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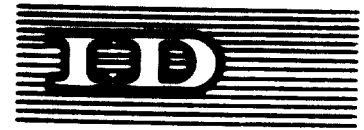
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Expert Group Meeting on Regional Co-operation
among Developing Countries in the
Fertilizer Industry

Vienna, 8-10 February 1978

REPORT

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INTRODUCTION

1. The Second General Conference of UNIDO held at Lima, Peru, in March 1975, recommended that UNIDO should include among its activities a system of continuing consultations between developed and developing countries and among developing countries themselves. The objective of these consultations would be to assist the developing countries in achieving their industrialization goals, which include in particular the goal of producing at least 25 per cent of world industrial output by the year 2000.
2. The First Consultation Meeting on the Fertilizer Industry was convened in Vienna from 17 to 21 January 1977. It was attended by over 250 participants from 60 countries representing Governments, industry and labour.
3. The Meeting reviewed the arrangements that had been made for co-operation among developing countries in the fertilizer industry. It recognized that for developing countries with smaller markets it would be desirable to plan for regional co-operation and a combination of resources and skills. A high priority should be given in the programmes of regional groups to the preparation of feasibility studies, the setting up of fertilizer plants, and the building up of a marketing and distribution network within the region.
4. UNIDO should extend assistance to these efforts when requested to do so. International, technical and financial assistance from bilateral and other sources should also be made available for such regional group efforts. Furthermore, UNIDO should consider giving assistance in establishing regional development centres for the fertilizer industry.
5. It was suggested that a Second Consultation Meeting should be held in 1978 and that the following should be one of the subjects to be given more intensive examination and investigation prior to that Meeting:

The opportunities for co-operation between developing countries at the subregional, regional and interregional levels and the international support needed for that co-operation.

6. The Expert Group was convened to examine this subject and to contribute to the formulation of conclusions and recommendations on the points that could be considered at the Second Consultation Meeting on the Fertilizer Industry, which UNIDO plans to convene at Innsbruck, Austria, from 6 to 10 November 1978.

I. ORGANIZATION OF THE MEETING

7. The Expert Group Meeting on Regional Co-operation among Developing Countries in the Fertilizer Industry was convened at UNIDO Headquarters, Vienna, from 8 to 10 February 1978.

8. The Meeting was opened by A. Hacini, Acting Head of the Negotiations Section of UNIDO. He explained that the purpose of the Expert Group Meeting was to contribute to the formulation of practical suggestions for co-operation among developing countries which could be considered at the Second Consultation Meeting on the Fertilizer Industry, tentatively scheduled for 6 to 10 November 1978 at Innsbruck, Austria. Consultation meetings on three other industrial sectors had stressed the importance of co-operation among developing countries and the results of this Meeting were therefore awaited with special interest.

9. M.C. Verghese, Head of the Chemical Industries Section of UNIDO, was elected Chairman of the Meeting.

10. The Meeting adopted the following agenda:

Co-operation in the production of fertilizers, intermediates and raw materials

Co-operation to promote trade in fertilizers, intermediates and raw materials among developing countries

Co-operation in the construction and operation of fertilizer plants

Institutional arrangements needed to implement co-operation among developing countries

11. Annexes I, II and III of this report contain tables indicating the production and consumption of the world nitrogen and phosphate fertilizer industries and of the world potash industry. The list of participants appears in annex V. The list of documents considered at the Meeting is given in annex IV. A UNIDO secretariat paper considered suggested areas of co-operation among developing countries in the fertilizer industry. Other papers described regional co-operation in the Andean group of countries and the activities of regional federations of fertilizer producers in the Arab countries and Latin America. Other papers considered co-operation which India and Pakistan, respectively, had initiated on a bilateral basis.

II. CONCLUSIONS AND RECOMMENDATIONS

12. The Expert Group Meeting recognized that opportunities existed for sub-regional, regional and interregional co-operation by setting up joint ventures for the production of fertilizers and/or intermediates by developing countries with complementary raw material resources and market requirements. Eight specific project opportunities which would use the natural gas, phosphate or potash resources of one country to supply the fertilizer markets of other countries were identified. When requested, UNIDO should take action to promote implementation of these projects in co-operation with other concerned international organizations.

13. UNIDO should convene a working group on co-operation among developing countries in the phosphate fertilizer industry in time to produce initial results for the consideration of the Second Consultation Meeting on the Fertilizer Industry to be convened by UNIDO at Innsbruck. A similar approach to promoting co-operation for the development of potash resources could also be considered.

