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OCCASION

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United Nations Industrial Development Organization

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ORIGINAL: ENGLISH

Expert Group Meeting on Agricultural
Machinery Industry in Developing Countries

Vienna, 18 - 22 August 1969

Conference Room 1,
UNIDO, Innhalsplatz 1,
A-1010 Vienna, Austria
Telephone: 433500

PROVISIONAL AGENDA 1/

(with Provisional Schedule of Work and Plan of the Meeting)

Monday, 18 August 1969

- | | |
|------------|--|
| 7.30 a.m. | Registration |
| 10.00 a.m. | FIRST MEETING (Inaugural Session) |
| 2.00 p.m. | SECOND MEETING - DISCUSSIONS
Item 1 - Role of agricultural machinery and usage
Item 2 - Classification, demand and trend in design |

Tuesday, 19 August 1969

- | | |
|-----------|--|
| 9.00 a.m. | THIRD MEETING - DISCUSSIONS
Item 3 - Manufacture and indigenous production
Item 4 - Programme towards manufacture |
| 2.00 p.m. | FOURTH MEETING - DISCUSSIONS
Item 5 - Design and development
Item 6 - Testing and standardization
Item 7 - Agricultural engineering education |

Wednesday, 20 August 1969

- | | |
|-----------|--|
| 9.00 a.m. | FIFTH MEETING - DISCUSSIONS
Item 8 - Marketing, repair and maintenance
Item 9 - Large-scale technology to small-scale sector
Item 10 - Regional co-operation and assistance |
| 2.00 p.m. | SIXTH MEETING - DISCUSSIONS
Item 11 - Guide towards UNIDO activities
Item 12 - Conclusions |

1/ Further details concerning the proposed schedule of work are attached as annex A; annotated provisional agenda, and the plan of meeting is attached as annex B.

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.

January 21, 1948 at 10

9:00 a.m.

SUBJECT: T-22

2:00 p.m. ITEM 10 - ~~Improvement~~ ^{Improvement} of
T-22

ITEM 11 - ~~Improvement~~ ^{Improvement} of report

January 22, 1948 at 10

9:00 a.m.

SUBJECT: T-22

2:00 p.m. ITEM 10 - ~~Improvement~~ ^{Improvement} of report
ITEM 11 - ~~Improvement~~ ^{Improvement} (Final Report)

ANNOTATED PROVISIONAL AGENDA

Monday, 18 August 1960

Registration - 10.00 a.m.

FIRST MEETING (Plenary Session) 10.30 a.m. - 1.00 p.m.

- Welcoming address
Presentation of the seminar
The rural situation
Election of chairmen
Election of Vice-Chairmen
Election of rapporteur
Chairman's address
Approval of agenda
Introduction of participants
Appointment of drafting committee (5 members)
Presentation of synopsis of papers

SECOND MEETING - 2.00 p.m. - 5.00 p.m.

Appointment of a sub-committee on permits - 3 members

Item-1 Relationship and compatibility

- (a) Relationship between mechanized equipment and the agricultural labour force in developing countries
(b) Institutional factors affecting relationship
(c) Factors affecting relationship
(d) Relationship of mechanized equipment to production pattern
(e) Relationship between mechanized equipment and economic development

Item-2 Classification, Demand and Supply

- (a) Institutional factors resulting in different types
(b) Classification of agricultural products
(c) Classification of agricultural products
(d) Possibility of using existing machinery
(e) Priority areas for mechanized agriculture to be considered for mechanization
(f) Institutional factors affecting relationship
(g) Institutional factors affecting relationship
(h) Requirements of mechanized production equipment - policy, cultivation
(i) Requirements of mechanized production equipment

Background papers

- Trends and their role in the food production of the world - Mr. J.W. Ellis
- FAO's activities in agricultural mechanization in developing countries

(1) Problem definition

- (i) Decision variables
- (ii) Assumptions
- (iii) Objective function
- (iv) Constraints and their descriptions
- (v) Data
- (vi) Model type
- (vii) Problem statement
- (viii) Problem description

(c) Problem description

- Mainly based on the following constraint production
- Production quantity is limited by the
- Demand is constant

- (i) Production x
- (ii) Production quantity
- (iii) Production cost
- (iv) Production time
- (v) Production capacity
- (vi) Production time capacity
- (vii) Production cost capacity
- (viii) Selling price
- (ix) Production time limit
- (x) Production cost limit

Decision variables

- Production quantity is limited by the
- Production time is limited by the
- Production cost is limited by the
- Production time capacity is limited by the
- Production cost capacity is limited by the
- Production time limit is limited by the
- Production cost limit is limited by the
- Production time limit is limited by the
- Production cost limit is limited by the

REPORTING TIME - 2.00 p.m. - 5.30 p.m.

