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# **THE PRICING OF AGRICULTURAL CAPITAL INPUTS IN PAKISTAN**

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## FOREWORD

Agriculture, the most important sector of Pakistan's economy, has been receiving special attention during the past several years. Capital inputs are being increasingly used on the farm. Since the pace of the use of capital inputs, so essential for agricultural modernization, depends heavily upon the prices which the farmer has to pay, a study of the pricing mechanism of the capital inputs assumes considerable importance. This monograph of the Pakistan Institute of Development Economics (PIDE) has attempted to study in depth the prices of three major capital inputs, viz., fertilizers, tractors and tubewells, at each level of the marketing system. In some cases, problem areas are explored and alternative approaches suggested.

It is hoped that some of the implications of the policies discussed in this monograph within the framework of broad policy areas will prove useful in designing programmes for agricultural development in Pakistan. The study may also help identify some of the problems and areas which should be given high priority in future agricultural research.

The study was carried out by a joint team of six agricultural economists drawn from the PIDE and the U. S. Department of Agriculture (USDA). Mr. Mohammad Afzal, Research Economist at the PIDE, was the leader of the team. The other PIDE economists engaged in this study were Mr. Rauf Azhar and Mr. Mohammad Ahsan. The USDA economists were Messrs. Dana G. Dalrymple, Lyle P. Schertz and James R. Sayre who were supported by the U. S. Agency for International Development (US AID).

The study was completed in December, 1973. Since then, it must be pointed out here, the prices of fertilizers and petroleum in international trade have gone up dramatically.

The views expressed in this monograph are solely of the authors and do not necessarily reflect the official thinking of either the PIDE or the USDA.

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## **Introduction**

Capital inputs have become increasingly important in the expansion of agricultural production in developing countries. Economists normally classify capital goods as fixed or working capital. Fixed capital contributes to the production process but is not immediately used up in that process. Thus, the term is generally used with reference to hardware items such as tractors, trucks, and pump sets. Working capital includes such goods as fertilizers which are consumed in the production process.

While the importance of capital goods is widely recognized, and their effects extensively studied, not much is generally known as to how they are priced or what the price levels are at various points in the marketing process.

In order to study the prices and the pricing process of three main capital goods in agriculture, viz., fertilizers, tractors and tubewells, it was decided to conduct a preliminary field survey wherein farmers as well as firms and agencies involved in the import, production and distribution of the three capital goods were interviewed with the help of specially prepared questionnaire. The interviews were carried out in November and early in December, 1973 in Peshawar, Islamabad, Lyallpur, Lahore, Karachi, Hyderabad, and Quetta areas, thereby covering all major regions of Pakistan.

The limited number of principals interviewed were concerned with the import, production and wholesale distribution of the three capital goods. It is possible to contact nearly all the key groups involved, the only exception being that of tubewell manufacturers. The degree of coverage dropped very sharply at the retailer and farmer stage because of the vast numbers involved.

The three capital goods studied involve somewhat different production and pricing processes. Fertilizer is manufactured domestically as well as imported. The marketing margins and the retail prices are set by the Central Government. Tractors are at present imported but there are plans for domestic assembly. Trading margins and prices of tractors are also controlled by the Central Government. Tubewells are manu-



factured in Pakistan from imported raw materials and components. While the Central Government does not fix margins or retail prices, it does influence them through its regulation and distribution of raw material inputs. Thus, one could say that the results of the survey basically reflect administered pricing. However, it may be pointed out that the prices actually paid by the farmers are often in excess of those fixed by the Government.

The three capital inputs have been discussed in three separate chapters and received identical treatment consisting of a review of the structure of distribution, an examination of costs and prices, and, finally, a review of problems and issues. Since prices are affected by the institutional structure, a certain amount of overlap is involved. Some of the policy discussions deal as much with structure as with price. A closing chapter attempts to cast some of the major findings of the study in a more general policy framework.

## Chapter I

### PRICING AND DISTRIBUTION OF FERTILIZERS

This section briefly reviews the pricing and distribution of fertilizer in Pakistan as of November 1973. It attempts to provide an introduction to the subject and suggest important policy areas requiring further study.

#### Structure of the Fertilizer Industry

The structure of Pakistan's fertilizer industry is fairly complex, involving not only Central and Provincial Governments but also Pakistani and American firms. Fertilizer is both produced in the country and imported.

In discussing the structure of the fertilizer industry, we will trace its evolution, examine statistics of fertilizer supply and consumption, review the present distribution system, and briefly note the proposed fertilizer plant construction.

#### Evolution<sup>1</sup>

Fertilizers were first imported by Pakistan in 1952 and the first domestic production reached the market in 1957. Imports were made solely by the Central Government which then supplied the imported fertilizers to the Provincial Governments for distribution through Government outlets. Domestic production was carried out in plants owned by the Pakistan Industrial Development Corporation (PIDC) and was initially sold through commercial agents in *mandi* towns.

In 1963-64, the Central Government decided to turn the distribution of fertilizer over to the Agricultural Development Corporation (ADC), with "basic democrats" at the village level acting as sub-agents. The arrangement with the "basic democrats" having proved unsatisfactory, the distribution of the domestically produced fertilizers was later entrusted to the Rural Supply Co-operative Corporation (RSCC).

From 1963-64 to 1968, imports and distribution of imported fertilizers were the responsibility of the ADC while the production and distribution

<sup>1</sup>Based on [2, pp. 9-10].

of domestically produced fertilizers were the responsibility of the PIDC. Both the organizations sold fertilizers through their commission agents many of whom acted as agents to both the ADC and PIDC simultaneously.

From January 1968 onwards, the ADC appointed a number of principal agents to carry out distribution while it itself concentrated on newer fertilizers or geographic areas where private distributors were not operating. The RSCC continued to be active in handling a large portion of the fertilizers produced by the PIDC factories. ESSO began fertilizer production in December 1968 and established its own distribution system. Other principal agents were private Pakistani firms the largest among which were Dawood Corporation Ltd., Jaffer Brothers Ltd., and Pakistan National Oils Ltd. (PNO).

Each private firm had its own retail distributors, though some retail agents served more than one principal agent. The privately owned Dawood-Hercules (D.H.) Urea Plant began production in October 1971; distribution was initially handled by several private principal agents but subsequently was undertaken by the Dawood Corporation and the Government.

On January 8, 1972, the ADC was dissolved and replaced by the Agricultural Supply Organization (ASO), which was charged with the responsibility of purchasing all imported fertilizers. Provincial counterparts were established in 1973 (e.g., the Sind Agricultural Supply Corporation, or SASCO, and the Punjab Agricultural Supply Corporation, PASCO) which took over local distribution formerly handled by the ADC and the RSCC.

On August 28, 1973, the Punjab Government provincialized the distribution of fertilizers within the province. At that time the functions of the four private principal agents (Dawood, Esso, Jaffer, and PNO) and others were to be assumed by the Provincial Agricultural Supply Corporations (but the Directorate of Agriculture in Baluchistan). A month later, the Punjab Government modified the new policy and permitted half of the distribution of the Dawood-Hercules urea output to remain in private hands. The number of principal private agents, however, was reduced to two, viz., Dawood and Esso, the latter having confined its operation to the southern portion of the province. Fertilizer distribution

in Sind was not provincialized but was influenced in that Dawood, Jaffer, and PNO withdrew from Sind and Esso increased its distribution there. The distribution system in the North-West Frontier Province (NWFP) remained unchanged as of November 1973.

### **Fertilizer Supply and Consumption Statistics**

Fertilizer statistics may be divided into two main groups; those concerning supply and those relating to consumption. Supply, in turn, is composed of domestic production and imports.

#### **Domestic Production**

Domestic fertilizer production is largely of the nitrogenous types and is based on domestic natural gas. Phosphatic fertilizer production is relatively limited and is currently based on imported raw materials.

The major forms of the fertilizers produced in Pakistan are:

Urea	(46 % N)
Ammonium Sulphate	(21 % N)
Ammonium Nitrate	(26 % N)
Single Superphosphate	(18 % P)

Production of nitrogenous forms began in 1958 while that of the phosphatic forms began in 1957. Output has expanded considerably over the years, as shown in Table 1.

Details of domestic production, as of November 1973, are given in Table 2. Production levels in some of the PIDC factories in earlier years were below these levels.<sup>3</sup>

It is understood that Dawood-Hercules could increase their output by 15% if they could get more natural gas. This would be about 50,000 metric tons a year, a significant expansion in terms of total production. No plants were under construction in November 1973. One was scheduled to begin construction in January 1974 while negotiations were at an advanced stage on several others. (This matter will be discussed later in this section.)

<sup>3</sup>For further details on the first five plants through 1968-69, see [2, pp. 152-163].

Table 1

*Domestic Fertilizer Production in Pakistan (1957 to 1972-73)*  
(Metric Tons)

Year	Nutrient Weight	
	Nitrogenous	Phosphatic
1957	...	188
1958	4,300	200
1959	9,000	280
1960	9,560	710
1960-61	9,902	1,618
1961-62	13,906	1,442
1962-63	41,460	1,108
1963-64	45,269	1,205
1964-65	48,141	1,467
1965-66	47,132	1,438
1966-67	51,961	724
1967-68	50,204	2,894
1968-69	79,027	2,548
1969-70	128,657	4,069
1970-71	129,579	4,583
1971-72	215,070	4,948
1972-73	280,411	8,877

*Source:* Chemical Consultants, Lahore. (Compiled from Government statistics.)