14. The Expert Group agreed that special attention should be given to ways of ensuring adequate supplies of fertilizers for least developed countries and other developing countries with a small population. A working group should be established by UNIDO, in co-operation with the Food and Agriculture Organization of the United Nations (FAO), the World Bank and other concerned organizations, to identify projects and to propose specific measures to aid these countries which could be considered by the Second Consultation Meeting on the Fertilizer Industry.

15. International, regional and bilateral financial institutions should continue to use their financing to fully support such projects in order to expedite and to enhance co-operation between two countries or among a group of developing countries in establishing fertilizer projects. Financial institutions should make their policy on this point better known.

16. The Expert Group noted the fields of activity of the Arab Federation of Chemical Fertilizer Producers (AFCFP) and the Association for the Development of the Fertilizer Industry in Latin America (ADFILA) and recommended that UNIDO assist these organizations in implementing their projects. It supported the establishment of such regional federations of fertilizer producers and

recommended that UNIDO assist the establishment of similar federations in Africa and Asia. UNIDO should also arrange to assist the formation of an association of fertilizer producers in the developing world to bring together all regional associations and to encourage their objectives.

17. The Expert Group noted the activities of the Andean, Association of South East Asian Nations (ASEAN), Central American and other subregional groups of countries and recommended that UNIDO and other international institutions assist them in formulating proposals for co-operation and in implementing their projects.

18. The Expert Group also noted the use of models such as those developed by the World Bank and International Fertilizer Development Centre (IFDC) for the planning of new fertilizer production facilities in certain regions, and recommended that other regions make use of this approach.

19. The Expert Group considered the proposal, recommended by a recent meeting, for the establishment of a Regional Fertilizer Information and Advisory Service sponsored by the Economic and Social Commission for Asia and the Pacific (ESCAP), FAO and UNIDO, and suggested that the project should be used to promote co-operation among countries in the ESCAP region. It recommended that UNIDO contribute to financing this project. The establishment of similar projects in other regions could also be supported by UNIDO.

20. The Expert Group supported the need to establish fertilizer development centres in some regions to provide training, trouble-shooting, information and other common services. It noted that the Arab Federation of Chemical Fertilizer Producers was in the process of establishing such a centre, for which financing was being arranged. The participants from African countries saw a need for UNIDO to sponsor, jointly with the Economic Commission for Africa (ECA) and the Organization of African Unity (OAU), a meeting to consider the establishment of such a centre in Africa.

21. The Expert Group recommended the formation by UNIDO of a fertilizer consultancy/advisory service to provide services to developing countries requesting them at their expense. The service should furnish consultancy/advisory services in areas such as feasibility studies and project evaluation; contractors, manufacturing processes and technology transfer; plant design and construction supervision; plant operations and maintenance; and marketing, usage, transportation and warehousing of fertilizers. A detailed

proposal on the formation and functions of the fertilizer consultancy/advisory services should be presented to the Second Consultation Meeting on the Fertilizer Industry. For this purpose, UNIDO should prepare a roster of persons and organizations able to provide such services.

22. The Expert Group noted that regional associations of fertilizer producers either have begun to or may wish to establish similar consultancy/advisory services at the regional level. The Group suggested that UNIDO might contact these associations to obtain expertise from their members for solving managerial and technical problems in developing countries and other regions.

23. A proposal that UNIDO publish a fertilizer newsletter on a quarterly basis to promote co-operation among developing countries was considered. As a first step, it was recommended that part of a page of the UNIDO Newsletter should be devoted to fertilizer news supplied by regional associations of fertilizer producers and other sources.

24. The Expert Group recommended that UNIDO publish a directory of all fertilizer producers in developing countries and disseminate other up-to-date information of interest to fertilizer manufacturers on a regular basis.

III. SUMMARY OF THE DISCUSSION

A. Co-operation in the production of fertilizers, intermediates and raw materials

25. The Expert Group reviewed the efforts that had already been made to establish co-operation among developing countries in the production of fertilizers, intermediates and raw materials. The case was considered of Monómeros Colombo Venezolanos S.A., a company which began the production in 1973 of caprolactam and NPK fertilizers in Barranquilla, Colombia. The company is a joint venture between government corporations in Colombia and Venezuela with a small shareholding by Nederlandse Staatsmijnen, N.V. (DSM) who supply the technical know-how. The company purchases ammonia from Nitroven, a Venezuelan company which began production in 1974; Colombian interests hold a 10 per cent share in this company.

26. Another example of co-operation was the participation of Arab countries in financing a number of fertilizer plants established in Egypt, Jordan, Pakistan and Sri Lanka. As an example, the arrangements made in Pakistan were described to the Meeting. The Government of Saudi Arabia and the Saudi Fund for Development contributed loans of \$US 80 million to the financing of one project and the Abu Dhabi National Oil Company contributed equity of \$US 30 million to the second project. Both plants were now under construction.

