

Role of World Bank in Meeting Fertilizer Need

Outline of future Bank policy to meet changing needs of developing countries for a more comprehensive approach to production, distribution, and use of fertilizers.

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The World Bank, in collaboration with other international agencies, is providing both financial and technical assistance to developing countries to help them meet their fertilizer requirements.

The Bank has made considerable investments in fertilizer production projects in the last few years, for example, \$434 million for eight projects in 1975 alone. And, it is estimated that about 15% of the additional fertilizer capacity expected onstream in developing countries between 1974 and 1980 will stem from Bank-financed projects.

The main objective of the World Bank Group is to provide financial and incidentally technical help for the development of poor countries. The Group consists of three financial institutions, each meeting a particular need of developing countries; these are:

1. The World Bank (also known as the International Bank for Reconstruction and Development).
2. The International Development Association (IDA).
3. The International Finance Corporation (IFC).

The Bank began operations in June 1946, and there are now 127 member nations. IDA has 116 members and the IFC has 104 members. Any country which is a member of the International Monetary Fund is free to join the Bank and the subscription is based on its economic wealth; 10% of the subscription is paid and the other 90% is not paid but may be called by the Bank to meet its obligations arising out of borrowing or guaranteeing loans. To date, it has not been necessary to do this.

There are some basic rules governing the Bank's operations. It must lend only for productive purposes, and each loan must be guaranteed by the Government concerned. The Bank must assure itself that the necessary funds are unavailable from other sources on reasonable terms, and the Bank's decisions to lend are based only on economic considerations. Bank loans normally cover, partly or fully, the element of foreign exchange required.

Main source is private funds

An unique feature of the Bank as an intergovernmental organization is the fact that it relies mainly on private investors for its financial resources. Most of the money it lends comes from its own borrowings in various capital markets. Since the Bank obtains most of its funds on commercial terms, it must charge its own borrowers at commensurate rates of interest.

On average, Bank loans are repaid over about 20 years. The Bank earns a profit on its operations, but has not paid any dividends because all shareholders agree that earnings should be used to help developing countries; part of the profit goes to reserves to strengthen ability to borrow, and the rest goes to IDA.

IDA is a financial institution formed to help the poorest countries, and it gets virtually all its funds in the form of contributions. This makes it possible for the Bank Group to help countries too poor to borrow from the Bank under normal conditions. All IDA credits are for 50 years without interest; there is only a very small administrative charge. Repayment of principal does not begin until after 10 years of grace. A country must meet several criteria to borrow from IDA, such as very unfavorable balance of payments, and a poverty ceiling which is now assessed at about \$375/yr./capita.

A so-called "Third Window" of the World Bank has just been created to provide development assistance on terms intermediate between those of the Bank and IDA. The chief beneficiaries of Third Window operations will also be those countries with annual per capita GNP's of less than \$375.

The International Finance Corp. encourages and supports the growth of private enterprise in developing countries. It does this chiefly by acting as a catalyst, bringing together the necessary reserves of finance, management, and technology to expand existing enterprises and establish new ones. It has the power to lend for such purposes without government

guarantees, and is the only one of the three components of the Bank Group which can invest in equity.

In fiscal 1975, the World Bank Group's lending and investment commitments totalled \$6,108 million. Lending by the Bank accounted for \$4,320 million; by IDA \$1,576 million, and by IFC \$212 million.

In view of the food problems facing developing countries and the importance of fertilizers in solving this problem, there has been a significant contribution by the Bank Group over the last few years in fertilizer investment and technical help on fertilizer production and use.

Of all the bilateral and international lending institutions, the Bank Group has been by far the most active in investing in new fertilizer capacity in developing countries and (although more marginally) giving help in improving the utilization of existing capacity. To support these investments a great deal of investigation is required on markets and financial and technical appraisals. This work is carried out by the Industrial Projects Department, which is also responsible for supervision during the implementation of the project.

Up to the end of 1973, the Bank Group had made total investments of nearly US\$300 million in 19 fertilizer projects in 17 countries, of which US\$147 million were approved between 1970-1973 for six projects. During 1974 alone, the Bank Group made commitments of US\$329 million for 7 projects in 6 countries and, in 1975, a further US\$434 million for 8 projects were approved. A list of projects is given in Table 1.

Although the Bank has financed projects for the production of all three fertilizer nutrients (nitrogen, phosphates, and potash), the greatest help has been directed towards the production of nitrogenous fertilizers and, in particular, ammonia and urea.

