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First Consultation Meeting on the
Petrochemical Industry
Mexico City, 12-16 March 1979

REPORT OF
THE GLOBAL PREPARATORY MEETING
FOR CONSULTATIONS ON THE PETROCHEMICAL INDUSTRY*
Vienna, Austria: 27-29 November 1978

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Explanatory notes

The following abbreviations of organizations are used in this publication:

ASEAN	Association of South-East Asian Nations
CEFIC	European Council of Chemical Manufacturers' Federations
CMEA	Council for Mutual Economic Assistance
ECE	Economic Commission for Europe
OAPEC	Organization of Arab Petroleum Exporting Countries
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
UNCTAD	United Nations Conference on Trade and Development

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INTRODUCTION

1. The Second General Conference of UNIDO held at Lima, Peru, in March 1975 recommended that UNIDO establish a system of continuing consultations between developed and developing countries.
2. In 1977, the first consultation meetings were convened on the fertilizer, iron and steel, leather and leather products, and vegetable oils and fats industries, and preparations were begun for consultations on a number of other industrial sectors including petrochemicals.
3. To prepare for consultations on the petrochemical industry, UNIDO convened two panels of experts on the petrochemical industry in June 1977 and February 1978.
4. The results of the panel meetings were presented to the Industrial Development Board at its twelfth session. The Industrial Development Board authorized the UNIDO secretariat to convene the First Consultation Meeting on the Petrochemical Industry in 1979.
5. The Global Preparatory Meeting (the Meeting) was convened to advise the UNIDO secretariat on the selection of the priority issues for discussion at the First Consultation Meeting on the Petrochemical Industry which UNIDO planned to convene at Mexico City, 12 to 16 March 1979.^{1/}

^{1/} When the Global Preparatory Meeting was convened, the proposed dates were 12-16 February 1979.

CONCLUSIONS AND RECOMMENDATIONS

Issue to be discussed at the First Consultation Meeting

6. The Meeting recommended that the First Consultation Meeting should consider only the following issue, which has two aspects (A and B below):

The future world production of petrochemicals up to the year 2000 and the location of new production capacities to achieve the developing countries' share in total world production in accordance with the Lima Declaration and Plan of Action on Industrial Development and Co-operation. ^{2/}

The actions needed from Governments and industry in developed and developing countries in order to achieve the above through co-operation in the following areas:

A. Marketing

Access to existing markets

Action to remove barriers to international trade such as (a) tariffs; (b) quantitative restrictions; (c) hidden barriers to trade; and (d) restrictive business practices;

Adjustments in production

Action to be taken by developed countries to adjust their petrochemical sector to facilitate the development of the petrochemical industry in developing countries and the absorption of petrochemical products from developing countries;

Promotion and expansion of markets

Co-operation between countries to promote and expand the market for petrochemicals;

Joint ventures

The extension of co-operation in the field of marketing in joint venture arrangements based on fair and equitable terms.

B. Transfer of technology

Preparation of a model contract

The principles on which a model contract covering the licensing of process and know-how should be based and guidelines for its preparation by UNIDO.

^{2/} "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".

Marketing of petrochemicals

7. The Meeting felt that the marketing of petrochemicals was the most important aspect of the issue to be discussed at the First Consultation Meeting.

Transfer of technology in the petrochemical industry

8. The Meeting felt that rather than discuss transfer of technology in general at the First Consultation Meeting, it would be more useful to consider the principles governing licensing of patents and know-how. It would be important to consider effective transfer and absorption of technology and in particular associated performance guarantees and manpower development. Bearing in mind the complexity of the issues involved in the transfer of technological capability in the industry, it was recommended that a model contract covering the licensing of patents and know-how should be developed by UNIDO.

9. The model contract should be based on the principle of fairness and mutual confidence between buyer and seller, keeping in mind that the extent of damage in the case of failure was much greater to the buyer than the potential cost of correcting mistakes or negligence. The First Consultation Meeting should discuss those and other essential principles and consider how they could be included in the model contract, for example, through the inclusion of a "make-good" clause.

