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REPORT ON ACTIVITIES AND PROGRAMME OF WORK OF UNIDO

(f) CHEMICAL INDUSTRIES

Implementation of the Recommendations of the Inter-
regional Seminar on the Production of Fertilizers
held in Kiev, Ukrainian Soviet Socialist Republic

24 August-11 September 1965

Report by the Executive Director

I. Introduction

1. This report is submitted in response to resolution 1179 (XLI) of the Economic and Social Council, which requested the Secretary-General to consider and propose, in co-operation with the appropriate international financial institutions including regional development banks, specialized agencies and the International Atomic Energy Agency, practical measures for implementing the recommendations of the Inter-regional Seminar on the Production of Fertilizers and to submit a report in this respect to the Industrial Development Board at its 1967 session.

2. The summary recommendations of the Kiev Inter-regional Seminar on which action has already been taken are as follows:

- (i) Organization and conducting studies for establishment of fertilizer production projects
- (ii) Techno-economic studies
- (iii) Reporting of fertilizer statistics by FAO
- (iv) Collection of data by FAO on use of fertilizer for different crops
- (v) Group training

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We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

(vi) Printing and distribution of the Kiev Seminar papers

(vii) Prepare a paper on "Project Evaluation in the Fertilizer Industry"

3. The Inter-regional Seminar held in Kiev generated interest in many developing countries as well as in developed countries. The papers presented during the Seminar helped countries such as Peru, Brazil, Turkey, the United Arab Republic and India to assess the economies of scale in fertilizer production and to take advantage of the use of cheap natural gas and naphtha. Some of these countries have since gone into projects taking full advantage of the economies of scale and the availability of raw materials.

4. In the implementation of the recommendations of the Kiev Seminar, close collaboration and co-operation has been maintained with the International Bank for Reconstruction and Development, the Food and Agriculture Organization and the regional economic commissions.

II. Measures already taken for implementation of the recommendations

5. The Kiev Seminar had recommended that the Centre for Industrial Development and the regional economic commissions of the United Nations should organize and conduct studies for the establishment of large fertilizer production projects in developing countries where abundant natural gas and other raw materials are available. Accordingly, an Ad Hoc Expert Group meeting was organized from 9 to 16 December 1966 at United Nations Headquarters to study the subject of fertilizer production using natural gas. Experts were invited from Iran, Kuwait, Libya, Nigeria, Saudi Arabia and Venezuela. The experts from Iran and Kuwait, unfortunately could not attend but experts from the other four countries participated. Five international experts, including one from the International Bank for Reconstruction and Development, took part in the discussions. Observers were present from twenty international companies.

The group discussed: availability, analysis, transport and cost of natural gas in the six countries for fertilizer production; location, capacity, product mix, economies of scale and cost of production; capital costs and ways of financing fertilizer projects; regulations on repatriation of dividends and capital of foreign investors; indigenous consumption and export markets; transport of solid and liquid fertilizers; import and export duties and taxes; legal aspects; and infra-structure

and availability of skilled personnel. A draft outline of a report was prepared and certain recommendations and conclusions for further action and studies drawn up.

6. The Inter-regional Seminar at Kiev had recommended that the Centre for Industrial Development of the United Nations undertake techno-economic studies on the production of water-soluble phosphates by methods which do not require elemental sulphur such as: (a) the use of hydrochloric acid or nitric acid, (b) the production of electrothermal phosphorous, and (c) the utilization of gypsum and pyrites as substitutes for sulphur.

Techno-economic studies on this subject were commissioned and the paper entitled "Reducing Sulphur Needs in Fertilizer Manufacture" was prepared by an outside consultant. This paper studied world sulphur supply and demand patterns, world fertilizer supply and demand patterns, sulphur consuming fertilizer processes, and sulphur saving fertilizer processes and made many recommendations to help developing countries in overcoming the world sulphur shortage and high prices. The paper has been internally reproduced and distributed to those interested in developing countries. The paper will be printed and published in 1967.

7. The Kiev Seminar had noted several differences in the standards used by Member States in the reporting of fertilizer statistics which led to some inconsistencies in the data published by the Food and Agriculture Organization. The Seminar, therefore, recommended that: (a) data on the production, consumption and international trade of fertilizers be reported on a standard basis in terms of nitrogen P_2O_5 and K_2O , (b) ground phosphate rock be reported separately from chemical fertilizers, (c) non-fertilizer use of nitrogen, P_2O_5 and K_2O should be excluded from the statistics, and (d) the Food and Agriculture Organization investigate the possibility of reporting fertilizer statistics on the basis of a calendar year.