27. In the ASEAN group of countries, it had been agreed that Indonesia and Malaysia would establish nitrogenous fertilizer plants to serve the regional market. It was reported that a plant would be constructed in Indonesia with capacity to produce 570,000 tons per annum of urea. The five members of ASEAN would contribute to the equity financing; Japan had agreed to provide loan financing for this plant.

28. In addition to these examples, cases were quoted of on-going efforts to achieve co-operation in the establishment of new fertilizer plants within a regional group of countries. The ANDEAN group of countries was using a model developed by the World Bank to examine alternative plans to show which alternative would result in fertilizers being delivered to farmers at lowest cost. The Secretariat of the Central American Common Market (SIECA) had

prepared a study of 29 alternatives involving production units in two or three of the five member countries; results of this study would be considered by Governments in 1978.

29. In West Africa an export-oriented plant to produce 600 tons/day of P_2O_5 was being planned by the Government of Senegal in co-operation with a local private company and a number of external partners who would provide finance. The fertilizer would be exported to neighbouring African countries. Some of these were members with Senegal of a common market, but the advantage accorded to trade in fertilizers was nil because there was no import duty. The proposed plant would therefore have to compete with fertilizers supplied from other sources which were often offered at low prices because they were only a marginal part of the total production of the supplier.

30. The Expert Group recognized that other co-operative arrangements among developing countries to produce fertilizers would also have to compete with fertilizer supplied from other sources. The competition was frequently very strong because of the low cost of maritime transport on well-established, traditional trading routes. It would therefore be necessary for developing countries to examine ways of reducing the cost of transportation of fertilizers within a subregional group of countries.

31. The experts, acting in their personal capacity, agreed that a useful contribution would be to identify specific opportunities for the establishment of new joint venture projects. In this connection, the following opportunities were among those identified by the Expert Group:

(a) A plant using natural gas available in Bolivia to produce nitrogenous fertilizer for the markets of Argentina, Bolivia, Brazil, Paraguay and Uruguay;

(b) The possible development of potash deposits in Bolivia and Chile to satisfy the needs of other Latin American countries;

(c) The planned development of phosphate deposits in Peru to supply the markets of other Latin American countries;

(d) The phosphate fertilizer project mentioned in paragraph 29 which it was planned to establish in Senegal for West African markets;

(e) A nitrogen fertilizer plant for West African markets planned in Nigeria;

(f) Possible co-operation to utilize phosphoric acid from Senegal and ammonia from Nigeria to produce complex or blended fertilizers on the spot in other West African countries;

(g) Possible co-operation that would use fertilizer intermediates supplied by countries in North Africa to produce fertilizer on the spot in certain land-locked countries in Africa;

(h) Co-operation between Bangladesh, India, Pakistan and any other country in the region with the aim of optimizing economic utilization of resources and skills.

32. The representative of the World Bank reported that the policy of the Bank as regards fertilizer projects was to encourage regional co-operation among developing countries. The Expert Group also noted that the European Development Fund was required to give priority to financing projects involving more than one of the associated developing countries. The Group recommended that international financing institutions should encourage the establishment of fertilizer projects in which more than one developing country was involved, either as joint venture partners or in other co-operative arrangements.

33. As regards the form of joint co-operative venture which might be arranged on a bilateral basis between two developing countries, one possible form was considered. The developing country in which the plant would be built and which owned the natural resources might own a majority share in the venture. The country to which the fertilizer was supplied might take the remaining share. The country supplying the market for the plant's output might guarantee under a long-term contract to import appropriate agreed quantities of the plant's output. Such contracts could be for an initial 5 years or a maximum of 10 years.

34. Joint ownership was also a way of sharing benefits when more than two countries co-operated in a joint project. In this case the countries agreeing to purchase fertilizers from the producing country could expect to benefit from (a) an assured source of supply, (b) a favourable delivered price (provided low-cost transport was arranged) and (c) other considerations.

B. Co-operation to promote trade in fertilizers,
intermediates and raw materials among developing countries

35. The Expert Group recognized that there were tremendous opportunities for increasing trade among developing countries in fertilizers, intermediates and raw materials. One of the major obstacles to taking advantage of these opportunities at the present time was the lack of current reliable information.

36. In order to develop fertilizer production, steps should be taken by a neutral body such as UNIDO to identify the import requirements of certain developing countries and the export potential of other developing countries, and to disseminate this information on a periodic and regular basis. In comparison with existing publications available from commercial sources mainly in developed countries, this information service should be geared to the needs of fertilizer manufacturers in developing countries.

