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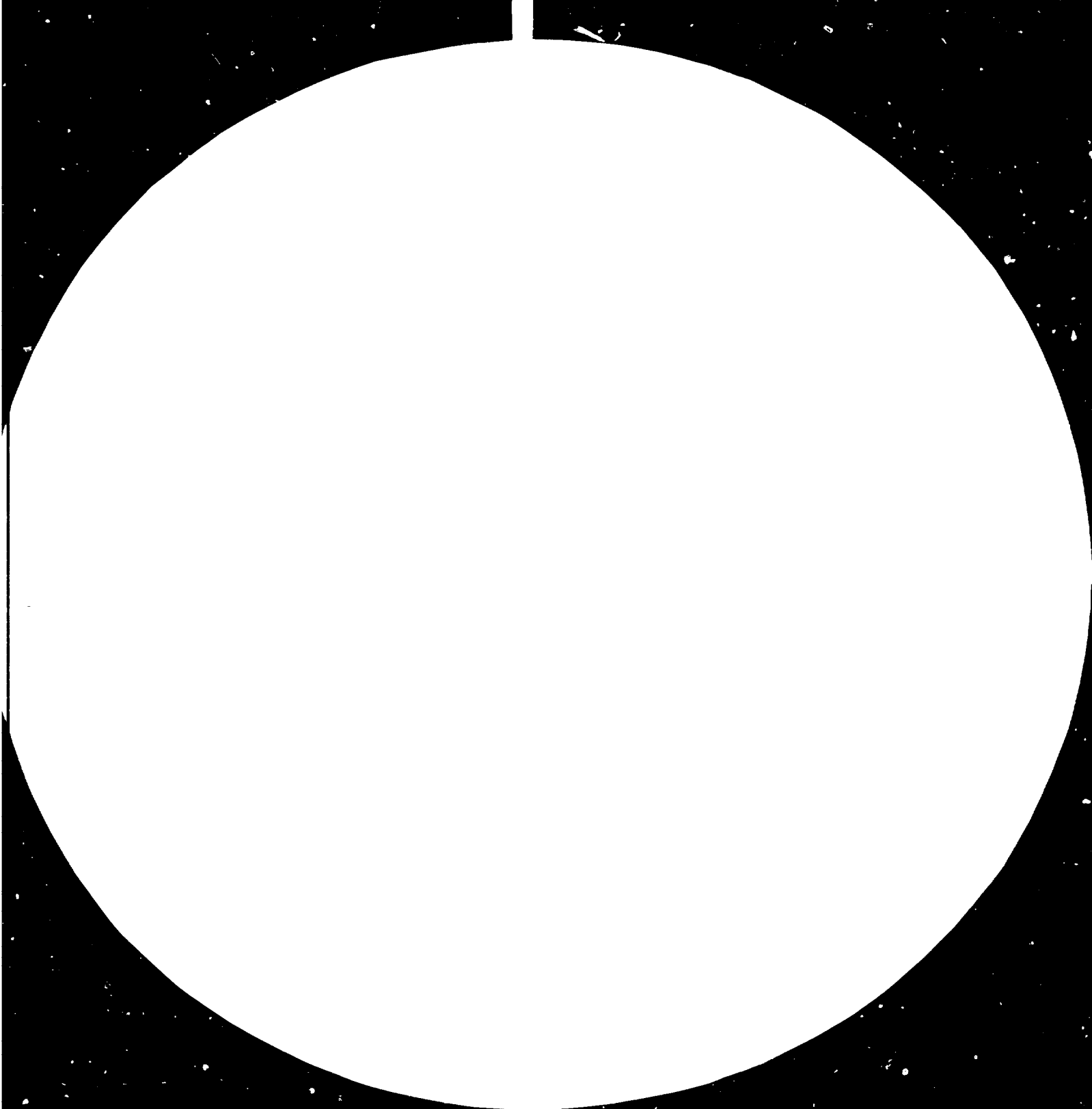
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Second Consultation on the Petrochemical Industry  
Istanbul, Turkey, 22-26 June 1981  
Agenda Item 4

LONG-TERM ARRANGEMENTS FOR THE DEVELOPMENT OF THE PETROCHEMICAL  
INDUSTRY IN DEVELOPING COUNTRIES INCLUDING ARRANGEMENTS FOR  
MARKETING PETROCHEMICALS PRODUCED IN DEVELOPING COUNTRIES\*

by

the UNIDO secretariat

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## INTRODUCTION

1. The First Consultation on the Petrochemical Industry, convened in Mexico City from 12 to 16 March, 1979, considered the issue "The Marketing of Petrochemicals produced in Developing Countries" and adopted the following conclusions and recommendations, among others:

Developing countries with oil and gas resources may increasingly have a competitive cost advantage in establishing this industry; therefore, it is recommended that future plants for basic and intermediate products should be constructed preferably in these developing countries, taking into account all other cost factors, such as labour, equipment and transport of end-products to markets as well as socio-economic considerations;

The international petrochemical industry ... should assist developing countries to increase their share of total world petrochemical production ... by:

- Making greater use of the raw materials available in developing countries by establishing new petrochemical plants;
- Assisting developing countries in establishing and operating petrochemical plants through joint ventures or other mutually agreed arrangements;
- Assisting developing countries in marketing their petrochemical products in world markets by entering into medium- and long-term arrangements, such as long-term sales agreements or other agreements;
- Including in the transfer of technology to developing countries: (1) assistance in the development of new end-uses appropriate to local conditions; (2) establishment of an extension service to support market development; and (3) research and development on new end-uses of petrochemical products, such as plastics, in the agricultural, housing, packaging, transport and construction sectors.1/

UNIDO should, among other actions:

- Continue to study marketing, including long-term agreements for the sale of petrochemicals, as a means to assist the orderly flow of petrochemicals into existing and future markets;2/
- Work out ways and means of securing co-operation between developing and developed countries, as well as between developing countries themselves, to establish downstream plants in developing countries that have neither financial nor raw material resources.3/

1/ See Report of the First Consultation, ID/227, paras 2(i) and 2(o)

2/ Op.cit. para 2(p)(iv)

3/ Op.cit. para 2(p)(vi)

2. The present paper considers some examples of the long-term arrangements which might be made to implement the above recommendations. It examines the following topics:

- (a) the basis for long-term arrangements in the petrochemical industry;
- (b) the parties who might make such long-term arrangements;
- (c) the main parameters of long-term arrangements for a joint venture, covering production as well as marketing;
- (d) the main parameters of a long-term sales agreement.

3. The first aim of the paper is to encourage those who might be parties to such long-term arrangements to examine their potential in the context of the future development of the world-wide petrochemical industry, which is examined in the background documents presented to the Consultation.<sup>1/</sup>

4. The second aim of the paper is to identify what each of the parties expects from such long-term agreements, whether those expectations can be accommodated and the need for Government intervention to support the conclusion of such agreements.

5. The third aim is to promote the negotiation of such long-term arrangements between interested parties.

6. In this connection, it may be recalled that:

- the General Assembly requested the UNIDO secretariat to be prepared to act as a forum for negotiations in the field of industry between developed and developing countries or amongst developing countries themselves;
- the Industrial Development Board has decided that consultations would also permit negotiations among interested parties at their request, at the same time as or after consultations.

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1/ The Second UNIDO World-wide Study of the Petrochemical Industry; Study of the Industrial Uses of Associated Gas prepared by UNIDO assisted by the Gulf Organization for Industrial Consulting.



I. THE BASIS FOR LONG-TERM ARRANGEMENTS IN THE PETROCHEMICAL INDUSTRY

The existing practice of long-term arrangements

7. It is common practice to make long-term contracts for the supply of basic and intermediate petrochemical products in industrialized countries of 5 or 10 years or even longer duration. One reason for such long-term agreements is that there are often only a few major customers for each basic or intermediate petrochemical product; the failure of one customer to buy product would therefore adversely affect the level of output of that product and possibly the level of operation of the petrochemical complex as a whole. Another reason may be the limited number of suppliers.

8. Such long-term arrangements are sometimes further strengthened by the integration of plants producing basic and intermediate products and their major downstream outlets. The integration may be based on location with the downstream plant located adjacent to the plant producing basic petrochemicals or linked to it by a pipeline. Or it may take the form of a link through investment in the ownership of the respective plants. Both forms of integration are very common in the petrochemical industry of industrialized countries.<sup>1/</sup>

9. Long-term arrangements may be required for another reason, that is to demonstrate the viability of the project and hence facilitate its financing. The cost of new plants is now so high that often the parties promoting the project cannot finance it without recourse to outside financing; this in turn will require the parties to demonstrate the viability of the project, a difficult task unless there are long-term arrangements.

The need to adapt the practice for developing countries

10. Furthermore, as recognized by the First Consultation, long-term arrangements for the sale of petrochemicals would be a means to assist the orderly flow of petrochemicals into existing and future markets. Without such arrangements, there would be a danger of market disruption and price instability, particularly at times when there is considerable over-capacity in the industry.

11. It is therefore suggested that the future growth of the petrochemical industry in developing countries will need to make extensive use of long-term arrangements, in particular for the use or sale of petrochemical products.

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<sup>1/</sup> See Panel Discussion at The European Petrochemical Association 13th Annual Meeting, Venice, Italy, 1 October 1979 and in particular the estimates of Dr. J. A. Wolhoff (Deputy President, AKSO) that the degree of integration (measured as the percentage of capacity based on own feedstock) for oil/gas to ethylene and ethylene to LDPE was between 55 and 77 per cent in the United States and Western Europe.

The type of long-term arrangements considered in this paper

12. There are many different types of long-term arrangements. This paper considered two types, namely:

- (a) a long-term arrangement in the form of joint venture between the partners covering ownership of the plant, production and marketing;
- (b) a long-term sales agreement.

13. The arrangements might be for South-North co-operation, in which case the parties would be:

- (a) a party from a developing country with oil or gas resources;
- (b) a party from an industrialized country who will assist in marketing the product(s) in industrialized countries, supply technology and know-how etc.

14. The arrangements might be for South-South co-operation, in which case the parties would be:

- (a) a party from the developing countries with oil and gas resources;
- (b) a party from another developing country (probably without oil and gas resources) where part of the output will be marketed;
- (c) and possibly a third party from an industrialized country or from the international petrochemical industry who will supply technology and know-how and perhaps also assist with marketing the products.

