



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)



08650

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

---

**SECOND  
CONSULTATION  
MEETING  
ON THE  
FERTILIZER  
INDUSTRY**

Innsbruck, Austria, 6–10 November 1978

---

**REPORT**

Distr.  
LIMITED  
ID/221  
(ID/WG.281/18/Rev.1)  
ENGLISH

## PREFACE

The Second General Conference of the United Nations Industrial Development Organization (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 with the object of raising the developing countries' share in world industrial output through increased international co-operation.<sup>1/</sup>

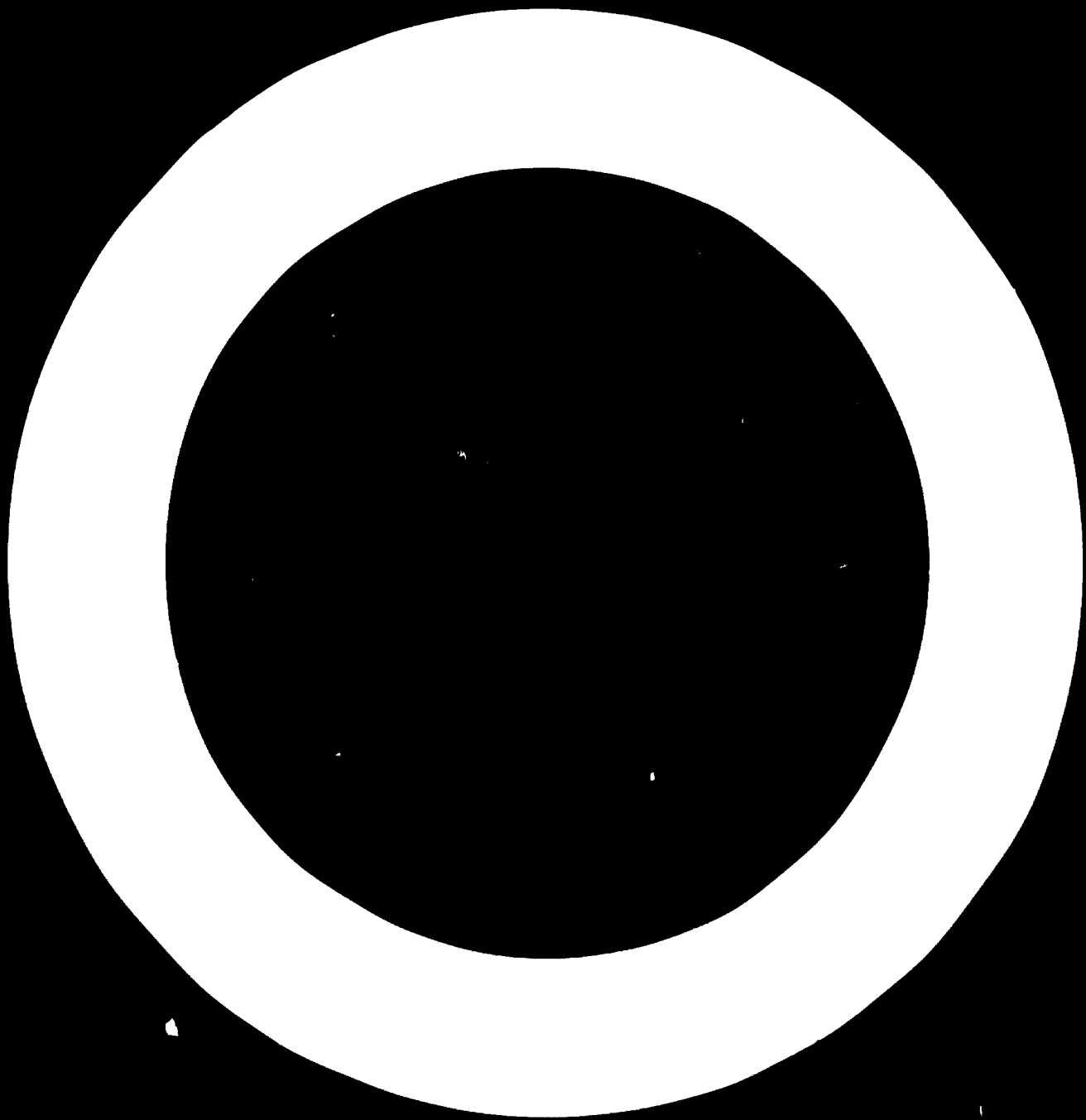
The General Assembly, at its seventh special session in September 1975 in its resolution 3362 (S-VII), decided that the system of consultations called for by the Lima Declaration and Plan of Action should be established at global, regional, interregional and sectoral levels and that UNIDO, at the request of the countries concerned, should provide a forum for the negotiation of agreements in the field of industry between developed and developing countries and among developing countries themselves.

The Industrial Development Board at its tenth and eleventh sessions in 1976 and 1977 decided that consultations should be convened among member countries, the participants from interested countries to include officials of Governments as well as representatives of industry, labour, consumer groups etc.

The First Consultation Meeting on the Fertilizer Industry was convened in Vienna from 17-21 January 1977. The Industrial Development Board at its eleventh session in 1977 authorized UNIDO to examine the topics recommended by that Meeting, if necessary, by convening working groups; it further decided that the Second Consultation Meeting on the Fertilizer Industry should be convened in 1978 as the First Consultation Meeting had recommended.

---

<sup>1/</sup> "Report of the Second General Conference of the United Nations Industrial Development Organization" (ID/CONF.3/31), chap.IV., "The Lima Declaration and Plan of Action on Industrial Development and Co-operation".



CONTENTS

<u>Chapter</u>	<u>Paragraph</u>	<u>Page</u>
INTRODUCTION.....	1	5
AGREED CONCLUSIONS AND RECOMMENDATIONS .....	2	5
<u>Part one. Report of the Plenary</u>		
I. ORGANIZATION OF THE MEETING.....	3-10	6
II. PROGRESS MADE BY THE UNIDO SECRETARIAT IN IMPLEMENTING THE RECOMMENDATIONS OF THE FIRST CONSULTATION MEETING...	11-51	8
The Second World-wide Study on the Fertilizer industry: 1975-2000.....	11-13	8
Contract procedures and a multilateral insurance scheme to cover consequential losses.....	14-21	8
Ways to reduce the high cost of fertilizer plants and the financing of fertilizer plants.....	22-31	10
Monitoring the growth of fertilizer production capacity in the world.....	32-34	13
Opportunities for co-operation among developing coun- tries in the fertilizer industry.....	35-44	13
Other recommendations of the First Consultation Meeting.....	45-51	15
III. REPORT BY FAO, THE WORLD BANK AND OTHER INTERNATIONAL ORGANIZATIONS ON THEIR ACTIVITIES IN THE FIELD OF FERTILIZERS.....	52-58	18
Report on the activities of FAO.....	52-53	18
Report on the activities of the World Bank.....	54-55	18
Report on the activities of other international organi- zations.....	56-58	19
IV. TOPICS PROPOSED FOR EXAMINATION BY UNIDO AFTER THE SECOND CONSULTATION MEETING.....	54-63	20
Organic fertilizers.....	59-60	20
Assistance to least developed countries.....	61	20
Need to increase fertilizer consumption.....	62-63	20
<u>Part 2. Reports of the Working Groups</u>		
V. INFRASTRUCTURE FOR THE PRODUCTION AND DISTRIBUTION OF FERTILIZERS.....	64-68	21
Guidelines on the demarcation of responsibility for establishing and financing the infrastructure required for the production and distribution of fertilizers in develo- ping countries.....	65-66	21
Guidelines on the arrangements, terms and conditions of the financing of infrastructure required for the produc- tion and distribution of fertilizers.....	67-68	25

<u>Chapter</u>	<u>Paragraph</u>	<u>Page</u>
VI. CO-OPERATION BETWEEN DEVELOPING COUNTRIES IN THE FERTILIZER INDUSTRY.....	69-69	26
Background to co-operation.....	69-73	26
Summary of the discussion.....	74-77	27
The role of UNIDO in strengthening co-operation between developing countries.....	78-80	27
Recommended programme for immediate action.....	81-84	29
Establishment of an <u>ad hoc</u> committee for co-operation between developing countries in the fertilizer industry..	85-88	29
VII. MODEL FORMS OF CONTRACT FOR THE CONSTRUCTION OF A FERTILIZER PLANT.....	89-96	30
The UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant.....	89-94	30
Modifications discussed by the Working Group on individual Articles of the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant.....	95	32
Recommendations of the Working Group.....	96-97	39

Annexes

I. List of participants.....	40
II. List of documents.....	58

## INTRODUCTION

1. The Second Consultation Meeting on the Fertilizer Industry was held at the Kongresshaus, Innsbruck, Austria, from 6 to 10 November 1978. The Meeting was attended by over 200 participants (annex I) representing Governments, industry, labour and consumer groups from 66 countries and 23 international organizations.

## AGREED CONCLUSIONS AND RECOMMENDATIONS

2. The Second Consultation Meeting made several recommendations that are included in the appropriate sections of this report which includes the reports of the three Working Groups. Taking into account the need to continue the valuable work performed through the consultation system initiated by the Industrial Development Board, the Consultation Meeting recommends to the Executive Director of UNIDO and to the Industrial Development Board:

(1) That the UNIDO secretariat should undertake the preparatory work relating to the recommendations;

(2) That the UNIDO secretariat should convene the Third Consultation Meeting in the course of 1980 to examine and to take appropriate action on the work performed.



Part one. Report of the Plenary

I. ORGANIZATION OF THE MEETING

Opening of the Meeting

3. The Second Consultation Meeting on the Fertilizer Industry was opened by the Executive Director of UNIDO, Dr. Abd-El Rahman Khane, on 6 November 1978.

Election of the Chairman

4. Cleantho de Paiva Leite (Brazil), Member of the Board of Directors, Fertilizantes do Sul S/A, was elected Chairman of the Second Consultation Meeting.

5. On assuming office, the Chairman said that the Consultation Meeting provided a valuable opportunity for representatives of Governments, enterprises, consulting and engineering firms, co-operative and consumer associations, and other institutions to exchange opinions on the development of the fertilizer industry. The Consultation Meeting would benefit from the experience of people who viewed fertilizer problems from many different angles. It was not the purpose of the Consultation Meeting to arrive at clear-cut recommendations that would be binding on Governments, or any of the organizations or enterprises represented, but the Consultation Meeting should strive to arrive at a consensus on the most important problems. That consensus would be reflected in the report of the Consultation Meeting, which would be circulated not only to participants, but also to the Governments of the member countries of UNIDO. As a result, the recommendations of the Consultation Meeting could lead to appropriate action by Governments, associations and enterprises within their own areas of responsibility. If the nature and purpose of consultations were understood in that way, useful conclusions could be reached on the essential points raised by the UNIDO secretariat.

Election of four Vice-Chairmen

6. The following were elected as Vice-Chairmen:

Rafiquiddin Ahmad (Bangladesh), Chairman of the Bangladesh Chemical Industries Corporation;

H.S.S. Few (United Kingdom), Director General of the Fertilizer Manufacturers' Association (FMA);

György Honti (Hungary), Deputy General Director Vegyterv, Hungarian Chemical Industries Engineering Centre;

Alicoune Tall (Senegal)

Représentant du gouvernement

Société industrielle des engrais du Sénégal (SIES)

Adoption of the Agenda

7. The Consultation Meeting adopted the following agenda:

1. Progress report by the UNIDO secretariat on the four topics that the First Consultation Meeting recommended for follow-up examination with a view to reporting results to the Second Consultation Meeting:

- (a) Second World-wide Study on the Fertilizer Industry: 1975-2000;
- (b) Contract procedures and a multilateral insurance scheme to cover consequential losses;
- (c) Ways to reduce the high cost of fertilizer plants and the financing of fertilizer plants;
- (d) Monitoring the growth of fertilizer production capacity in the world;
- (e) Opportunities for co-operation among developing countries in the fertilizer industry;
- (f) Other recommendations of the First Consultation Meeting.