37. In preparing this information, UNIDO should be assisted by federations of fertilizers in developing countries and by the Governments of importing and exporting countries. For developing countries that had complementary natural resources (for example one country having natural gas and the other phosphate rock), an agreement to trade nitrogen products against phosphate products might be negotiated on a long-term basis.

38. It was pointed out that developing countries which established blending plants might arrange to import their requirements of fertilizers from other developing countries as well as from developed countries. In addition, those that established complex fertilizer plants might import fertilizer intermediates from other developing countries. Such trade agreements might be strengthened by co-operation of the supplier of fertilizer/intermediates when these new plants were established.

39. It was recognized that the promotion of fertilizer use by educating the farmers laid a basis for increased trade. It was therefore useful to assist developing countries in establishing effective schemes for promoting fertilizer use and the marketing and distribution network needed to move the fertilizer to the farmer. In this connection it was noted that although international financing organizations, Arab development funds and bilateral aid programmes had begun to take an interest in such projects, much more remained to be done. It would therefore be useful if developing countries

with experience in promoting fertilizer use offered their services to other developing countries.

40. The participant of a developing country which had benefited from donations of fertilizers as grant aid pointed out that the total funds generated by the sale of these fertilizers were used to finance further activities to promote the use of fertilizers by farmers. It was felt that this practice should be extended to the other developing countries and that a much wider range of developing and developed countries could supply fertilizers as grant aid for such schemes.

C. Co-operation in the construction and operation
of fertilizer plants

41. A number of developing countries already have considerable experience in the supervision of construction and in the successful operation of fertilizer plants. Participants from some of these countries indicated their willingness to assist other developing countries who were less experienced, and specifically mentioned the training facilities they could make available. There were also cases in which co-operation among developing countries had extended to other areas such as in preparing feasibility studies, advising on selecting contractors, assisting in evaluating bids, supervising the construction of plants and advising on the marketing and distribution network required.

42. In the future, assistance from another more experienced developing country might be used in any or all phases of project planning and implementation. At the pre-contracting stage of planning the construction of new fertilizer plants, assistance might be needed to make a feasibility study, to establish market conditions, to choose the location of the plant, to prepare technical specifications and invitations to tender, and to select engineering contractors and major equipment. After negotiation of the contract, further assistance might be needed to check the detailed engineering construction and subcontracts and to inspect equipment, all the way through to the commissioning and start-up of the plant. Finally, plant management must be recruited, personnel must be trained and the operation of the plant must be organized.

43. It was in this context that the technological advisory service initiated on a trial basis by UNIDO in 1978 was described to participants.

The fertilizer industry was one of the sectors covered. The service would advise developing countries on the terms and conditions and other aspects of the negotiation of technology, engineering and know-how contracts. UNIDO would recruit a highly qualified team of technical and legal experts from both developed and developing countries and charge for the services rendered. It was pointed out that some developing countries would appreciate the assistance offered from the first conception of a project up to the signing of the contract.

44. As regards the selection of a manufacturing process, participants were informed of the activities of the Industrial and Technical Information Service of UNIDO. The UNIDO Fertilizer Manual was being updated and other information was being collected, as recommended by the First Consultation Meeting.^{1/}

45. As regards the successful operation of fertilizer plants, it was suggested that inexperienced buyers of fertilizer plants should contract management of the plant for an initial period to a company experienced in operating a similar plant. It was recognized that such experienced assistance could often be obtained from established producers in other developing countries, and it was suggested that international financing organizations should make available funds to finance such management contracts.

46. The importance of improving the utilization of capacity in existing plants was stressed. In some plants de-bottle-necking was required, and in others there was a need to reduce the "down time". To help to diagnose and solve such problems an exchange of information among plant owners, loan of skilled personnel and other forms of assistance from one producer to another should be promoted through UNIDO or a regional association of fertilizer producers.

47. There was also scope for developing countries to exchange experience on promoting the use of fertilizers and on the development of marketing transport and distribution systems. Such assistance was particularly important for the least developed and other developing countries with a small population where current use of fertilizers was still at a very low level.

^{1/} In addition to information on new and existing processes, plant and equipment and project and equipment costs in the fertilizer industry, the Consultation Meeting suggested that the past experience of developing and developed countries in establishing fertilizer plants be examined with a view to ascertaining the success or failure of operations.