10. The Meeting felt that if UNIDO developed a model contract covering the licensing of patents and know-how in the petrochemical industry based on such essential principles, the principal aspects of technology transfer would be covered.

11. The Meeting recommended that the First Consultation Meeting:

(1) Consider the essential principles on which the preparation of a model contract covering the licensing of patents and know-how should be based,

(2) Establish a working group at the First Consultation Meeting to further define these principles and establish guidelines for the preparation of such a model contract,

(3) Request the UNIDO secretariat to prepare such a model contract and present it to the Second Consultation Meeting on the Petrochemical Industry.

Establishment of a working group on the world supply and demand of petrochemicals

12. The Meeting saw a need to prepare on a world-wide basis forecasts of demand for petrochemicals and the production capacity available to supply petrochemicals. Such forecasts should be regularly updated. Initially, 10-year forecasts should be prepared based on a realistic consolidation of existing forecasts made by individual countries or groups of countries. The world-wide demand/supply capacity position in basic petrochemicals should be examined first, followed by an examination of selected intermediate and final products.

13. The Meeting therefore recommended that UNIDO discuss with OECD, CMEA and OPEC their co-operation in establishing a joint working group on the world supply and demand of petrochemicals with the following terms of reference:

- (a) To prepare and regularly update a 10-year forecast of demand for petrochemicals, expressed in terms of demand for basic petrochemicals, in major consuming countries, and at regional and world levels;
- (b) To prepare and regularly update a 10-year forecast of feedstocks available for the production of basic petrochemicals at regional and world levels;
- (c) To prepare and regularly update estimates of existing capacities to supply basic petrochemicals in major producing countries, and at regional and world levels;
- (d) To extend the demand/supply exercise described above to selected intermediate and end-products as appropriate.

14. The Meeting further recommended that UNIDO, as secretariat of the proposed working group, should invite to participate in the working group, as required:

- (a) Representatives of selected individual countries that are large consumers or large producers of petrochemicals;
- (b) Representatives of regional groups of countries such as the Andean Group, ASEAN, OAPEC etc.;
- (c) Representatives of industry associations or federations formed by groups of countries such as CEPIC;
- (d) Representatives of other organizations of the United Nations system such as ECE and UNCTAD.

15. The Meeting recommended that the UNIDO secretariat should submit the above proposal to the First Consultation Meeting, together with the response of the organizations to the invitations of the UNIDO secretariat to co-sponsor the establishment of the working group. It further recommended that prior to the First Consultation Meeting (preferably by 31 January 1979) the UNIDO secretariat should obtain from participants at the Meeting their comments on the forecasts made in the UNIDO First World-wide Study of the Petrochemical Industry. In addition, UNIDO should collect currently available forecasts of demand for petrochemicals in individual countries and groups of countries and update the list of (a) existing capacities in operation; (b) capacity under construction; and (c) planned new capacities contained in the Appendices to the Study.

I. ORGANIZATION OF THE MEETING

16. The Meeting was convened in Vienna on 27-29 November 1978 to prepare for consultations on the petrochemical industry. It was attended by 17 participants from 13 countries, representatives of a number of organizations and a representative of the World Federation of Trade Unions.

17. The Meeting was opened by E. Becker-Boost, Chairman of the UNIDO internal task force responsible for preparations for consultations on the petrochemical industry. The UNIDO task force had considered a number of issues and selected three for presentation to the Meeting.^{3/} Participants were expected to discuss those three issues, and any other issues that they chose to consider, and to decide which had priority; the suggestion of the UNIDO secretariat was that the First Consultation Meeting should preferably consider one issue so that this could be discussed in depth.

18. The Meeting elected Abdulaziz Alzamil (Saudi Arabia) as Chairman and Franz Josef Meyer (Federal Republic of Germany) as Vice-Chairman.

19. The Chairman in his opening address stressed that the purpose of the First Consultation Meeting was to create an understanding between developed and developing countries on the future growth of the petrochemical industry and on the role that developing countries would play in that growth. The Meeting should identify the most important areas of co-operation that needed to be discussed.