Table 2

*Domestic Fertilizer Production in Pakistan, 1973*

Plant Owner	Location	Product	Estimated Production
			(Metric Tons)
<b>PIDC</b>	Daudkhel	Ammonium Sulphate	91,000
	Multan	Ammonium Nitrate	90,000
		Urea	45,000
	Lyalpur & Jaranawala	Single Superphosphate	54,000
<b>Esso</b>	Dharki	Urea	175,000
<b>Dawood-Hercules</b>	Chichoki Malian	Urea	340,000

*Source:* Interviews in Lahore and Karachi, November 1973.

## Imports

Fertilizer imports began in 1952. As in the case of domestic production, emphasis has been placed on nitrogenous forms. Data of fertilizer imports during 1960-61 are summarized in Table 3. Imports of nitrogenous fertilizers reached their peak in 1969-70 while those of phosphatic types reached their highest point in 1972-73 although they are projected to go even higher in 1973-74.

Table 3

*Imports of Fertilizers in Pakistan (1960-61 to 1972-73)*  
(Nutrient Weight in Metric Tons)

Year	Type of Fertilizer	
	Nitrogenous	Phosphatic
1960-61	20,699	2,556
1961-62	20,759	—
1962-63	31,143	—
1963-64	5,125	—
1964-65	3,204	—
1965-66	48,986	—
1966-67	106,397	16,391
1967-68	103,331	49,316
1968-69	117,518	31,979
1969-70	288,633	6,160
1970-71	107,156	37,897
1971-72	70,440	—
1972-73	120,597	70,152
(1973-74)	(211,040)*	(98,399)*

*Source:* Chemical Consultants, Lahore, and Dawood Corporation, Lahore (for 1972-73 and 1973-74).

\*Projections.

Among the various types of fertilizers imported in Pakistan in recent years, urea (46% N) has been by far the most important while diammonium phosphate (DAP) (18% N and 46% P) has been second in importance. Other fertilizers have become relatively less important. Breakdown of imported fertilizers by major types, for the last few years, is given in Table 4. In 1972-73, in terms of product weight, urea accounted for 54%, DAP 38% and others 8% of the total.

Table 4

*Imports of Fertilizers (by type) in Pakistan (1969-70 to 1972-73)*  
(Product Weight in Metric Tons)

Year	Type of Fertilizer			Total
	Urea	DAP	Other	
1969-70	607,571	10,000	30,070	647,641
1970-71	193,782	72,861	33,905	300,548
1971-72	153,130	—	—	153,130
1972-73	193,601	137,895	29,219 <sup>a</sup>	366,715
(1973-74)	(409,000)	(190,920)	(112,000) <sup>b</sup>	(711,920)

*Source:* Chemical Consultants, Lahore.

*Note:* 1973-74 figures are projections.

<sup>a</sup>Nitrophos (23% N, 23%P)

<sup>b</sup>Nitrophos 46,000; Ammonium Sulphate (21%N) 50,000, Sulphate of Potash (50%K) 10,000.

Fertilizers are imported under a number of different administrative and financial terms—outright gifts, long-term credits (U.S. AID and other bilateral aid programmes), barter, and cash. Pakistan has received fertilizer gifts or cash-purchased foreign fertilizers in only small quantities. The Central Government usually makes cash purchases monthly from near by countries (such as Kuwait) only in emergency situations. Barter deals are made with East European countries.

#### *Relative Roles of Domestic Production and Imports*

The relative roles of domestic production and imports in terms of total supply have varied from year to year. Data for the year 1970-71, 1971-72 and 1972-73 are summarized in Table 5.

Domestic production of nitrogenous fertilizers is proportionately far more important than of phosphatic fertilizer. The relative importance of domestic nitrogen production grew with the commencement of production at the D.H. Urea plant, Sheikhpura, in the early 1970's. By the 1972-73 season, 70% of the nitrogenous fertilizer was produced domestically and 30% was imported.

Table 5

*Percentage of Total Supply of Fertilizers Provided by Domestic Production and Imports in Pakistan (1970-71 to 1972-73)*

Year	Fertilizer type	Domestic Production (%)	Import (%)
<b>1970-71</b>	Nitrogenous	54.6	45.4
	Phosphatic	11.2	88.8
	Potash	—	100.00
	Total <sup>a</sup>	47.0	53.0
<b>1971-72</b>	Nitrogenous	75.3	24.7
	Phosphatic	100.0	—
	Total <sup>a</sup>	75.7	24.3
<b>1972-73</b>	Nitrogenous	70.0	30.0
	Phosphatic	112.0	88.8
	Total <sup>a</sup>	60.3	39.7

Source: Calculated from Tables 1 and 3.

<sup>a</sup>Based on addition of fertilizer weights in metric tons.

The proportion of total fertilizer supply provided by domestic production may well have reached a temporary peak in 1972-73 or 1973-74 with full D.H. urea production. As domestic production stabilizes over the next few years and as demand increases, imports may play an increasingly important role, depending on world prices.

### Consumption

Supply is not the same as consumption because of storage carry-over. If consumption is measured by movement to retail outlets where storage is minimal, then the trend in use is as shown in Table 6. The trend is clearly one of steady increase in the consumption of nitrogenous fertilizers but of more sporadic growth in the case of phosphatic fertilizers.

Distribution of fertilizer sales has been seasonal, with peaks occurring twice a year, reflecting the two growing seasons. The peaks for nitrogenous fertilizers during the 1971-72 season were in July-August and January-February. The peaks for phosphatic fertilizers during the same



Table 6

*Consumption of Fertilizers in Pakistan (1962-63 to 1972-73)*

(Metric Tons)

Year	Fertilizers	
	Nitrogenous	Phosphatic
1962-63	41,160	210
1963-64	67,620	630
1964-65	84,147	1,029
1965-66	69,242	1,245
1966-67	107,779	3,911
1967-68	177,441	12,777
1968-69	203,521	38,642
1969-70	252,566	33,801
1970-71	271,500	30,462
1971-72	343,900	37,231
1972-73	386,385	48,730

Source: Chemical Consultants, Lahore (Compiled from Government Statistics).

season were in October-November and May, the former accounting for 24% of the season's total. Over the last few years, fertilizer distribution has become more even over the season.

The regional distribution pattern shows a strong concentration in the Punjab followed by Sind. The consumption in the NWFP and Baluchistan was relatively small. The province-wise breakdown of fertilizer distribution percentages during the 1971-72 season was as follows:

Province	Fertilizer Distribution as % of W. Pak. Total	
	Nitrogenous	Phosphatic
Punjab	65.8	68.1
Sind	25.5	21.7
NWFP	8.5	9.8
Baluchistan	0.2	0.4
Total:	100.0	100.0

The distribution pattern was determined by agricultural production, cropping patterns, and other factors.<sup>3</sup> The distribution pattern of fertilizers in 1973 like this: Punjab 67%, Sind 22.5%, NWFP 9% and Baluchistan 1.5%.

### Present Distribution System

We have already traced the evolution of fertilizer production and distribution in Pakistan. Here, we will focus on some more detailed aspects of distribution, particularly at the retail level.

As far as domestic fertilizer production is concerned, half of the D.H. production goes to the public sector (PASCO) and half to the private sector, principally in the Punjab and the NWFP. ESSO production is entirely distributed through its agents, principally in Sind, though little is distributed in lower Sind. All the PIDC production goes to the public sector, principally to the PASCO (Punjab).

Under the distribution system in operation prior to September 1973, three main stages were involved: principal agents, agents at the *mandi* town level, and sub-agents. As noted earlier, there were six principal agents. A survey in early 1970 [2, p. 61] revealed a total of 1,697 agents distributed as follows:

<i>Province</i>	<i>Private</i> <sup>a</sup>	<i>Public</i> <sup>b</sup>	<i>Total</i>
Punjab	928	161	1,089
Sind	403	53	456
NWFP	101	36	137
Baluchistan	11	4	15
Total:	1,443	254	1,697

<sup>a</sup>Dawood, ESSO, Jaffer and PNO.

<sup>b</sup>ADC and RSCC.

The number of sub-agents was not known, but it appears that their role was not very important [2, pp. 126 and 128]<sup>4</sup>; it may have grown since

<sup>3</sup>We are not certain how much attention is given to actual farm demand as compared with the potential demand suggested by the above factors.

<sup>4</sup>While some principal agents reported many sub-agents, a village level survey revealed comparatively few of them, and often they were close by in the same town. They were, in reality, 'usually no more than the extension of *mandi* town agents', own activities but under different names.' Further, they were "doing a large business by the use of improper means."

then. The number of agents probably continued to grow through 1973.

In September 1973, as noted, distribution was provincialized in the Punjab and Baluchistan. This process, in turn, had some repercussions in Sind.