It was reported that FAO has already taken action on its own accord which would be an implementation of this recommendation.

8. The Kiev Seminar also had recommended that the Food and Agriculture Organization take steps to collect and publish data on the consumption of fertilizer by crops and that all Member States co-operate to supply the data.

The collection of data on these lines is being considered by FAO.

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9. The recommendation that the United Nations and specialized agencies urgently promote group training programmes in the fields of technology of fertilizer production, plant maintenance and marketing of fertilizers has been taken note of by the management and training section of UNIDO.

Preliminary correspondence and discussions have been initiated for group training in the United States of technical personnel from the fertilizer industry in developing countries.

10. The recommendation of the Kiev Seminar that the papers presented at the Seminar should be printed and distributed widely is being carried out.

The technical papers presented at the Seminar are being edited and will be printed during 1967 with the title "Fertilizer-Technology, Production and Use". It will be submitted to the Industrial Development Board at its next meeting and will be circulated widely.

11. It was also recommended that the Centre for Industrial Development prepare a paper on project evaluation in the fertilizer industry, taking into account the papers presented at the International Symposium on Industrial Project Evaluation held in Prague from 11 to 29 October 1965.

This recommendation has been implemented and an outside consultant has prepared a paper entitled "Creating, Evaluating and Establishing Successful Chemical Fertilizer Projects". In this study detailed consideration has been given to creating realistic fertilizer projects, project planning and development, planning for project implementation and project evaluation. Very useful conclusions and recommendations have been given in the report. A check list is annexed to the report showing the basic information required for fertilizer project studies. A check list for project evaluation details has also been given. In a draft form, the report has been circulated widely. It is planned to print this report during 1967.

III. Future programme: recommendations of the Kiev Seminar which are planned for implementation during 1967 and 1968

The recommendations which are being considered for implementation are given below:

12. That the Centre for Industrial Development take steps: (i) to appoint eminently suitable country correspondents to report to the Centre on plans and

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developments in the fertilizer industry in their respective countries or areas (12) to constitute, when necessary, an ad hoc panel of experts for consultations on the Centre's present and future work programmes to ensure that these are most effectively implemented in developing countries.

13. The Kiev Seminar had recommended that a world conference on fertilizer be organized two weeks before the proposed International Symposium to be held in December 1967 in Athens.

Serious consideration was given to this proposal but, due to the magnitude of the International Symposium, it was considered better that this be organized separately in 1968/1969. The proposal, therefore is to hold a world fertilizer congress which will discuss technological developments, world trade, the use of fertilizers in agriculture, and financing of fertilizer facilities and should involve UNIDO, FAO, IBRD and the regional economic commissions.

14. The Kiev Seminar recommended that UNIDO take steps to issue a periodic circular letter summarizing world trends in technology, production and prices of raw materials and other related subjects to aid developing countries in assessing current information on these matters.

It is proposed to publish the "World Fertilizer Report" as a biennial publication from 1968.

15. Regarding further techno-economic studies, it is proposed to commission four papers during 1967 as follows:

- (a) The Japanese dual process for production of soda ash and ammonium chloride (fertilizer)
- (b) The new process for production of phosphatic fertilizers using hydrochloric acid
- (c) Production of sulphuric acid from gypsum and pyrite
- (d) Difficulties in establishment and operation of the "new breed" ammonia plants producing above 600 tons/day capacity.

The last paper has been strongly recommended by the Ad Hoc Expert Group who considered that this would be of great benefit to developing countries establishing large units using natural gas.

16. The recommendation of the Kiev Seminar requesting the United Nations in collaboration with other international agencies to evolve a "new framework" for

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making capital available on liberal terms to meet the special needs of financing fertilizer projects has attracted the attention of the International Bank for Reconstruction and Development.

The Ad Hoc Expert Group, which met at United Nations Headquarters from 9 to 16 December 1966, has also strongly recommended that the fertilizer projects should be considered as "infra-structure" projects and loans should be extended on a "soft" basis.