2. Report by FAO and the World Bank on their activities in the field of fertilizers.

3. Proposals on which agreed conclusions might be reached by the Second Consultation Meeting:

- (a) The UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant;
- (b) Guidelines on the demarcation of responsibility for establishing and financing the infrastructure needed for the production and distribution of fertilizers, and arrangements, terms and conditions for financing such infrastructure.

4. Topics proposed for examination by UNIDO after the Second Consultation Meeting.

5. Adoption of the report of the Consultation Meeting.

Establishment of Working Groups

8. During the Consultation Meeting the following Working Groups were set up:

- Working Group on the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant, chaired by Paul Pothén (India);
- Working Group on Infrastructure for the Production and Distribution of Fertilizers, chaired by J.T. Shields (United States of America);
- Working Group on Regional Co-operation between Developing Countries in the Fertilizer Industry, chaired by Eduardo Cutiérrez Salgado (ADIFAL).

Adoption of the report

9. This report of the Consultation Meeting, including the reports of the three Working Groups, was unanimously adopted in plenary on 10 November 1978.

Documentation

10. Documents issued prior to the Consultation Meeting are listed in document ID/WG.281.6/Rev.1 (annex II).

II. PROGRESS MADE BY THE UNIDO SECRETARIAT IN IMPLEMENTING THE  
RECOMMENDATIONS OF THE FIRST CONSULTATION MEETING

The Second World-wide Study on the Fertilizer Industry: 1975-2000

11. The Consultation Meeting commended UNIDO on the preparation of the Second World-wide Study on the Fertilizer Industry. It was praised as giving useful information to developing countries on the establishment of a fertilizer industry. Considerable improvement was noted compared to the Draft World-wide Study on the Fertilizer Industry considered at the First Consultation Meeting.
12. Some comments were made and additional topics to be considered were suggested. The study contained medium- and long-term forecasts of demand for fertilizers up to 1987 and 2000 at the regional and global levels: some participants felt that such forecasts could not be reliable and should be used with caution. It was suggested that in the next study different methods should be used to estimate the future fertilizer needs of developing countries rather than use projections of demand based on inadequate past and present levels of consumption. Methods that had been successfully used to increase fertilizer consumption in the past in selected countries should be taken into account. Even more attention should be paid to scientific and technological forecasts, for example those relating to the extent to which biological nitrogen fixation would be used and the use of other sources of nitrogen such as organic waste materials. The UNIDO forecasts needed to be periodically reviewed and updated.
13. The Consultation Meeting recommended that UNIDO, bearing in mind the suggestions made above, should continue to study the fertilizer industry with a view to updating the Second World-wide Study as required. It was agreed that participants who made detailed comments on the Second World-wide Study should send them in writing to the UNIDO secretariat.

Contract procedures and a multilateral insurance scheme  
to cover consequential losses

Contract procedures

14. The Consultation Meeting reviewed the progress made by the UNIDO secretariat in examining contract procedures. Model forms of four different types of contract were being prepared along with guidelines for their use. A preliminary draft of the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant was submitted for consideration by the

Consultation Meeting. It was felt that a detailed discussion of that preliminary draft should take place in a working group open to all participants bearing in mind the general comments that were made during the discussion.

15. The Consultation Meeting agreed to set up a working group with the following terms of reference:

(a) To review in detail the preliminary draft of the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant (ID/WG.281/12 and Add.1);

(b) To recommend modifications required in the Model Form to make it acceptable to purchasers and contractors and hence suitable for publications by UNIDO.

16. The report of the Working Group on the Model Form of Contract <sup>1/</sup> was adopted by the Consultation Meeting (chapter VII). It recommended that UNIDO should continue to work on preparing four types of Model Forms of Contract for the Construction of a Fertilizer Plant and present final drafts of the Model Form of (a) the Cost Reimbursable Contract and (b) the Turn-key Lump-sum Contract to the Third Consultation Meeting. It also suggested detailed modifications that could be incorporated in the Model Form of Cost Reimbursable Contract.

A multilateral insurance scheme to cover consequential losses

17. The Consultation Meeting reviewed the progress made by the UNIDO secretariat in examining the multilateral insurance scheme to cover consequential losses suggested by the First Consultation Meeting. It noted that while a broad range of insurance cover was available during the construction of a fertilizer plant to cover material damage and consequential losses resulting therefrom, it was not generally possible to obtain insurance cover for consequential losses arising from (a) defects in design or (b) equipment failure during the initial period (normally up to 12 months) after the plant had completed its commissioning tests. It was reported that insurers had indicated their willingness to consider some extensions of normal insurance where they were concerned with proven technology and experienced contractors. However, it was acknowledged that some risks would inevitably be beyond the anticipated availability of insurance.

18. Since some risks could not be covered by commercial insurance, the UNIDO secretariat proposed that the Consultation Meeting should consider whether Governments would be prepared to be involved in providing a guarantee of the performance of plants and equipment exported from their countries to developing countries to the extent of providing adequate compensation for consequential losses arising from inadequate performance.

---

<sup>1/</sup>This report of the Working Group, previously issued as ID/WG.281/20 and Add.1, was adopted by the Consultation Meeting without amendments.

19. Participants from developing countries supported the proposal of the UNIDO secretariat because the failure of fertilizer plants had a serious effect on fertilizer supplies and the balance of payments of their countries. In addition to those economic reasons, they felt that the Governments of the supplier countries had a moral obligation to ensure that fertilizer plants performed efficiently. The Governments of the supplier countries were often involved in financing fertilizer plants as well as in guaranteeing the credit extended to purchase fertilizer plants and equipment; and, in the case of bilateral aid, the Governments were sometimes involved in the selection of the contractors and suppliers of equipment.

20. Participants from developed countries with market economies stated that they did not consider it appropriate to pursue the possibility of Governments being involved in providing guarantees of the performance of fertilizer plant and equipment. If such insurance were provided it might also support less competent contractors, thus harming rather than benefiting the developing countries. That type of guarantee was totally different from export credit insurance and was not compatible with the free-market system. Some of those participants pointed out that advantage was not being taken of all insurances currently available. Furthermore while the information produced regarding inadequate performance and stoppages was incomplete many of those incidents could probably have been covered under available insurances. Finally, to invest in a fertilizer plant was a commercial decision; while various steps could be taken to minimize the risks involved in such commercial decisions a certain element of risk would always remain.

21. Considering the conflicting views and accepting the respective positions taken as reflected in paragraphs 19 and 20, the Consultation Meeting recommended that UNIDO should collect additional information on the amount and causes of consequential losses in fertilizer plants and, on the basis of that information, continue to examine with contractors, insurers, Governments and other interested parties, how appropriate solutions to the problem might be reached.

Ways to reduce the high cost of fertilizer plants and the financing of fertilizer plants

Ways to reduce the high cost of fertilizer plants

22. The Consultation Meeting considered the progress that the UNIDO secretariat had made in examining ways to reduce the high cost of fertilizer plants. The current cost of establishing fertilizer plants in western Europe was stated to

be between two and three times that of seven years ago, and in developing countries the increase in cost was probably higher. That made it difficult to demonstrate that a fertilizer project could be commercially viable at the current level of prices on the world market for fertilizers.

23. The Consultation Meeting, therefore, saw a need to consider new ways of reducing the cost of producing fertilizer in developing countries. Since the cost of raw materials for nitrogenous fertilizer production was determined by the cost of hydrocarbon feedstock and energy, and the cost of phosphate fertilizer production was determined mainly by the cost of phosphate rock, the potential to reduce production costs resided in reducing investment costs of fertilizer plants and the infrastructure they required.

24. The examination made by UNIDO showed that the most promising ways to reduce investment costs were:

- (a) By the standardization of plant size, design and equipment;
- (b) By the fullest possible use by the developing countries of their own machine-building capacity for the production of equipment for their fertilizer plants;
- (c) Through regional co-operation between developing countries, to give priority to a full use of existing unused capacity in the developing countries for the production of equipment for fertilizer plants in the other countries of the region.

Some participants considered that international competitive bidding and tied credits reduced the potential for standardization; other obstacles could be plants using different qualities of raw materials and contractors competing in offering different technologies. Another view was that those obstacles could be overcome. For those reasons it might be easier to consider the possibility of introducing standardization on a regional rather than a world-wide basis; for example, standardization of some equipment used in nitrogen fertilizer plants in a region would facilitate the establishment of a regional spare-parts pool. Care would have to be taken to ensure that the benefits of standardization accrued to the customer rather than to the contractors and sellers of equipment.

25. A common cause of the high cost of fertilizer plants was cost overruns which were caused by such factors as delays in construction, price escalation, changes of plant design and exchange-rate fluctuations. Better planning of projects, a well-drafted contract and close co-operation between the purchaser and the contractor were recommended as the best way to minimize cost

overruns and to reduce the delay between the completion of the plant and its entry into full production. In that connection, it was noted that the draft UNIDO Model Form of Cost Reimbursable Contract did not indicate how the responsibility for such cost overruns would be shared between the contractor and the purchaser.

26. The UNIDO secretariat suggested that in addition to reducing the cost of investment for plant and equipment, it was important to reduce the cost of (a) raw materials and energy, and (b) the cost of infrastructure. Noting the increase in the price of naphtha in recent years, the UNIDO secretariat suggested that naphtha should not be used as a feedstock for future ammonia production, but reserved for alternative uses. Thus opportunities would be created for the tremendous amounts of natural gas flared in certain areas of the world to be used for ammonia/urea production.

27. Mention was made of other items that contributed to the high cost of fertilizer plants. Contractors tended to demand higher prices during the period of high levels of activity in ordering new plants. Erection costs had increased sharply because of a number of factors including, in the opinion of some participants, the high cost of expatriate personnel of the contractor. In some countries, duties and taxation were imposed on imported equipment. It was also important to consider how the cost of storage of raw materials and final products might be reduced.

28. It was suggested that because of the need to keep the prices of grain and food at reasonable levels in developing countries it was necessary to consider means, including subsidies, to reduce fertilizer prices. An alternative might be to subsidize the cost of fertilizer plants, equipment and services, the associated infrastructure, and credits used to finance fertilizer plants. It was suggested that unless that alternative approach was used, market forces alone would not be sufficient to stimulate the increase of the fertilizer production capacity needed in the developing world to increase food production.

29. Other participants expressed the view that it would be better to subsidize the sale of fertilizers on a continuing basis. Their view was that subsidies that reduced the cost of plants would interfere with the market mechanism and its effect in stimulating the creation of new capacity as and where needed.

#### The financing of fertilizer plants

30. It was stated that the conclusion of the First Consultation Meeting that financing was readily available for viable fertilizer projects remained valid. Sources of financing were available carrying an interest rate of 7 to 9 per cent

and loans were made for up to 15 years maturity. More favourable terms with a grant element and grace period were available for some developing countries from multilateral institutions and bilateral sources. It was suggested that bilateral aid for fertilizer plants should be untied.

31. However, under present conditions there were not many such viable projects. The Consultation Meeting therefore recommended that UNIDO should continue to examine ways in which the cost of new fertilizer projects might be reduced and the projects made more viable.

Monitoring the growth of fertilizer production capacity in the world

32. The Consultation Meeting appreciated the paper UNIDO had prepared on monitoring the growth of fertilizer production at the national, regional and global levels. It noted that the co-operation of FAO, UNIDO and IBERD helped to avoid duplication of efforts in that area through the work of the UNIDO/FAO/IBRD Working Group on Fertilizers.

33. With respect to forecasts of supply capability and demand at the country level, two views were expressed: one was that such information was best provided on a regional basis so as to respect the confidential nature of certain information provided at the country level; the other view was that it should be possible to publish more information at the country level, particularly since such information was made available by national and international associations of fertilizer producers. The UNIDO/FAO/IBRD Working Group on Fertilizers might consider how world-wide information at the country level could be improved.

34. The Consultation Meeting recommended that work on that topic should continue and that an updated document should be submitted to the Third Consultation Meeting.