### **The Punjab**

Provincialization had by far the most profound effect in the Punjab. We noted above that in early 1970, there were 1,089 agents (928 private, 161 public) in operation; by early 1973 their total number was estimated to have grown to about 1,800. In addition, there were about 700 sub-agents.<sup>5</sup>

Following provincialization, the total number of agents was reduced to about 875. Private agents were reduced to approximately 275 while public outlets were increased to 600. At the private level, the four principal agents were reduced to two, namely, Dawood and ESSO. ESSO's operations were limited to the southern portion of the province. Dawood had 200 agents and ESSO 75. It is not known how many public outlets were operating just before provincialization, but if we assume an increase from 161 in 1970, it might not be incorrect to suggest that about 400 new outlets were added after provincialization.<sup>6</sup>

The number of sales points was cut at least to half by provincialization—from perhaps 1800 (excluding sub-agents) to less than 900. If sub-agents are included, the number of operators was cut by about two-thirds (from 2,500). At first review, this may seem like retrogression in terms of getting fertilizer to the country-side. However, precise evaluation is not possible at this stage as a number of points cloud the issue.

The question of geographic distribution is perhaps the most intractable. Private agents, before provincialization, were generally located at the *mandi* town level and several agents were located in some towns. It has been suggested that a total of no more than 283 locations were involved

<sup>5</sup>Estimate provided by a private firm. The same total number (2,500) was mentioned by the PASCO.

<sup>6</sup>Some sales are made to co-operatives but we do not know the total volume, nor do we know their relative importance before provincialization. Hence they are excluded from this discussion.

but the derivation of this figure is not given and it is contested by some. According to the PASCO, they had 600 agents in different locations with seven or more in each tehsil.

It was not possible to go into this important matter further, but a number of questions come to mind. Were the 600 outlets actually in effective operation? How are they located? As the private distribution system covered major agricultural areas, has the system actually made fertilizer more readily available to farmers? Since farmers are accustomed to going to *mandi* towns to sell produce and to buy fertilizer as well as other inputs, does it make any difference? These and other questions need to be studied. However, there is no gainsaying the fact that a profound change was made over a very short period of time in the fertilizer distribution system in the Punjab. A more thorough evaluation is needed before firm conclusions can be drawn. This will be difficult because (i) the country was recovering from flood damage during the provincialization period, and (ii) the credit system was changed concurrently.

### **Sind**

Although fertilizer distribution was not provincialized in Sind, it shows the same basic division between public and private firms. Public distribution is in the hands of the Sind Agricultural Supply Corporation (SASCO) which in turn makes use of many private dealers. Private distribution is by ESSO, which, in drawing back from much of the Punjab after provincialization, replaced three private firms.

SASCO basically deals with imported fertilizer while ESSO dealers handle the firm's domestic production of urea (86% of which is marketed in Sind). SASCO, as of November 15, 1973, had about 91 sales agents and 300 dealers. It planned to increase the number of the latter to 500. ESSO, as of November 1973, had about 175 agents.

SASCO plans to introduce a system of fertilizer cards to provide a more complete control over distribution. The fertilizer card, to be verified by a revenue officer, will indicate the type and nature of land holdings and cropping. This will help determine the fertilizer needs of individual farmers. Views differ on whether the system will be effective in promoting fertilizer consumption.

### **The North-West Frontier Province**

Fertilizer distribution in the NWFP continues basically in the same pattern as it has followed for several years. It is a combination of government agencies and private firms.

The principal government group is the Agricultural Development Authority (ADA), formerly the Agricultural Supplies Organisation. It markets about 40% of the province's allocation of imported fertilizer and 50% of its domestic fertilizer allocation. Twenty percent of the imported total is actually allocated to the Integrated Rural Development Programme but is distributed by the ADA. The ADA has 20 of its own sale points, which handle most of its sales, and 80 commission agents. In addition, the Rural Supply Cooperative Corporation handles about 16.25% of the domestic fertilizer allocation.

The private sector markets 60% of the province's allocation of imported fertilizer and 33.75% of the domestic fertilizer allocation. The sector consists of three principal agents, viz., PNO, Dawood Corporation and Jaffer Brothers, in the case of imported fertilizer. In the case of domestic fertilizer, these three are accompanied by several other groups, e.g., Agricultural Enterprises, Agprise Farm Services Syndicate, and Karimi Enterprises.

Because of its relatively remote location from the sources of imported and domestic fertilizer supplies, the province experiences some difficulty in obtaining adequate and reasonably priced transportation.

### **Baluchistan**

Although very little fertilizer is currently used in Baluchistan, i.e., about 1.5% of the national total of available supplies, the province holds considerable potential for increased use. The main limitations are (i) the widely scattered nature of agriculture which is found widely scattered in small pockets over a land area representing 42% of the country's total and (ii) the concurrent need for matching irrigation. As of the 1972-73 season, only five private dealers were reported in Baluchistan.<sup>7</sup> They limited their activities primarily to the Quetta region and moved only

<sup>7</sup>We noted earlier that 11 private dealers were reported in 1970.

5,500 metric tons of fertilizer. In order to broaden fertilizer distribution into the outlying regions, distribution was provincialized in the summer of 1973 and turned over to the Baluchistan Government's Department of Agriculture. The department had, by November, established 36 sales outlets and planned to raise the number to 54. It expected to distribute 21,000 tons of fertilizer during 1973-74—nearly a fourfold increase. Distribution is being tied in with a large fertilizer demonstration programme on wheat. Whether the department will be able to carry out distribution over wide areas for the marketing margin of Rs. 73 per ton allowed elsewhere is questionable; some increment may be needed.

### **Proposed Fertilizer Plant Construction**

No fertilizer plants were under construction in Pakistan in November 1973. However, contracts were signed for the construction of an additional WPIDC facility at Multan. Several others were at an advanced stage of discussion or negotiation. These are outlined in Table 7.

It will probably take a minimum of three years before the first new plant comes into commission, and even longer before it reaches full production. Thus, it will be at the earliest 1976-77 (more likely, 1977-78) before increased domestic fertilizer production becomes available.

### **Pricing, Costs and Subsidies**

The formal retail price for fertilizer in Pakistan is set by the Central Government. Different prices are set for each of the several forms of fertilizer and each price is the same throughout the country. The Central Government also sets the marketing margins, known as incidentals. It has less control, at least directly, over actual costs of domestic production or of imports; but costs of these are used in setting the marketing margin and the retail price. Since retail prices do not cover import costs, a subsidy is involved.

#### **Retail Prices**

The official retail price for fertilizer has increased sharply since September 1972. The increases have reflected (i) increased costs of imports (both raw materials and finished products) which in turn were

Table 7  
Pakistan: Proposed Fertilizer Plant Projects (1973)

Company	Fertilizer Type	Quantity of Nutrient (Metric Tons)		Financing	Status
		Nitrogen	Phosphorus		
<i>Public Sector</i>					
1. WPIDC, Multan to be called Nitrophosphates PAK-ARAB FERTILIZERS LTD.		68,850	68,850	ADB/World Bank	Contracts signed.
	Amm-Nitrate	132,682	—		Construction probably to start Jan. 1974.
	Urea	33,396	—		
		234,928	68,850		
2. WPIDC Upper Sind	Urea	237,000	—	Suppliers Credit	Contracts signed Feb. 1974.
3. Pak. Fertilizers Ltd. Karachi MAP (Formerly Jaifer Bros. Project)		10,000	50,000	PICIC (World Bank) financing	Orders placed for MAP plant but difficulties being encountered in buying Phosphoric Acid.
4. Sarhad Dev. Authority, near Tarbela	Phosphoric acid	—	50,000 (to supply to Karachi Plant)		Govt. approval being finalised.
	TSP	—	90,000		
<i>Private Sector</i>					
5. Dawood Corporation, Upper Sind.	Urea	261,724	—	Private (Pak. and U.S.) and public sector	Discussion with potential U.S. partners underway.
6. Fauji Foundation Sadiqabad (Lower Punjab)	Urea	167,000	—	Discussion with IFC/USAID etc.	—
<b>Total</b>		<b>911,000</b>	<b>208,850</b>		

Source: Chemical Consultants (Lahore) and Dawood Corporation (Lahore).

Note: MAP stands for Mono Ammonium Phosphate while TSP stands for Triple Super Phosphate.

sharply influenced by devaluations and (ii) a desire to set a more realistic price that would reduce the cost of subsidies and lessen the influence of the black market.

While prices for nearly all fertilizers have increased, the situation is the perhaps most simply and sharply illustrated by the case of urea prices of which moved as follows:

<i>Period</i>	<i>Price in Rupees per</i>	
	<i>110-lb. bag</i>	<i>Metric Ton</i>
August 1971 to September 25, 1972	28	560
Sept. 26, 1972 to March 30, 1973	35	700
March 31, 1973 to August 14, 1973	42	840
August 14, 1973 to Nov., 73	55	1,100

Thus the price of urea fertilizer increased by 96% within one year. During the same period, however, the support price for wheat was raised twice, amounting to a total increase of 18%. The support price has been well below the actual market prices and the prices of other farm crops have risen much higher.

As of November 1973, retail prices for the various types of fertilizers ranged as follows on a metric ton basis.

