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REPORT OF THE SECOND PREPARATORY EXPERT PANEL MEETING FOR
CONSULTATIONS ON THE AGRICULTURAL MACHINERY INDUSTRY *

Vienna, 29 May - 2 June 1978 .

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1. The Meeting was opened by Mr. Walter Cettinger, Chairman of the Task Force for Consultations on the Agricultural Machinery Industry. A list of participants is attached as Annex I.

2. Mr. A. Macini described the System of Consultations organised by UNIDO as a consequence of the recommendations of the Lima Conference. He said that the Industrial Development Board had given authorization at their meeting during the previous week for a Consultation Meeting on the Agricultural Machinery Industry. The Meeting was expected to be held in late June or early July 1979 in Turin, Italy. The task of the Expert Panel was to assist and advise the Secretariat in selecting issues for presentation to the Consultation Meeting.

3. The Panel considered the following documents which had been circulated to participants:

Agricultural Machinery and Implements Industry - (Preliminary Study, March 1978) - Prepared by UNIDO International Centre for Industrial Studies.

Introductory Notes and Questions for discussion by the Panel (5 May 1978).

Working Paper for First Preparatory Expert Panel Meeting on Consultations on the Agricultural Machinery Industry (EX.23, 12 October 1977).

Report of the First Preparatory Expert Panel Meeting on Consultations on the Agricultural Machinery Industry (Vienna, 23-25 November 1977) (EX.23, 29 November 1977).

4. The Panel was divided into three groups to give initial consideration to the questions on page 3 of the paper "Introductory Notes and Questions for discussion", as follows:

	<u>Group</u>	<u>Questions</u>
A.	Mr. Fall Mr. Uzureau	e, f, h
B.	Mr. Cervinka Mr. O'Callaghan Mr. Wang	a, b, c, d
C.	Mr. Ledgard Mr. Moss	g, i, j

Written statements were prepared as a result of discussions in these groups.

5. Discussion of the material in the statements led the Panel to list a total of 18 titles of topics from which issues for a Consultation Meeting might be drawn, and further consideration led to the arrangement of the topics into three areas of related problems. Details are given in Annex II.

6. The titles in Area I were examined in depth by Mr. Byé and Mr. Fall, with the following conclusions in summary form.

a) Determination of priorities

Each country concerned would work out detailed information regarding its agricultural policy for the purpose of determining:

- Its intended objectives (increase of productivity, reduction of the deficit in its food and other crops, optimum utilization of its human resources);
- The political and other constraints.

The data should lead to a quantitative and qualitative evaluation of the country's agricultural machinery and equipment requirements. The machinery and equipment requirements would then be classified into categories related to the technical sophistication required for the use of the equipment and the complexity of the technology required for its manufacture.

The decisions made at the agricultural and political policy level would lead to the adoption of a technical model appropriate to local conditions for producing the selected categories.

b) Combined strategies

Simple equipment might be produced with an industrial structure created at the national level. For technical and economic reasons, however, certain components might have to be manufactured at the regional level. These include cast and forged parts, and such cutting components and implements as tines, ploughshares, weeding and hoeing teeth. The establishment of a production capacity for more complex machinery also needed consideration at the regional level.

c) Elements for the determination of a negotiating strategy

By identifying the requirements for agricultural machinery and equipment, and by evaluating industrial capacity, it would become possible to define the terms of a negotiating strategy, regionally and internationally.

7. The titles in Area II were similarly examined by Mr. Moss, Mr. Uureau and Mr. Wang, who referred to the various agricultural institutes throughout the world dealing with specific crops such as cereals, rice, cotton, potatoes, cassava, tobacco, sugar cane and ground nuts. Many of these institutes draw funds from the Consultative Group for International Agricultural Research in Washington but with the exception of the International Rice Research Institute they did not devote much effort to engineering design and development. It was

recommended that UNIDO press strongly the Technical Advisory Committee of the Consultative Group to expand the proportion of their resources applied to design and development in their various institutes. As an example, the Institute concerned with research on the potato crop in Peru should consider the problems of the farmers of the Andean region in planting cultivating and harvesting potatoes with the aim of evolving simple but effective equipment which could be produced in the region.