Opportunities for co-operation among developing countries in the fertilizer industry

35. The Consultation Meeting considered the progress the UNIDO secretariat had made in examining opportunities for co-operation among developing countries in the fertilizer industry. The UNIDO secretariat indicated that many proposals for co-operation between developing countries had been made, but the initiative should come from participants in selecting the most promising areas in which UNIDO support might be required.

36. The Consultation Meeting stressed the opportunity for more advanced developing countries to provide assistance to the less advanced; the experience the former had gained in constructing plants and learning to operate them successfully could be made available to other countries. Such



co-operation might extend to the provision of consultancy services in analysing market requirements, preparing feasibility studies and specifications for tenders evaluating bids, negotiating contracts, commissioning plants, trouble-shooting, developing maintenance programmes, marketing and promoting the increased use of fertilizers.

37. To implement such technical co-operation between developing countries, the proposal was made that a developing countries fertilizer producers association should be established. A paper outlining the purpose, objectives and by-laws for the proposed association was distributed.

38. The representative of the Latin American Economic System (SELA) reported that an Action Committee on Fertilizers had been established in March 1977. It had 12 States as members and three concrete projects had been formulated. A marketing corporation would be set up with a paid-up capital of \$1 million<sup>2/</sup> to act first as agent and secondly as principal in the purchase of fertilizers required by member countries. A joint company that would operate an engineering and consultancy advisory service was likely to be established in the near future. Joint exploitation of phosphate rock deposits in Peru was also being considered.

39. The co-operation of five countries of Central America was described. A study was being made of alternative ways to expand fertilizer production and agreement was likely to be reached soon on the establishment of new production facilities in several member countries of the Central American Common Market using principally the infrastructure available for the production and distribution of fertilizers. That experience demonstrated how multinational co-operation could make an important contribution to the achievement of self-sufficiency in fertilizer production by developing countries.

40. The Organization for African Unity (OAU) indicated that it intended to organize a meeting of its Inter-African Committee on Fertilizers in co-operation with UNIDO in 1979. That meeting would consider (a) how to increase African production and reduce imports of fertilizers by reviewing feedstocks and raw materials available within Africa; (b) ways and means to find the resources required to establish new fertilizer plants; (c) the establishment of an African Association of Fertilizer Producers; and (d) the possible need for an African Fertilizer Development Centre. The assistance that UNIDO was providing in organizing that meeting was much appreciated. African countries also welcomed the co-operation of other developing countries who had more experience of fertilizer manufacture and who could supply equipment.

---

<sup>2/</sup> All references to dollars (\$) are to United States dollars.

41. The Arab Federation of Chemical Fertilizer Producers (AFCCFP) reported on the programme of activities that it had developed for its members. AFCCFP proposed co-operation be initiated between developing countries in the fertilizer industry through co-operation between subregional and regional federations and associations with the support and co-ordination of UNIDO. AFCCFP noted that UNIDO was preparing a directory of fertilizer producers in developing countries with the help of regional federations.

42. Other participants stressed the importance of the continuous operation of fertilizer plants to produce cheap fertilizers. The more advanced of the developing countries were willing to exchange experience with other developing countries on the operation and maintenance of plants.

43. OAU and other participants strongly supported the activities of UNIDO on this topic. It was, therefore, agreed that a working group should be established with the following terms of reference:

(a) To develop specific proposals for co-operation among developing countries in the fertilizer industry;

(b) To suggest how UNIDO might support such co-operation.

44. The Report of the Working Group on Co-operation between Developing Countries in the Fertilizer Industry<sup>3/</sup> was adopted by the Consultation Meeting (chapter VI). It recommended a programme to strengthen co-operation between developing countries on the fertilizer industry and that UNIDO should support that programme and establish an ad hoc committee to co-ordinate its implementation; the committee should report on the progress made to the Third Consultation Meeting.

#### Other recommendations of the First Consultation Meeting

##### Infrastructure needed for the production and distribution of fertilizers

45. The Consultation Meeting commended the UNIDO secretariat on the preparation of a detailed document on the infrastructure required for fertilizer plants and fertilizer distribution that the First Consultation Meeting had suggested should be prepared. It noted that as a result of that work, the UNIDO secretariat proposed the text of a set of Guidelines that (a) provided a check-list of infrastructure items; (b) suggested a demarcation of responsibility for establishing each item; and (c) recommended appropriate terms and conditions for financing such infrastructure.

46. In order to consider the proposed set of Guidelines, a working group open to all participants was set up; its terms of reference were to give detailed consideration to the set of guidelines that UNIDO secretariat had proposed might be agreed by the Consultation Meeting (ID/WG.281/5).

---

<sup>3/</sup> This report of the Working Group, previously issued as ID/WG.281/19, was adopted by the Consultation Meeting after amendments to paragraphs 11 and 22.

47. This Working Group (chapter V)<sup>4/</sup> recommended that UNIDO should bring to the attention of Governments and other concerned parties the set of Guidelines agreed by the Consultation Meeting relating to the demarcation of responsibility for establishing the infrastructure required for the production and distribution of fertilizers in developing countries.

Establishment of the Industrial and Technological Information Bank of UNIDO (INTIB)

48. The Consultation Meeting noted the commencement of operation of INTIB in the fertilizer industry. Some participants were of the view that No. 8 and No. 9 of the UNIDO Development and Transfer of Technology Series on Process Technologies for Phosphate and Nitrogen Fertilizers, which emanated from INTIB, should be updated and made more comprehensive in order to provide information on processes and technologies available throughout the world. It noted that INTIB had not so far collected sufficient information on project and equipment costs in the fertilizer industry and expressed the hope that the contractors and purchasers would collaborate with UNIDO in producing such information.

Study of past experience in establishing fertilizer plants

49. The Consultation Meeting noted that only one third of the plant owners to whom the UNIDO secretariat addressed a questionnaire had responded and that a group of experts had suggested that more detailed questions should be addressed to plant owners in both developed and developing countries. The Consultation Meeting expressed the hope that those plant owners to whom the questionnaire would be sent would provide the UNIDO secretariat with the information requested in the greatest possible detail.

Establishment of a panel of experts to provide consulting services

50. The Consultation Meeting noted that at the beginning of 1978, UNIDO had established the new Technological Advisory Service to advise enterprises in developing countries on the terms and conditions of contracts and other aspects of the negotiation of technology, engineering and know-how agreements. It felt that such assistance might extend from the conception of a project to the signing of the contract. Note was taken that the names of suitable persons and institutions to be included in the UNIDO roster of consultants should be communicated to the UNIDO secretariat.

---

<sup>4/</sup> This report of the Working Group, previously issued as ID/WG.281/17, was adopted by the Consultation Meeting after amendment to paragraph 6.

Regional testing facilities for the adequate maintenance of  
fertilizer plants

51. The Consultation Meeting suggested that those developing countries that were interested in the idea of regional testing facilities for the adequate maintenance of fertilizer plants should request assistance in establishing such facilities directly from UNIDO.

### III. REPORT BY FAO, THE WORLD BANK AND OTHER INTERNATIONAL ORGANIZATIONS ON THEIR ACTIVITIES IN THE FIELD OF FERTILIZERS

#### Report on the activities of FAO

52. The representative of FAO referred to the paper that had been distributed describing FAO fertilizer activities (ID/WG.281/3), with the emphasis on those carried out in 1977/78. Extensive field projects and training activities for the promotion of fertilizer use and the improvement of fertilizer distribution and credit networks in developing countries, and the availability of computer programmes to analyse the results of field tests were mentioned. The following were of particular interest to the Consultation Meeting: the International Fertilizer Supply Scheme (IFS), the FAO Fertilizer Data Centre, the FAO contribution to the UNIDO/FAO/IBRD Working Group on Fertilizers, and the activities of the FAO Commission of Fertilizers established in 1973. The Commission had considered a number of fertilizer price stabilization measures such as international commodity agreements including buffer stocks, long-term contracts and barter agreements. The Commission, at its last session, had approved the establishment of the long-term purchase option scheme for the benefit of developing countries, particularly Most Seriously Affected countries, that had been proposed at the First Consultation Meeting.

53. The Consultation Meeting noted the activities of the Fertilizer Industry Advisory Committee (FIAC), which was established at FAO in 1960, in the context of the FAO "Freedom From Hunger" campaign. Its membership was composed of four international fertilizer industry associations covering nitrogen, phosphate, potash and sulphur. A number of companies and international industry associations were also members.

#### Report on the activities of the World Bank

54. The representative of the World Bank reviewed its activities in the field of fertilizers with particular emphasis on industrial activities. He stressed, however, that the Bank's investments in agricultural projects, directly or indirectly, had a considerable effect in promoting fertilizer use as a means to increase food production. As to investments in fertilizer production capacity, until the end of 1973 the Bank Group had made loans of nearly \$300 million for 19 projects in 17 countries. From 1974 until the end of 1977, it committed over \$1,000 million to new fertilizer projects, and in 1978, approximately \$200 million for four projects had been committed. Most of the investments had been plants producing nitrogen fertilizers, and between 20 and 30 per cent of all such new projects in the developing countries included World Bank finance. Because phosphate and potash were likely to be in short supply before nitrogen, the Bank had more recently been placing increasing emphasis on these materials.

55. Because of the increasing importance of Bank finance to the fertilizer sector, in 1974 a Fertilizer Unit was established to plan and co-ordinate such financial and related technical assistance. A Bank fertilizer policy review had concluded that the Bank Group should continue its financial aid to production facilities and increase the emphasis on secondary production and distribution facilities. Considerable amounts had been loaned for such purposes and the Bank had also initiated studies on marketing and distribution in several countries which might be followed up with investments. The policy review also stated that the Bank should assist the developing countries in maximizing production in existing facilities. Until then, it had loaned them \$100 million for such a purpose. The Bank was to improve information on fertilizer supply and demand through the UNIDO/FAO/IBRD Working Group on Fertilizers. The Bank would also provide technical and financial assistance to promote regional fertilizer co-operation and had developed a linear programming model for that purpose which had been applied successfully in several regions and countries.

Report on the activities of other international organizations

56. The Consultation Meeting noted that the International Fertilizer Development Centre (IFDC) had prepared a paper on its activities in the field of fertilizers for distribution to the Consultation Meeting.

57. The Meeting noted that the International Phosphate Industry Association (ISMA) had members from 60 countries including a majority of the producers in developing countries. Regional meetings for developing countries were being organized by ISMA as part of its activities for members from developing countries.

58. The Consultation Meeting took note of UNCTAD activities in transfer of technology in the fertilizer industry to developing countries and in the Integrated Programme for Commodities as it related to phosphates.

IV. TOPICS PROPOSED FOR EXAMINATION BY UNIDO AFTER  
THE SECOND CONSULTATION MEETING

Organic fertilizers

59. The Consultation Meeting took note of the information contained in the Second World-wide Study on the Fertilizer Industry on the need to assess the growing contribution that non-conventional sources of fertilizers could make to the supply of less expensive fertilizers in developing countries. It also recognized with appreciation the work being done by FAO in that field.

60. Having in view the need for more detailed study of the industrial aspects of the utilization of rural and urban sources of fertilizers, bio-fertilizers and legume covers, the Consultation Meeting recommended that UNIDO, with the co-operation of FAO, and taking into account the existing experience in both developing and developed countries, should present to the Third Consultation Meeting a study on the industrial aspects of the preparation of organic fertilizers.

Assistance to least developed countries

61. The Second Consultation Meeting recommended to the Executive Director of UNIDO in co-ordination with other concerned international agencies, that special attention and intensive assistance should be given to the requirements of the least developed countries with respect to the following fields:

- Preparation of feasibility studies
- Negotiation of contracts
- Supervision of implementation of plant construction
- Setting up a management structure
- Assistance in efforts to finance infrastructure
- Creation of marketing and distribution systems

Need to increase fertilizer consumption

62. There is, at present, a world-wide surplus of fertilizers. However, there would be a shortage if the potential consumers, the farmers, were in a position to buy and use fertilizers in the proper way and in the proper quantities to ensure adequate food supplies. To reach this objective, the following priorities should be taken into account: end user (farmer); infrastructure, including marketing and distribution of fertilizers and crops; fertilizer plants; and resources of raw materials.