D. Institutional arrangements needed to implement
co-operation among developing countries

48. The establishment of regional development centres recommended for consideration by the First Consultation Meeting was discussed. Steps to establish such a centre, including arrangements for financing, were already well advanced in the Arab countries. The centre would, inter alia, make studies of special problems of the industry, offer specialized training programmes and undertake research and development on problems of common interest to countries in the region. The creation of the centre was promoted by the Industrial Development Centre for Arab States (IDCAS), which has promoted similar centres in other sectors, and the Arab Federation of Chemical Fertilizer Producers.

49. Participants from African countries suggested that the need for and functions of a centre for African countries should be considered by a meeting sponsored by UNIDO with the co-operation of ECA and OAU.

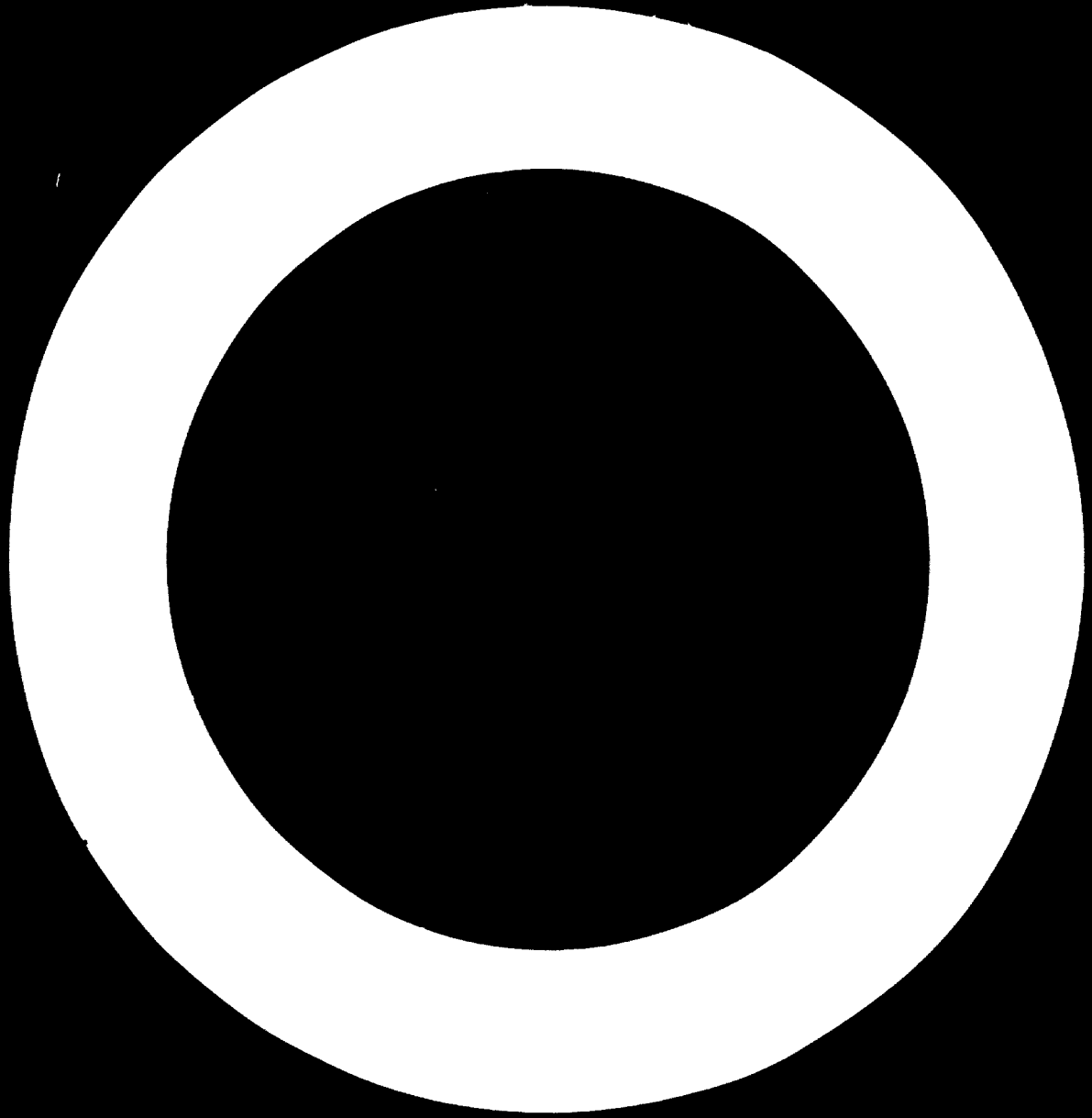
50. The meeting noted the plan to establish a regional fertilizer information and advisory service for the ESCAP region that would have the aim (a) of improving the distribution, marketing and use of fertilizers in member countries and (b) of promoting production and trade within the region of fertilizers, intermediates and raw materials. Some participants from Asia supported this proposal and stressed the importance of the project emphasizing opportunities for co-operation among countries in the region.