<i>Fertilizer Type</i>	<i>Retail Price</i> (Rupees)
<b>Nitrogenous</b>	
Urea	1,100
Ammonium sulphate	490
Ammonium sulphate nitrate	620
<b>Compound</b>	
Diammonium phosphate	1,140
Nitrophos	1,100
<b>Phosphates and potash</b>	
Single superphosphate	295
Triple superphosphate	680
Sulphate of potash	640



There is no difference in the retail prices of imported and domestically produced fertilizers of the same type. As might be expected, there are some variations from these formal prices.

Retailers are permitted to lower prices if they are willing to take a cut in their own returns. This is not common but may occur in a few areas where competition is severe or in off seasons. There may be some price discounting of the urea produced by the PIDC plants because the urea is in powder form whereas farmers prefer the granular form. Some farmers who were short on cash are known to have used a Government loan to buy fertilizer at the official prices and then to have sold it at a lower price to other farmers willing to pay cash. This provides the original farmer a source of operating capital.

Although prohibited, some fertilizer has been sold for more than the official prices. This is black market and is, of course, common where demand exceeds supply. Unconfirmed estimates suggest that, on an average, perhaps 25% of the fertilizer (30% in the *Kharif* and 20% in the *Rabi* seasons) was sold in this way during the last year or two in the Punjab. The premium paid was thought to be generally no more than Rs. 2 to Rs. 8 per bag of urea during the peak period of demand but usually was less. Higher premia have been reported for the other types of fertilizers in the NWFP. Since it is risky for the dealer to make such sales himself, an intermediary may often be used. In order to reduce the black market, the Government has, as noted, increased prices.

### **Wholesale Prices**

The wholesale price is basically the ex-plant price for imported fertilizer. Wholesale prices may be tempered by subsidies and taxes although they do not all necessarily enter the system at this point.

Ex-plant prices have been established for each of the fertilizers produced in Pakistan. These prices include all costs and a profit of about 20% for the foreign-owned firms. The prices are established by the Government after consultation with the firms.

In the case of urea, the average ex-plant price was stated as Rs. 850/m.t. in August 1973. Prices of fertilizer from different plants, however,

seem to vary, ranging from Rs. 648 for Dawood-Hercules and Rs. 677 for ESSO to approximately Rs. 1,022 for the PIDC plants. The first two are low enough to be able to compete in the international market.

In addition to the ex-plant price, a development surcharge of Rs. 400 is added to the Dawood-Hercules cost and Rs. 324 is added to the ESSO cost. A final equalizer is a varying set of marketing margins which will be discussed in a following section.

The precise plant costs and profit levels are, of course, things in publicising which the private firms are not interested. However, one of the urea producers was kind enough to outline his major costs for us. They are approximately as follows:

<i>Variable</i>	<i>(Rs./m.t.)</i>	<i>Fixed</i>	<i>(Rs./m.t.)</i>
Raw materials	95	Depreciation	172
Bags and liners	100	Interest on loans	100
Chemical catalyst	21	Salaries, employee benefits, overheads	75
Other	30	Maintenance materials	12
<i>Sub-total</i>	245	<i>Sub-total</i>	359

The costs are, of course, subject to variation depending on purchase prices and the efficiency of output. The low variable costs are due to a relative abundance of the modestly-priced natural gas in Pakistan. The current price of the gas supplied to the plant is Rs. 2.56 per 1,000 cubic ft. which we understand, is near the lower end of the price range in the United States.

Another urea plant is somewhat older and considerably smaller. Its unit costs appear to be slightly higher, as might be expected. The PIDC plant has much higher raw material costs, evidently due to its use of ammonia produced by obsolete machinery. In the older plants, lower efficiency and higher maintenance costs may be partially offset by lower depreciation and interest charges.

It appears that current profit levels are at least adequate for the private firms. The ESSO plant declared a profit of 20% last year, and an interim profit of 37% this year. Neither (American) parent company is

considering expansion, but the Dawood Corporation, not to be confused with Dawood-Hercules, is in an advanced stage of negotiations.

### **Import Prices**

Import prices per metric ton vary widely from year to year and, recently, even within years depending largely upon which countries the fertilizer imports are made from. In 1968-69, for example, urea imports from the United States were most costly (\$ 118 to \$ 126, CIF) followed by those from Canada (\$117), Italy and France (\$99.5 each), USSR and Bulgaria (\$95 each), and Kuwait (\$68.) Data compiled on arrivals during the fall of 1973 showed much the same pattern. CIF urea prices from other sources were: Holland \$ 96.60, Kuwait \$ 102 and Japan \$ 87.24. Undoubtedly, a substantial part of the high import cost of fertilizer imports from the U.S.A. is due to higher transportation costs. These imports must come the longest distance and by the most expensive shipping. The U.S. regulations require that at least half of the fertilizers exported by that country must be shipped in U.S. carriers, which have rates two to three times higher than those of other countries. The annual FOB value of U.S. fertilizer shipments to Pakistan since 1966 has varied from a low of \$ 1.9 million in 1970-71 to a high of \$ 26.5 million in 1972-73.

Fluctuations in annual prices have recently become particularly sharp. In the US fiscal year 1970, the FOB sale price of urea in the United States was \$ 81.47 per/m.t. No urea sales were made in the fiscal years 1971 and 1972. In the fiscal year 1973, the first sale to Pakistan was made at \$ 93.00/m.t. (plus ocean freight); by June the price had increased to \$ 115.57, and by November the bid price was \$ 170; and even at that only one-quarter of the tender was met. The latter bid was not accepted, and a subsequent one in November elicited no bids.

For a number of reasons, the later increases have not become very evident in the thinking of many of those we interviewed. Average CIF prices quoted in discussions were usually below the June figure, cited above, plus transportation. Firstly, there is a lag between the offering of the bid and the signing on the one hand and actual delivery on the other. One study suggested that this lag averaged about nine months. Secondly, the fertilizers are priced in accordance with costs at the time of purchase, not

at current market prices. Thirdly, the Agricultural Supply Organisation handles all purchases so that relatively only a few individuals get close to the current world fertilizer situations.

In any case, it is evident that at present the cost of urea produced in modern plants in Pakistan is well below that of imports and probably below those occurring in more normal periods in the past. Low cost natural gas is a major factor. Because of this, Pakistan has the potential to become an exporter of urea in the future. It may not have quite the same advantage in phosphatic fertilizers, though domestic sources are known and plant construction is contemplated.

The relative cost differential of domestic fertilizer production, at least of urea, compared with the currently increasing cost of fertilizer imports will be substantial and of growing importance in the future.

#### **Marketing Margin (Incidentals)**

The marketing margin, commonly known as incidentals, covers all the services performed from point of production or import to the point of actual sale to the farmer. The overall size of this margin is controlled by the Government of Pakistan. Following annual investigations of actual costs, it also establishes the margin to be paid for individual components of the margin for each of the types of fertilizers sold. The components for domestically produced as well as imported urea and DAP are outlined in Table 8 in which components are sorted into three categories: (1) administrative costs, including retail margin; (2) transportation, handling and storage costs; and (3) port charges.

It may be seen that the margin for domestically produced urea (Rs. 101/m.t.) was the same in September 1973 as during the 1969-70 season. In fact, the commission paid to the retail agent for both domestically produced and imported fertilizers has remained the same (Rs. 22) for both the periods. The same is true of sales promotion charges (Rs. 1.0), unforeseen charges (Rs. 5.5) handling charges (Rs. 12.5 at railhead and Rs. 20.0 to non-*mandi* towns) and storage charges (Rs. 5.0). Those showing slight increases include organisation and administration charges (Rs. 6.0 to Rs. 7.0 respectively), wharfage and wharf rent (Rs. 2.0 to Rs. 2.5) and purchase and inspection costs (Rs. 4.0 to Rs. 5.8). More

substantial increases in the imported category were reported—their extent varying by type of fertilizer—for bank commissions (Rs. 6.0 to Rs. 8.3; Rs. 6.0 to Rs. 13.5), interest charges (Rs. 15.0 to Rs. 61.7; Rs. 15.0 to Rs. 75.3), railway charges on imported fertilizer (Rs. 32.2 to Rs. 54.9), and in stevedoring (Rs. 9.7 to Rs. 14.3; Rs. 9.7 to 19.1). It is not clear why interest charges have gone up so much. The reason why railway charges went up for imported and not for domestic fertilizer is also not known. The result, in any case, has been a substantial increase in the margin for imported urea (+56%) and DAP (+75%). Thus, the current margin or incidental charges for imported fertilizers is well over twice that of domestically produced fertilizers.

Since these are generalized charges, there is naturally some variation from them in specific instances. This seems to be particularly true of domestically produced urea. Despite an overall margin of Rs. 101 we did not find any firms actually achieving that margin. The closest was ESSO with a margin of Rs. 99. In the case of urea produced by the PIDC, a margin of Rs. 78 was allowed, and in the case of urea produced by Dawood-Hercules, it was Rs. 52. Much, if not all, of the variation is due to transportation cost differentials; the market area for ESSO fertilizers involves longer distance than those of the other two firms which have their plants in the Punjab. The PIDC makes greater use of rail freight than the Dawood-Hercules which is able to distribute 80% of its production within a 200-mile radius by truck. Due to these and other factors, there can be considerable variations in marketing margins even within a province. The PASCO, for example, handles urea produced by both the PIDC and the D-H in the Punjab; the marketing margin on the two differs by Rs. 26. One might suspect that such a wide differential could lead to (i) some difficulties for the PASCO which markets both types of fertilizer, or (ii) some inequities between the PASCO and the private firm.<sup>8</sup>

Out of the margins for imported fertilizers, the Punjab and Sind Agricultural Supply Organisations are allowed Rs. 72 (71.5) to meet their operation costs.