The basis for the long-term arrangement

15. The main basis for locating a petrochemical complex in a developing country with oil and gas resources is its ability to offer a long-term agreement for the supply of energy and feedstock to the plants. The other parties to the agreement will be interested in both (a) a secure and reliable long-term supply of feedstock and (b) the continuing availability of feedstock at a reasonable cost. Bearing in mind the potential shortage and high price of feedstocks likely to be encountered in the 1980s and 1990s, these are major factors to consider.

16. For the first type of arrangement (South-North co-operation), the basis for involving a party from an industrialized country or from the international petrochemical industry will be the access to the markets of industrialized countries which this party can provide. This party may also be expected to supply or arrange the license for the technology and know-how, to assist in supervising construction of the complex and perhaps to provide training and

to assume management responsibility for operating the plant. This party may decide either to market the product through its own marketing organization or to assist the other parties to market the product. In special cases, the interest of this party may be to close down his existing obsolete capacity and make long-term arrangements with the new source of supply in the developing country.

17. For the second type of arrangement (South-South co-operation), the basis for involving the second party from a developing country will be its interest in importing petrochemical products rather than undertake local manufacture. The high cost of plants, non-availability or high cost of local feedstock and limited domestic market could all be reasons for preferring to import petrochemicals. There should be many such potential partners in the Third World.

The products that might be covered

18. Almost any petrochemical product can be covered by such long-term arrangements. The following list of petrochemical products, all of which are used in large volume, may be suggested as a starting point:

Ammonia and urea; methanol  
Benzene, toluene and xylenes  
Ethylene, propylene and butadiene  
Low-density polyethylene, high-density polyethylene, polypropylene;  
polystyrene, PVC and VCM and styrene  
Synthetic fibres and their intermediates  
SBR and other general purpose synthetic rubbers  
Ethylene oxide, ethylene glycol etc.

All of the above-listed products are suitable for manufacture in developing countries. As Chart 1 shows, there is no need to confine discussion to the so called "basic" and "intermediate" petrochemicals since the final products (plastics and rubbers, at any rate) are usually the easiest to transport and create much higher value added for the developing country producer.<sup>1/</sup>

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<sup>1/</sup> Most of these products are "commodity chemicals", that is chemicals produced in large volumes and sold for a wide variety of end uses on the basis of the specifications. Even the high-volume grades of thermoplastics fall in this category. It is only the lower-volume specialty grades of thermoplastics which are "performance products" sold on the basis of specification and performance in particular end use.

19. The products covered by the long-term arrangement will be selected by the parties, taking into account the need to balance the complex's output, market requirements in the domestic market and in export markets. For export marketing, the facilities required to ship the products in bulk will need to be considered. Products with an established history of bulk movements across oceans (such as polyethylene) may be preferred to products that require specialized tankers (such as ethylene).

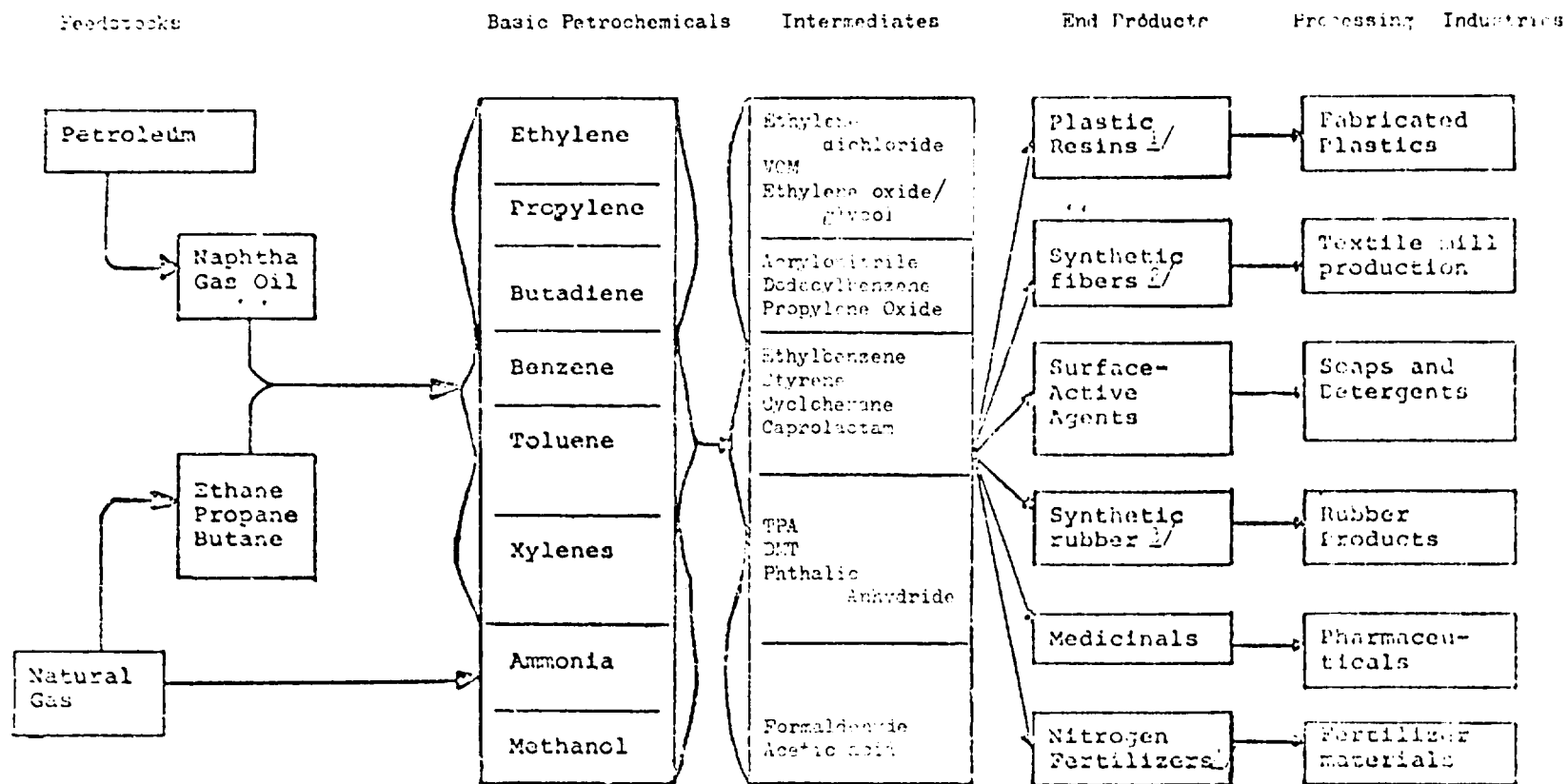
The need for Government support for such agreements