63. The Second Consultation Meeting recommended that the existing UNIDO/FAO/World Bank Group on Fertilizers study this matter and report jointly on the progress made to the Third Consultation Meeting. It is emphasized that these three organizations should in mutual consultation, ensure that they do not duplicate each others activities.

Part two. Reports of the Working Groups

V. INFRASTRUCTURE FOR THE PRODUCTION AND DISTRIBUTION OF FERTILIZERS

64. The Working Group on Infrastructure for the Production and Distribution of Fertilizers discussed the Guidelines suggested by the UNIDO secretariat for the demarcation of responsibility for establishing the infrastructure required for the production and distribution of fertilizers (ID/WG.281/8): it made minor modifications to them and agreed that they should be recommended for adoption by the Consultation Meeting. In adopting the report of the Working Group, the Consultation Meeting made minor amendments to paragraph 6.

Guidelines on the demarcation of responsibility for establishing and financing the infrastructure required for the production and distribution of fertilizers in developing countries

65. The Consultation Meeting recognized that:

(a) Self-sufficiency in food production was the most urgent policy objective of the Government in developing countries;

(b) To increase food production, the price paid by farmers for fertilizers should be kept as low as possible; in many developing countries, it should be reduced by subsidies contributed by the Government;

(c) The investment required to establish a fertilizer plant often needed to be supplemented by an equally large additional investment in the infrastructure required for the production and distribution of fertilizers;

(d) If a major part of the additional investment required for establishing such infrastructure was financed by the fertilizer enterprise instead of the public exchequer, then the cost of supplying fertilizers to the farmers would be considerably increased to the detriment of the overall goal of increased food production.

66. The Consultation Meeting therefore recommended:

(1) That when a fertilizer plant is established in a developing country, the authorities responsible for the project should plan the development of the infrastructure required for the production and distribution of fertilizer at the same time. Detailed estimates of the investment costs should be made and financing arrangements should be made to cover all of the investment required for infrastructure facilities as well as that in the plant itself;

(2) That in order to arrange financing for the overall fertilizer project including such infrastructure, the State and other public authorities on the one hand and the fertilizer enterprise itself on the other hand should agree at the outset on a demarcation of responsibility for establishing and financing each item of infrastructure;



(3) That to establish their respective responsibilities, the sponsors of the fertilizer project and the State and other public authorities should discuss all of the items of infrastructure listed in the table (page 23) so that a clear demarcation of responsibilities can be agreed by all the parties concerned;

(4) That as a general rule, the fertilizer enterprise should be made responsible for the infrastructure facilities associated with production that are commonly termed "on-site" facilities; in addition the fertilizer enterprise may be made responsible for certain "off-site" facilities when the public authorities can show that the fertilizer enterprise is the principal user of such facilities;

(5) That the State or other public authorities should be made responsible for all other "off-site" facilities and all the infrastructure facilities that support the establishment of a fertilizer plant such as port, road, railway, power supplies, water supply;

(6) That the State and the public authorities should be responsible for the development of human and social infrastructure; including facilities for manpower development, basic education, housing, health and townships etc. The plant authorities should be responsible for pollution control with respect to meeting the standards of emission and effluent from the plant limits, for the safety and welfare of workers within the plant, in-plant training, and organization developments;

(7) That the fertilizer enterprise should be responsible for the raw materials infrastructure unless there are other users that benefit from its establishment; in this case, the cost of establishment should be shared or be borne entirely by the Government, or other enterprises benefiting from it, or other public authorities;

(8) That whenever possible, public authorities or warehousing agencies should provide central and district storage depots for the storage of fertilizers. If this is not possible, and the fertilizer project is the only beneficiary from such facilities, then the project should be made responsible for establishing such facilities;

(9) That local authorities in rural areas should be encouraged to establish depots at the community level since these will handle not only fertilizers but other agricultural inputs and the farmers' produce. Similarly, transport from the district depots to the local rural depots should be arranged by farmers' co-operatives or other local organizations, since the produce of farmers may be carried on the return journey.

Items of infrastructure required for the production  
and distribution of fertilizers

PRODUCTION

Utilities

Captive power supply  
Connection to public power supply  
Water supply  
Drainage and effluent disposal system  
Site for fertilizer plant  
Communications system

Workshop facilities for heavy maintenance

Transportation infrastructure

Roads  
Railways including marshalling yards  
Port and unloading/loading facilities  
Road vehicles, railway rolling stock, ships for transporting  
raw materials

Raw materials infrastructure

Treatment facilities for raw materials such as beneficiation  
plant for phosphate rock or gas treatment facilities  
Pipeline for supply of gas, fuel oil or naphtha  
Off-site facilities for handling and storing raw materials and bags

Human infrastructure

Basic education facilities  
In-plant and on-the-job training  
External training courses in plant operation and maintenance  
Safety precautions

Social infrastructure

Houses  
Schools  
Hospital and medical facilities  
Other public buildings and recreational facilities

DISTRIBUTION

Marketing infrastructure

Storage facilities for distribution to farmers

Bulk storage and handling facilities

Local blending plants

Storage facilities for fertilizer for exports

Road vehicles, railway rolling stock, ships for distributing fertilizers

Marketing distribution networks

Agricultural extension infrastructure

Soil testing

Research and field plant demonstration

Farmer training

Guidelines on the arrangements, terms and conditions of  
the financing of infrastructure required for the  
production and distribution of fertilizers

67. The Second Consultation Meeting recommended:

(1) That infrastructure required for the production of fertilizers should be established and financed by the Government or other public authorities to the greatest extent possible. Where external finance is sought, it should be provided on soft terms wherever possible;

(2) That in the event that the enterprise itself assumes responsibility for establishing part of the infrastructure required for production, the items of infrastructure required should be considered as a separate project that warrants financing on soft terms and on terms and conditions at least as favourable as those offered for agricultural projects and other infrastructure projects, as is done already by some organizations;

(3) That infrastructure for the distribution of fertilizers, whether it is the responsibility of the fertilizer enterprise or the Government and other public authorities, should be financed on the most favourable terms and conditions possible, and in any event on terms and conditions at least as favourable as those offered for other types of agricultural project.

68. The Consultation Meeting requested that UNIDO secretariat to bring the above set of Guidelines to the attention of Governments and through them to other public authorities and national financing institutions. The Consultation Meeting further requested the UNIDO secretariat to disseminate these Guidelines to the Governments of aid-giving countries and to regional and international financial institutions and requested them to do all in their powers to implement the Guidelines.

VI. CO-OPERATION BETWEEN DEVELOPING COUNTRIES  
IN THE FERTILIZER INDUSTRY

Background to co-operation

69. The Working Group found that in general the fertilizer industry in developing countries had been characterized by a number of features: low utilization of plant capacities, high cost of production, shortage of experienced manpower, weak operational and maintenance management etc. Some of these problems could be attributed to inadequate planning and implementation but they were mainly due to lack of experience in that highly sophisticated sector.
70. While a number of fertilizer plants had been erected in developing countries, consumption still exceeded production even though it was at a much lower level than in developed countries. In 1974, developing countries produced the equivalent of 65 per cent of their requirements; the balance was met by imports totalling 6.4 million tons of N-P-K nutrients; in 1976, the imports of developing countries increased to 7.5 million tons.
71. During the past 25 years, most developed countries with the relevant natural resources had embarked on a programme to develop their own fertilizer industry with the hope of promoting further consumption within their own borders and exporting the balance of their production. Others, with limited potential for establishing their own industry relied on imports and in most cases had limited financial means to satisfy their needs.
72. Quite a few developing countries possessed vast raw material resources and in certain cases adequate financial resources to support the development of the fertilizer industry. Some of them lacked markets; but it should be possible to utilize those resources by setting up an economic-size plant to serve the market of the region.
73. A number of developing countries had gained good experience in certain areas of the fertilizer industry. Nevertheless, the majority of those producing countries relied heavily on the developed countries' market for almost all components and inputs needed to build and operate their plants, i.e. design, equipment, special technologies and materials (catalysts) etc. In some cases even management had been entrusted to outside firms with minimum efforts for the development of the developing country's national capabilities.

Summary of the discussion

74. The Working Group noted that, because of their similar level of development, the developing countries ought to be in a good position to confer and exchange experience and expertise. It was felt that there should be proper co-ordination between developing countries in order to cover the exchange of views on handling specific problems regarding planning and formulation of new projects, contracting for procurement and construction, commissioning and trouble-shooting, maintenance and product distribution, management etc.

75. The Working Group felt that technical assistance might be an important form of co-operation between developing countries, not only in any of the above areas, but also for training purposes at all levels.

76. While sharing of experience and other limited resources was an important component of co-operation between developing countries, the collective approach to any of the problems faced by those countries in developing their fertilizer industry could help them in obtaining improved facilities such as better information resources, improved training programmes, more detailed technical seminars etc.

77. The Working Group expected UNIDO to play a catalytic role and to be an effective tool in co-ordinating the initiatives of the developing countries in the ways suggested in the following sections.

The role of UNIDO in strengthening co-operation  
between developing countries

78. The Working Group recommended that in order to strengthen co-operation between developing countries in all matters relating to the fertilizer industry, UNIDO should, as a first step, assist in the establishment of close co-operation between existing sub-regional, regional and interregional associations or federations of fertilizer enterprises and fertilizer industry development centres concerned with the development of the industry in the developing countries.

79. It was suggested that UNIDO should assist and support the establishment of regional fertilizer industry research and development centres, federations or associations of fertilizer enterprises in regions where they did not exist.

80. To further those objectives, UNIDO was requested:

- (a) To prepare, publish and widely disseminate an information booklet containing a brief account of, and statistical data relating to the activities of:
- (i) All sub-regional, regional and interregional federations, associations, and fertilizer industry development centres established in the developing countries;
  - (ii) All international organizations, institutions, agencies and fertilizer development centres concerned with the fertilizer industry including those in developing countries interested in providing consultancy services;
- (b) To help to organize periodically interregional meetings of representatives from sub-regional, regional and interregional federations, associations and fertilizer industry development centres to review current activities and propose new activities and projects of co-operation;
- (c) To organize workshops on different aspects of technical management of fertilizer plants in which the experience of fertilizer plants in different countries could be exchanged;
- (d) To initiate action for organization of training programmes for fertilizer personnel from developing countries making full use of the existing training facilities in developing countries. The training should cover areas such as project implementation, operation, technical management and maintenance of fertilizer plants;
- (e) To assist regional organizations to establish a maintenance improvement programme that would improve capacity utilization in fertilizer plants in developing countries. The programmes should include preparation of improved maintenance manuals, introduction of new techniques of maintenance such as preventive maintenance through non-destructive testing instruments, management of spare parts etc. The experience of developing countries having fertilizer plants should be drawn upon in preparing the programme;
- (f) To organize visits of fertilizer personnel of developing countries to the plants of other developing countries with more experience in the fertilizer sector;
- (g) To examine the possibility of establishing a regional pool of common spares for fertilizer plants at the sub-regional or regional level;
- (h) To stimulate an exchange of technical information between regions by inviting the co-operation of sub-regional, regional and interregional federations, associations and development centres;
- (i) To assist the development of new fertilizer projects in developing countries based on raw materials and market potential of the region. Assistance might be given in investigating such technical aspects as quantity and quality of raw materials (e.g. phosphate rock and potash) and in carrying out a techno-economic study of the project including market and transport;
- (j) In collaboration with UNCTAD and FAO, to encourage production and consumption of fertilizer products and promote interregional trade in raw materials, intermediates and finished fertilizer products.

Recommended programme for immediate action

81. UNIDO should assist in organizing in 1979 a technical seminar in a developing country inviting fertilizer producers and contractors to discuss fertilizer technology for ammonia and urea, and N-P-K granulation plants.
82. UNIDO should assist, upon request, in arranging an annual interregional meeting starting in 1979 for regional associations, federations and regional groups, and fertilizer industry development centres to co-ordinate their approaches. Each group is to report on its own activities and on the fertilizer supply and demand situation in their regions, plans for new plants to be built. A number of technical subjects of common interest could be considered.
83. UNIDO should start promoting the formation of regional groups in areas, such as Africa, where such groups do not presently exist. Specifically, UNIDO in co-operation with the OAU should render support to the establishment of a Fertilizer Development Centre in Africa as requested by the African delegations at the Second Consultation Meeting on the Fertilizer Industry. UNIDO should consider giving support to the establishment of a similar centre in Asia.
84. It was suggested that the UNIDO secretariat prepare a progress report for consideration at the next Consultation Meeting on the above recommended 1979 action programme for co-operation between developing countries.