17. The following few projects which can lead to regional co-operation and export promotion are identified for international financing:

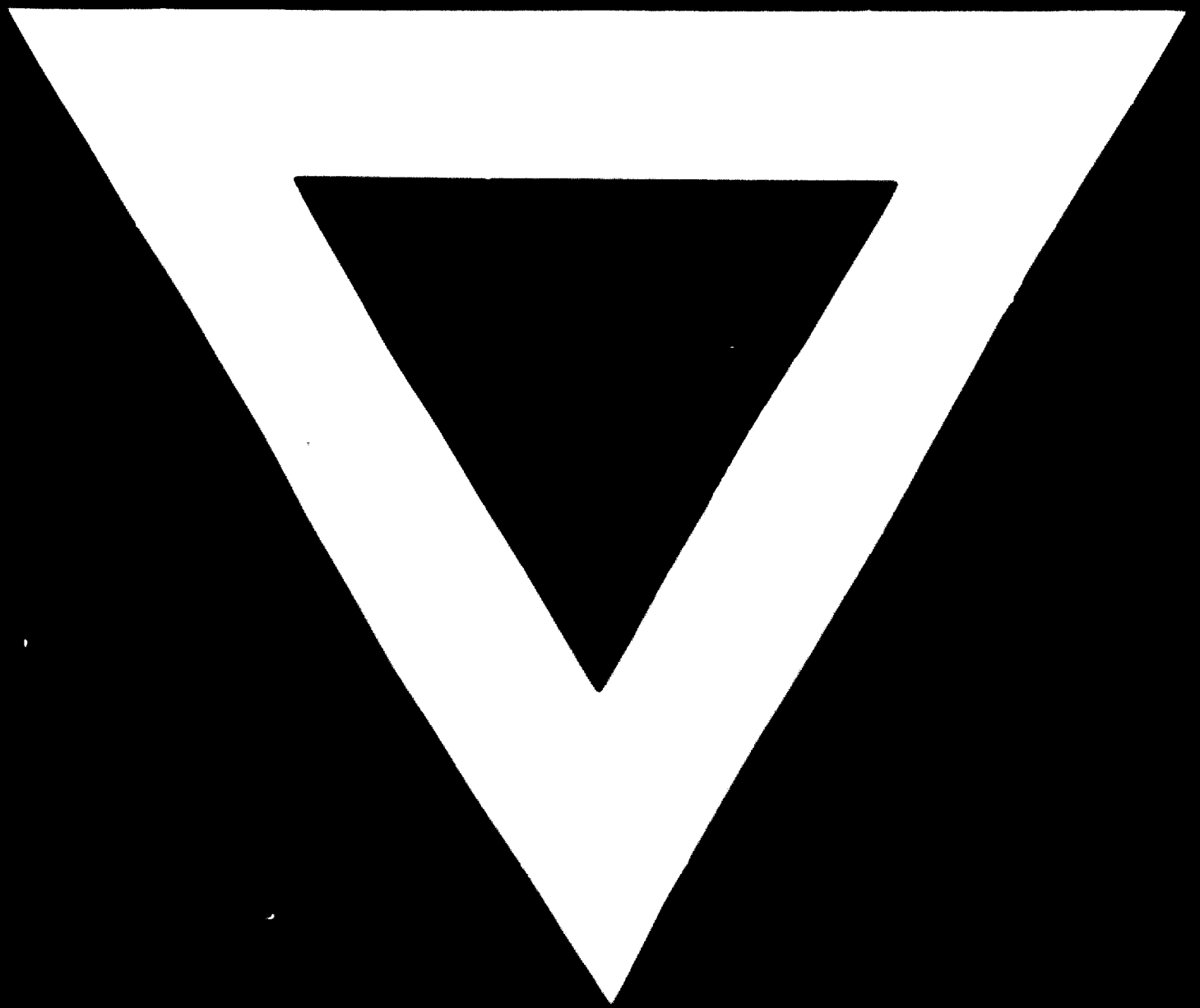
- (a) Phosphate fertilizer project in Cyprus
- (b) Phosphorous complex in Aswan, United Arab Republic
- (c) Nitrogen fertilizer plant in Sudan
- (d) Project to store and distribute anhydrous ammonia in bulk for direct application in India
- (e) Dead Sea potash project - Jordan
- (f) Project for the use of smelter gases to produce sulphuric acid and fertilizers in Chile

18. Developing a "world fertilizer production programme" recommended by the Ad Hoc Expert Group.

This project will involve a survey of all fertilizer projects to produce nitrogen, phosphate and potash by 1970, 1975 and 1980 country by country and region by region. The survey will then assess the planned requirements and suggest further increase in production taking into account availability of raw materials like natural gas, phosphate and potash.

19. Compilation of a directory of world fertilizer production facilities: compilations of world fertilizer (nitrogen, phosphate and potash) production facilities are made by various private research organizations. But these are not complete, accurate or up to date. For planning purposes as well as for matching world demand with future production, accurate information on capacity of projects, types of products, locations, processes employed, etc. is necessary.





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