20. The importance of action by Governments to support the growth of the petrochemical industry in developing countries and to facilitate trade in petrochemicals among all countries was stressed at the First Consultation. (Para. 2(1) and 2(m) of ID/227). In particular, it was agreed that Governments of developed countries "should not hamper the development of long-term supply contracts entered into by the industry in their country with producers in developing countries". Furthermore, it was agreed that the Governments of industrialized countries should not "provide public assistance to the continuing operation of existing petrochemical plants or the development of new production capacities that are not economical as compared with supplies offered in fair competition by the developing countries".

21. Even if the petrochemical products can be supplied more cheaply by the developing countries, there is a possibility that import restrictions will be imposed or that national producers will be subsidized in order to compete. It is therefore desirable that Governments lend their support to long-term arrangements negotiated with suppliers from developing countries, so that future development of petrochemical capacity in the industrialized countries takes fully into account these new sources of supply.

22. The Consultation should discuss how Government support might be arranged, what form it might take and what other factors (such as crude oil supplies) might be involved in the negotiation.

CHART 1: DIFFERENT STAGES OF PRODUCTION IN THE PETROCHEMICAL INDUSTRY



1/ Plastic Resins include HD Polyethylene, LD Polyethylene, Polypropylene, Polystyrene, PVC, ABS, Vinyl acetate

2/ Synthetic fibres include acrylic fibres, nylon (polyamide) fibres and polyester fibres

3/ Synthetic rubbers include Polybutadiene, SBR, Polyisoprene, Butyl rubber

4/ Nitrogen Fertilizers include urea, ammonia nitrate etc.

## II. THE PARTIES WHO MIGHT MAKE SUCH LONG-TERM ARRANGEMENTS

### South-South co-operation

23. Only a few developing countries with large markets have established complexes to manufacture petrochemicals. In 1980 the following developing countries have established plants to produce ethylene, the most important basic petrochemical: Algeria, Argentina, Bolivia, Brazil, Chile, Colombia, India, Iraq, Mexico, Qatar, Republic of Korea, Turkey, Venezuela. By 1985, plants are likely to be completed in the following countries as well: Egypt, Indonesia, Kuwait, Libya, Nigeria, Pakistan, Phillipines, Saudi Arabia, Singapore, Thailand. All of these countries except Republic of Korea and Singapore have oil and/or gas resources.
24. Some other developing countries have started their petrochemical industry by building downstream units relying on imported intermediates and basic petrochemicals. Some but not all of these countries may produce the basic and intermediate petrochemical products themselves at a later date. There are many developing countries where there is no petrochemical industry at all, only processing units based on imported final products, such as plastics, etc.
25. Production of basic petrochemicals is best carried out in large-scale plants to serve large markets. Such markets can be created by a group of developing countries provided they accept an allocation of responsibility for the production of different petrochemical products. This is difficult to negotiate and implement. The Andean Group of countries have such a programme for the petrochemical industry. The ASEAN countries have agreed to set up multinational enterprises to produce fertilizers and certain other products outside the chemical industry.
26. As production of petrochemicals in developing countries is expected to double between 1984 and 1990, there should be plenty of scope for making use of the long-term arrangements suggested in this paper.