Establishment of an ad hoc committee for co-operation  
between developing countries in the fertilizer industry

85. The Working Group suggested that UNIDO should establish an ad hoc committee with the following terms of reference:
- (a) To co-ordinate the implementation of the programme recommended by the Working Group;
  - (b) To study in depth additional areas for co-operation between developing countries, not covered by the present report, and to recommend action.
86. The ad hoc committee would initially be composed of representatives of the following: governmental institutions, and regional and interregional associations, federations and fertilizer industry development centres. The membership might be increased later if necessary.
87. The committee should meet annually.
88. The committee should make a report of its activities to the Third Consultation Meeting on the Fertilizer Industry.



VII. MODEL FORMS OF CONTRACT FOR THE CONSTRUCTION  
OF A FERTILIZER PLANT

The UNIDO Model Form of Cost Reimbursable Contract  
for the Construction of a Fertilizer Plant

89. The UNIDO secretariat suggested that the Working Group should discuss the preliminary draft of the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant to highlight those articles and clauses of the Contract that required modification. It was suggested that those modifications should be discussed in the Working Group. Thereafter detailed comments could be submitted to the UNIDO secretariat within a period of 2-3 months to enable it to draw up a more definitive draft of the Model Form of Contract for submission to an expert group who could finalize the draft. If after the expert group meeting there were differences still remaining between the viewpoints of the purchasers and the contractors, they could be submitted for finalization to the Third Consultation Meeting. Final approval of the drafts would be obtained from that Meeting.

90. The Working Group approved in general the proposal made by the UNIDO secretariat. Some participants raised a point about the time schedule for the proposed action. It was suggested that revised drafts of (a) the UNIDO Model Form of Cost Reimbursable Contract and (b) the Model Form of Turn-Key Lump-Sum Contract should be ready in 1-2 months after obtaining detailed comments; the UNIDO secretariat should then immediately convene an expert group meeting with representatives of both contractors and purchasers to finalize the revised texts of those two Model Forms of Contract, allowing participants at least one month to consider the revised text. Some participants proposed that a Consultation Meeting should be convened shortly thereafter to consider the two texts.

91. The Working Group agreed that while only the Cost Reimbursable Contract would be discussed during the course of the present Consultation Meeting, both the Cost Reimbursable and the Turn-Key Lump-Sum Contracts should be revised by the UNIDO secretariat, considered at the expert group meeting and submitted to the Third Consultation Meeting for finalization.

92. The Working Group appreciated the work of the UNIDO secretariat and the consultants in drawing up the Model Forms of Contract. However, the Working Group recognized that the draft of the Cost Reimbursable Contract as submitted did not fully take into account the points of view of contractors. Therefore their points of view expressed at the Consultation Meeting and in the subsequent period would be valuable in arriving at a final form of model contract that would be acceptable to both purchaser and contractor.

93. The Working Group discussed the types of contract that would be most needed by developing countries. It was pointed out that that had been discussed in a document "Guidelines for the use of the UNIDO Model Forms of Contract" that was circulated in draft form. The actual type of contract that would be used by developing countries would depend not only on the degree of sophistication they had attained in the development of their fertilizer industry, but also on the type and conditions of financing that were available. For instance, international financing institutions often preferred the Cost Reimbursable Contract because it involved a larger number of individual purchases of machinery.

94. The Working Group thereafter discussed the UNIDO Model Form of Cost Reimbursable Contract, article by article, and provided a summary of the modifications suggested by the Working Group; amendments, the addition of new clauses and reconsideration of certain clauses were proposed. It was recommended that those modifications would be considered for incorporation in the revised text to be prepared by the UNIDO secretariat, along with suggestions to be received later in writing from the participants at the Consultation Meeting. Due to constraints of time and other practical reasons all articles could not be discussed in detail. It was therefore decided that written comments would be invited on all or any of the articles of the draft Model Form of Cost Reimbursable Contract and annexures.

Modifications discussed by the Working Group on individual articles  
of the UNIDO Model Form of Cost Reimbursable Contract  
for the Construction of a Fertilizer Plant 5/

95. The following modifications were discussed.

ARTICLE 1

A new clause should be added defining "vendor".

ARTICLE 2

Clause 2.1. The following should be included: "model, reliable efficient plant suitable to the location".

Clause 2.4. The approval by the purchaser within a limited time of all the drawings and other documents sent by the contractor should be provided for. This could be inserted in another article, if desired.

Clause 2.5. The printout and deviation of the critical path should be available monthly; the critical path itself should be changed about four times during the contract or when slippage becomes 10 per cent or more. The critical part network shall be computerized by the contractor.

Clause 2.6.2. Reference should be made to the civil engineering construction of the plant building.

Clause 2.6.6. The word "minimum" should be eliminated.

ARTICLE 3

The title of this article should be modified.

A new clause should be added to include the possibility of the civil engineering design being undertaken by the contractor.

Clause 3.2.7. A modification should be made to include contractor responsibility for the expediting of all equipment.

Clause 3.2.9. The word "agreement" should be replaced by the word "contract".

Clause 3.2.12. The word "review" should be replaced by the word "supervised".

Clause 3.2.21. The words "as far as possible" should be eliminated.

ARTICLE 4

Clause 4.2. The last sentence of the clause "both parties to the contract recognise that time is the essence of the Contract" should be eliminated as this is covered elsewhere in the contract.

Clause 4.10. A modification should be made to indicate that the contractor shall undertake the commitments contained in this clause in association with the purchaser and this clause should exclude any liability of the contractor for non-performance by the vendors.

Clause 4.14. The words "correct the plant" should be modified so that the contractor's responsibility is for assistance. In this clause also the "period of one year after the plant has been accepted" should be modified to a maximum period (to be decided upon) after the effective date of the contract.

Clause 4.15. A modification should be made to indicate that the contractor should supervise the training.

Clause 4.16. This clause should be embodied in a separate contract. However, the clause may be modified to include an obligation by the contractor to enter into such a separate contract.

Clause 4.18. This clause should be further detailed to provide inclusion or elimination of telex, telephone and similar facilities.

A new clause should be added in this Article requiring the contractor to produce a set of "as built" drawings at the end of the mechanical completion of the plant.

ARTICLE 5

Clause 5.1. This clause should be modified to have obligations on behalf of the purchaser similar to the obligations of the contractor under clause 4.1.

Clause 5.2. This clause should be modified so that the site should be accessible even before the plot plan is ready. It is suggested that the site should be available within three months.

Clause 5.4. This clause should specify the time for all approvals whether by the purchaser or by the lending agencies concerned.

Clause 5.5. This clause should include the pre-commissioning and commissioning periods.

Clause 5.6. The words "use of the contractor" should be replaced by the words "start up and operation of the plant, under the supervision of the contractor".

It was suggested that some provision should be made in this article to cover abnormal use of spare parts during the pre-commissioning period.

#### ARTICLE 6

A new clause should be added giving the purchaser the right to send his personnel to the contractor's office to participate in design.

Clause 6.2. This clause should be modified to indicate that the purchaser has the right to appoint his own manager.

Clause 6.4. The clause refers to dates specified in Article 10. This should be made more definite, and the date contained in Article 10 should be correlated with this clause.

Clause 6.7. The pre-qualification notices should be issued earlier than those contemplated in the model contract.

A new clause may be inserted indicating the payment procedures for offices of the contractor at site and of the purchaser in the overseas office of the contractor.

#### ARTICLE 7

A new clause should be added that will restrict the contractor's carrying out his functions in more than one office because otherwise the work would be dispersed too much for adequate control by the purchaser.

#### ARTICLE 11

In sub-clause 11.1.1 and clause 11.7 the articles mentioned should read "Article 11.2 to 11.5".

Clause 11.8. The words "his services" in the third line should be replaced by the words "for which the contractor is responsible".

In clause 11.13 and 11.14 all the percentages for payments mentioned should be placed in brackets because they are negotiable.

Clause 11.15. A modification should be made so that the payments are subsequently made.

#### ARTICLE 12

A substantial discussion took place on the provision for performance bonds for 15 per cent or more of the total contract, particularly as the bond was callable without pre-conditions and without the knowledge of the contractor.

It was suggested that the rules of the International Chamber of Commerce for bonds to meet contractor's guarantees should be examined and clause 12.1 modified accordingly.

#### ARTICLE 14

Clause 14.1 and subsequent clauses should be re-written so that both the contractor and the purchaser have an obligation to meet at times scheduled.

#### ARTICLE 16

It was felt that clauses 16.5 and 16.6 and sub-clauses 16.7 and 16.8 should be re-written as in their present form they are too onerous as far as the contractor is concerned.

#### ARTICLE 19

It was suggested that the stream factor of 330 days per year should be taken out of sub-clause 19.2.1 and placed elsewhere as a guarantee, because the factor could not be demonstrated by a test run. It was agreed, however, that it would definitely be included as a guarantee. There was considerable discussion of clause 19.8 regarding the time for the guarantee test. It was agreed that the 10-day test for the performance guarantee at 100 per cent capacity would be acceptable. It was felt that the 20-day test for sustained continuous operation on the basis of sub-clauses 19.8.1.1 and 19.8.2.1 might be too little and the period should be increased to 90 days. Some of the delegates, however, felt that the provision might not be acceptable. The matter would be further discussed at the subsequent meetings of the expert working group.

ARTICLE 20

There was substantial discussion on clauses 20.4 and 20.5, where there is an implied obligation for the contractor to replace all equipment purchased under his specifications and from vendors approved by him, subject to the overall limitation of the contractor's liability. It was felt by some of the delegates representing the contractor's point of view that in a cost reimbursable contract they should have no liability for the cost of replacement of equipment, whereas delegates who were basically purchasers felt that if the equipment was purchased under the contractor's specifications and from vendors approved by the contractor, there was a liability on the part of the contractor to pay the cost of replacing such equipment if found faulty.

ARTICLE 21

Clause 21.1. A modification should be made to make clear that the clause refers only to equipment which was directly supplied by the contractor.

ARTICLE 22

Clause 22.2.1. The word "possesses" in the first line should be replaced by the word "has".

ARTICLE 23

Clause 23.3. The clause should be modified in the light of the decisions taken on clauses 20.4 and 25.1.

ARTICLE 24

Clause 24.1. The article referred to in clause 24.1(b) should be Article 11.6 instead of Article 18.6. In the last paragraph of clause 24.1 the words "of acceptance of the plant" should be deleted.

Clause 24.2. It was felt that this clause might be removed, because it is unnecessary in a cost reimbursable contract to give bonuses for increases in capacity as to do so might lead to over-designing of the plant.

ARTICLE 25

Clause 25.1. It was felt that the clause should be re-examined, in view of the wording of clause 27.1, so as to avoid duplication.

ARTICLE 26

It was agreed that clause 26.1.3 should be modified so as to bring it into line with the discussions of the Expert Working Group Meeting on Insurance in September 1978. It was also agreed that the rest of this clause and annexure xxviii should be modified so as to clarify the nature of the insurance policies mentioned therein. It was also suggested that this article and annexure xxviii should be revised to bring the phraseology into line with other internationally recognized contracts such as those of FIDIC and the Institute of Chemical Engineers (UK).

ARTICLE 28

Clause 28.3. It was felt that the technical adviser should not be the final arbitrator on the quantum of payment but a separate conciliator should be appointed who should be acceptable to both parties. It was agreed that a new article should be added to provide for variations due to unforeseen circumstances (e.g. change of feed-stocks).

ARTICLE 30

Clause 30.7. It was felt by several purchasers that they should not be prohibited from modifying or expanding the plant if the contractor was unwilling or unable to bring the plant up to capacity, or in cases of expansion where the contractor or the licensor was not willing to license the expansion.