<sup>8</sup>In partial defence of this variation, it might be argued that PASCO's costs are higher because it is setting up largely new distribution units which will handle only fertilizer and seed. Dawood units, on the other hand, can sell not only D-H urea among fertilizers but can handle also a range of other agricultural items. We were not in a position to pursue such questions.

Table B

Composition of Generalized Marketing or Incidental Costs (Administrative, Transportation and Port Charges<sup>1</sup>) for Urea and DAP Fertilizers, 1969-70 and late 1973

Head of Cost	Urea				DAP	
	Domestic		Imported		Imported	
	1969-70	Sept. 1973	1969-70	Sept. 1973	1969-70	Sept. 1973
(Rupees per Metric Ton)						
<b>Administrative Costs</b>						
Bank commission on letter of credit	1.2	1.2	6.0	8.3	6.0	13.5
Organisation and administration	6.0	6.0	6.0	7.0	6.0	7.0
Interest charges	12.5	12.5	15.0 <sup>1</sup>	61.7 <sup>2</sup>	15.0	75.3 <sup>3</sup>
Sales promotion	1.0	1.0	1.0	1.0	1.0	1.0
Commission to retail agent	22.0	22.0	22.0	22.0	22.0	22.0
Unforeseen	5.0	5.0	5.0	5.0	5.0	5.0
<b>Sub-total</b>	47.7	47.7	55.0	105.5	55.0	124.3
<b>Transportation, Handling and Storage</b>						
Railway charges	15.5	15.5	32.2	54.9	32.2	54.9
Handling at railhead and up to sale point	12.5	12.5	12.5	12.5	12.5	12.5
Handling to non- <i>mandi</i> towns	20.0	20.0	20.0	20.0	20.0	20.0
Storage charges	5.0	5.0	5.0	5.0	5.0	5.0
<b>Sub-total</b>	53.0	53.0	69.2	92.4	69.7	92.4
<b>Port Charges</b>						
Wharfage/wharf rent	—	—	2.0	2.5	2.0	2.5
Purchasing and inspection	—	—	4.0	5.8	4.0	5.8
Stevedoring, clearing, and forwarding	—	—	3.7	6.0	3.7	10.8 <sup>4</sup>
<b>Sub-total</b>	—	—	9.7	14.3	9.7	19.1
<b>GRAND TOTAL</b>	100.7	100.7	133.9	212.3	134.9	235.9
<i>Rounded</i>	101.0	101.0	134.0	212.0	135.0	236.0

Source: For 1969-70, [2, p. 49].  
For Sept. 1973, Table provided by Agricultural Supply Organisation, Karachi.  
"Effective from 16th August, 1973."

<sup>1</sup>Normally these three categories would be grouped under marketing, but for expository purposes it has been decided to separate them.

<sup>2</sup>Interest charges on funds arranged by the ADC for purchases and handling of fertilizer at an average rate of 8% per annum for four months' turnover of domestic production and 6 months' turnover on imported fertilizer.

<sup>3</sup>Interest charges on funds arranged by the FDAS for purchase and handling of fertilizer at an average rate of 10% per annum for four months' turnover of imported fertilizer.

<sup>4</sup>Includes bagging cost on board ship at dockside, Rs. 4.41/m.t. bag provided with bulk shipment.

Despite these variations, all firms felt that the margin was tight for it fails to provide room for either financing or for adjusting quickly to major changes in costs. Major increases in rail freight for domestically produced fertilizer (+54%) and for gasoline, for instance, were announced during the period of our study. The firms will have to go to the Government for a change in margin allowance. It is not clear how this would then affect the rest of the price structure.

### **Surcharge and Subsidies**

The present pricing structure is a combination of surcharges and subsidies. As Table 9 shows, substantial surcharges are imposed on the urea production of the two private plants. At the same time, substantial subsidies are needed to reduce the price of imported fertilizer. Supposedly, the surcharges are used to offset the subsidies. Where this is not the case, it is the policy of the Central and Provincial Governments to share the costs of the subsidies equally between themselves.

It is possible that the surcharge/subsidy plan was near to breaking even in mid-1973. If so, this was a unique situation since it has not been the case in the past, nor is it likely to be in the future. During the 11-year period between 1955-56 and 1965-66, the average fertilizer subsidy ranged between 25% and 66% of the fertilizer cost and averaged 48% [2, p. 12]. The net cost of the subsidy during the 1969-70 season was reportedly Rs. 13.80 crore and represented about 22% of total fertilizer cost. The proportionate cost was, interestingly, higher on domestic (28.5%) than on imported (18.9%) fertilizer [2, p. 48]. Higher prices on recent international purchases suggest that the subsidy will need to be increased in the next few months. In the coming few years, as domestic urea production remains at roughly the same levels and import costs remain at their current high levels, the cost of subsidy (assuming that the current retail price levels are retained) could become very substantial.

### **Summary Comparison**

The preceding discussion and statistics are summarized for urea and DAP in Table 9. Current 1973 data as well as comparative data for 1969-70 are included. Total cost figures have increased sharply between the two periods, but, in the case of ESSO, much of this was due to the

**Table 9**  
*Summary of Estimated Cost, Price and Subsidy Breakdown for Urea and DAP Fertilizer, Pakistan, Fall 1973*

	Urea				DAP
	Domestic Production			Imported	Imported
	D.H.	ESSO	PIDC	PASCO	PASCO
	(Rupees per Metric Ton)				
<b>Late 1973</b>					
Cost of product	648	677	1,022	1,186 <sup>b</sup>	1,462 <sup>c</sup>
Marketing Margin (incidentals)	52	99	78	212 <sup>d</sup>	236 <sup>d</sup>
Development surcharge <sup>a</sup>	400	324 <sup>b</sup>	—	—	—
<b>Total cost</b>	<b>1,100</b>	<b>1,100</b>	<b>1,100</b>	<b>1,398</b>	<b>1,698</b>
Farm price	1,100	1,100	1,100	1,100	1,140
Subsidy ("profit")					
Proportion of cost	(400)	(324)	—	298	558
<b>1969-70</b>					
Cost of production	—	457	713	500	540
Marketing margin (incidentals)	—	101	101	135	135
<b>Total cost</b>		<b>558</b>	<b>814</b>	<b>635</b>	<b>675</b>
Farm price	—	520	573	520	500
Subsidy	—	38	241	115	175
Proportion of cost	—	6.8%	29.6%	18.1%	25.9%

*Source:* For 1973, (i) the tables which are given later in this study, (ii) interviews in Lahore and Karachi, and (iii) data from the US AID.  
For 1969-70, (2, pp. 48-49).

*Notes:* <sup>a</sup>Levied by the Government and appears below in the table in parentheses as a "profit."

<sup>b</sup>As reported by the Government in August and presumably an average of shipments from several countries. If only shipments from the U.S. were included, the figure would be higher. For example, an AID contract was signed on June 22 for 30,000 tons of urea in bags at an FOB price of \$115.57/m.t. A subsequent agreement early in November was for \$ 170.00/m.t. The ocean shipping cost from the U.S. which is higher than for other nations, was about \$64.50/m.t. This would bring the relative CIF costs up to about \$180 and \$234/m.t. respectively.

<sup>c</sup>As reported by the Government in August and presumably an average of shipments from several countries. If only shipments from the U.S. were included, the figure would be higher. For example, agreements for 197,500 tons of DAP in bulk, with empty bags, signed in fiscal 1972 averaged \$109.90/m.t. A contract for 5,000 tons was signed on September 28 at a price of \$138.85/m.t. The shipping cost in both was \$54.04/m.t. for a ship arriving in November. This would bring the total CIF costs up to roughly \$164 and \$193. The bagging cost in port is about Rs. 4.4/m.t. and is included in the port charges in these calculations.

<sup>d</sup>Transport charges to some parts of the country could raise this figure.



imposition of the development surcharge. The farm price of fertilizers has almost doubled. The increase in price has led to a removal, for the moment at least, of the subsidy on domestic production. The PIDC seems to be breaking even. Because of increases of over 100% in the CIF cost of imports and substantial expansion in the incidentals category, the subsidy on imports has increased rather than decreased. It is likely to increase further in the future since the cost of imported urea is almost twice the cost of domestic fertilizer, excluding the development surcharge.

### **Problem Areas**

It may be useful to divide our discussion of problem areas into two main components: (a) those likely to affect the country as a whole; and (b) those found in various provinces. Our evaluations are necessarily tentative and, in some cases, subjective. National problems, in turn, can be divided into three major sub-sectors: over-all supply, wholesale distribution and retail marketing.