8. There would be advantages in fostering co-operation between design and development centres and manufacturing companies of the developed countries and their equivalents in the developing countries (preferably the small and medium manufacturers that show more flexibility and interest). For example, SISCOMA in Senegal was 50 % owned by the Senegal Government and 50 % by a group of large and small French companies, and had for several years supplied relatively simple equipment to Senegalese farmers and to a group of neighbouring countries in West Africa.

9. It was recalled that the First Expert Panel recommended on page 5 of its Report that developing countries should aim at manufacturing all their needs of items in categories (i) and (ii), (simple implements and machinery; crop intensifying machinery) and as much as their potential would allow of the other categories. In following up the recommendation relating to categories (i) and (ii) it was not just a matter of duplicating such facilities as might already be in existence. Countries should take the opportunity to consider the standardization of production methods and the types of raw materials, including especially the steel, to be used to ensure that the highest appropriate quality was selected. As a minimum, necessary forging, manipulation, forming, welding and heat treatment facilities should be provided to develop the most effective performance in the components. There was also the assessment of the right scale of operations for any new plants,

balancing the reduction in costs resulting from bulk production against transport charges which might be incurred in distributing from a central workshop.

10. A well organised workshop with the basic metal-working equipment could function as a repair and maintenance depot for the more complex types of equipment serving a surrounding region as well as a production unit for simple items.

11. In effecting the transition to a programme of manufacturing the more complex machines already in use the first important step would be the initial assessment of the types and specifications most suitably related to the local conditions. It would then be advantageous for a developing country to negotiate a long term agreement with the companies from which it currently imported equipment. The scope of the agreement would cover first the supply of equipment in the initial stages together with the adequate training of operators to ensure that the developing countries secure the fullest possible benefit from its use. The contract should then cover training in the repair and maintenance of the equipment; the local production of spare parts where possible; the further production of new components preparatory to assembly and finally the production and assembly of the complete equipment - although not excluding the continued import of some of the more highly engineered components.

12. Mr. Cervinka, Mr. Ledgard and Mr. O'Callaghan dealt with the titles in Area III. Contracts between partners in developed and developing countries should take into account the special nature of the needs of developing countries for the growth of industry and the training of manpower. It was also important that the purchasers of machinery should have a fair return on their investments; e.g. a supply of spare parts should be guaranteed for at least the expected life of a machine. Equally the partner in the developed country should have :

reasonable expectation of the continuity of local policies within which he could realise his benefits within the contract. Contracts should provide the possibility for direct co-operation and exchange of parts between licensees among developing countries.

13. Two main capital requirements were identified for the agricultural machinery industry: finance to create a market and capital for manufacture. Farm machinery was different from most of the other agricultural inputs such as fertilizer, seeds and herbicides for which finance was required annually; machinery was written off over a period of 5-8 years, and to this extent required special treatment.

14. Small locally based manufacturing units might be financed from the funds made available for rural industrial development. Factories making equipment in categories (iii) and (iv) might require special consideration in order to make efficient use of the capital investment in them. At this level, economies of scale should be achieved and it was worth taking into account the financial benefits to be derived from regional co-operation in both production and marketing.

15. Regional development banks and financial institutions should give priority to the financing of manufacturing projects at a national level which would require regional co-operation. The establishment of factories to manufacture machinery in categories (iii) and (iv) usually carried a long term commitment for foreign exchange for imported items which might still account for 50% of the input even after 10 years of operation.

16. Some experts on the Panel proposed that UNIDO should undertake a systematic stock-taking of all projects implemented to-date in the fields of:

- Agricultural development;
- Agricultural research and training;
- Agricultural mechanization;
- Agricultural Machinery Industry

as well as of all project studies which had been carried out in these fields.

17. Recommendations

The meeting recommended that the issues to be presented to a Consultation Meeting should be formulated and selected from the following subjects:

- a) Strategic planning - the relations among the required production of food and other crops, the level of mechanization, the agricultural techniques and the machinery requirements assessed on the national, regional and climatic zonal level.
- b) The encouragement of developing countries to install either at the national or regional levels the basic metal-working equipment including facilities for forging, forming, heat treatment and welding in order to produce all their own requirements of simple agricultural implements in accordance with their strategic plans; and to assess the scope for international co-operation towards this end.
- c) The fostering of long term arrangements between manufacturers of more complex agricultural machines in developed countries and users in developing countries to ensure that the developing countries learn to operate, maintain, repair and eventually build the more complex machines.
- d) The assessment of the need for international co-operation in general programmes of training individuals from developing countries in the local production of components and spare parts needed for the maintenance and repair of agricultural machinery.

