can undertake some ground work at this stage to suggest best possible ways for utilization of this fund and to make the credit attractive to the prospective dealers. The size of the credit to be required by the National Fertilizer Distributors Association (NFDA) or large-scale wholesale dealers in future will depend upon the assessment of their credit requirements when they actually take over the fertilizer trade and upon their ability to handle the volume of the trade. Therefore, assessment of equity and credit requirements for different categories of the dealers is pre-requisite for development of effective procedures for credit.

For commercial credit, it is suggested that indepth studies of transportation and handling discounts be made when TDPs are allowed to operate. Discussions and dialogues with prospective large-and medium-scale wholesale dealers and commercial banks also should be undertaken to mould their views on formulation of the procedures so that their views can be submitted to BADC and USAID for consideration.

Furthermore, suggestions on modus-operandi regarding commercial credit issues after discussions with BB, MOA, MOF, ERD and Banks.

- Interest factor.
- Discounting and refinancing procedures.
- Utilization of the fund by dealers and after their repayment.
- Ministry of Finance's regulatory measures for utilization of the grant fund by commercial banks vis-a-vis its reflows.

For this purpose, interviews with the aforementioned agencies will be made to formulate the recommendations on above issues.

In addition to extending credit facility to private sector wholesale dealers, assistance should be given in financing fertilizer import by the dealers and possible constraints on importation of fertilizer by private individuals should be addressed. As financing of fertilizer imports by private dealers is likely to come from foreign aid and grant to GOB, the procedural steps required for such imports may be sorted out with ERD, MOF and Bangladesh Bank in order to extend essential help for use of grants/aid by private individuals. The Ministry of Commerce, Controller of Export and Imports may also need to be involved in devising the procedure. Further actions will be suggested after issuance of PIL for commercial credit and obligation for the remaining project funds and resolution of conditions precedent reimbursement of USAID funds.

APPENDIX IV-A

PROJECT COST ESTIMATES AND FINANCIAL PLAN

Project Elements/ Inputs	USAID FX	USAID LC	GOB LC	OTHERS FX	TOTAL
Credit/Fertilizer	0	44,000	598,900	450,000	1,092,900
Construction	5,000	950	900	0	6,850
Technical Assistance	4,000	125	50	0	4,175
Training	300	50	50	0	400
Equipments	250	100	50	0	400
Survey, Evaluations, Audits	400	75	50	0	525
Contingency (15%)	1,750	8,000	0	0	9,750
TOTAL	11,700	53,300	600,000	450,000	1,115,000

CHAPTER-V

DEALER DEVELOPMENT AND TRAINING

An efficient, balanced, and proper use of fertilizer has a direct bearing not only on the increase in physical yield per acre but also on the economic returns to farmers from fertilizer use. One of the major ways to expand the use of fertilizer at the right time in right quantity by right method in Bangladesh is to provide training and effective promotional activities at the farmer level by the vast army of fertilizer dealers. Fertilizer dealers have a strong and close link with BADC and the farmers, and farmers must be kept informed of the best cultural practices, new varieties, cropping patterns, fertilization know-how and be convinced of their economic benefits. With more than 13 million farmers in Bangladesh and with a poor transportation infrastructure, it is not practical to expect the extension workers of the Ministry of Agriculture (MOA) and BADC personnel per se to maintain contact with an appreciable number of farmers and to educate them. It is therefore, primarily the dealers who can play a vital role in convincing the farmers to use efficient, balanced and proper fertilizer applications. There are some 27,300 fertilizer dealers in the country, several times the number of BADC field sales personnel and the MOA's field extension workers. These dealers have a strong financial incentives to see that the farmers' benefit from fertilizer use. However, before the dealers can become effective catalysts in promoting fertilizer use, they will have to acquire or enhance their knowledge and skills in several aspects - fertilizer use, sales, handling, and storage; business management; economic and financial analysis; market assessment; and training methods. The dealers also need to put their acquired knowledge and skills to work. Dealers generally enjoy the confidence of farmers. Accordingly, if the dealers are properly trained and motivated, they can influence the farmers in the proper and profitable use of fertilizer. Realizing the critical role of the dealers in future marketing of fertilizer in the country most effectively, BADC formally introduced the Dealer Development and Training program in April 1982. Such a program is especially significant timed when the country is set to cultivate greater private sector participation in marketing and distribution of fertilizer in Bangladesh under FDI II.