#### **Over-all Supply**

Pakistan's present supply of fertilizers is generally thought to be inadequate. The situation is likely to get worse over the next three or four years. The demand for fertilizers is expected to continue to grow while domestic production is expected to increase only marginally. Increased imports will, therefore, be needed.<sup>9</sup> Current imports are heavily subsidized. Subsequent purchases will be made at higher prices which means that the CIF price will soon be even higher and in the near future there may be problems in obtaining bids at any price. An AID tender in late November 1973 elicited no bids. Whether this will be covered by even higher subsidies or prices is not yet clear. If world fertilizer prices continue to rise, Pakistan will indeed be in a difficult situation with regard to imports.

A large portion of the fertilizers imported in the past has come from the United States. The CIF prices of these shipments have been 25%

<sup>9</sup>This point has been made in several projections. One of the most recent, concerning nitrogen and containing some rather optimistic projections on new plant construction, shows a considerable excess of demand over supply through 1976-77. Unless demand growth slips off, or plant construction moves faster than anticipated, it might be a year or two later. Some revised projections would be most desirable.

higher, or more, than of those from other countries. This is due in large part to the great distances the fertilizer must be shipped and the high cost of shipping. Pakistan does get fertilizer from a wide range of other countries and one wonders why it does not get more from them. The answer may lie in the ready availability of supplies and softness of terms. Still, there is a point where high price outweighs softness of terms.

In the face of these problems and in view of the availability of ample supplies of relatively low cost natural gas domestically, it appears logical that all possible attention should be given to expanding the output of nitrogenous fertilizers as fast as possible. Since phosphatic rock is available in the NWFP, the phosphatic variety, too, could well be produced. Discussions and negotiations concerning specific plants, and phosphate mining in particular, should be sharply expedited.<sup>10</sup> How many plants should be built beyond the replacement of imports, however, is a different matter and is beyond the scope of this study.

#### **Wholesale Distribution**

An increase in the supply of fertilizers is useless if it does not reach the farmer. The current seasonality of demand can create severe pressures on transportation facilities. If distribution could be made on a more even basis, more rational use could be made of existing transport capacity. But this would simultaneously require imported storage facilities.

While some of the best agricultural areas may be relatively well off in terms of distribution points, many interior areas evidently are not. There seems to be a general agreement that more distribution points are needed everywhere, particularly in the interior. The poorest farmers do not have a tractor to haul their fertilizers. Indeed, in extreme cases, they may have to carry the 110-lb. sack on their back for many miles. Naturally, fairly ready access to a distribution point would facilitate and encourage fertilizer use.

The current marketing margins (or incidentals) make no direct provision for technical services to retailers or farmers. Some firms felt

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<sup>10</sup>This matter is discussed in some detail in [3].

that the farmers needed more technical help. It was not possible to judge whether the technical information currently available was inadequate, or in case it was so, who should provide it. The matter needs further study.

### **Retail Distribution**

It has been noted that the price of urea to the farmer has gone up thrice in a year and, in the process, about doubled. Prices of other fertilizers have also gone up. This increase was softened by concurrent increases in the support prices for wheat and in general price levels for agricultural products. The cost/price situation may not be as severe as it seems. It would be desirable, however, that a study be made of the net effect of these adjustments on the income level of various sizes and types of farms.

A somewhat different matter concerns the selection of fertilizers available. In some cases, the desired types of fertilizers were either not available in time, or not available without a tie-in purchase of some less desired fertilizer, or even not available at all. Some farmers in the Lyallpur area, for instance, found superphosphate very short in supply before the *rabi* season. Others said they were required to buy three bags of urea in order to get one bag of DAP.

### **Provincial Problems**

Each of the provinces in Pakistan faces somewhat different problems in pricing and distribution of fertilizer. Here, we will primarily focus on the Punjab and Sind which, together, use over 90% of the total fertilizer consumed in the country. The problems appear to be particularly great in the Punjab. Some brief additional comment will also be included on the NWFP.

#### *The Punjab*

As we noted earlier, the distribution of fertilizer in the Punjab was provincialized during September 1973. In a handout distributed during a press conference on August 28, 1973, announcing provincialization it was stated that the "Private sector failed to help the farmers due to: (1) black marketing, (2) smuggling, (3) hoarding, and (4) inequitable distribution."

The statement went on to say:

“It happened because fertilizer was being sold in big cities/towns only and consumers could not keep a watch on its distribution. At the same time Private Sector insisted on maximum profiteering from this trade. Governor gave repeated warnings to the Private Sector, to improve their performance and assist the Government in helping the farming community, but there was no favourable response.”

How much support does there appear to have been to these charges? The Government presented no further information in its press release and did not cite any particular inquiries or investigations.<sup>11</sup> We found no proof, but gathered from various discussions that some black marketing, smuggling, and hoarding had indeed been carried out but this, however, was more a function of a shortage of supply than of the type of distribution system, except possibly in the case of hoarding. The black market and smuggling problems should have been reduced by the most recent fertilizer price increase which was announced several weeks before provincialization.

The question of inequitable distribution is one that has been already touched on above and is difficult to document. The detailed study done for AID in 1970 did not suggest any special deficiencies at the sales agent level in the Punjab, though problems were noted in the NWFP which province was principally served by public agencies. The private distributors were thickly spread throughout the Punjab plain. A dot map kept by Dawood, for instance, shows very few agriculturally important areas which were very far from a sales point. Of course, some of the less important areas, or those in the rainfed zone which make less use of fertilizer, were less well served. This latter point may have led to a certain inequity in a social, if not economic, sense.

A further problem was that the principal agents, who received four month's credit from the fertilizer suppliers, were criticised for not passing on the credit to their agent and, in turn, to farmers. The four month's credit, however, was cut back to one month early in the year. Most of the agents were not in a financial position to offer credit on their own.

<sup>11</sup>One possible relevant report may be [12]. We did not see the Survey Report but understand from reference to it that it noted the credit problems which the small farmers faced in buying fertilizer. See [9, p. 75].

There are serious problems involved in sharply changing the system in a very short period of time. In the case of fertilizer distribution, private and public firms faced difficulty in readjustments.

The Punjab Agricultural Supply Corporation had a difficult task to perform. It had opened up some 400 new agencies in a very short period and had to organise the physical distribution of the fertilizers to these outlets as well as to make a multitude of other arrangements. It is not known yet how well these things were done, but it is a miracle that they were accomplished at all. But more fundamental problems still remain. The PASCO outlets are required to make financial go of things when handling only one rather seasonal commodity, while the Dawood dealers usually handle a number of other items. They are expected to pay their own way when using salaried Government employees. Outlets are not scheduled to be open in the evening. Besides, many of them are new and farmers may not know about them or how to find them.

It would seem that the shift is likely to make fertilizer distribution more difficult in both public and private sectors, at least for a while, and may affect the *rabi* crop. Statistics seem to bear this out (Table 10).

Table 10

*Stocks and Sales of Nitrogen Fertilizers in the Punjab: July to December, 1973*  
(Metric Tons)

Period (1973)	Nitrogen Fertilizer Sales <sup>a</sup>			Closing Stocks (1973)
	Projected (1973)	Actual (1973)	Actual 1972-73 (1973)	
July	24,200	19,527	17,746	16,528
August	36,600	16,682	16,428	17,272
September	23,600	9,085	23,620	23,832
October	35,400	3,787	18,982	47,833
November	59,000		17,760	
December	47,200		23,324	

*Source:* Official statistics, "Monthly Sales and Stock Report of Fertilizer for the Month of October 1973" (PASCO), November 17, 1973.

<sup>a</sup>Measured as movement into retailers' hands.

There was clearly a sharp drop in sales through October and a corresponding increase in closing stocks.

It is too early to say whether anything has been gained from provincialization, and it would take detailed farm level study to be sure. But it appears that a corollary programme—the increased availability of Government credit—is working out. Each of the provincialized sales units has an ADB representative present and credit is available. This could have been done with the previous system but would have been more difficult because of the greater numbers of outlets.

On balance, the wisdom of the decision for widespread provincialization in the Punjab is uncertain. The timing of the decision, namely, the middle of the *rabi* season, was unfortunate.

### *Sind*

The problems experienced in Sind are relatively mild and of a different nature as compared to those in the Punjab. The Sind Agricultural Supply Corporation (SASCO) mentioned difficulties centering around lack of essential supplies such as transport, diesel fuel, and godown facilities.

The introduction of the fertilizer card system with a view to providing equal benefit to each farmer proportionate to his land holdings and cropwise per acre requirement and anticipated supply position of fertilizer was appreciated by SASCO. However, the probability of malpractices in the implementation of the anticipated fertilizer card system could not be ruled out. This may create problems for the farmers with respect to inadequate availability of fertilizers, encouragement of black marketing, corruption, and hindered promotional services.

Fertilizers Pakistan Ltd. faced some difficulties regarding the adjustment of their sales points following provincialization in the Punjab. About 86% of the total production now has to be distributed in Sind while, previously, only 60% of their total production went to Sind and the remaining 40% was distributed in the Punjab. Some transportation difficulties are experienced in serving their territory; and an imminent 54% increase in the freight rate was a special cause for concern. The increase in the freight rate is likely to increase further due to increase in oil prices as announced by the Government of Pakistan on November 22, 1973.