Largest projects are most economic

The main reason for investing in these nitrogen fertilizer projects is that in order to make ammonia and urea at the lowest possible costs it is necessary to produce them in large plants. These plants, together with their off-site facilities, are very expensive and in most cases, for the developing countries, can be constructed only through Government and outside help. The Bank has thus been able to fulfill an important role in providing both major financial and technical help to ensure that these projects will be realized.

It is estimated that more than 3 million tons of new nitrogen and phosphate capacity out of about 20 million tons capacity coming on stream between 1974 and 1980 in the developing countries will be from Bank Group financed projects, i.e. about 15% of the total.

As a result of the increasing importance of fertilizers as part of the agricultural programs necessary to relieve the world food problems and the increasing involvement of the Bank Group, a Fertilizer Unit was established in 1974 within the Industrial Projects Department. The major objectives of the Unit are to coordinate the planning of Bank Group assistance in the form of both finance and advisory services for improved supply and use of fertilizers in developing

countries and to devise a coherent strategy and policy to this end, taking into account worldwide trends of demand and supply. The Unit also monitors Bank Group progress towards such objectives.

Table 1. Fertilizer projects financed by the Bank Group from 1970 to August, 1976

<u>Country</u>	<u>Project</u>	<u>Assistance US\$ million</u>	<u>Date</u>
Indonesia	Pusri Fert. (urea)	30.0	1970
India	Cochin II Fert. (NPK)	20.0	1971
India	Gorakhpur Fert. (urea)	10.0	1972
Turkey	IGSAS Fert. (urea)	24.0	1972
India	Nangal Fert. (urea)	58.0	1973
Indonesia	Pusri Fert. (urea)	5.0	1973
	Sub-total	147.0	
Morocco	Maroc-Phosphore (phos. acid/MAP)	50.0	1974
Pakistan	Multan (NP and CAN)	35.0	1974
India	Trombay IV (NPK)	50.0	1974
Egypt	Talkha (urea)	20.0	1974
Romania	Tecuci (urea)	60.0	1974
Tunisia	Gafsa (phos. rock)	23.3	1974
India	Sindri (urea)	91.0	1974
	Sub-total	329.3	
India	IFFCO (urea)	109.0	1975
Indonesia	Pusri III (urea)	115.0	1975
Bangladesh	Ashuganj (urea)	33.0	1975
Turkey	IGSAS (urea)	18.0	1975
Jordan	JFJ (phos. acid)	3.1	1975
Mexico	Guanomex (urea)	50.0	1975
Jordan	Dead Sea (potash)	1.0	1975
India	Fertilizer Industry Credit	105.0	
	Sub-total	434.1	
Indonesia	Pusri IV (urea)	70.0	1976
Brazil	Araucaria (urea)	50.0	1976
	Sub-total	120.0	

In addition to direct involvement in fertilizer projects, the Bank Group is also involved in fertilizer studies through several other Bank and Collaborative Groups.

Consultative Group for International Agricultural Research (CGIAR). This group is jointly sponsored by FAO, UNDP, and the Bank. The Bank chairs the Group and provides its Secretariat. The Group supports 10 international agricultural research stations and is currently establishing another. One aspect of this work includes plant nutrition and work on the use of chemical, biological and organic fertilizers.

Consultative Group on Food Production and Investment (CGFPI). This group is based in the Bank in Washington and is sponsored by the Bank, FAO, and UNDP. Membership includes bilateral donors, multilateral agencies and developing countries. The work program of CGFPI will be directed toward assessing long-run food consumption needs, capacity, inputs and investment requirements and the external resources flows necessary to bring food production and consumption into balance.

Although the approach is to be worldwide, attention will be focused on those developing countries with the highest food gap and a potential for expanding production. Specifically with regard to fertilizer, the principal issues to be considered are the need for additional investment in fertilizer production and distribution capacity in the light of the supply needed to meet grain output goals.

Agriculture and rural development. In addition to the financial and technical assistance for production facilities, the Bank has given help with fertilizer materials, as part of agricultural projects, to many developing countries. A summary of the Bank's activities in this field have already been presented to the Fertilizer Society in Proceedings No. 120.