The interest of BADC in dealer development and training dates back to 1977. Under the Agricultural Inputs Project III (AIP III) BADC established a committee to develop a training program and preliminary discussions were held

with FAO and USAID for assistance. During negotiation for AIP-III, both BADC and USAID agreed that each would bear 50 percent of the costs for carrying out the dealer training program. Upon agreement, US$50,000 was spent in procuring and printing training materials such as, brochures, posters, leaflets, flip charts, etc. BADC requested the IFDC Training Coordinator to visit Bangladesh in mid-1979 to provide technical assistance in dealer training. Several things were recommended with regards to implementation of dealer training activities. The IFDC Training Coordinator developed a dealer training format with brief summaries of the topics that ought to be covered in a dealer training program. A dealer training seminar at BADC's Training Institute in Madhupur was held by IFDC on December 28-30,1981 with 10 Sub-Divisional Managers(SDM), 7 Thana Inspectors (TI) and 29 dealers from 4 regions (Mymensingh, Kishoreganj, Tangail, and Jamalpur) participating. A similar program was held by IFDC at the Bangladesh Agricultural Research Institute (BARI) in Joydebpur on February 23-25, 1982, with 10 SDMs, 7 TIs and 28 dealers from Faridpur and Dhaka regions attending. These seminars were extremely valuable in identification of dealer training needs and in development of a syllabus for a full-fledged training program to be held later on. A post-training survey on the subject seminars indicated that all the dealers who attended drew benefits from the seminars and that more than two-thirds of the dealers increased their sales as a result of training. Fertilizer recommendations was the topic which benefited the dealers the most, followed by fertilizer application know-how, modern marketing management, proper storage system, and demonstration plots. Additional follow-ups of the trained dealers by IFDC suggested that all dealers wanted BADC to distribute soil maps and additional training on techniques for designing a successful demonstration plot. USAID's support for BADC's dealer training activities discontinued temporarily as the initial scope of FDI I did not budget for this activity. However, dealer training was included & subsequently incorporated in the FDI I project amendment in 1981, with emphasis on dealer credit, fertilizer use technology, and the fostering of dealer associations.

Dealer Development and Training Program (DD&T)

Per IFDC's recommendation, BADC formally introduced the program in April, 1982 as a marketing tool for its fertilizer scheme. To execute the program, a DD&T unit was set up in BADC's MSS Division and necessary officers and staff were

posted. The objectives of the program include:

a) Develop and implement BADC's dealer training program to increase fertilizer product use and knowledge for better technical assistance to farmers.
b) Develop and implement a training program for BADC's trainers who, in turn, train the dealers.
c) Develop course curricula for the dealer's and trainer's training program.
d) Develop, prepare, print, and distribute training materials to the dealers and to BADC's trainers.
e) Develop, prepare, print, and distribute sales promotion materials to the dealers and the farmers through BADC's trainers.
f) Formulate sales promotion and advertising programs and expanded farmer services by the dealers.
g) Implement dealer-focussed market development and customers service program.
h) Promote dealer's business management skills for maximization of profit.
i) Organize dealer/farmer sales meeting.
j) Develop and implement demonstration plots by dealers/farmers.
k) Organize training of retailers and farmers by wholesale dealers.
l) Coordinate with training-related and agricultural research institutions such as, BARC, BARI, BRRI, CERDI, DAE, BRDB, BMDC, etc.

BADC's DD&T unit, with technical assistance from IFDC, has carried out the following activities:

A. Training Activities

1. Trainer's Training - This program was to train BADC's dealer trainers, the Dealer Training Officers (DTOs) and the Assistant Dealer Training officers (ADTOs) in 20 regions. In order to successfully implement a nation-wide dealer training program, BADC realised early that it had to develop a group of BADC trainers in the regions first. Thus a two-man team in each region (i.e. 20 Assistant Regional Managers and 20 Inspectors) was selected as DTOs and ADTOs. The trainer's training program was designed to provide updated knowledge and skills for the trainers in training techniques, training planning methodology,

lesson plan preparation, product knowledge, business management agronomic application, promotion, balanced and proper use of fertilizer, use of audio-visual aids, fertilizer demonstration, farmer's meeting, and field days. The first such program was held at BARI, Joydebpur, September 1-10, 1982. The second program was held at BARI, Dhaka, October 19-27, 1983 and the third program was held at the BADC headquarters in three separate batches, April 5-26, 1985. Training methods included lecture, group discussion, lesson, case study, demonstration, exercise, role play and film show.