20. The draft report of the Meeting was adopted by the Meeting at its afternoon session on 29 November 1978.

^{3/} The UNIDO Secretariat proposed the following three issues in a paper presented to the Meeting:

- (a) The prospects for increased production of petrochemicals in developing countries and how to arrange for the orderly flow of that production into existing and future world markets;
- (b) Opportunities for cooperation between developing countries in the petrochemical industry;
- (c) The high cost of petrochemical plants and problems encountered in financing such plants in developing countries.

II. SUMMARY OF THE DISCUSSION

Prospects for the growth of the petrochemical industry in the world up to the year 2000

21. The UNIDO secretariat introduced an advance copy of the UNIDO First World-wide Study on the Petrochemical Industry: 1975-2000 (the Study). The Study had used one methodology to forecast demand for petrochemicals up to the year 2000. Such long-term market forecasts were important because investment in a petrochemical plant might take from 10 to 15 years to recover.
22. In the period up to 1985, the Study anticipated that there would be a shift in production that would considerably increase the developing countries' share of world petrochemical production. One of the problems arising from that development would be the marketing of the increased production of developing countries.
23. Looking ahead to the year 2000, the Study considered three different hypotheses. One assumed maximum co-operation between developed and developing countries and resulted in the share of developing countries in world production reaching approximately 35 per cent by the year 2000; in the other two hypotheses, a much lower share was forecast.
24. The UNIDO secretariat suggested that it would not be necessary to discuss the market estimates of the Study in detail. Instead, it was suggested that the establishment of a working group on the world supply and demand of petrochemicals be considered with a view to consolidating and harmonizing forecasts made by countries and groups of countries throughout the world.
25. The Meeting felt that the UNIDO forecasts of demand for some regions were too high. For example, for Western Europe the rate of market growth for plastics forecast by UNIDO was double that assumed by the current forecasts of the industry. For developing countries, however, several participants reported that their national forecasts showed a rapid growth

of demand. The UNIDO secretariat acknowledged that its forecasts were optimistic for some regions, indicating that demand levels forecast for 1985 might not be reached until 1988.

26. Although some participants spoke of over-capacity in the industry, it was pointed out that additional capacity continued to be planned in developed countries. It was suggested that the UNIDO estimates of supply were too high, as announcement of a project did not always mean that it would be implemented.

27. The Meeting therefore felt that the estimates of both supply and demand made in the Study should be revised taking into account the comments of participants which would be sent to the UNIDO secretariat by 31 January 1979. Although some participants felt that an attempt to revise the forecasts of the Study might be made before the First Consultation Meeting, it was generally agreed that that would not be possible in the short time available.

28. The Meeting recognized that the growth of production capacity could be forecast quite accurately because petrochemical plants took up to five years to construct. However, forecasting demand was more difficult; there would be a need to consider very carefully the premises on which such forecasts were based.

29. Participants from all regions agreed that it would be useful for UNIDO to establish a working group on petrochemicals to prepare forecasts of demand and supply of petrochemicals, using all available sources of information. It was felt that the working group initially should consolidate existing forecasts. An authoritative forecast was needed; it would depend on the quality of the inputs which was why a world-wide group of contributors would be needed in the working group.

Marketing of petrochemicals

30. Participants from developing countries felt that the First Consultation Meeting should discuss the location of new production capacities that would be needed to achieve the developing countries' share in total world production in accordance with the Lima Declaration and Plan of Action on Co-operation and Industrial Development.

31. In this connection, it was noted that the Lima Declaration declared that the share of developing countries in total world industrial production should be increased to the maximum possible extent and as far as possible to at least 25 per cent of total world industrial production by the year 2000. UNIDO should play a central role in the implementation of the Declaration and Plan of Action and should include among its activities a system of continuing consultations. Those consultations should in particular relate to industries processing raw materials exported by developing countries or which consume vast quantities of energy and should result in concrete proposals for inclusion in the development programmes of participating developing countries.