### South-North co-operation

27. Among the industrialized countries there are four major market areas - North America, Western Europe, Eastern Europe and USSR and Japan. New producers of petrochemicals in developing countries seeking to supply these markets will have to compete with new projects to produce petrochemicals based on the new sources of oil, gas and gas liquids in Canada, Alaska and

the North Sea. Japan, which has no resources, has already begun to support projects to produce petrochemicals in developing countries such as Iran, Singapore and Saudi Arabia. The USSR and Eastern Europe have been self-sufficient so far. However, faced with a potential shortage of feedstocks in the 1990s, it may be in the long-term interest of producers in all four regions to seek long-term arrangements for supplies of petrochemicals from developing countries.

28. Interest in considering such long-term arrangements is likely to vary from producer to producer and from country to country.

29. Since demand is expected to grow slowly in industrialized countries, an important opportunity for South-North co-operation may be with producers who built petrochemical plants before 1970 and have not yet modernised them; by 1990, such plants will be 20 years old and they may need to be replaced. Many producers are likely to be in this position by 1990.<sup>1/</sup>

30. The producers who are most likely to replace their own capacity to produce basic petrochemicals with imports from developing countries are those without access to reliable sources of feedstock. Producers that rely on naphtha or LPG as a feedstock may prefer to arrange for petrochemical products to be produced in developing countries where reliable supplies of feedstock can be assured. Other factors favouring such a decision are likely to be:

- (a) the inadequacy of the cash flow of many producers to finance the large investment required for such new plants;
- (b) the preference of chemical producers, as opposed to oil companies, to invest in facilities producing downstream petrochemicals of higher value where their expertise lies.

31. In Western Europe there is more excess capacity to produce basic petrochemicals than in other regions. In the 1970s, new capacity was created by oil companies and national petrochemical companies, as well as the chemical companies which were the main driving force behind the growth of the industry in the 1960s. The petrochemical industry in Western Europe has continued to expand capacity, even though it is aware that imports from Eastern Europe must increase in the next few years and that by the late 1980s imports will start from new petrochemical complexes built in the Arab countries.

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<sup>1/</sup> For example, capacity to produce ethylene in Western Europe was about 2 million m/t in 1965, 5 million m/t in 1970 and 14.7 million m/t in 1980; in the United States it was about 4 million m/t in 1965, about 8 million m/t in 1970 and 16.3 million m/t in 1980; and in Japan it was about 0.8 million m/t in 1965, about 3 million m/t in 1970 and 6 million m/t in 1980.

The West European industry is also facing difficulty as a result of the high cost of its principal feedstock, naphtha. Although the North Sea will provide some ethane and LPG, naphtha will continue to be the main raw material. Therefore new capacity in Western Europe for basic petrochemicals is only likely to be built if it can be subsidized by the other activities of oil companies or by subsidies granted to a national petrochemical company.

32. In Japan, there is a stronger coherence among the 40 major companies that comprise the petrochemical industry and a greater realism in adjusting to changing economic circumstances. Thus, measures have already been taken to curtail ammonia production capacity in face of the rising cost of feedstock used in Japan (naphtha). Furthermore, there is a reluctance by the Government to approve major new plants producing basic petrochemicals for environmental and other reasons. Therefore long-term arrangements to supply petrochemicals to Japan can be anticipated in the 1980s in addition to those already agreed or presently under negotiation.

33. In the United States the petrochemical industry has so far concentrated on its own home market, the largest and most sophisticated in the world. In 1980, the petrochemical industry was still benefiting from lower feedstock costs than those of Western Europe and Japan. This cost advantage has already disappeared for crude oil and natural gas prices are expected to rise to world levels in due course. The United States petrochemical industry, which is quite heavily dependent on natural gas as a feedstock, may then be more interested in considering long-term arrangements with producers of petrochemicals in developing countries.<sup>1/</sup> Some companies from the United States have already illustrated the potential benefits by investing in petrochemical projects in Saudi Arabia.

34. In Eastern Europe and the USSR, producers have exported petrochemical products in order to pay for the petrochemical plants. However, as feedstock position may become tighter in the long-term future, some producers in this region may see an interest in importing petrochemicals from developing countries.

35. Thus there should be many parties in the industrialized countries who see their long-term interest in making long-term arrangements with developing countries to serve their needs in the late 1980s and 1990s.

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<sup>1/</sup> For example, ammonia plants in the United States were temporarily closed down in the period 1977-80 in the face of increased gas costs and competition from new suppliers in Mexico, Trinidad and Tobago and the USSR.



### III. THE MAIN PARAMETERS OF LONG-TERM ARRANGEMENTS FOR A JOINT VENTURE

36. The following proposal applies to agreements between parties to co-operate on the production of petrochemicals as well as the use or marketing of the products and form a joint-venture company for the purpose.

37. It is assumed that all parties will recognize the mutual advantages of basing such long-term arrangements for the joint venture on:

- (a) Mutual interests of the parties that will last for the period covered by the long-term agreement;
- (b) The project is established in a developing country in a manner that maintains a balance between production and the expected demand in the markets to be supplied by the project;
- (c) The sale of the products is arranged in an orderly manner based on the principle of free market and fair competition.