2. Dealer training - A two day program was developed and has been conducted monthly by each BADC trainer in the regions. Since the program was initiated in 1983, some 27,000 registered dealers (local wholesalers and retailers) have gone through training. The program was designed to (1) enhance the dealers' knowledge on fertilizer use and their technical assistance capabilities for farmers, (2) prepare and implement the dealers' market development and customer service programs as well as the sales promotion and advertising programs, (3) develop the dealers' business management skills in order to save costs and maximize profit, (4) formulate and organize dealer association and convention, and (5) help the dealers design and implement demonstration plots with farmers. Reportedly, in 1985/86 there were 16,627 registered local wholesalers and 40,204 registered retail dealers in the country, of which only about 1/3 were full-time active.

3. The Training Planning Workshop - A workshop for BADC's trainers and marketing personnel was organised by BADC/FADINAP/IFDC and held at Hotel Purbani, March 16-24, 1983. This workshop was to help participants develop lesson plans for use in dealer training and provide updated knowledge on training planning and methods.

4. The In-country Fertilizer Marketing Management Training program for Trainers - A special program for BADC trainers was held at Planning and Development Academy in Nilkhet, Dhaka, in two separate batches

November 19-30, 1986. The program focused on fertilizer demand forecasting, sales promotion, training techniques, efficient and balanced use of fertilizer, MPF territories, job description, BADC-dealer relationship, etc. A core of BADC/IFDC staff supported by selected specialists from BARC, BRRI, BARI, Winrock International, Planning & Development Academy, and Directorate of Agricultural Extension and Management, conducted the program. A wide range of training activities were involved, including lectures, films, simulation exercise, role play, case studies, panel discussions, group activity work, and a field trip. The field trip provided an opportunity for BADC trainers to observe and study research farms, farm fields, dealer shops, agro-service center, and soil testing laboratory. This should help BADC trainers organize field trips for the dealers more effectively and systematically. Four BADC Regional Managers were invited as observers in each batch of the program in order to make the program more successful.

B. Development and Promotional Activities :

1. Preparation of training and promotional materials - posters booklets, brochures, manuals, films, etc.
2. Procurement of audio-visual equipment.
3. Organisation of sales campaign by trained dealers.
4. Formation of the dealers association.
5. Organisation of annual dealer meetings.
6. Sunday briefing of dealers at PEPs.
7. Introduction of the village adoption program at thana level.
8. Sharing of fertilizer materials required for four demonstration plots (about one-tenth of an acre per plot) in thana with farmers.

For training and promotional materials, an IFDC film, "Making the Most of a Miracle" was dubbed in 1983, and two local films on fertilizer promotion, "Dhan Shabuj Shawpna" and "Bhalo Fashaler Ashal Khata" were produced in 1984. The IFDC film stresses the necessity of all plant nutrients in maintenance and improvement of crop yields. A flip chart on fertilizer application was developed in 1982 and Audio-visual equipment was procured in 1983. Posters on organic

manure, nitrogen, phosphorus, zinc, sulphur, and organic and inorganic fertilizers were prepared during 1982-87 and in some cases, were reprinted. In 1983, fertilizer dealer manual was developed in cooperation with IFDC and BARC and a district-wise soil map was prepared in cooperation with the Department of Soil Survey and BARC. During the same year, BARI's brochures on zinc and sulphur and the brochure on wheat were reprinted. The brochure on soil fertility was also designed and printed. In 1984, the fertilizer demonstration manual, manual on dealer training lesson sheet, were prepared and soil map, the dealer manual, flip chart, and brochures on zinc, sulphur and rice were reprinted.

The dealer manual was again reprinted in 1985-86 and a poster on organic and inorganic fertilizers was developed and printed in 1986-87. All the training and promotional materials were distributed to the dealers and in some instances, to farmers through BADC's trainers and regional managers. One village adoption program was introduced in one model village in each thana but was suspended in 1984. A 50 percent sharing of fertilizers for 4 demonstration plots in each thana was also suspended. The annual dealer meetings were organized in the regions during 1983-86.

For formation of the dealers association, IFDC, in consultation with BADC's DD&T Unit, drafted a by-law for the proposed association and the draft was sent to BADC's Divisional and Regional Managers in November, 1982 for their comments and suggestions. Upon their comments and suggestions, the by-law was revised and submitted to BADC's Board of Directors for their decision on formation of the dealers association. Although the formal approval by BADC and GOB remains pending, some dealers associations have been formed by the dealers at regional, PDP, and thana (Upazillas) levels. The benefits for having such dealers associations are several.