32. The suggestion was made that mutual agreement might be reached on the share of future world petrochemical markets to be supplied by developing countries. Participants from some developed countries with market economies felt that the interest of developing countries and the healthy development of the petrochemical industry would best be served by the creation of free trade in petrochemicals. Complete free trade was perhaps a utopian goal but government policy in both developed and developing countries should move steadily in this direction.

33. It was pointed out that the very rapid expansion of the petrochemical industry in the 25 years up to 1975 was based first on cheap supplies of natural gas in North America and later on cheap sources of naphtha from refineries based in Western Europe and other parts of the world. The view was expressed that further expansion of the production of basic petrochemicals might be concentrated in countries with abundant raw materials, including the oil-producing developing countries. Certainly the role that the latter group of countries should play in the future development of the world petrochemical industry should be discussed at the First Consultation Meeting.

34. The Meeting noted that developing countries with large populations were concentrating on developing an integrated industry capable of producing the end products that their home markets required. A marginal surplus of some products would be available for export at a given point in time but there would also be a continuing though changing need to import some petrochemicals. The main task faced by the industry in those countries was to stimulate and expand demand for petrochemicals so as to serve the social and economic objectives of the country.

35. It was suggested that developing countries with smaller markets should aim to build up markets for end-products based first on imports of basic and intermediate petrochemicals and later on local production of some of those petrochemicals. It was pointed out that there were opportunities for greater co-operation between countries in building up national markets for petrochemicals.

36. There were other developing countries with oil resources but a smaller domestic market that had to count on exporting a large part of their production if they were to install units of an economic size. As new producers, those countries encountered difficulties in entering export markets. Those difficulties, it was felt, should be discussed at the First Consultation Meeting with a view to creating a better understanding of the needs of those developing countries and with a view to reaching some kind of agreement on how co-operation with industry, government and labour in developed countries could help solve the problems.

37. The representative of trade unions participating in the Meeting indicated that labour would agree to give priority to the aspect of marketing. He stressed, however, that in existing plants and when establishing new capacities due attention should be given to the safety and working conditions of labour and to environmental considerations. Those aspects were of the greatest importance in the petrochemical industry. That point of view was supported by other participants.

38. The Meeting identified the following areas of co-operation as suitable for discussion at the First Consultation Meeting:

- Access to existing markets
- Adjustments in production
- Promotion and expansion of markets
- Joint ventures

39. Access to markets, it was pointed out, was an increasing problem for developing countries and one that affected a wide range of industrial products. For petrochemicals, tariffs were not a serious obstacle even though tariff levels increased with the level of processing. Quantitative restrictions were a more serious barrier and they had already been applied to synthetic fibre textiles by developed countries with market economies.

Hidden barriers to trade and restrictive business practices might also be considered.^{4/} In addition, the opportunities for trade with countries with a centrally planned economy should be considered. Those, however, were essentially short-term aspects of the marketing problem.

40. For the long-term, many participants saw a need to discuss the possible involvement of Governments in helping developing countries achieve their goals of increased petrochemical production. A dialogue between certain developing and developed countries had been started but no conclusion had been reached. The First Consultation Meeting should therefore consider what action might be taken by developed countries to adjust their petrochemical industry so as to facilitate the development of the petrochemical industry in developing countries and the absorption of petrochemical products from developing countries.

41. The urgency to consider that matter was emphasized in particular by participants from some oil-producing developing countries who pointed out that they were exploiting their non-renewable resources faster than they might otherwise have wished to satisfy world energy requirements. That accelerated exploitation made raw materials available for production of petrochemicals and it was advantageous for the world to use those resources as soon as possible. Discussion at the First Consultation Meeting would facilitate the planning of such new petrochemical capacities that would enter production five to seven years later when the world might be in much greater need of such capacity than it was in 1978.