Collaboration with other international agencies. As well as maintaining major collaborative programs with other agencies such as UNIDO and FAO on fertilizer issues, the Bank maintains a very close contact with other international agencies through the UNIDO/FAO/IBRD "Fertilizer Working Group". In addition to the three agencies referred to, other international groups and representatives of industry participate in the meetings such as The International Superphosphate and Compound Manufacturers Association, The International Potash Institute, Centre d'Etude de l'Azote, The Sulphur Institute, The International Fertilizer Development Center, and others.

Within the last year or so, this Working Group has achieved an important role as an international forum for the harmonization of fertilizer supply and demand figures. The Group provides an informal atmosphere where the various authorities can meet twice a year and discuss their fertilizer information. Where there are differences, these can be analyzed and if necessary, a judgment applied to harmonize results.

This procedure meets the request of the World Food Conference, November 1974, that the international agencies as a matter of urgency establish an authoritative analysis of the long-term fertilizer supply and demand position to provide the elements of a world fertilizer policy that would include the overall aim of avoiding cyclical imbalances between supply and demand. The fertilizer figures presented at the meeting of the FAO Fertilizer Commission in Rome in June 1975 and June 1976 were prepared by the "Fertilizer Working Group."

In view of the contribution of these data for investment purposes and to prevent cyclical imbalances, the Bank regards the work of this Group as extremely important.

Current situation and future outlook

In reviewing the current situation and longer term outlook, it is important also to consider the events of the last few years. There was obviously more than one reason why fertilizer prices rose so sharply after 1971. First, due to the slowdown of investments in fertilizer production facilities, demand had gradually been catching up with fertilizer supply. Secondly, severe droughts and crop failures in various parts of the world led to an increased demand for fertilizers to replenish foodstocks (e.g. the U.S.A.). This

upset the already delicate supply and demand balance and resulted in a world shortage of fertilizers. Thirdly, energy and raw material prices increased significantly.

The considerable publicity given to the difficult fertilizer situation particularly by the World Food Conference encouraged many large developing countries to build up their stocks of fertilizer thus aggravating the shortage, particularly at the expense of some of the poorer smaller countries.

Undoubtedly, the high prices prevailing in 1975 was the major reason for a fall off in fertilizer demand, and FAO estimates prepared at the end of April 1976 indicated that for the first time in over 30 years, world consumption of fertilizers declined. In terms of the three primary nutrients, N, P₂O₅ and K₂O, consumption in 1975 fell by 2.5% compared with the year before.

With the decline in consumption and the increase in stocks in both major exporting and importing countries, prices of fertilizers have continued to weaken throughout the first half of 1976. Forecasts of world fertilizer supply and demand up to 1980/81, prepared by the UNIDO/FAO/World Bank Fertilizer Working Group in 1976, are summarized in Table 2. Taking into account expansion in production capacity and expected growth in demand, supplies of nitrogen, phosphate, and potash fertilizers are expected to be adequate to meet demand during the period 1980/1981.

It should be pointed out, however, that these fertilizer demand projects are "effective demand" rather than fertilizer needs. If the world food problem is to be improved in a reasonable period of time, the rate of expansion particularly in developing countries will need to be accelerated substantially beyond that indicated in the demand forecasts.

The World Bank has recently undertaken an exercise to review the food production targets and to determine in a preliminary way the food staple availabilities in 13 major food deficit countries up to 1980.

The combined official government food staple production targets in 1980 of these countries is about 280 million tons, which would make the most important of these countries self-sufficient. If these targets were met, per capita food staple consumption would increase from 166 kg. in 1975 to 187 kg. in 1980. However, the planned level of fertilizer nutrient application to meet these production goals is 19.5 million tons of NPK, whereas our estimated effective demand for these countries is only 15.2 million tons of nutrient which is just under 80% of the target requirements.

Fertilizer is only one of several complementary agricultural inputs, and climatic variations tend to obscure the impact of fertilizer usage on crop output. Therefore, it is not possible to establish an exact relationship between fertilizer consumption and food and agricultural production. Any estimate thereof is necessarily only a crude indication of the orders of magnitude involved. Based on the input/output relationships used in the Bank food staple exercise, one can roughly estimate the food staple deficit implied in our fertilizer consumption forecasts to be about 35 million tons in 1980, or about 12% of that year's food staple consumption target of 280 million tons.

Very strong promotion effort is needed

The above estimates, however crude, clearly show that a major effort is required to promote increased fertilizer consumption. Clearly, the necessary increase in fertilizer use will not be achieved only through investments in fertilizer production facilities — in fact, the projected effective demand is based on the assumption that fertilizers are available — but through a major emphasis on fertilizer marketing and distribution including the active promotion of increased fertilizer usage among the farmers.