51. The activities of the recently formed federations of fertilizer producers, the Arab Federation of Chemical Fertilizer Producers (AFCEP) and the Association for the Development of the Fertilizer Industry in Latin America (ADIFAL), were described and supported. UNIDO could assist efforts to establish similar federations in Africa and Asia. A world-wide association of fertilizer producers in developing countries might be formed in due course to further the objectives of these regional federations and to provide a forum for an enhanced exchange of technical experience among fertilizer producers in developing countries.

52. The Expert Group reviewed the estimate of regional demand up to 1985/86 and the supply capability prepared by the UNIDO/FAO/IBRD Working Group, and the need for increased fertilizer production in developing countries

which these forecasts demonstrated. It saw a need for more detailed estimates of the expansion of production capacity such as those prepared for the meeting by AFCEP and ADIFAL.

53. To facilitate co-operation among producers, UNIDO should compile and publish a directory of fertilizer producers in developing countries. UNIDO should also collect and disseminate on a regular basis information on demand, supply and trading conditions that would facilitate increased co-operation among developing countries in planning new production facilities.



Annex I

WORLD NITROGEN FERTILIZER INDUSTRY

Demand and supply capability
(Million metric tons of N)

	<u>Actual</u> <u>1975/76</u>			<u>Forecast</u> <u>1981/82</u>			<u>Forecast</u> <u>1985/86</u>
	<u>Cons</u>	<u>Prod</u>	<u>Bal^{a/}</u>	<u>Cons</u>	<u>Prod</u>	<u>Bal</u>	<u>Cons</u>
<u>Developing countries</u>							
Africa	0.44	0.17	-0.27	0.96	0.69	-0.27	1.40
Latin America	2.03	1.25	-0.78	3.49	2.56	-0.93	4.50
Near East	1.30	0.98	-0.32	2.32	2.91	+0.59	3.10
Far East	<u>3.81</u>	<u>2.85</u>	<u>-0.96</u>	<u>7.53</u>	<u>7.00</u>	<u>-0.53</u>	<u>10.00</u>
	7.58	5.25	-2.33	14.30	13.16	-1.14	19.00
Asian CPE countries	<u>5.03</u>	<u>3.56</u>	<u>-1.47</u>	<u>7.28</u>	<u>6.75</u>	<u>-0.53</u>	<u>10.00</u>
Total	12.61	8.81	-3.80	21.58	19.91	-1.67	29.00
<u>Developed countries</u>							
North America	9.95	10.18	+0.23	12.70	12.50	-0.20	14.00
West Europe	8.10	9.29	+1.19	10.24	11.56	+1.32	11.70
Others	<u>1.13</u>	<u>2.08</u>	<u>+0.95</u>	<u>1.57</u>	<u>2.48</u>	<u>+0.91</u>	<u>1.90</u>
	19.18	21.55	+2.37	24.51	26.54	+2.03	27.60
USSR, East Europe	<u>11.51</u>	<u>13.51</u>	<u>+2.00</u>	<u>17.00</u>	<u>21.00</u>	<u>+4.00</u>	<u>21.50</u>
	30.69	35.06	+4.37	41.51	47.54	+6.03	49.10
World total	43.30	42.87	+0.57	63.09	67.45	+4.36	78.10

Source: UNIDO/FAO/IBRD Working Group on Fertilizers, June 1977.

- ^{a/} Cons = Actual demand or forecast consumption.
 Prod = Actual production or forecast capability to supply, defined as climbing to 70 per cent of capacity after three years.
 Bal = Balance of demand and supply of forecast consumption and capability to supply at above assumed rates of capacity utilization.

Annex II

WORLD PHOSPHATE FERTILIZER INDUSTRY

Demand and supply capability
(Million metric tons of P_2O_5)