42. Some participants from developed countries with market economies questioned the ability of their Governments to adjust their petrochemical sectors as proposed. Another view was that the Governments of many developed countries would not be able to adopt a readjustment policy without consulting other countries and agreeing upon a joint approach. The view was stated that free trade in petrochemicals was the best way to stimulate adjustments through the natural obsolescence of existing capacities. Another view was that the closing (moth-balling) of existing capacities would be as much a waste of resources as the flaring of associated gas. Despite those comments, participants from developing countries still felt that Governments could contribute to readjustment in the petrochemical industry

^{4/} A definition of trade barriers was provided by the representative of UNCTAD (annex I).

by not supporting (a) the development of new capacities and (b) the continuing operation of existing plants that were losing money.

43. Some participants pointed out that the absorption of the production of developing countries available for export would be achieved more easily and more smoothly if and when world demand for petrochemicals resumed the very fast rate of growth to which the industry had been accustomed up to 1974. The prospects for such a resumption of growth depended on resumed growth of the world economy, government policy and many other factors.

44. It was, however, agreed that the petrochemical industry itself could help to achieve that goal by closer co-operation between countries to promote and expand the market for petrochemicals. The very rapid growth of the industry in the past depended on the continuing development and expansion of new products and new market outlets as well as faster economic growth. Ways in which co-operation between countries could promote and expand the market for petrochemicals should therefore be discussed at the First Consultation Meeting.

45. The Meeting noted that various arrangements had been used by exporting enterprises to enter world markets. A considerable flow of products between different groups of developed countries had resulted from "buy-back" agreements negotiated when the petrochemical plants were purchased. Provided such production was introduced in a predictable way by experienced sellers it need not disturb a growing market.

46. However, what was perhaps more important was a recognition by countries selling plant and equipment that the buying countries needed to earn foreign exchange through exports of petrochemical and other industrial goods to pay for the expensive plant. The industrialization of developing countries could not proceed rapidly in the future unless there was much wider recognition of that essential point.

47. It was suggested that for many developing countries joint venture arrangements offered advantages since they could contribute not only to solving marketing problems but also to the financing of expensive plants and building up the national skills and capabilities required to further develop the petrochemical industry.

48. Several participants pointed out how their countries had benefited from such joint ventures and how they planned to continue that approach. It was, however, stressed that with or without joint ventures difficulties had been encountered in obtaining assistance with marketing petrochemical products in export markets. Such assistance was found to be either too expensive or perhaps not available at all on conditions acceptable to the developing countries who wanted it. It was therefore agreed that the First Consultation Meeting should consider how co-operation in the field of marketing in joint venture arrangements could be extended on fair and equitable terms.

Transfer of technology in the petrochemical industry

49. The Meeting recognized that the marketing of petrochemicals was an important element in the transfer of technology. Marketing had a large technological content because it required product development, the development of new applications and a technical service to back up sales. It was therefore important to consider some aspects of the transfer of technology at the First Consultation Meeting.

50. Participants stressed the importance of a transfer of technological capability as opposed to a simple arms-length sale of technology. To build up technological capability, it was necessary to ensure that engineers of the buying country were involved in the design and basic engineering of new plants to the extent that that group of engineers could thereafter design the further plants that the country required. That approach had been applied successfully in the petrochemical industry in several developing countries.

51. It was further agreed that when that aspect of the issue was considered due attention should be given to manpower training, to the safety and working conditions of labour and to environmental considerations.

52. Cases were mentioned where an outright sale of process licences had been made after which the seller took no further responsibility for the successful operation of the plant. That was felt to be an unsatisfactory situation. Other cases were discussed in which processes were licensed on condition that exports were limited either by quantity or by entry to certain geographical markets. While it was recognized that the practice

sometimes reflected the licensor's other commitments, it was felt that ways to avoid such restrictions could also be discussed at the First Consultation Meeting.

53. Bearing in mind those and other problems encountered by developing countries in acquiring process licences in that very complex industry, it was suggested that a recommendation be made that the First Consultation Meeting set up a working group to examine this topic in a preliminary way and establish the principles on which a model contract covering the licensing of patents and know-how could be prepared by UNIDO. Buyers and sellers could then refer to such a model contract when negotiating the acquisition of process licences for the petrochemical industry.