The World Bank has recently reviewed its policy with regard to fertilizer development. Some of the major conclusions and recommendations regarding this are summarized below:

1. The Bank Group should continue to cooperate with other international and national agencies as well as industrial organizations and trade associations, to establish, maintain, and disseminate worldwide information on fertilizer supply and demand. Such an information scheme is believed to be the most valuable and practical international measure that can be taken to provide the basis for investment planning and thereby help to avoid future cyclical imbalances in fertilizers.

2. The Bank Group should, in close collaboration with UNIDO, provide assistance to developing countries to maximize production from existing plants.

3. There should be greater emphasis on providing help on secondary production facilities and on the distribution and marketing of fertilizers.

4. Bank Group plans for the next five years should continue to support investment requirements for new fertilizer production and distribution facilities in developing countries that will be required after 1980.

5. The Bank Group, together with UNIDO and FAO, should provide technical and financial assistance to promote

regional fertilizer production and trading arrangements in such areas as Latin America, West Africa, the Middle East, and South East Asia.

Future investment requirements for developing countries

Increased use of fertilizer has been one of the most important factors in increasing world food production in the past 25 years, and it is expected to be even more important in the future particularly for developing countries. Although the projections for the next few years indicate that supply of all three nutrients is likely to be ample to meet demand, special attention must be given to the situation after 1981. It is not possible to predict accurately the supply/demand situation after this period but previous experience would indicate that the slow down of investment during periods of excess capacity is the main cause of the cyclical imbalances which occur within the fertilizer industry.

Also, inasmuch as the total time required to plan, design, erect, and commission new plants can often take as long as five years, it is important that short-term market conditions do not exert unreasonable influence on plans to meet longer term requirements. For example, in the case of increasing nitrogen requirements, it is estimated that based on present trends, the demand for nitrogen fertilizer between 1981-1986 will increase, on average, about 5.0 million tons of nutrient per annum. Considering such problems as operational efficiencies, losses, etc., it is estimated that about 20 new ammonia/urea plants will be required to come onstream each year between 1981-1986 to meet increased demand. Also, as some older plants close down, the number required will be further increased.

Although considerable attention is being given to new methods of biological fixation of nitrogen, it seems unlikely on present knowledge that there will be any significant

Table 2. World fertilizer supply, demand and balances

	Estimate	Forecast				
	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81
<i>Nitrogen (N):</i>						
Production	42.41	46.13	49.69	54.14	58.65	62.10
Consumption	42.18	45.34	48.57	51.92	55.60	59.38
Surplus (Deficit)	0.23	0.79	1.12	2.22	3.25	2.72
<i>Phosphate (P₂O₅):</i>						
Supply	27.21	28.93	30.23	31.25	32.37	33.18
Consumption	23.83	25.56	27.20	28.89	30.35	31.75
Surplus (Deficit)	3.38	3.37	3.03	2.36	2.02	1.43
<i>Potash (K₂O):</i>						
Supply	28.06	28.74	29.27	29.61	30.74	31.37
Consumption	20.99	22.72	23.99	25.55	27.07	28.56
Surplus (Deficit)	7.07	6.02	5.28	4.06	3.67	2.81

Source: UNIDO/FAO/World Bank Working Group on Fertilizers, March 1976.

developments that will prevent the need for many more new large conventional ammonia plants. It is estimated that by the year 2000, we shall require at least another 500 plants of 1,000 ton/day each merely to maintain present nutritional standards. If developing countries are to meet their demand from their own production, it is certain that many of these new plants will be built in developing countries.

The fertilizer shortages and high prices that have been experienced by the developing countries during the last two or three years have raised several important issues regarding the best methods of these countries procuring their fertilizers. Under more stable market conditions, there would undoubtedly be an advantage for some of them to import fertilizers from a low cost production area. However, during periods of instability, the very high prices that have to be paid for importing fertilizer may soon outweigh this advantage. As an illustration, during 1973/74 India was paying up to US\$350/ton for urea compared with a production cost in India of about US\$150/ton.

The rapid escalation of capital costs have also, to some extent, reduced the relative advantage of low-cost hydrocarbon sources. Although the economic advantages of siting fertilizer plants at cheap raw material sources still remain valid, more attention will henceforth have to be directed to helping fertilizer consuming countries move towards self-sufficiency where this is economically justified and where the premium for ensuring such self-sufficiency and a continuous dependable supply of fertilizers at more stable prices is worth paying.