*North-West Frontier Province*

One of the major problems in the NWFP seems to be black-marketing of certain types of fertilizer. This arises, according to our interviews, from the following three basic reasons.

The demand for non-urea types of fertilizers, especially SSP, is much greater than that for urea. Thus, some of these types are sold at higher than official prices and may even be "imported" at extra cost from the Punjab. Recent black-market prices have run three to five rupees above the official price of ammonium sulphate and ammonium nitrate (Rs. 25) and six to seven rupees above the official price of single superphosphate (Rs. 15). Urea was, in turn, "exported" to the Punjab this year.

There is some smuggling to Afghanistan when there is an abundance of urea. This was not a problem this year.

There are uncertainties in transportation. Railroad wagons are not always available, and truck transport is expensive.

## **Chapter II**

### **THE PRICING OF TRACTORS**

#### **Introduction**

In November 1973, there were approximately 25,000 tractors in Pakistan. Most of these were in the range of 45 to 55 H.P. and the most popular among these were Massey-Ferguson, a British make, and Byelarus, a Russian product.

The increasing use of tractors in Pakistan has been criticised as a labour-displacing factor in an economy with surplus labour. However, there is a definite economic advantage in their use. Tractor power improves the quality and speed of agricultural operations. In addition, the use of tractors frees land formerly used to raise feed for the bullocks. The labour displacement problem, such as it is, needs more investigation by comprehensive field surveys before any definite conclusions can be drawn.

Though there are plans for manufacturing tractors within Pakistan by the Pakistan Tractors Corporation, tractors so far have been imported under tied loans and barter. The tied imports are financed by the International Development Association (IDA), an affiliate of the International Bank for Reconstruction and Development (IBRD/World Bank). According to the requirements of the IDA 'tractor loans' to the Government of Pakistan, tractor procurement is 'tied' to member countries of the World Bank/IDA. Imports of 'barter' tractors are tied to the countries with which Pakistan has negotiated such barter agreement, e.g., Russia, Yugoslavia and Poland. The United Kingdom, the United States, and Yugoslavia are the World Bank members from whom Pakistan has been importing tractors financed by the IDA. Total tractor imports by the type of programme and year are shown in Tables 11 and 12.

#### **Structure of the Industry**

The demand for tractors at the fixed selling price exceeds the existing supply in Pakistan. In the imports and distribution of tractors within



Table 11

*Number of Tractors Imported in Pakistan, 1965-66 to 1972-73*

Make of the Tractor	IDA Loan Imports ADBP Financed	Other Imports		Total
		ADBP Financed	Cash Payment	
M.F.	6,054	—	324	6,378
Ford	3,485	—	557	4,042
I.H.	2,175	—	187	2,362
Byelarus	—	1,994	6,865	8,859
J. Deere	749	103	N.A.	852
Deutz	237	783	170	1,190
Zudrugar	98	—	—	98
IMT	137	102	462	701
Fiat	—	568	1,912	2,480
Zetor	—	154	384	538
Holder	—	15	N.A.	15
<b>Total</b>	<b>12,935</b>	<b>3,719</b>	<b>10,861</b>	<b>27,515</b>

*Source:* Data, except those for Ford which were obtained from the distributor, are derived from the ADBP data.

Table 12

*ADBP Financed Imports of Tractors in Pakistan, 1965 to 1972-73*

Period	Tractor Imported Financed by		Total No. of Tractors
	IDA	Non-IDA	
1965-66	925	1	926
1966-67	2,471	30	2,501
1967-68	1,500	532	2,032
1968-69	1,590	551	2,141
1969-70	1,934	543	2,477
1970-71	2,441	455	2,896
1971-72	1,521	385	1,906
1972-73	1,375	304	1,679
<b>Total</b>	<b>13,757</b>	<b>2,801</b>	<b>16,558</b>

*Source:* ADBP

the country, a central role has been played by the Agricultural Development Bank of Pakistan (ADBP).

### **Role of the ADBP**

An agreement between the IDA and the Government of Pakistan stipulated that each person importing a tractor financed by the IDA loan must apply to the ADBP. The minimum requirements include ownership of at least 25 acres of farm land and plans to use the tractor on at least 75 acres. Approved applications are added to a waiting list for the type of the IDA-financed tractor desired.

When the IDA funds are available, the ADBP fixes the number of tractors of each brand to be imported. The licenses eventually issued for the different types of tractors are according to the preferences indicated by the approved applicants. Ford, Massey-Ferguson, International Harvester, Fiat, and IMT have been imported under the IDA credit. Since Yugoslavia, an IDA member, also has a barter agreement with Pakistan, IMT, a Yugoslav product, is the only tractor imported under both the IDA and barter arrangements.

Pakistani imports agents of the tractor companies are then notified and asked to negotiate a price with their foreign suppliers. These prices and the costs that the importer anticipates to incur in distributing the tractors within Pakistan must be approved by the ADBP. In turn, the ADBP recommends a C&F price (Karachi) for approval to the Ministry of Industries' Controller-General of prices.

Agents for three major suppliers of tractors to Pakistan have claimed that these negotiated prices were significantly below the prices obtaining in the country of manufacture. These "discounts" have reportedly been as high as 30% but more recently they have been about 20% to 25%.

With the approval of the Ministry of Industries, the IDA makes payment both to the exporter for the approved FOB price and for the ocean freight. The Ministry of Industries' Supply and Price Wing also determines the price at which the tractors will be sold to farmers on the basis of the approved C&F price, the official rate of exchange, and the internal costs documented by importers and approved by the ADBP.

The ADBP supplies a list of approved applications to importers for the delivery of tractors. Farmers must obtain loans from the ADBP regardless of their financial condition. The typical terms are 20% cash and 8% interest with ten annual equal payments of principal and interest. The loans are secured by "immovable property" such as land for at least one-half of the loan with, the remainder under such security as bank guarantees and fixed deposits including those with the ADBP. The loan may not be repaid in full before the expiry of two years. Some farmers with sufficient cash deposits earn an interest of 6.5 percent per annum against an interest of 8% on the tractor loan.

Prior to December 1973, the ADBP had received several loans from Government and the State Bank of Pakistan. The ADBP borrows at six percent, and lends at eight percent per annum. However, since the bank rate was raised from six to eight percent, interest payable by the ADBP might rise from six to eight percent. The interest rate payable by the borrower might also be raised by two points.

#### **Home Delivery System**

Although the Home Delivery System has been in operation for a number of years, only a limited number of tractors were imported under it. The scheme permits a Pakistani living abroad to send a tractor to a friend in Pakistan, provided the former's earnings are proved not to have originated from salary or other remittances from Pakistan. However, the rules in this regard are rather vague and the scheme has been of little use.

#### **Barter**

When the Government negotiates barter agreements with foreign Governments, such as the Government of Yugoslavia, import agents, say of tractors, indicate to the Government their desire to utilize the prospective barter, specifying the number of tractors required. All such requests are processed by the Ministry of Agriculture and are passed on to the Ministry of Commerce which conducts the barter negotiations. Once the barter agreement is reached, Pakistani agents negotiate contracts directly with supplier firms in the barter country. The contracts specify the number of machines, the delivery schedule, and rupee prices. The ADBP must

then approve these prices. The interviews indicated that the negotiated barter prices were lower than those obtaining in the exporting country.

The barter price is the basis for determining the sale price to the farmer. Port charges, transportation costs, and duties for barter tractors are similar to those for the IDA- financed tractors. The National Bank of Pakistan makes a book adjustment for payment to the tractor exporters for which reimbursement is made by the importer to the bank in Pakistan.

Prior to September 3, 1973, there was no restriction on the distribution of barter tractors. Sales on payment could be made to farmers and others. Because of devastating floods in Summer 1973, tractors were, however, declared an essential commodity on September 3, and all tractors to be delivered to farmers were taken over by the Government. These are now being made available to public organisations involved in flood affected areas for reconstruction purposes and for hire by farmers for agricultural activities. Before the floods, imports of IMT tractors (from Yugoslavia) were sufficient to meet the demand at the given price.

#### **The Pakistan Tractors Corporation<sup>18</sup>**

The Pakistan Tractors Corporation (PTC), a semi-Government body, was formed on October 17, 1973. It aims at making Pakistan self-sufficient in 40-50 H.P. tractors, in the long run. The production of standardised tractors will be a gradual process, beginning with assembling of tractors from components and parts imported in completely knocked down condition.

In October 1973, the PTC invited tenders to develop tractors, implements, and tractor parts production, distribution, and service facilities in Pakistan. There were two main contenders—Fiat of Italy and Massey-Ferguson Tractor Company of the United Kingdom. An agreement was concluded with Massey-Ferguson and its subsidiary, Perkins Engine Company,<sup>19</sup> in January 1973 which became effective in October 1973.

The contracts, valid for 10 years, provide for technical assistance for the manufacture of the 47 H.P. Model 135 tractors in Pakistan. The

<sup>18</sup>Based on information furnished by the PTC.

<sup>19</sup>Perkins manufactures engines for Massey-Ferguson tractors.

agreement encompasses production and quality control of the components and parts manufactured in Pakistan and provides for supply of those components and parts to the PTC which are not manufactured in Pakistan.