54. In that connection, reference was made to the UNIDO Model Forms of Contract for the Construction of a Fertilizer Plant which had been presented in draft form by UNIDO to the Second Consultation Meeting on the Fertilizer Industry and which would be presented in final form to the Third Consultation Meeting.^{5/}

Other issues suggested by the UNIDO secretariat

55. The Meeting did not discuss the other issues suggested by the UNIDO secretariat, namely, "Opportunities for co-operation between developing countries" and "The high cost of petrochemical plants and problems encountered in financing such plants in developing countries"; it was felt that those issues could be considered by other consultation meetings. That was because the Meeting felt that the principal issue relating to the development of the petrochemical industry was the issue of marketing and transfer of technology discussed above. The Meeting therefore recommended that the single issue and only that issue should be discussed at the First Consultation Meeting.

^{5/} The preliminary draft of the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant (Document ID/WG.281/12 and Add.1) was given to participants. The 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, is available as document ID/WG.281/CRP 2. The report of the Second Consultation Meeting on the Fertilizer Industry is available as document ID/221, previously ID/WG.281/18/Rev.1.

Annex I

TRADE BARRIERS

56. The representative of UNCTAD stated that when considering trade barriers to the exports of developing countries in the field of petrochemicals, account should be taken of the following four types:

Tariffs
Quantitative restrictions
Hidden barriers
Restrictive business practices

Tariffs

57. Despite important tariff reductions made in the post-war period, the level and structure of most favoured nation (MFN) tariffs still constitute an obstacle to the exports of developing countries. Tariff escalation, i.e. progressive increase in the tariff with the level of processing, provides a greater effective protection than is indicated by the nominal tariff rates. This discourages developing countries from exporting petrochemical products with a higher degree of processing.

Quantitative restrictions

58. With the decrease in tariffs, more and more reliance is being placed by developed countries on quantitative restrictions. These restrictions are often discriminatory i.e. they only penalize exports from developing countries. Unlike tariffs, quantitative restrictions consist of "orderly marketing arrangements", "organized free trade" or "voluntary export restraints" under which the developing countries' exporters undertake, ostensibly voluntarily, not to exceed certain predetermined levels of exports.

Hidden barriers

59. Government regulations in the field of sanitation, health, environment and government procurement policies are used very much to restrict imports as they are often implemented by the local or municipal authorities or by special departments outside international scrutiny.

Restrictive business practices

60. Restrictive business practices prevent or limit exports of developing countries to the markets of developed countries through methods akin to those of governmental tariff and non-tariff barriers. Restrictive business practices arise essentially out of the exercise of dominant market power either collectively, such as in cartel arrangements, or individually, such as in oligopoly market situations. In this connection, it is important to emphasize the activities of international corporations, particularly relating to cartel arrangements; their use of industrial and intellectual property rights; and their intra-corporate pricing policies.

61. Given the nature of petrochemicals, the trade barriers listed under quantitative restrictions and restrictive business practices are likely to have more significance.

Annex II

LIST OF DOCUMENTS

Three issues which might be considered by the First Consultation Meeting (by the UNIDO secretariat)

UNIDO First World-wide Study of the Petrochemical Industry: 1975-2000

UNIDO/ICIS/83

Statistical Appendices to the UNIDO Study

UNIDO/ICIS/83 Add.1

Report of the First Panel of Industrial Experts on the Petrochemical Industry, June 1977

UNIDO/EX.25

Report of the Second Panel of Industrial Experts on the Petrochemical Industry, February 1978

AD/WG/268/6 Rev.1

Report of the Regional Meeting for the Arab States to Prepare for Consultations on the Petrochemical Industry, Doha, Qatar, 21-24 October 1973

UNIDO/EX.59

Building the technical capability to plan, construct and operate petrochemical plants in developing countries; the stages and functions involved and the mutual efforts required, in particular as regards manpower training (by the UNIDO secretariat)

Cancun Declaration of the Second Latin American Congress on the Petrochemical Industry, Cancun, Mexico, November 1978