Contractors, on the other hand, felt that purchasers were at liberty to do so provided the new contractor (if a third party) was acceptable to the project licensor, and the new contractor signed a secrecy agreement.

Purchasers felt that good contractors might not be willing to sign such agreements, and that would create an impasse.

It was agreed that UNIDO should be requested to collect information on actual cases and to suggest appropriate legal language, leaving the issue to the subsequent contractor-purchaser discussions.

It was agreed that a new clause should be added to allow expatriate personnel to operate the plant or further train purchasers' personnel, if this was refused by the contractor, after completion of the contract.



ARTICLE 34

Clause 34.1. The words "or other industrial disturbance" should be deleted from lines 17 and 18, and line 20 should read "CONTRACTOR's control, to be proven to the reasonable satisfaction of the PURCHASER".

Clauses 34.4, 34.5 and 34.6 should be reconciled with each other and with clause 36.1.

ARTICLE 39

Clause 39.2. A modification should be made to provide a total budgetary price to be reasonably well estimated by the contractor within four months after the effective date.

Sub-clauses (a) and (b) of this clause should be modified to provide penalties and incentives to the contractor for respectively failing to meet or meeting within [10 per cent] the overall budgetary estimate or the f.o.b. price of the equipment.

An alternative clause 39.2 involving a target price with cost sharing if costs are above or below the target price, should also be considered by the Expert Working Group.

ARTICLES 45 and 46

It was pointed out that the cash flow of the contractor could be effected during the settlement of disputes. Articles 45 and 46 might therefore need some modification. Suggestions will be made by contractors later.

Clause 46.1(a). The word "tenth" in the sixth line of clause 46.1(a) should be replaced by the word "twentieth".

Details should be provided in this clause for the actual procedure to be adopted in the settlement of disputes and in arbitration.

New Articles

It was proposed that two new Articles; "Conditions of Financing Agencies" and "Government Taxes" should be added or their substance included as clauses in existing Articles.

Recommendations of the Working Group

96. The UNIDO secretariat should:

(1) Invite written comments on the Model Form of (i) the cost Reimbursable Contract and (ii) the Turn-key Lump-sum Contract to be submitted before 31 January 1979 to the Negotiations Section, UNIDO;

(2) Consolidate these comments and incorporate them as appropriate in a revised text of each Model Form of Contract; the work should be completed by 31 March 1979;

(3) Organize an expert group meeting to which contractors and purchasers from developed and developing countries should be invited; the meeting should be convened in May 1979 to consider and finalize the revised text of the two Model Forms of Contract prepared by UNIDO;

(4) Circulate the final draft to the Governments of member countries of UNIDO and other concerned parties;

(5) Present the final draft to the Third Consultation Meeting on the Fertilizer Industry.

97. The UNIDO secretariat should also continue to work on the Model Form of Semi-turn-key Contract and the Contract for the Supply of Know-how and Engineering Services.

Annex I <sup>a/</sup>

LIST OF PARTICIPANTS <sup>b/</sup>

**AFGHANISTAN**

Mr. Saleh Mohammad KHAWARI  
Chief Engineer of the Mazare-Charif Fertilizer Plant

**ALGERIA**

M. Abd-er-Ramin BESSAM  
Ministère de l'énergie et des industries pétrochimiques

Mme Zalinda REBAINE  
Ministère de l'énergie et des industries pétrochimiques

**AUSTRALIA**

Ms. Margaret A. ADAMSON  
Third Secretary, and Adviser to the Permanent Representative to UNIDO

**AUSTRIA**

Mr. Heinrich STICH  
Director, Agrochemical Division, Chemie Linz AG

Mr. Hermann REDL  
Director, Federal Ministry of Agriculture and Forestry

Mr. Hans FELLNER  
Counsellor, Federal Ministry of Commerce, Trade and Industry

Mr. Manfred REIFF  
Counsellor, Federal Ministry of Agriculture and Forestry

<sup>a/</sup> Not formally edited.

<sup>b/</sup> Previously issued as ID/WG.281/16.

AUSTRIA (Continued)

Mrs. Hedwig HÖGERBAUER  
Federal Ministry of Agriculture and Forestry

Mr. Herbert BENESCH  
Sales Manager for Fertilizer Plants, VOEST Alpine AG

Mr. Günter KRUG  
Technical Manager for Fertilizer Plants, VOEST Alpine AG

Mr. Wolfgang SCHLITZER  
Simmering-Graz-Pauker AG

Mr. Karl CZEIJA  
Consulting Chemical Engineer, Austrian Chamber of Engineers

BANGLADESH

Mr. Rafiquddin AHMAD  
Chairman, Bangladesh Chemical Industries Corporation

Mr. Aminul HUQ  
Chief, Chemical Industries Section, Planning Commission, Government of Bangladesh

BELGIUM

M. Hugo FONDER  
Représentant permanent adjoint auprès de l'ONUDI,  
Ambassade de Belgique à Vienne

M. Jean HOED  
Directeur de l'Association belge de l'industrie des produits azotés

BRAZIL

Mr. Cleantho de Paiva LEITE  
Director, Fertilizantes do Sul S/A (FERTISUL), Rio Grande

CENTRAL AFRICAN EMPIRE

M. Simon BONCOLAPE  
Directeur général du commerce et de l'industrie

CHINA

Mr. Kong LIU  
Officer-in-charge of Fertilizer Department, Ministry of Chemical Industry

Mr. Hung-ning HUANG  
Chief Engineer of Planning Institute, Ministry of Chemical Industry

COSTA RICA

Sr. Tulio RAMIREZ  
Chargé d'affaires, Representante Permanente Alterno ante la ONUDI

Sr. Humberto SOTO  
Subdirector de Planación, Fertilizantes de Centro América (FERTICA SA)

Sr. José R. TRIGUEROS  
Asistente Técnico, Fertilizantes de Centro América (FERTICA SA)

CZECHOSLOVAKIA

Mr. Vladimír JARA  
Deputy Director of Department, Czech Planning Commission, Prague

DENMARK

Mr. Mogens PEDERSEN  
Haldor Topsø A/S

Mr. Gert OVERVAD  
Permanent Representative of Denmark to UNIDO, Vienna

ECUADOR

Sr. Gregorio ORMAZA  
Ministro Consejero, Embajada del Ecuador ante la CEE

EGYPT

Mr. Salah Eldin ROUSHDY  
Under-Secretary of State, Ministry of Industry (Chemical Sector)

Mr. A. Sabry HUSSEIN  
Chairman, Financial and Industrial Company

Mr. Saad Eldin Ibrahim EMAM  
Director General, Chemical Projects Department, General Organization for Industrialization (GOPI)

**ETHIOPIA**

Mr. Mulugetta BIRRU  
General Manager, National Chemicals Corporation

Mr. Hailu ARAGAW  
Head, Technical Department, National Chemicals Corporation

**FINLAND**

Mr. Paavo KETSALO  
Counsellor, Permanent Mission of Finland to UNIDO, Vienna

Mr. Osvi RENKONEN  
Director, Kemira Oy, Helsinki

Mr. Carl A. HARTMAN  
First Secretary, Ministry for Foreign Affairs

**FRANCE**

M. Gérard TAGLIANA  
Chef de Division, Ministère de l'industrie

M. Daniel HADOT  
Représentant permanent adjoint de la France auprès de l'ONUDI, Vienne

M. Félix RISTA  
Vice-Président, Fédération nationale de l'industrie des engrais (FNIE), Paris

**GERMAN DEMOCRATIC REPUBLIC**

Mr. Günther BARTH  
First Secretary, Permanent Mission of the German Democratic Republic to the  
International Organizations in Vienna

**GERMANY, FEDERAL REPUBLIC OF**

Mr. Greif SANDER  
Managing Director, Fachverband Stickstoffindustrie e.V. (Nitrogen Industry  
Association)

Mr. Ernst KOEPKE  
Consultant, Fachverband Stickstoffindustrie e.V. (Nitrogen Industry Association)

Mr. Hans Hermann MEYNEN  
Director, Friedrich Uhde GmbH

Mr. Hanns J. HOEVELS  
Sales Manager, Friedrich Uhde GmbH

Mr. Max HUBER  
Contracts Manager, Linde AG

Mr. Enno CARSTENSEN

Alternate Permanent Representative to UNIDO, Vienna

GREECE

Mr. D. MARIATOS  
Technical Manager, Phosphoric Fertilizer Industry Ltd.

HUNGARY

Mr. László RACZ  
Director of Division, Ministry of Heavy Industry, Budapest

Mr. György HONTI  
Deputy General Director, VEGYTERV (Designing Company for Chemical Works), Budapest

Mrs. Ingeborg SALASOVITS  
Director, Ministry of Foreign Trade, Budapest

INDIA

Mr. Paul POTHEN  
Managing Director, Indian Farmers' Fertilizers Co-operative Ltd.

Mr. Sharad M. KELKAR  
Joint Secretary, Department of Chemicals and Fertilizers, Ministry of  
Chemicals and Fertilizers

Mr. S. K. MUKHERJEE  
Ex-Director, Fertilizer Corporation of India

Mr. S. SUNDAR  
Director, Department of Chemicals and Fertilizers, Ministry of Chemicals and  
Fertilizers

Mr. Umakant PANDE  
Manager of Projects, Engineers India Ltd, New Delhi

INDONESIA

Mr. Hardjosuwito KUSMONO  
Directorate General for Chemical Industry, Ministry of Industry, Jakarta

IRAN

Mr. Fereydoun GOLSHAYAN  
Senior Member, International Affairs, National Petrochemical Company, Tehran

IRAQ

Mr. Muayyad Nassif SALLOUM  
Engineer, State Organization of Industrial Design and Construction, Ministry  
of Industry and Minerals, Baghdad

Mr. Hisham AL-MUDARRIS  
Production Director, State Enterprise of Fertilizers, Baghdad

**IRELAND**

Mr. Thomas M. CULLEN  
Assistant Manager of Nitrigin Eireann Teoranta

Mr. D. MacFHIONNBHAIRR  
Adviser to the Permanent Representative

**ITALY**

M. Marino FLERI  
Représentant permanent de l'Italie auprès de l'ONU, Vienne

M. Antonio MESCOLINI  
General Consulate, Innsbruck

M. Piermaria ARLOTTI  
Marketing Manager, ANIC, Milano

M. Gianni BIANCO  
Ente Nazionale Idrocarburi, Direction des relations extérieures

Mr. Ronald ELLAM  
Fertilizer Technologist, SNAM Progetti

Mr. Horst FLENKENTHALER,  
Director of Sales and Contract Department  
SNAM Progetti

M. Paolo PISILLI  
Economiste, Ente Nazionale Idrocarburi

M. Roberto RAVENNA  
Montedison S.p.a., Milano

**JAPAN**

Mr. Osamu ITOH  
Counsellor, Staff to President, Surveying Department,  
Mitsubishi Chemical Industries Ltd.

Mr. Fumio KONNO  
Deputy Manager, Planning Office, Engineering Division, Chiyoda Chemical  
Engineering and Construction Co. Ltd.

Mr. Shunichi KAGAMI  
Senior Staff, Business Development Department, Chiyoda Chemical Engineering  
and Construction Co. Ltd.