- e) The creation of Agricultural Machinery Committees and Design and Development centres at national and regional levels to inspire and guide a continuing programme of work on the evolution and production of the types of agricultural machines needed for the specific conditions in developing countries.
- f) The expansion of the work of established International Agricultural Institutes dealing with crops and livestock to ensure that adequate resources should be devoted to the design of new and adapted machines suitable for manufacture in the developing countries.
- g) The assessment of the need for regional production units for the production and marketing of agricultural machinery to secure economies of scale for a number of neighbouring countries which might individually offer too small a market.
- h) The consideration of local and international financial and contract conditions related to the purchase, hire and production of agricultural machinery.
- i) Development of equipment for irrigation and storage.

LIST OF PARTICIPANTS

Annex 1

M. Jean-Pascal BYÉ
Chercheur, Institut National de la Recherche Agronomique
et Institut de Recherche Economique et de Planification (IREP-INRA)
Boite postale 47 - Centre de tri
38040 - Grenoble Cédex
France

Mr. Vashek CERVINKA
Agricultural Engineer, California Department
of Food and Agriculture
Sacramento, Cal., USA

M. Birame N'Goye FALL
Directeur Commercial, Société sénégalaise de constructions
mécaniques et de matériels agricoles (SISCOMA)
Boite postale No. 3214
Dakar, Sénégal

Sr. Reginald LEDGARD
Director, Tractores Andinos S.A.
Los Pinos 550
San Isidro, Lima, Perú

Mr. Charles J. MOSS
Head of Agricultural Engineering
International Rice Research Institute
P.O. Box 933
Manila, Philippines

Mr. James H. O'CALLAGHAN
Expert, Department of Agricultural Engineering
University of Newcastle-upon-Tyne
Newcastle, NE 17RE, United Kingdom

Mr. Giuseppe PELLIZZI
Director, Istituto di Ingegneria Agraria
Via Celoria No. 2
20133-Milano, Italy

M. Claude UZUREAU
Directeur du Centre d'Etudes et d'Expérimentation
du Machinisme Agricole Tropical (CEEMAT)
Parc de Tourvoie
92160 - Antony, France

Mr. WANG Wan-chun
Vice-President of the Chinese Society of Agricultural Machinery,
Chief Engineer of the Research Institute of Agricultural Machinery
of the First Ministry of Machine Building of China
Desheng Men Wai
Peking, People's Republic of China

UNIDO STAFF

Mr. A. Hacini, Head, Negotiations Section,
Division of Policy Co-ordination

Mr. W. Oettinger, Chairman, Iron and Steel Task Force

Mr. J. R. Succar, Head, Sectoral Studies Section,
International Centre for Industrial Studies

Mr. M. Abdelmoneim, Investment Co-operative Programme Office
Industrial Operation Division

Mr. P. Gonod, Sectoral Studies Section,
International Centre for Industrial Studies

Mr. W. L. Hewlett, Negotiations Section,
Division of Policy Co-ordination

Mr. C. Mérida, Negotiations Section, Division of Policy Co-ordination

Mr. A. Pagani, Engineering Industries Section,
Industrial Operations Division

Mr. A. Swamy-Rao, Engineering Industries Section,
Industrial Operations Division

Annex II

Titles of Topics for discussion

- 1) Training, scope and size of the general problem.
- 2) Profile of individual training courses.
- 3) Specific experience of training in African countries.
- 4) Creation of national and regional Agricultural Machinery Committees.
- 5) Strategic planning.
- 6) Need for stability of agricultural and industrial policies.
- 7) Design and development work for new equipment for developing countries.
- 8) Regional centres for producing more complex machines.
- 9) Specific and adapted designs for equipment for tropical agriculture and other climatic zones.
- 10) Energy use considerations.
- 11) Progressive steps in learning techniques of maintenance, repair and production of components and complete machines.
- 12) Need for innovation to start from the point of usage.
- 13) Analysis and simplification of production methods.
- 14) Contracting services for maintaining equipment - private or state agencies.
- 15) Use of machines on not unlimited land.
- 16) UNIDO help with contracts for imported machines and spare parts.
- 17) Assessment of machinery requirements in regions and zones.
- 18) Regional co-operation in production units.