	Actual 1975/76			Forecast 1981/82			Forecast 1985/86
	Cons	Prod	Bal ^{a/}	Cons	Prod	Bal	Cons
<u>Developing countries</u>							
Africa	0.37	0.42	+0.05	0.65	2.23	+1.58	0.90
Latin America	1.51	0.86	-0.65	2.67	1.66	-1.01	3.40
Near East	0.68	0.55	-0.13	1.31	1.53	0.22	1.70
Far East	<u>1.11</u>	<u>0.60</u>	<u>-0.51</u>	<u>2.25</u>	<u>1.41</u>	<u>-0.84</u>	<u>3.05</u>
	3.67	2.43	-1.24	6.88	6.83	-0.05	9.05
Asian CPE countries	<u>1.48</u>	<u>1.46</u>	<u>-0.02</u>	<u>2.38</u>	<u>2.36</u>	<u>-0.02</u>	<u>3.30</u>
Total	5.15	3.89	-1.26	9.26	9.19	-0.07	12.35
<u>Developed countries</u>							
North America	5.26	7.31	+2.05	6.18	8.83	+2.65	7.70
West Europe	5.10	5.09	-0.01	6.60	7.37	+0.77	6.40
Others	<u>1.84</u>	<u>1.81</u>	<u>-0.03</u>	<u>2.67</u>	<u>3.21</u>	<u>+0.54</u>	<u>2.85</u>
	12.20	14.21	+2.01	15.45	19.41	+3.96	16.45
USSR, East Europe	<u>6.69</u>	<u>6.77</u>	<u>+0.08</u>	<u>10.40</u>	<u>8.41</u>	<u>-1.99</u>	<u>12.80</u>
	18.89	20.98	+2.09	25.85	27.82	+1.97	29.25
World total	24.04	24.87	+0.83	35.13	37.03	+1.90	41.60

Source: UNIDO/FAO/IBRD Working Group on Fertilizers, June 1977.

^{a/} Cons = Actual demand or forecast consumption.

Prod = Actual production or forecast capability to supply defined as climbing to 80 per cent of capacity after three years in developing countries (90 per cent in developed countries).

Bal = Balance of demand and supply or forecast consumption and capability to supply at above assumed rates of capacity utilization.

Annex III

WORLD POTASH INDUSTRY

Demand and supply capability
(Million metric tons of K₂O)

	Actual 1975/76			Forecast 1981/82			Forecast 1985/86
	Cons	Prod	Bal ^{a/}	Cons	Prod	Bal	Cons
<u>Developing countries</u>							
Africa	0.21	0.28	+0.07	0.36	0.36	-0.06	0.48
Latin America	0.95	0.01	-0.94	1.84	0.03	-1.81	2.52
Near East	0.03	-	-0.03	0.07	-	-0.07	0.09
Far East	<u>0.67</u>	-	<u>-0.67</u>	<u>1.43</u>	-	<u>-1.43</u>	<u>1.85</u>
	1.86	0.29	-1.57	3.70	0.33	-3.37	4.95
Asian CPE countries	<u>0.48</u>	<u>0.30</u>	<u>-0.18</u>	<u>0.77</u>	<u>0.45</u>	<u>-0.32</u>	<u>0.92</u>
Total	2.34	0.59	-1.75	4.47	0.78	-3.69	5.87
<u>Developed countries</u>							
North America	4.49	6.94	+2.00	6.25	9.25	+3.27	7.57
West Europe	4.66	4.27	-0.39	6.30	6.30	-	6.80
Others	<u>0.85</u>	<u>0.71</u>	<u>-0.12</u>	<u>1.33</u>	<u>0.80</u>	<u>-0.53</u>	<u>1.50</u>
	10.45	11.92	+1.47	13.88	16.62	+2.74	15.87
USSR, East Europe	<u>8.54</u>	<u>10.96</u>	<u>+2.42</u>	<u>11.29</u>	<u>15.10</u>	<u>+3.81</u>	<u>14.53</u>
	18.99	22.88	3.89	25.17	31.72	6.55	30.40
World total	21.33	23.47	+2.14	29.64	32.50	+2.86	36.27

Source: UNIDO/FAO/IBRD Working Group on Fertilizers, June 1977.

^{a/} Cons = Actual demand or forecast.

Prod = Actual production or forecast capability after deducting processing, transportation, handling and storage losses from production.

Bal = Balance of demand and supply or forecast consumption and capability to supply at above assumed rates of capacity utilization.

Annex IV

LIST OF DOCUMENTS

- ID/WG.265/1 Regional co-operation in the fertilizer industry: the experience and potential of the Andean Group of countries
Patricio Castro
- ID/WG.265/2 Co-operation in the fertilizer industry: the experience of the Arab Federation of Chemical Fertilizer Producers
Wahib D. Kelada
- ID/WG.265/3 Co-operation amongst developing countries in the fertilizer industry: the experience of Pakistan as regards financing two fertilizer plants
F.S. Aijazuddin
- ID/WG.265/4 Regional co-operation in the fertilizer industry: experience and opportunities in Latin America
Eduardo Gutierrez-Salgado
- ID/WG.265/5 The potential for co-operation in the nitrogen fertilizer industry in Latin America
Eduardo Gutierrez-Salgado
- ID/WG.265/6 Bilateral and regional co-operation among developing countries in the fertilizer industry. Experience of India
S.K. Mukherjee
- ID/WG.265/7 Suggested areas of co-operation among developing countries in the fertilizer industry
UNIDO Secretariat
- ID/WG.265/8 Posibilidades de integración en el sector fertilizantes del Grupo Andino. Algunos trabajos de Junao al respecto
Rodrigo Donoso H.
- ID/WG.265/9 Investment planning in the fertilizer industry: research and applications at the World Bank
A. Meeraus
- ID/WG.265/10 Posibilidades de desarrollo de la industria de fertilizantes en Centroamerica
A. Guerra-Borges