The cost of building an ammonia/urea complex to produce about 1,600 ton/day urea is between US\$250-300 million. For many developing countries both the investment and technical requirements will be a major constraint and undoubtedly the World Bank Group will continue to play a major role in helping these countries to meet their fertilizer requirements.

Fertilizer distribution and marketing

Failure of many developing countries to raise effective demand for fertilizers is often due to constraints that occur after the production operation, and there is a need in many developing countries to reduce or remove these constraints if food targets are to be realized.

Recent developments in the fertilizer industries of developing countries have concentrated on the primary production facilities and the major investment has occurred in this area. However, as the production and availability of fertilizers increase, it is essential that the facilities necessary for their purchase, distribution and use increase also, if the potential of greater fertilizer availability is to be fully utilized. This is particularly important in periods when prices are high; in the necessary promotional activities to encourage farmers to use more fertilizers, every effort must be made to simplify and reduce the costs of transporting and distributing fertilizers to the small farmers.

There are two major areas in which constraints to more efficient use normally occur: (a) in the distribution and marketing infrastructure; and (b) on the farm level. Constraints in

the former usually relate to inadequate transportation and storage. There are often inadequate wholesale/retail organizations or credit to allow these organizations to maintain satisfactory stocks of fertilizers.

Constraints at the farm level are usually caused by the farmers being unaware of the advantages of fertilizers, or by fertilizers not being available in the desired quantities or forms, or at the proper time. HYV seeds or supplementary irrigation may often be lacking. It may be that unfavorable value/cost ratios discourage farmers from using fertilizers, or that they are unable to obtain the necessary credit for buying fertilizers. Also, the procedures and facilities for buying fertilizers at the farm level often do not exist in a satisfactory form.

The World Bank has recognized the need for increasing assistance for secondary production, distribution, and marketing of fertilizers in forms which are suitable for soil and climate conditions in developing countries, and it intends to put an increasing emphasis on this work. Unfortunately, however, it is not easy to identify and put together well defined systems and investment packages which can be easily superimposed on to existing infrastructure and institutions. This type of work also requires considerable detailed study in view of the individual nature of each situation.

As part of this more comprehensive approach towards the production and use of fertilizers, it is now customary for large fertilizer projects incorporating Bank financing to include some element of financing for marketing or infrastructure or at least for further studies in this field. Within the last year, the Bank has approved a major fertilizer distribution project of \$68 million in Indonesia and also has financed several other marketing and distribution studies.

Technical assistance and debottlenecking

Many fertilizer plants in developing countries have been greatly assisted by the technical help provided by the Bank in identifying and appraising the projects. The Bank has also tried to ensure the proper technical and management support in projects in developing countries, by encouraging the involvement of experienced fertilizer companies in developed countries to participate in these projects.

Although the major projects financed by the Bank Group and completed during the past two years have operated at high capacities and given satisfactory performance, many other fertilizer plants in developing countries have failed to meet their rated capacity. This has often been the result of political and infrastructural constraints as well as failures in plant design and operation. A great deal of work in delineating problems and advising operators has been carried out under the auspices of UNIDO and other international agencies but often little has come of this work because there was no follow up investment program.

The Bank Group has been working on this problem particularly in India and has recently approved a credit of US\$105 million, which will be given by IDA to help to increase India's fertilizer production. It is intended that this credit will assist 10 fertilizer plants in removing production

bottlenecks and will help to increase fertilizer production by 250,000 ton/yr. of nutrient. This should allow production in existing facilities to be raised from the present industry-wide average of about 60% of capacity to 85% by 1979.

Until recent times, the principal locations for the production of fertilizers, and international trade patterns have generally been unfavorable to most of the developing nations. Developing countries have been and still remain to a large extent dependent upon imported fertilizers. Within recent years, however, as the fertilizer requirements of these areas have developed, more attention has been given to using local raw materials and to regional fertilizer development. In particular, natural gas has been found in many developing countries and is now being used as the basis for a nitrogenous fertilizer industry. Although there have been no new large discoveries of potash or phosphates equivalent to those of Canada or Morocco, there have been many interesting finds of new deposits of these materials which could support individual country or regional needs.