**JAPAN (Continued)**

**Mr. Masayasu SAKANASHI**  
Vice-President, Director, UNICO International Corporation

**Mr. Tatsuo YASUDA**  
Director, Sales Planning and Administration Division, Tokyo Engineering Corporation

**Mr. Haruki TAKAHASHI**  
Deputy Director, Chemical Fertilizer Division, Basic Industries Bureau,  
Ministry of International Trade and Industry

**Mr. Yoshio YAMAGISHI**  
Adviser to the Permanent Representative to UNIDO, Embassy of Japan in Austria

**KENYA**

**Mr. John W. GITHUKU**  
Senior Deputy Secretary, Ministry of Finance and Planning

**Mr. James K. GITAU**  
Ministry of Agriculture

**KUWAIT**

**Mr. Husain E. EL-JASEM**  
Deputy Managing Director and General Manager, Petrochemical Industries  
Company (PIC)

**LESOTHO**

**Mr. Chaka NTSANE**  
Deputy Permanent Secretary, Ministry of Agriculture

**MALAYSIA**

**Mr. Ambrin BUANG**  
Deputy Director (Industry), Ministry of Trade and Industry

**Mrs. Tan Keok Yin**  
Deputy Director, Project Processing Division, Federal Industrial Development Authority

**Mr. Abdul Aziz AEMAD**  
Executive Director, PETRONAS

**Mr. Adnan Abdul WAHAB**  
Manager, Fertilizer Project Department, PETRONAS

**Mr. Hasanuddin Abdul HAMID**  
Manager, Economic Research Department, PETRONAS

MAURITANIA

M. Baba ould Sidi ABDALLAH  
Directeur de l'industrie

MAURITIUS

Mr. Paramhansa NABAHSING  
Technical Manager, Mauritius Chemical and Fertilizer Industry

MEXICO

Sr. José Luis DE LAS FUERTES  
Subdirector, Instituto Mexicano del Petroleo

MOROCCO

M. Mohammed KSIKES  
Secrétariat du Directeur général, Office chérifien des phosphates, Rabat

NETHERLANDS

Mr. Karel Henri BIRKMAN  
Alternate Permanent Representative to UNIDO, Vienna

Mr. Arnold J. BROUWER  
Ministry of Foreign Affairs, The Hague

Mr. Hieronymus L. POTMA  
Ministry of Economic Affairs, The Hague

Mr. Leendert PRONK  
Department of Juridical and General Affairs, Union of Fertilizer Plants  
(employers' representative)

Mr. Piet JANSSEN  
FNV and CNV (employees' representative)

NIGERIA

Mr. S. N. OKONIGBO  
Adviser to the Permanent Representative to UNIDO, Vienna

NORWAY

Mrs. Aase DANIELSEN  
Counsellor, Ministry of Foreign Affairs

Mr. Jens Chr. ANDERSSON  
Norsk Hydro A/S, Oslo

Mr. Holger FANDEL  
Norwegian Pyrites Producers Association

**PAKISTAN**

**Mr. Riyaz H. BOKHARI**  
Chairman, National Fertilizer Corporation

**Mr. Abdul RAHMAN**  
Technical Manager, Fauji Fertilizer Company Ltd.

**PANAMA**

**Sr. Ernesto KOREF.**  
Representante Permanente ante la ONUDI, Viena

**POLAND**

**Mr. Jan KACZOR**  
Director of Division for Development and Planning, Ministry of Chemical Industry,  
Warsaw

**Mrs. Janina NOWACKA**  
Senior Counsellor, Ministry of Foreign Trade and Maritime Economy, Warsaw

**Mr. Jozef KAROLAK**  
Chief of Section, Foreign Trade Enterprise "CIECH", Warsaw

**Mr. Jozef MEMPEL**  
Chief Expert, Union of Petrochemical Industry "PETROCHEMIA", Cracow

**Mr. Hieronim Z. WEISS**  
Chief of Section, Foreign Trade Enterprise "POLIMEX", Warsaw

**QATAR**

**Mr. Mohamed Reda FARAHAT**  
First Secretary of the Embassy of the State of Qatar in Vienna, and Alternate  
Permanent Representative to UNIDO

**REPUBLIC OF KOREA**

**Mr. Sang Sup LEE**  
Assistant Minister for Light Industry, Ministry of Commerce and Industry

**Mr. Sun Yup PAIK**  
President, Korea General Chemical Corporation

**Mr. Gun Bae LEE**  
Science Attaché, Korean Embassy in Austria

**Mr. Hyung Sik CHUN**  
Director, Inorganic Chemical Industry Division, Ministry of Commerce and Industry

**Mr. Sung Yong KIM**  
President, Yong-Nam Chemical Company, Ltd.

**Mr. Dong Chul SHIN**  
Manager, Korea General Chemical Corporation

ROMANIA

Mr. Neculai POPOVICI  
Technical Director, IPROCHIM

Mrs. Anisoara MANCIULESCU  
Industrial Engineering Specialist, IPROCHIM

SAUDI ARABIA

Mr. Saeed Abdulla KHAYAT  
Administration Manager, Saudi Arabian Fertilizer Co. (SAFCO), a subsidiary of  
the Ministry of Industry and Electricity

SENEGAL

M. Alioune TALL  
Représentant du Gouvernement, Société industrielle des engrais du Sénégal (SIES)

M. André BERNOS, Président, Société industrielle des engrais du Sénégal (SIES)

SPAIN

Sr. Jaime DE MINGO  
Jefe, Departamento Fertilizantes, INTECSA/INCRO

Sr. Julian JUSTE RULLO  
Representante de la Empresa Nacional de Fertilizantes "ENFERSA"

SRI LANKA

Mr. D.P. ABEYSIRIGUNAWARDENA  
Chairman, State Fertilizer Manufacturing Corporation

Mr. T. RODRIGO  
Project Manager, State Fertilizer Manufacturing Corporation

SUDAN

Mr. Mahdi DAW EL BEIT  
Director General - Fertilizer Project, Ministry of Foreign Affairs

Mr. Ali OSMAN  
Engineer, Ministry of Industry

SWEDEN

Mrs. Ann Mirte WILKENS  
First Secretary, Swedish Embassy, Vienna

SWITZERLAND

Mr. Klaus HUBER  
First Vice-President, Union Bank of Switzerland

Mr. Hans Peter MEYER  
Managing Partner, Cora Engineering Chur AG

M. Johannes MINZ  
Représentant permanent adjoint auprès de l'ONU, Ambassade de Suisse, Vienne

Mlle Françoise de MORSIER  
Division du Commerce, Département fédéral de l'économie publique, Berne

SYRIAN ARAB REPUBLIC

Mr. Salim BABIL  
Adviser to the Minister of Industry, Ministry of Industry, Damascus

Mr. Zeid AL-HARIRI  
General Establishment of Chemical Industries, Ministry of Industry

THAILAND

Mr. Pisoot SUDASNA  
Director-General, Department of Mineral Resources, Ministry of Industry

Mr. Asda JAYANAMA,  
First Secretary, Alternate Permanent Representative to UNIDO, Vienna

Mr. Trakarn CHAIRAT  
Chief, Office of National Committee on Iron and Steel Industry Development,  
Office of Under-Secretary of State for Industry, Ministry of Industry

TUNISIA

M. Wiamed Ali BOULEYMEN  
Secrétaire général du Groupement public sectoriel des phosphates et dérivés,  
TUNIPHOS, Tunis

TURKEY

Mr. Ertan IRUN  
Director of Research, Planning and Coordinating Department, Turkish Nitrogen  
Industries Corporation

Mr. Mehmed Erol YUCESAN  
Project Engineer, Turkish Nitrogen Industries Corporation

UNION OF SOVIET SOCIALIST REPUBLICS

Mr. Vadim BATOURKIN  
Director of All-Union Corporation "Neftechimpromexport"

Mr. Bladimir BELOV  
Director of the Institute of Chemical Industry

Mr. Vladislav GERUS  
Head of Section, Market Research Institute, Ministry of Foreign Trade

Mr. Alexander S. RAZARENOV  
First Secretary, Permanent Mission, Vienna

Mr. Felix N. STROK  
Counsellor, Permanent Mission, Vienna

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Mr. R. I. T. CHOMARTIE  
Permanent Representative to UNIDO

Mr. D. A. LAMONT  
Alternate to Permanent Representative to UNIDO

Mr. D. J. WOODS  
Alternate to Permanent Representative to UNIDO

Mr. H. S. S. FEW  
Director General of the Fertilizer Manufacturers' Association (FMA)

Mr. I. McINTYRE  
Economist, ICI Ltd, Agricultural Division (also representing FMA)

Mr. A. F. BURDETT  
Insurance Official, Commercial Union Assurance Company, and Representative of the British Insurer's European Committee

Mr. N. HUMPHRIES  
Group Engineering Manager, Commercial Union Assurance Company, and Representative of the British Insurer's European Committee

Mr. H. ROYSTON  
Overseas Business Development, Foster Wheeler Limited

Mr. D. GLENTON  
Commercial Director, Davy Powergas Limited

Mr. R. WHARTON  
Consultant, Peat, Marwick, Mitchell and Co.

Mr. J. A. RAKESTRAW  
Director, L. H. Manderstan and Partners (U.K.) Ltd.

Mr. R. C. CARSLEY  
Manager, Project Finance and Legal Department, Humphreys and Glasgow Ltd.

Mr. I. C. MACARTHUR  
Project Manager, Scientific Design Company Ltd.

Mr. I. T. ELEK  
Director, British Sulphur Corporation

UNITED REPUBLIC OF CAMEROON

M. Denis IBOCK  
Ingénieur agronome, Direction de l'agriculture, Yaoundé

M. Pierre SIMEN  
Directeur commercial, Société camerounaise des engrais

UNITED REPUBLIC OF TANZANIA

Mr. Bernard Saidi MCHONVU  
Senior Industrial Officer, Ministry of Industry

Mr. Saleh ALLY  
Chemical Engineer, Tanzania Fertilizer Company (TAFECO), Tanga

UNITED STATES OF AMERICA

Mr. John F. BABBITT  
President, Devco International Inc.

Mr. Thomas A. CZUPPON  
Coordinator for Inorganic Chemicals, Pullman-Kellogg

Mr. George T. DEMPSEY  
Alternate Representative to UNIDO

Mr. Steffen FRIEDRICH  
Commercial Sales Representative, Pullman-Kellogg

Mr. John T. SHIELDS  
Senior Official, Office of Agriculture and Chemical Development,  
Tennessee Valley Authority

Mr. William R. FOX  
James Chemical Engineering

UPPER VOLTA

M. Kotama SY  
Attaché des affaires économiques à la D.D.I.A.

VENEZUELA

Sr. Sergio SAEZ  
Gerente de Relaciones Internacionales, Petroquímica de Venezuela S.A.  
(PEQUIVEN)

Sr. Alberto BELZARES  
First Secretary, Embassy of Venezuela, Vienna

YUGOSLAVIA

Mr. Miodrag MILOSEVIC  
Senior Adviser, Federal Planning Board

Mr. Dragolub BABOVIC  
General Manager "Agrohemija"

Mr. Vukasin SRECKOVIC  
Alternate Permanent Representative to UNIDO

Mr. Vitor ACIMOVIC  
Adviser to the General Manager, INA-Petrokemija

ZAIRE

M. Kanda-Kanda MWANZA  
Directeur des intrants agricoles, Département du Plan

ZAMBIA

Mr. James K. NJOJOMBA  
Acting Engineering Manager, Nitrogen Chemicals of Zambia Ltd.