#### The main parameters of joint-venture agreements

38. To establish such a joint venture, agreement needs to be reached in the following main areas:

- Purpose and objectives of the joint venture;
- Organization and financing of the joint venture;
- Provision of feedstock and fuel for the project;
- Provision of infrastructure for the project;
- Provision of investment guarantees for the project;
- Preparatory activities for the project;
- Selection of technology, licensing and selection of contractors;
- Construction of the plant, including project management and plant commissioning;
- Operation of the plant, including technical support and advice;
- Training of management and operating personnel;
- Production and pricing policy of the joint venture;
- Arrangements for storage and transport of the products;
- Establishment of technical services to support market development;
- Arrangements for marketing the products.

The main parameters of such joint-venture arrangements are discussed below under these headings, it being understood that each of the above areas will need to be the subject of a section of the overall joint venture agreement or a separate agreement.

Purpose and objectives of the joint venture

39. The main parameters to be considered are:

- (a) The products to be produced in the first stage and the products which may be added at a later date;
- (b) The capacity of the plants and the objectives as regards increases in capacity at a later date.

40. It may also be appropriate (a) to specify the period covered by the agreement, and (b) to include related opportunities for co-operation, such as:

- (a) The joint-venture marketing products imported from the foreign partners;
- (b) Investment in downstream plants that would be captive outlets for the joint venture's products and for process improvements;
- (c) Investment in research on the development of new applications for the joint venture's products and for process improvements;
- (d) Investment in shipping and terminal facilities.

41. This part of the agreement should also specify which of the parties will be responsible for preparatory activities, selection of technology, construction of the plant, operation of the plant, the establishment of storage and transport facilities and marketing of the products.

Organization and financing of the joint venture<sup>1/</sup>

42. The first step will be the formation of the joint-venture company in which each party's share of the ownership should be large enough to ensure continued interest in the venture's success. The main parameters to be considered are the capital structure (the amount of equity and loans), pattern of ownership of the share capital and arrangements for changes in the ownership of the venture.<sup>2/</sup>

43. In addition to the share capital of the joint venture, there will usually be a need for loan capital. The parties should agree on the source of such loan capital and the terms and conditions of such financing. For capital-intensive projects, such as those producing basic petrochemicals, the ability to raise the large loans required will be an important contribution made by the party from the developing country with oil and gas resources.

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1/ See UNIDO Manual of the Establishment of Industrial Joint-Venture Agreements in Developing Countries; ID/68, Vienna, 1971. This Manual provides some guidance, mainly from the legal point of view, and goes as far as suggesting specimen wording of some key clauses of the agreement.

2/ Under the latter heading, for example, provision can be made for one of the parties withdrawing from the venture to give first option to purchase his shares in the joint venture to one of the other parties to the venture; the purpose of this provision is to ensure continued operation of the joint venture as a legal entity.

Provision of feedstock and fuel for the project

44. One of the most critical parameters of long-term agreements for a joint venture relates to a guaranteed supply of feedstock and fuel over the life of the project and the price at which they will be provided. A fixed price would be unrealistic. A price escalation formula is needed; it might be related to the price of crude oil as well as other factors or to the price which the feedstock would command in alternative uses. Another approach would be to relate the price of feedstock to the price actually realized for the petrochemical products.

45. Whichever formula or approach is chosen, two general conditions need to be satisfied: (a) if the price of petrochemical products is low, the price of feedstock must be such that the plant can still produce at a cost which makes the products competitive in world markets; and (b) if the price of petrochemical products is high, the agreement should provide for the supplier of feedstock to share in the benefits which the joint venture as producer of the petrochemicals derives from such prices.

46. In other words, the following points need to be defined in a long-term agreement covering feedstocks:

- (a) Quantity and quality of the feedstock required;
- (b) Period of the agreement (linked to the life of the project);
- (c) Pricing formula, which might be based on
  - The cost of supplying the feedstock;
  - The price commanded by alternative uses for the feedstock;
  - The realized price of products; or
  - A base price plus escalation formula.

Provision of infrastructure for the project

47. The infrastructure, including utilities and water, required by a petrochemical complex may necessitate additional investments outside the battery limits of the complex. It therefore appears desirable for the parties to be clear from the outset what infrastructure, utilities and water supplies will be required for the project and who will be responsible for providing them on time to an acceptable standard and who will finance the investment required and on what terms.

Provision of investment guarantees for the project

48. The foreign partner may seek assurance of his freedom to remit dividends to his parent company for the duration of the agreement establishing the joint venture. Whilst taxation is normally a matter of national policy applicable to all industrial enterprise, it is such an important factor for the foreign partner that consideration must be given to including an undertaking on taxation within the Agreement. Taxation of profits when remitted to the foreign partner in his country should also be taken into account since there is no point in foregoing tax in the developing country if this merely increases the tax income of another country.

49. The foreign partner may also wish to agree on the details of the basis of compensation in the event of compulsory purchase by the Government of his stake in the joint venture. An agreement that any dispute in this connection would be referred to a neutral body such as the International Centre for the Settlement of Investment Disputes may also be reached.

Preparatory activities for the project

50. Some preparatory activities may have been carried out before the parties agree on a joint venture. However the financing and the implementation of the project will probably depend on the carrying out of a detailed feasibility study. As regards the contents of a feasibility study, UNIDO has produced a useful guide.<sup>1/</sup>

51. The project must meet economic criteria acceptable to the parties to the joint venture. These criteria may not be the same criteria used for evaluating the commercial viability of the project. But if external finance is required in the form of a loan, the parties may have to demonstrate that there are no weak points in the technical, financial and marketing aspects of the project.