There are several areas in the world in which developing countries and others could benefit significantly from a joint regional plan to develop their fertilizer industry. Normally, the main requirements to obtain such benefits are: 1) the region should contain some or all of the basic fertilizer raw materials; 2) there should be a large and dependable market and; 3) within the region, the location of raw materials, primary and secondary production plants should be such that the transport and distribution facilities can be optimized to bring out least cost solutions and hence cheaper fertilizers for the farmer.

Although several areas possess many of the requirements for regional development, the political problems and the difficulties of introducing proper regional planning, project preparation and implementation of the projects have usually inhibited such developments.

The Bank and other international agencies have been asked by the World Food Conference and the FAO Commission on Fertilizers to assist in regional fertilizer planning and development.

Regional planning can involve several methods of collaboration between countries and companies such as long-range contracts, harmonization of investment programs and multinational operations. However, to be successful in any one or all of these, such collaboration should be based on sound economic considerations which ensure mutual benefit. It should also, as the prime motive, ensure cheaper fertilizer to the farmer than would otherwise be available.

Although the preparation of regional plans must be the ultimate responsibility of the countries or companies concerned, international agencies and particularly the World Bank have an important role to play in helping to conceive and prepare such plans. For example, the work now being done by the international agencies in preparing estimates of fertilizer supply and demand, particularly for individual countries and regions, can serve as a basis for investment planning. The inclusion of worthwhile projects in country lending programs can often help to bring about regional

collaboration.

The World Bank is collaborating currently with several other international agencies in regional fertilizer studies in several parts of the world. To illustrate the type of work the Bank is doing, reference is made to a study that has been carried out on a regional plan for the South East Asian fertilizer industry. In the first place, the countries which have been included in the plan are the Association of South East Asian Nations (ASEAN) who have already indicated that they will soon formalize an agreement that will expand trade and grant preferential trading arrangements to member countries.

Strong increase seen for South East Asia

The demand for fertilizers is expected to grow significantly in ASEAN in the next decade, and capacity already installed together with capacity underway will almost certainly be inadequate to meet regional fertilizer requirements by 1985. However, given the region's indigenous supplies of key fertilizer materials (natural gas, sulfuric acid, and potentially exploitable potash deposits and nearby phosphate rock sources) there is a substantial potential gain to be derived from a regionally harmonized capacity expansion policy.

The World Bank, in collaboration with the International Fertilizer Development Center, has recently carried out a detailed study to determine the investment, production, importation, and transportation patterns that minimize the cost of the region's fertilizer requirements by 1985. This includes the selection of plant sites, plant sizes, feedstocks, product mix and transportation patterns.

To achieve the simultaneous specification of the optimum levels of these independent variables, a static cost minimization mathematical model was developed and solved by electronic computer. The model incorporates fertilizer projections to 1985 for marketing regions in each country. The fertilizer industry is described by a set of technical relations for the transformation of all relevant raw materials via intermediate products into final fertilizer products.

The investment and operating costs to be incurred to carry out these transformations are described as well for a range of possible plant sizes, and taking into account economics of scale. Actual and potential plant sizes are stipulated, and shipment activities are specified that permit raw materials and intermediates to be transported to such plant sites. Similarly, a set of shipment activities permits the transportation of final products from each plant site to each marketing center. When exports and imports are considered, appropriate shipment activities are included as well.

The preliminary analysis indicates there are significant economic benefits to be derived from a regionally harmonized capacity expansion policy. The benefits are to be obtained from efficient utilization of the region's relatively low cost by-product sulfuric acid and abundant natural gas supply sources, and the economic integration of markets which permit the benefits of scale which exist in fertilizer production. Furthermore, sensitivity analysis indicates that a

phosphate and nitrogen industry established within the region can compete within the region with competition from outside.

The results of this study were presented at the meeting of the Consultative Group for Food Production and Investment in Washington in February, 1976.

The use of both country and regional fertilizer investment planning using models of this type can be extremely useful in preparing both long-term and sequential plans for fertilizer investment. In collaboration with other agencies, the Bank will be extending its work in this field.

Conclusions

The World Bank Group is playing an important part in helping the developing countries to meet their fertilizer requirements. To do this, it is collaborating with the other international agencies as well as industry to ensure that the

best information is available to provide a basis for investment planning and to avoid cyclical imbalances in fertilizers.

The Bank Group will adopt an increasingly comprehensive approach to fertilizer developments to see that in addition to assistance to ensure the efficient production of fertilizers, help must also be given so that demand and infrastructural considerations do not become major constraints to fertilizer use.

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