UNITED NATIONS BODIES

**ECONOMIC COMMISSION FOR WESTERN ASIA (ECWA)**

**Mr. Tariq AL-KHUDAYRI**  
Regional Adviser

**UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD)**

**Mr. Myong Che CHON**  
Economic Affairs Officer, Current Trade and Quantitative Analysis Section,  
Manufacture Division

**INTERNATIONAL TRADE CENTRE (UNCTAD/GATT)**

**Mr. Saeed CHAUDHRY**  
Market Development Officer.

**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)**

**Mr. J. W. COUSTON**  
Senior Officer, Fertilizer and Plant Nutrition Service

**FERTILIZER INDUSTRY ADVISORY COMMITTEE (FAO/FLAC)**

**Mr. D. MEYER TIMMERMAN THIJSSEN**  
Chairman

**Mr. D. J. HALLIDAY**  
Liaison Officer

**INTERNATIONAL FINANCE CORPORATION (IFC)**

**Mr. Ernst HOFMANN**  
Engineering Department

**WORLD BANK (IBRD)**

**Mr. Harald STIER**  
Economist, Fertilizer Unit, Industrial Projects Department

International organizations

ASOCIACION PARA EL DESARROLLO DE LA INDUSTRIA DE LOS FERTILIZANTES DE AMERICA LATINA  
(ADIFAL)

Sr. Jaime CORDERO  
Secretario Ejecutivo

Sr. Eduardo GUTIERREZ SALGADO  
Secretario Técnico

ARAB FEDERATION OF CHEMICAL FERTILIZER PRODUCERS

Mr. Mamoun Yousef ABU-KHADER  
Assistant Secretary General

Mr. Wahib D. KELADA  
Technical Manager

CENTRE D'ETUDE DE L'AZOTE

M. Eugène HEERT  
Secrétaire général

M. Josef BERGER  
Secrétaire

EUROPEAN ECONOMIC COMMUNITY - Commission (EEC)

Mr. Richard J. WYATT  
Administrator, Directorate General for External Relations

COMMONWEALTH SECRETARIAT

Mr. A. N. G. LYNCH  
Assistant Director, Food Production and Rural Development Division

INTERNATIONAL CO-OPERATIVE ALLIANCE (ICA)

Mr. Paul POTHEN

INTERNATIONAL CENTRE OF FERTILIZERS (CIBC)

Mr. Werner REHDSER,  
General Secretary

**INDUSTRIAL DEVELOPMENT CENTRE FOR ARAB STATES (IDCAS/LAS)**

**Mr. Mourad Hoheb STINO**  
Fertilizer and Petrochemical Industries Specialist

**INTERNATIONAL FERTILIZER DEVELOPMENT CENTRE (IFDC)**

**Mr. Paul J. STANGEL**  
Deputy Managing Director

**Mr. Edwin C. KAPUSTA**  
Regional Coordinator - Asia

**INTERNATIONAL POTASH INSTITUTE (IPI)**

**Mr. Alexander von PETER**  
Director

**Mr. Günter RUPING**  
Senior Economist

**INTERNATIONAL PHOSPHATE INDUSTRY ASSOCIATION (ISMA)**

**Mr. K. L. C. WINDRIDGE**  
Secretary General

**Mr. Ingemar WENNBERG**  
Chairman, Technical Committee

**Mr. Eugene B. GRAVES**  
Agrico Chemical Co., Tulsa, Okla., USA

**ORGANIZATION OF AFRICAN UNITY (OAU)**

**M. Nouredine DJOUDI**  
Ambassadeur, Secrétaire général adjoint

**M. M. A. FARAH**  
Assistant Executive Secretary, Scientific, Technical and Research Committee

**SISTEMA ECONOMICO LATINOAMERICANO (SELA)**

**Sr. Esteban GARAIZ**  
Secretario Ejecutivo

**Sr. Luis Carlos RODRIGUEZ MARTINEZ**  
Coordinador Técnico

**UNION DOUANIÈRE ET ECONOMIQUE DE L'AFRIQUE CENTRALE (UDEAC)**

**M. Abdoulahi NAHAMAT**  
Expert

**EUROPEAN UNION OF PUBLIC RELATIONS (UEPR)**

**Mr. Giuseppe LEDNE**  
Technical and Commercial Director, F.O.M.E.T. S.a.s., Verona, Italy

**WORLD FEDERATION OF TRADE UNIONS (WFTU)**

**Mr. Pal FORGACS**  
Secretary General, Chemical Workers, Trade Unions International of Chemical,  
Oils, and Allied Workers (ICPS/TUI)

---

Annex II

List of documents<sup>a/</sup>

<u>Issue Papers</u>	<u>Document Number</u>	<u>Languages</u>
The Progress made in implementing the follow-up action recommended by the First Consultation Meeting on the Fertilizer Industry	ID/WG.281/13 Agenda item 3	E F S R C
The Preparation by UNIDO of Model Forms of Contract for the Construction of a Fertilizer Plant and Guidelines for their Use. Progress report and features of model contracts on which international agreement could be reached at the Second Consultation Meeting	ID/WG.281/2 Agenda item 5(a)	E F S R C
Preliminary Draft of the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant	ID/WG.281/12 Agenda item 5(a)	E F S R
Technical annexures to the UNIDO Model Form of Cost Reimbursable Contract	ID/WG.281/12/ Add.1	E
Demarcation of responsibility for establishing the Infrastructure required for the Production and Distribution of Fertilizers: Guidelines on which international agreement might be reached at the Second Consultation Meeting	ID/WG.281/8 Agenda item 5(b)	E F S R
 <u>Background Papers</u>		
Second World-wide Study of the Fertilizer Industry 1975 - 2000	UNIDO/ICIS/81 Agenda item 3	E
Infrastructure required for the Production and Distribution of Fertilizers	ID/WG.281/5 Agenda item 5(b)	E F S R C
Continuous Monitoring of the growth of fertilizer production capacity at the national, regional and global levels in order to facilitate a balanced growth of the world fertilizer industry	ID/WG.281/14 Agenda item 3(c)	E F S R C
Opportunities for Co-operation amongst developing countries in the Fertilizer Industry	ID/WG.281/4 Agenda item 3(d)	E F S
Opportunities in least-developed countries to Establish Facilities for the Production and Distribution of Fertilizers and the International Co-operation required	ID/WG.281/9 Agenda item 3(d)	E F S
Training of personnel for start-up and operation of a new Fertilizer Plant by P.T. Pupuk Sriwidjaja, P.T. PUSRI, Jakarta, Indonesia (To be included in Guidelines for the Use of UNIDO Model Forms of Contract as Chapter X)	ID/WG.281/1	E

<sup>a/</sup> Not formally edited.

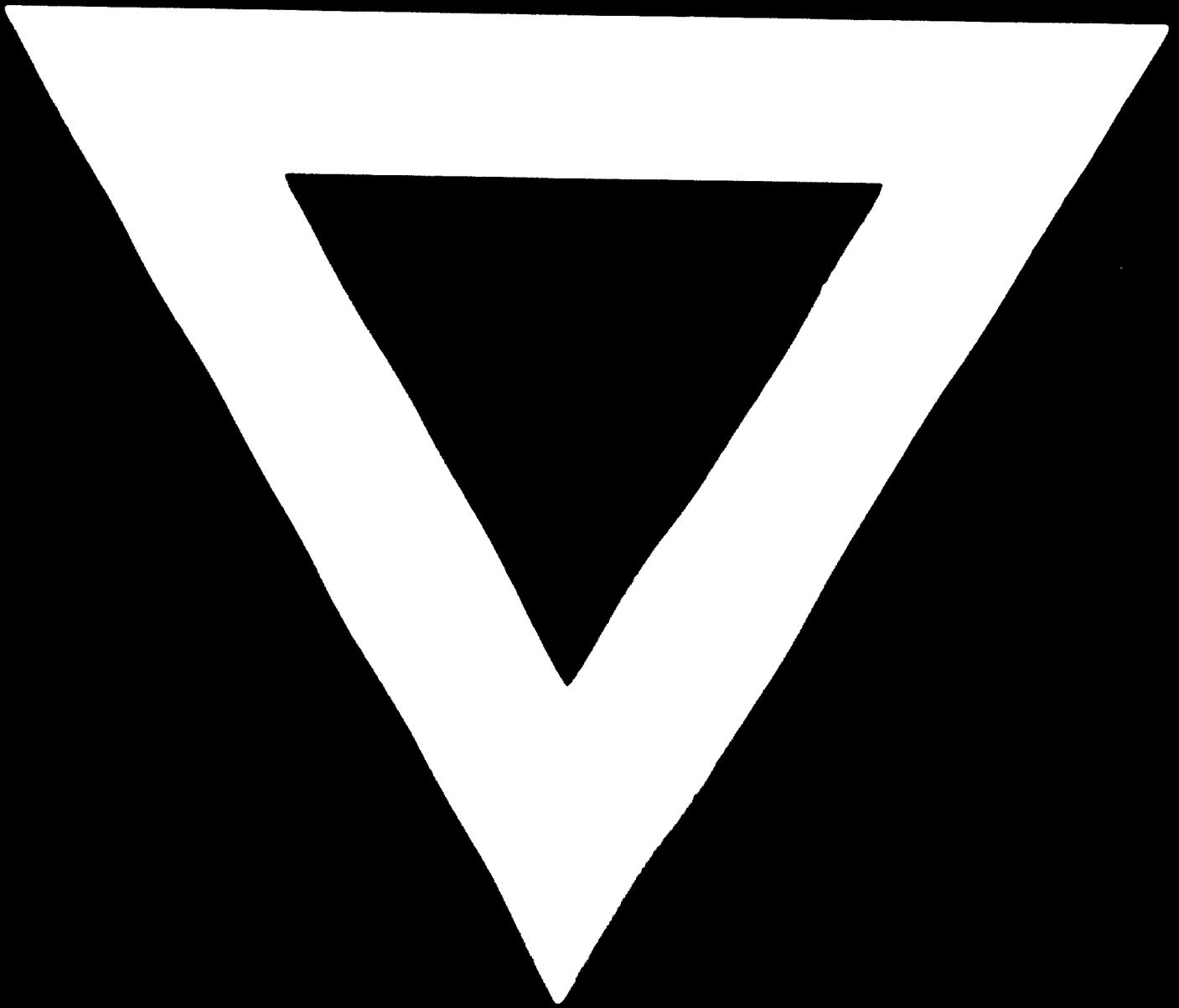
<u>Reports of Meetings convened to examine four topics</u>	<u>Document Number</u>	<u>Languages</u>
Technical Seminar on Contracting Methods and Insurance Schemes for Fertilizer and Chemical Process Industries, Lahore, Pakistan 25-29 November 1977	ID/WG.259/26/ Rev.2	E F S
Expert Group Meeting on Regional Co-operation among Developing Countries in the Fertilizer Industry, Vienna, 8-10 February 1978	ID/WG.265/11/ Rev.1	E F S
First Working Group on Contracts and Insurance for Fertilizer Plants, Vienna, 14-17 February 1978	ID/WG.269/2/ Rev.1	E F S
Expert Group Meeting on Fertilizer Plant Cost Reduction and Ways to Mobilize Sufficient Financing, Vienna, 11-14 April 1978	ID/WG.274/17/ Rev.1	E F S
Meeting of Experts on the Insurance of Consequential Losses Incurred by Fertilizer Plants, Vienna, 18-20 September 1978	ID/WG.284/1	E F S
<u>Papers contributed by FAO and World Bank (Agenda item 4)</u>		
FAO Fertilizer Activities	ID/WG.281/3	E
Investment and Production Cost of Fertilizers by W.F. Sheldrick, Chief, Fertilizer Unit, World Bank	ID/WG.281/10	E
<u>Conference Room Papers (available 5 November 1978)</u>		
Preliminary Draft of Guidelines for the Use of UNIDO Model Forms of Contract	CRP/1	E
Preliminary Draft of the Model Form of Turn-Key Lump-sum Contract for the Construction of a Fertilizer Plant by National Industrial Design and Services Corporation, Pakistan	CRP/2	E
Preliminary Draft of Model Form of Contract for the Supply of Process Know-How and Engineering Services for the Construction of a Fertilizer Plant by Fertilizer Corporation of India Limited	CRP/3	E
Preliminary Draft of Model Form of Contract for the Supply of Process Know-How and Engineering Services for the Construction of a number of similar Fertilizer Plant by Mexican Institute of Petroleum	CRP/4	E
Preliminary Draft of Model Form of Semi-Turn-Key Contract for the Construction of a Fertilizer Plant by I. Tartar Chemo Komplex, Hungary	CRP/5	E

<u>Conference Room Papers (Cont'd)</u>	<u>Document Number</u>	<u>Languages</u>
Identification of facilities needed to expand fertilizer production and supplies in the 23 least-developed countries	UNIDO/IOD/220	E
 <u>Organizational Arrangements</u>		
Provisional Agenda of the Second Consultation Meeting on the Fertilizer Industry	ID/WG.281/15	E F S R C
Revised List of Documents	ID/WG.281/6/ Rev.1	E F S R C
Note for Participants (Advance Information)	ID/WG.281/7	E F S R
Arrangements for Meeting to Promote the Establishment of Fertilizer Plants in Developing Countries, Kongresshaus, Innsbruck, Austria, 11 November 1978	ID/WG.281/11	E F S R





**1 - 79**



**80.02.01**