52. Another essential preparatory activity is to form a joint-venture company as a legal entity and to complete all arrangements for financing the project. Within these arrangements, responsibility should be defined for the financing of any cost overrun, so that the project does not run into financial difficulties if these materialize later on.

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<sup>1/</sup> UNIDO Manual for the Preparation of Industrial Feasibility Studies, ID/206, Vienna, 1978.

Selection of technology, licensing and selection of contractors

53. A major parameter of the project would be the technology chosen to produce the various products. This is a matter on which the parties must agree themselves. The information on which a selection between alternative petrochemical processes can be made may be helped by the experience of the parties and published sources of information.<sup>1/</sup>

54. As regards licensing the chosen technology, this topic will be discussed as the second main issue of the Second Consultation.

55. As regards selection of contractors, this will usually be done in consultation with the licensors and all parties to the agreement on the advice of the party that is assuming responsibility for supervising the construction of the plant or complex.

Construction of the plant

56. If there is more than one plant in the petrochemical complex being established, then it is normal practice to appoint an engineering firm to be in charge of project management for the complex as a whole.

57. As regards the construction of the individual plants within the complex, the parties may refer to the three UNIDO model forms of contract which UNIDO has drafted for the construction of a fertilizer plant.<sup>2/</sup> These model forms can be adapted for petrochemical plants because they are drafted with fully detailed technical annexes for a continuous chemical process plant, namely an ammonia/urea complex. The main features of the UNIDO model forms of contract are as follows:

- (a) their completeness; the contract itself exceeds 150 pages and the technical annexes a further 100 pages;
- (b) the comprehensive protection which they afford the Purchaser of the plant as regards the completion of the plant and the remedying of any defects in design, construction and/or equipment;

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1/ The First Consultation requested UNIDO to prepare a manual of available technologies in the petrochemical industry and a set of guidelines on the selection of the most suitable technologies. This recommendation is being implemented on a trial basis for a few products. As a general guide, which lists a number of potential Licensors for each petrochemical product, Sources and Production Economics of Chemical Products; 1979 by Chemical Engineering for McGraw-Hill Publications Company can be consulted. For a description of alternative processes and their economics, one must turn to the multi-client service of consulting firms specializing in petrochemicals.

2/ ID/WG.318/1 Second Draft of the UNIDO Model Form of a Turn-key Contract for the Construction of a Fertilizer Plant  
ID/WG.318/2 First Draft of the UNIDO Model Form of Semi-Turn-key Contract for the Construction of a Fertilizer Plant  
ID/WG.318/3 Third Draft of the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant

- (c) the requirement that the plant pass vigorous performance guarantee tests of an adequate duration; penalties are imposed on any shortfalls on performance parameters;
- (d) the requirement that financial guarantees in the form of a performance bond and bank guarantee are provided by the contractor;
- (e) arrangements for settling disputes, including arbitration, that are fair to both parties.

#### Operation of the plant

58. The parties to the joint venture will agree which party will be responsible for operating the plant and how the Board of Directors, Chief Executive and other senior management positions will be chosen and appointed.<sup>1/</sup> It would be normal practice for the licensors of the chosen technology and the contractor to provide continuing technical support and advice. In addition to this, the agreement may need to specify how the joint venture will benefit from the know-how and expertise of the partner from an industrialized country, who is experienced with the processes involved.

#### Training of management and operating personnel

59. Training arrangements may be co-ordinated by a party with relevant experience assisted by the training arrangements that are normally provided by licensors and contractors for each manufacturing unit of the complex.

#### Production and pricing policy

60. The production policy of the joint venture will be decided by the Board of Directors on which the parties are represented. Here there may be conflict of interest between the parties, in particular at times when world supply capability exceeds world market demand. To anticipate and resolve such situations, it appears necessary for the parties to agree that:

- (a) the plant will be run at its rated design capacity whenever possible;
- (b) when this is not possible, there will be a full exchange of information as a basis for decisions on production;
- (c) the defined shares of offtake will be adhered to in such circumstances, if applicable.

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<sup>1/</sup> See UNIDO Manual on the Establishment of Industrial Joint-Venture Agreements, pages 16 - 25.

61. The pricing policy of the joint venture will also be decided by the Board. The aim of the parties will be to maximise the returns from selling the products in the international market. There will be a need to consider how the parties should determine pricing policy. This will depend in part on which of the marketing arrangements (described below) is selected.

Arrangements for storage and transport of the products

62. The use of and/or marketing of the products of the joint venture will require adequate storage facilities at the plant, arrangements for transport to export markets, as well as internal markets, and possibly the construction of terminal and storage facilities in export markets. Although the majority of liquid chemical products can be carried in a chemical tanker, some products such as ethylene require special tankers. Therefore agreement should be reached on whether the joint venture will itself build and own shipping and terminal facilities or whether it will use those existing and owned by other parties.