Areas of related problems

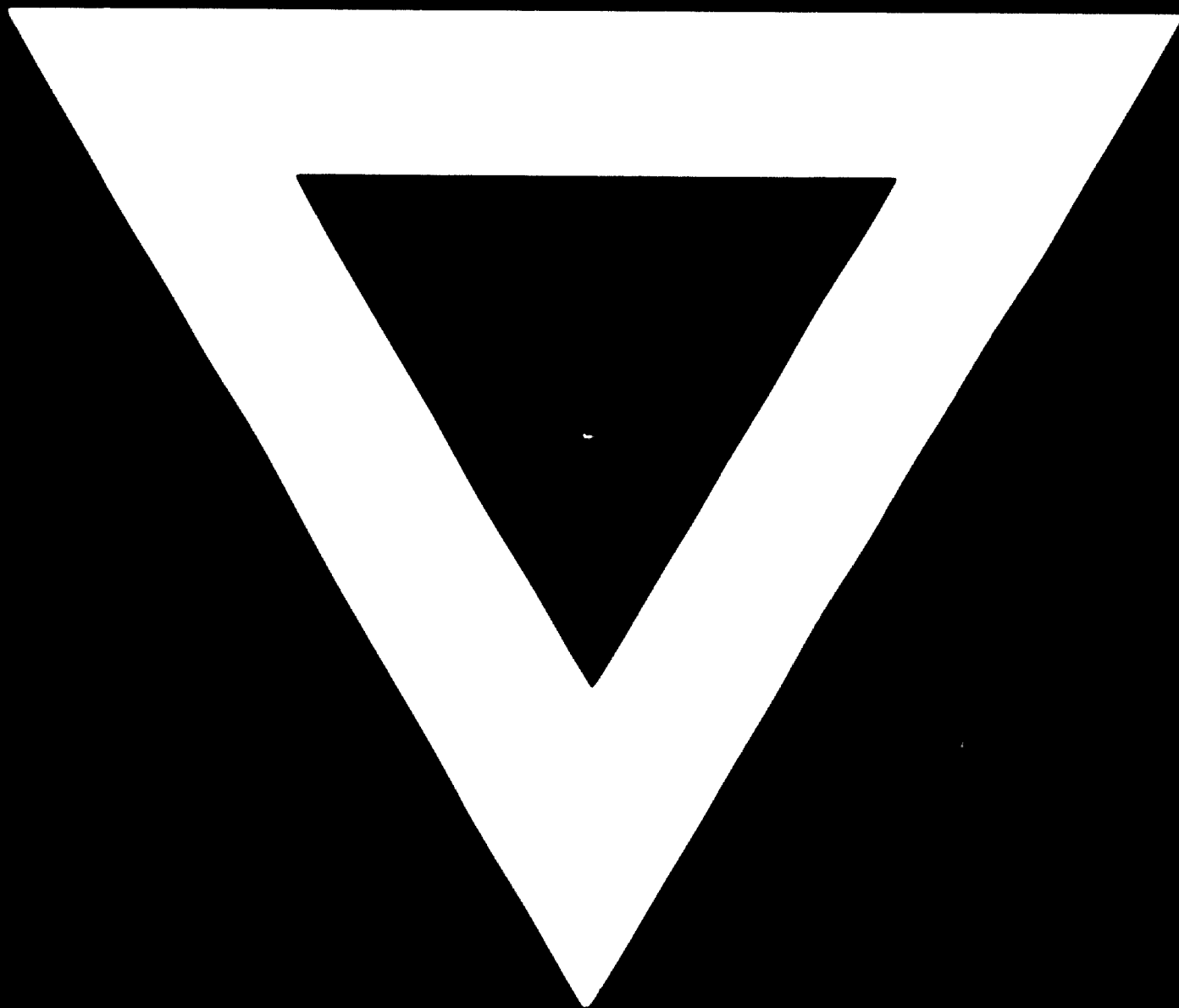
Area I Planning and fundamental points. Titles 1) to 6).

Area II Technology. Titles 7) to 13).

Area III Finance and Marketing. Titles 14) to 18).



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