Role of UNIDO in the development of the petrochemical industry, November 1978 (A paper prepared for the Cancun Meeting by the UNIDO secretariat)

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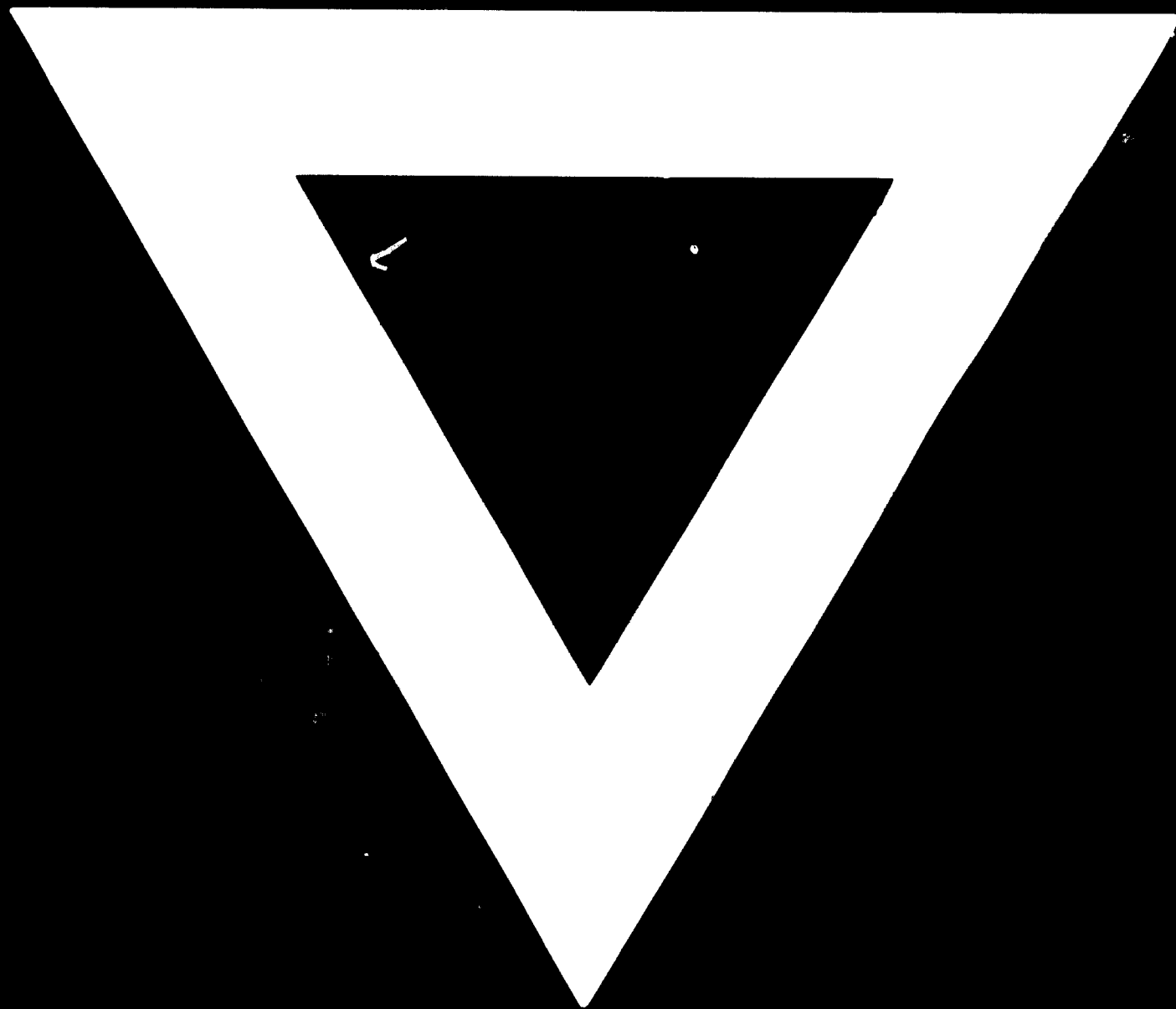
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