The Millat Tractor Corporation of Pakistan, a private sector firm the management of which has been taken over by Government, had contracts with M-F and its subsidiary, Perkins. These provided for technical assistance and supply of tractors and, in some cases, components to Millat. The technical assistance contract expired in 1971 and the service contract was allowed to lapse.

An appraisal has been made by the Pakistan Tractors Corporation and Massey-Ferguson of parts that can be manufactured in Pakistan for the "Massey-Ferguson 135." Though some parts will be made by the PTC itself, it has not yet been decided as to which parts are to be imported. The supervision of the quality of the parts made in Pakistan is the responsibility of Massey-Ferguson.

The PTC is responsible for the contract and delivery of the parts from Pakistani suppliers and for imports. At present all components will be imported in the completely knocked down condition and the assembly facilities of the Millat Factories in Lahore will be utilised. As Pakistan-made parts become available, these will gradually replace the imported components.

The mix of different brands and sizes of tractors including components parts (partial or complete) of Massey-Ferguson tractors is determined by a Committee including representatives of the Ministries of Production, Commerce and Finance, and the Agricultural Development Bank. The PTC itself is not a member but assists in the work of the Committee.

Many factors influence the determination of the mix of imports. For example, with the conclusion of the agreement with Massey-Ferguson in 1973, foreign exchange was allocated to the PTC for the purchase of the M-F machines. Previously, the imports of M-F 135 as well as other tractors had been limited to IDA credits, barter, home delivery system, and bilateral agreements with countries such as Germany. The mix of imports was influenced by the availability of barter credit, the availability of IDA credit, the price offers by alternative suppliers, and the ready

availability of tractors. The influence of these factors was brought out in September-October, 1973. The devastating flood accentuated the demand for tractors in the horse power range of the M-F 135. However, Massey-Ferguson was not in a position to supply the requisite number of tractors at short notice. Therefore, negotiations were carried out not only with Massey-Ferguson but also with Fiat, Ford, IMT, and Byelarus for the delivery of tractors.

The PTC's plans for manufacturing implements (e.g., cultivators, mouldboard ploughs, and disc harrows) are still in the formative stage. While the arrangement with Massey-Ferguson provides for assistance in this area, the PTC is not obliged to go ahead with implement production.

## **Prices and Costs**

### **Tractors**

There are wide variations in the C&F prices of tractors due to differences in freight rates, horse power, and the makes of the tractors. The FOB prices for the same type and make of tractors may vary over consignments.

In Table 13, we have shown the detailed cost build-up of various tractors by taking into account the FOB price, freight costs, port charges, customs duties, and preparation and other charges.

### **Spare Parts**

Until recently, imports of spare parts were permitted only to tractor importers. They were required, however, to import spare parts equal to  $16\frac{2}{3}\%$  or  $\frac{1}{5}\%$  of the combined value of tractors, spare parts, and implements imported. The number and type of spare parts are required to reflect the expected depreciation and wear of the tractors. Spare parts can be freely imported now, but the  $16\frac{2}{3}\%$  rule has been retained for the principals dealing with tractor imports. The result has been the import of fast moving parts by both the non-tractor importers and the principals.

The mark-up allowed on spare parts is 30% and the commission of the dealer is 10%. The import duty levied on spare parts by the Government is 50%. Previously, the duty was 10% but had to be raised to the

Table 13  
Tractor Cost Build-up, Pakistan, 1973

Cost Item	Tractor Makes and Specifications								
	IH 444 <sup>1</sup> (45 h.p.) (UK)	IH <sup>2</sup> (72 h.p.) (W. Germ.)	Ford 3000 <sup>3</sup> (46 h.p.) (UK)	MF 35 <sup>4</sup> (45 h.p.) (UK)	Zetor 4712 <sup>5</sup> (45 h.p.) (Czech.)	Zetor 5711 <sup>6</sup> (60 h.p.) (Czech.)	Imt 533 <sup>7</sup> (41 h.p.) (Yug.)	Byelarus M1 <sup>8</sup> (55 h.p.) (USSR)	
FOB Cost	£ 921.54	Dm. 14,189	£ 1,197.5	NA	NA	NA	NA	NA	
Ocean Freight	£ 67.38	Dm. 980	£ 104	NA	NA	NA	NA	NA	
C & F Cost	£ 988.92	Dm 15,169	£ 1,301.5	NA	\$ 3,008	\$ 3,342	NA	NA	
Rupees equivalent	Rs. 28,674	Rs. 65,959	Rs. 34,477	Rs. 39,750	Rs. 29,780	Rs. 33,086	Rs. 22,730	Rs. 23,772	
Importing Cost <sup>a</sup> (5% of C&F)	Rs. 1,435	3,300	1,725	1,988	1,489 <sup>f</sup>	1,654 <sup>f</sup>	1,137	1,188	
Customs duty	Rs. 0 <sup>b</sup>	6,662	3,621	4,173	3,183 <sup>fg</sup>	3,544 <sup>fg</sup>	2,284	2,424	
Landed Cost	Rs. 30,494	76,745	40,253	45,911	34,452	38,284	26,151	27,384	
Octroi (Municipal Taxes)	Rs. 64	767	450	NA	344	386	NA	242	
Preparation Cost	Rs. 400	400 <sup>d</sup>	650	750	400	400	450	400	
Agent and Dealer's Mark-up	Rs. 2,367 <sup>e</sup>	7,674 <sup>e</sup>	3,101	4,591 <sup>e</sup>	3,445	3,828	2,615	2,738	
Ex-Karachi Price	Rs. 32,940	Rs. 84,762	Rs. 44,024	Rs. 51,257 <sup>h</sup>	Rs. 38,641	Rs. 42,898	Rs. 29,216 <sup>h</sup> (Ex-Lahore)	Rs. 30,764	

Source: Interviews in Lahore and Karachi, November, 1973.

#### Terms of Sale

- <sup>1</sup> IDA-financed, delivered July, 1972.
- <sup>2</sup> Imported under German credit. Delivered Karachi Nov. 17, 1973. Imported in semi-knocked down condition.
- <sup>3</sup> Delivered April 1973 in semi-knocked down condition.
- <sup>4</sup> Ordered August, 1973. Selling price has not yet been finalized by the Controller-General of Prices.
- <sup>5</sup> Ordered and to be delivered in first half of 1974 under barter. Selling price has not yet been finalized by the Controller-General of Prices.
- <sup>6</sup> Ordered and to be delivered first half of 1974 under barter. Selling price has not yet been finalized by Controller-General of Prices.
- <sup>7</sup> Shipment delivered to Pakistan on barter and IDA financing in Spring 1973.
- <sup>8</sup> Shipment expected to be delivered in early 1974. C&F price is firm. Other costs and selling price ex-Karachi are proposed but not yet approved by the Controller-General of Prices.

#### Footnotes

<sup>a</sup>Composed as follows: part handling 1/2%, insurance charges 1%, license fee 1/4%, banking and financing costs 3%, other 1/4%. Some of the actual figures reported for these categories differed from these reported in the table; usually they were higher.

<sup>b</sup>Imported before the duty was levied.

<sup>c</sup>Residual

<sup>d</sup>Firm has applied to the Government of Pakistan for increase to Rs. 7.50.

<sup>e</sup>10% of the landed cost.

<sup>f</sup>Anticipated allowances that will be approved by the Controller-General of Prices.

<sup>g</sup>10% of 105% of C&F.

<sup>h</sup>Plus Octroi Tax.

load of the duty imposed on equivalent automobile spare parts. The rate of duty on non-interchangeable parts, however, remains unchanged. Some of the tractor importers feel that this combination of procedures is placing an undue burden on them. They suggested that either the percentage rule applicable to them be relaxed or that licenses for parts be given only to the tractor importers.

Tariff classifications have caused market disruptions. Because car and bus parts were assessed at 50% to 60% tariff and tractors parts were assessed at 5% to 10%, imports of car and bus parts were declared as tractor parts. This led the Government to declare that for purposes of tariffs on parts, a tractor would be considered an automotive vehicle and that tractor parts (specifically tractor parts under Pakistan Tariff Classifications 84.63, 84.64 and 85.08) will be subject to duty applicable to parts of automotive vehicles, i.e., at 50%.

#### **Implements**

At one time, 10% of the combined import value of barter tractors, implements, and parts were required to be implements. This rule is no longer applicable to barter imports. The IDA loan proceeds are still utilized in the ratio of  $\frac{2}{3}$  for tractors,  $\frac{1}{3}$  for implements, and  $\frac{1}{6}$  for parts.

The ADBP has required that a cultivator be sold with each tractor. Equipment prices are fixed. However, prices of cultivators in the free-market were reported to be almost double the fixed price during the last part of 1973.

Implements are imported with the approval of the ADBP. The Ministry of Commerce issues the import licences, which are freely given to those on approval lists. Suppliers of implements give discounts (relative to prices in the exporting country) which are somewhat lower than the discounts for tractors. The duty on imported implements is 10% to 20% and the dealer's commission is 7.5%.

Some principals felt that prices of implements had gone up considerably due to protection given by the Government to local manufacturers and had an adverse effect on their quality.



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