Establishment of technical services to support market development

63. Technical back-up services are required for the sale of most petrochemical products and in particular for "performance products" that are produced for specific end uses. Since in developing countries some of the end uses may be different from those in industrialized countries, it is important that the joint venture establishes its own technical back-up services. The agreement should therefore specify clearly to what extent the joint venture will have access to the technical back-up services of the parties to the agreement who can offer such services. In this connection, the First Consultation recommended that the international petrochemical industry should assist developing countries:

- (a) To establish a back-up service to support market development;
- (b) To develop new end-uses appropriate to local conditions;
- (c) To establish a research and development capability to develop new applications for the products;
- (d) To benefit from research and development carried by the foreign partner on new applications and end uses.

Arrangements for marketing the products

64. The joint venture agreement should clearly spell out arrangements for marketing the products. There are three basic alternatives to consider:

- (a) Marketing is the responsibility of the joint-venture company;
- (b) Marketing is the responsibility of the foreign partner;
- (c) Each partner assumes responsibility for disposal of agreed volumes of the joint venture's production.

65. In the first alternative the aim will be to develop the capability of the marketing department of the joint-venture company to market the products; in this connection, it should be agreed that:

- (a) The marketing department of the joint venture will be staffed by staff from all parties; its personnel will be given sufficient training for the department to become self-reliant within a limited period of time;
- (b) The products marketed by the joint venture will carry its own brand name.

66. For the second alternative, the terms and conditions for marketing each product on behalf of the joint venture must be agreed; "performance products" will warrant a higher marketing fee than other products. It will also be necessary to agree that:

- (a) The products manufactured by the joint venture should carry its own brand name, which would be different from those of the foreign partner (unless otherwise agreed);
- (b) There will be no discrimination between product marketed under these brand names as regards disposal, prices and all back-up services;
- (c) The foreign partners will supply products in advance of start-up to help build up markets for the joint-venture plant.

67. For the third alternative, the rights and obligations of each party as regards each product must be clearly defined so as to avoid duplicating responsibility for certain market areas. The following points need to be outlined:

- Volume of offtake, scheduling of deliveries, inventories, shipping etc.
- Market areas assigned to each party
- Arrangements when either party does not perform his obligations
- Pricing policy



Legal provisions

68. In addition to the above, the joint-venture agreement will include the normal provisions relating to Force Majeure, governing law and settlement of disputes.

69. The agreement should be quite clear about ways in which disputes over the interpretation of the agreement would be settled, including but not limited to the following:

- (a) The law governing the agreement (law of the country where the plant is located, law of a neutral country, law of the country of the foreign partner);
- (b) The place of arbitration (the same alternatives; a neutral body is the World Bank's ICSID), see para. 49 above.
- (c) The rules of arbitration (ICC rules or other alternatives).

Another alternative, if both partners are of equal strength, is to include a clause stating that "All disputes and differences that may arise out of or in connection with this agreement shall be settled through negotiation between the two parties".

#### IV. THE MAIN PARAMETERS OF A LONG-TERM SALES AGREEMENT

70. The second type of agreement proposed could be used by partners who are not interested in a joint venture. It could relate to sales to a partner in either an industrialized or developing country. The basis is the same as for a normal sales agreement except that it is for an unusually long term, namely five or even ten years.

71. It appears to UNIDO that the following parameters are of major importance to the two partners to the agreement and therefore warrant detailed consideration at the Second Consultation:

- (a) Period of the Sales Contract;
- (b) Annual volume of sales;
- (c) Pricing formula;
- (d) Co-operation and co-ordination;
- (e) Force Majeure;
- (f) Governing law and arbitration;
- (g) Related opportunities for co-operation between the parties.

The essential points to be considered under these headings are listed below:

##### Period of the Sales Contract

72. Sales contracts covering a period of five, ten or even 20 years are often needed to facilitate the establishment of new petrochemical projects in developing countries. When such a long period is considered, the following points must be covered:

- (a) Arrangements for price review;
- (b) Conditions under which annual volume of sales can be subject to review;
- (c) Conditions under which contract can be subject to review;
- (d) Conditions for termination and notice required.

##### Annual Volume of Sales

73. It is assumed that the supplier will not commit more than a major part of his output of a product to any single customer and that the customer will require diversified sources of supply. Hence the main points to be discussed in the formula are permitted variations from the agreed level of offtake.

One example would be:

- A maximum variation of say, 20 per cent, from the agreed annual volume of sales (over-lifting and under-lifting) without penalty.
- For variations in excess of 20 per cent, penalties would be specified.
- Where the purchaser resells the product, the partners should agree on the marketing area of such resales.

Pricing formula

74. The parties will need to agree on a pricing mechanism. The price might be renegotiated regularly (quarterly or annually) or it might be based on one of the formula listed in para. 43(c) above.

Co-operation and co-ordination

75. The parties should agree to exchange relevant market and technical information to assist the producer in his operations and understanding of market conditions for the timely supply of quality products.

Force Majeure

76. The conditions for force majeure would need to be defined.

Governing Law and Arbitration

77. The considerations would be the same as in paragraph 66 but in line with commercial practice for sales contracts.

Related opportunities for co-operation between the partners

78. The co-operation between the parties might be extended to include:
- (a) Marketing by the developing country partner of products produced by the foreign partner in the domestic market and selected export markets;
  - (b) Co-operation in the use of shipping of petrochemical products that might thus be arranged.