They facilitate conducting training of dealers and ultimately, training of farmers by trained dealers. They help identify training needs for dealers as well for farmers and facilitate market survey, technology transfer, new product introduction, and sales promotion by the dealers. They foster views, ideas, and techniques on fertilizer promotion and use as well as training.

C. Evaluation and Follow-up :

Evaluation and follow up are a must if the Dealer Development and Training Program is going to be of any value. Evaluation helps BADC determine the performance and achievements of the program. It helps BADC improve program objective and content and undertake follow up activities. An evaluation on the program was made independently by USAID in 1985 through a reputed consultant. The study indicated that the DD&T program has had a very positive impact on the dealers' knowledge on fertilizer and fertilizer sales. The study also indicated that the dealers have had a high degree of enthusiasm for the program. In fact, nearly 90 percent of the dealers who have gone through training expressed their desire to attend a refresher course and reported that they obtained valuable new information from training. Also, 58 percent of trained dealers stated that they have increased their fertilizer sales as a result of training. The study further indicated that those dealers who have not gone through training have lost their business to trained dealers. The study clearly indicated that farmers did consult with trained dealers on fertilizer use and recommendations, and that great number of non-users of fertilizer have become users after consultation.

The success of a dealer training program should be evaluated by three iteria. The first criterion is whether a dealer actually increased his knowledge and skill on fertilizer use and marketing. The second criterion is whether a trained dealer actually disseminates useful informations to his fellow farmers and sells more fertilizer. The third criterion is how well the program is organized and conducted and how a trained dealer perceives the value of his new knowledge to his job performance. These three types of evaluation are essential in order to measure the success of the current program and provide the basis for future program improvements.

Follow up is an indispensable activity which must be strengthened by BADC's trainers. In order for BADC to get real value out of its dealer development and training efforts, DTOs and ADTOs must follow up their dealer development and training activities by visiting the dealer shops to determine if the knowledge and skills gained by trained dealers have actually been put to work and whether they have done something good for their current and potential customers. For example,

BADC's trainers should assist trained dealers face to face in a diplomatic manner, on use of posters, banners, flip chart, soil map, and dealer manual. He should also observe how effectively a dealer conducts the farmers' meeting, demonstration, and field days. And as needed, BADC's trainers should assist the dealers in farmer's meeting, demonstration plots, and field days. For follow up, BADC's trainers should ask the following questions.

a) What new useful knowledge and skills has the dealer acquired through training ?

b) How is the dealer using new knowledge and skills ?

c) What is the best method to use new knowledge and skills ?

d) What additional support would the dealer like from BADC ?

e) Are crop yields increasing in your area ?

The trainers should also reinforce the dealer's confidence and assist the alers in use of training and sales promotion materials. Furthermore, the ainers should exercise professional salesmanship when working with the dealers. ›re specifically, the trainers should not argue with the dealers, but try to isten and understand the dealer's point of view.

Future Training, Development and Promotional Activities

The DD&T program has had its impact on trained dealers. However, it also has problems which need to be solved. The problems are :

a) Full-fledged DTOs and ADTOs have not been posted at regional headquarters.

b) DTOs and ADTOs are frequently transferred.

c) Audio-visual equipment like overhead projector (OHP), slide projector (SP), movie projector (MP), etc. which was supplied to DTOs and ADTOs has not been used properly in a dealer training class.

d) The dealer training program does not start and finish on time and program schedule is not followed properly.

e) Dealers do not attend the training program on time and often, do not know the program content.

f) Most speakers do not hand out lecture notes to the dealers for future reference.

g) Training of farmers by trained dealers could not be organized by all trained dealers due to lack of full support and follow up by some BADC Regional Managers, DTOs and ADTOs.

h) Farmers' field days could not be organized due to lack of initiative and follow up activities.

i) Follow up at dealer shops by DTOs and ADTOs has occured rarely and then not in a preplanned manner.

j) Promotional activities through trained dealers are not getting due attention in absence of proper support and follow up activities by BADC's Regional Managers, DTOs, and ADTOs.

k) Training and promotional materials supplied through DTOs and ADTOs are not properly used by the dealers and displayed at dealer shops due to lack of follow up activities.

In order to help solve the above problems some recommendations on BADC's trainers, training programs/seminars, training aids, follow-up activities, the dealers incentives, and the dealer association are given as follows :

A. BADC Trainers

1. Full time jobs for DTOs and ADTOs should be permanently set up in order to discharge training responsibilities.

2. A new list of DTOs and ADTOs should be prepared and both DTOs and ADTOs should be graduates in agricultural science. They must also have sound academic standing and interest in training. Moreover, they must be good communicators and have good understanding of human behaviour and the psychology of teaching in a given environment. They must be able to motivate the participants and hold their interest during training. Once DTOs and ADTOs are selected and trained, they should stay on the training job for 2 to 3 years.