Annex V

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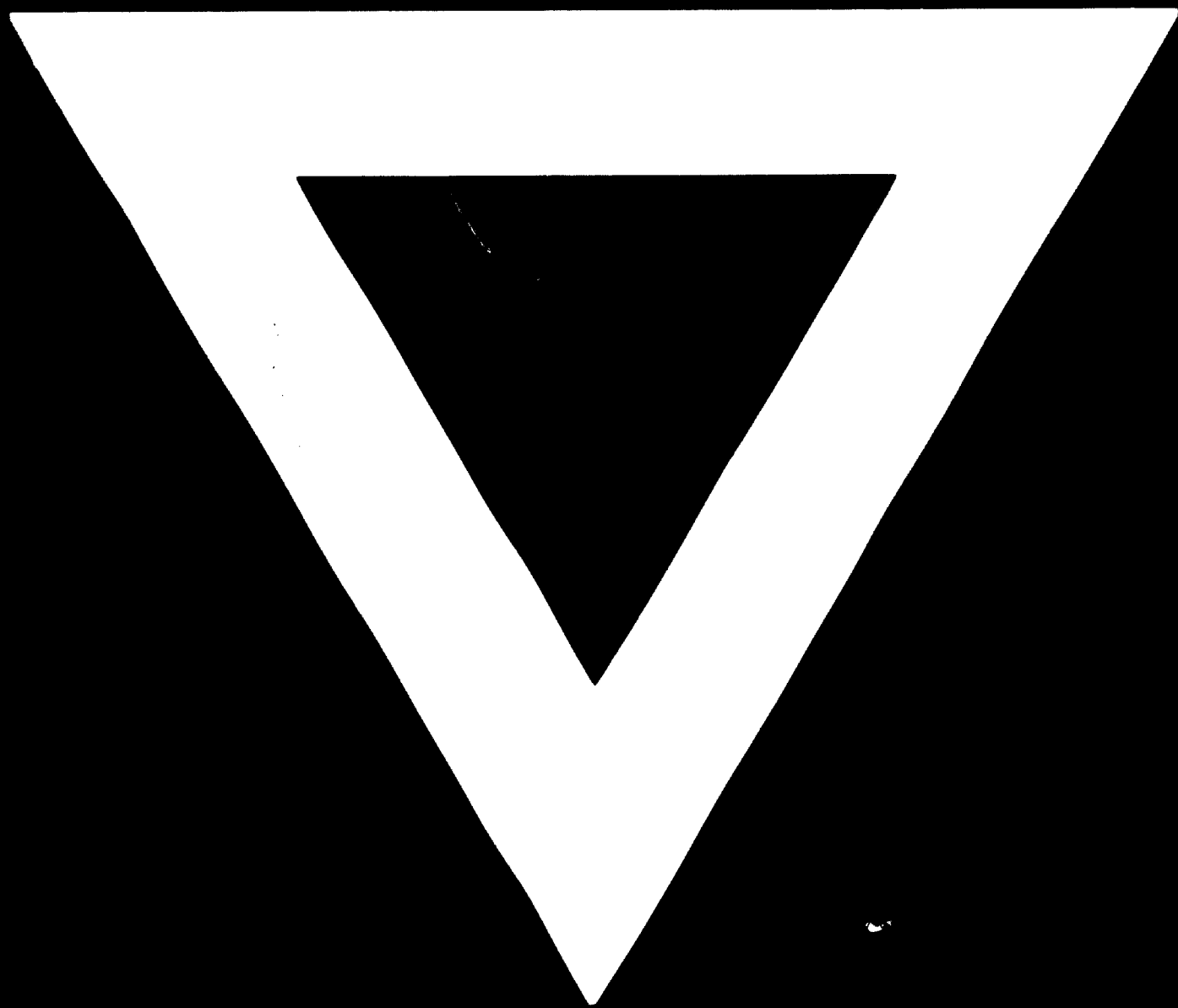
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