3. The duties and responsibilities on DTOs and ADTOs should be re-established and a clear job description be given.

4. Continuous training and study tour, incountry, should be given to DTOs and ADTOs in order to update their knowledge and skills.

5. The "Train the Trainers" workshop should continue to be held at least once in a year because it has been extremely useful.

6. A refresher course for BADC's Divisional Managers, Regional Managers, DTOs, and ADTOs should be arranged to discuss and overcome their problems pertaining to training and follow up activities and to establish greater coordination in dealer training in the regions.

B. Training Programs/Seminars

1. One or two day training courses at national level for leading dealers (those who have an annual lifting capacity of 10,000 ton

or more) may be held. This course should form on business management skills and national/international market of fertilizer.

2. One or two day training course for relatively big dealers (those who have an annual lifting capacity of 3,000 to 10,000 tons) may be held. This program should forms on business management skills, sales promotion, salesmanship, and fertilizer management practice.

3. A two day training program for medium size dealers (less than 3,000 tons annual lifting capacity) may be offered. This program should be coordinated through major wholesalers and emphasize product knowledge and fertilizer management practices.

4. A few special one-day training courses for retail dealers and big farmers on specific crops and fertilizer use during three crop seasons may be tested in cooperation with large wholesalers.

5. A special incountry agricultural symposium with invited speakers from other Asian countries, may be conducted every other year in order to share knowledge and skills of agricultural development, including the role of fertilizer.

6. A one day annual dealer convention at regional level in each region for all dealers may be organised. This convention will also serves as a sales promotional campaign.

7. Number of dealer training programs should not be the same for all regions, it should be based on the number of active dealers in each region and agronomic potential.

8. More participation by wholesale dealers in the classroom must be emphasized. Subject matter for one-day and two-day courses should not exceed 3-4 subjects per day. Field trips need to be better planned and productive.

C. Training Aids

1. A side from lectures, other training techniques such as group discussion, case study and role playing, should be utilized in dealer training.

2. Audio-visual aids, such as charts, photographs and films should be used extensively in dealer training.

3. Audio-visual equipment such as overhead projector, slide projector, movie projector, camera, and magaphone should be supplied to all the regions to be used in dealers training but only after proper use & care of current equipment is assured.

4. Lecture notes and reference materials should be handed out to the dealers who are in training and lectures should be held to a minimum.

5. BADC's DD&T Unit should develop a standard set of handout and lesson plans to be used in dealer training.

6. New training aids for dealer training should be developed.

7. The class room for dealer training should be decorated and equipped with necessary training aids and promotional materials.

8. Training materials such as pen, pencil, folder, and note pad should be centrally prepared and supplied in order to maintain uniformity.

D. Follow-up activities

1. BADC's trainers are required to visit trained dealers and assist the dealers in conducting the farmer meetings, organizing field days, and promotional campaigns. They are also required to actively solicit the support of local agricultural research and extension workers, local bank officials, and other relevant parties to assist fertilizer dealers in educating farmers and in promoting fertilizer sales.

2. BADC's Regional Managers should be more vigilant about the follow-up activities of their DTOs and ADTOs.

3. Sales promotion through trained dealers should be organized.

4. Demonstration plots in easily areas should be a part of sales promotion and follow up activities..

5. BADC's trainers are required to assist selected dealers in designing and preparing demonstration plots properly. They should also assist trained dealers in organizing the farmers meetings.

E. Incentives for Dealers

1. Dealers who attend training should be given small prizes or gifts, for example, might be key chain, calendar, training pad, ash tray, paper weight, shirt, genji, or cap.

2. Trained dealers who organize training of retailers/farmers may be helped with prizes and promotional materials for distribution to retailers/farmers.

3. Funds for signboard, seeds, fertilizers, and insecticides needed in raising demonstration plots by the dealers should be provided.

F. The Dealer Association

1. A national level fertilizer dealer association should be developed so that the responsibilities for fertilizer marketing, training, and promotional activities may be shifted to such a group in order to reduce the financial burden of the Government.

Although a number of recommendations have been made to train and develop fertilizer dealers, the major emphasis under FDI-II should be given to (1) the follow-up activities of BADC's trainers and trained dealers, (2) improvements in existing and promotional materials, and (3) upgrading of existing training programs, especially on program content.