Appointment of 3 members drafting subcommittee - IV session

Item-5 Design and development

- (a) Design of tractors and machinery for small cultivation -
including heavy-duty tractors
- (b) Requirements of machinery suitable for local conditions
- (c) Characteristics of soil, terrain and technical capabilities for agricultural machinery in the developing countries
- (d) Design and development of "push and tractors" and agricultural implements in the developing countries and principal objectives desired
- (e) Designing of institutions, technical and research departments, laboratories, etc., for testing of agricultural machinery and so on
- (f) Design of training institutions, courses or organizations for training of engineers

Item-6 Production of machinery

- (a) Selection of appropriate sites, facilities
- (b) Development of industrial and laboratory facilities
- (c) Development of organization for dissemination
- (d) Development of institutions, national and regional technical committees for development of equipment
- (e) Selection of sites, institutions, production of machinery, etc.

Item-7 Application of modern technology

- (a) Selection of most appropriate modern techniques and methods
- (b) Selection of appropriate experience, knowledge, skills, characteristics, organization for technological activities
- (c) Selection of institutions, courses and plans of achieving the above

Background papers

- Design of design of agricultural machinery for developing countries - Mr. A. K. Bhattacharya
- Selection of criteria, policies for soil conservation - Mr. A.K. Bhattacharya
- Determination of parameters for tree/agriculture assemblies - contribution of the dependence of tree and agriculture from machinery designs - Mr. S. C. Orde

Wednesday, 20 August 1977

MINI MEET 2 - 1.00 p.m. - 12.30 p.m.

Appendix of the draft memorandum - Vengroo,

Item-7: Application of new technology

- (a) Production of high quality products
- (b) Production of low cost products
- (c) Production of high quality products at low cost
- (d) Production of products in large quantities
- (e) Production of products in small quantities
- (f) Production of products in medium quantities
- (g) Production of products in large quantities
- (h) Production of products in medium quantities
- (i) Production of products in small quantities
- (j) Production of products in very small quantities
- (k) Production of products in very large quantities
- (l) Production of products in very small quantities
- (m) Production of products in very large quantities
- (n) Production of products in very small quantities
- (o) Production of products in very large quantities
- (p) Production of products in very small quantities
- (q) Production of products in very large quantities
- (r) Production of products in very small quantities
- (s) Production of products in very large quantities
- (t) Production of products in very small quantities
- (u) Production of products in very large quantities
- (v) Production of products in very small quantities
- (w) Production of products in very large quantities
- (x) Production of products in very small quantities
- (y) Production of products in very large quantities
- (z) Production of products in very small quantities

Item-8: Application of new technology in different industries

- (a) Chemicals, petrochemicals, fertilizers, pharmaceuticals, cosmetics
- (b) Auto parts, allied and transport vehicles, electricals, electronic goods
- (c) Agricultural products, garments, food products, engineering products
- (d) Textiles and products - personal, protection and durability apparel
- (e) Export substitution
- (f) Manufacturing export
- (g) Construction industry

Item-9: Rational Co-operation in Aspintho

- (a) Possibility of co-operation in establishing manufacturing enterprises in the following sectors
 - (i) Chemicals, petrochemicals, fertilizers, pharmaceuticals, cosmetics
 - (ii) Auto parts, allied and transport vehicles, electricals, electronic goods
 - (iii) Agricultural products
 - (iv) Food products
 - (v) Construction industry
- (b) Possibility of co-operation in establishing manufacturing enterprises in the following sectors
 - (i) Chemicals, petrochemicals, fertilizers, pharmaceuticals, cosmetics
 - (ii) Auto parts, allied and transport vehicles, electricals, electronic goods
 - (iii) Agricultural products
 - (iv) Food products
 - (v) Construction industry
- (c) Possibility of co-operation in the following sectors
 - (i) Chemicals, petrochemicals, fertilizers, pharmaceuticals, cosmetics
 - (ii) Auto parts, allied and transport vehicles, electricals, electronic goods
 - (iii) Agricultural products
 - (iv) Food products
 - (v) Construction industry
- (d) Possibility of co-operation in the following sectors
 - (i) Chemicals, petrochemicals, fertilizers, pharmaceuticals, cosmetics
 - (ii) Auto parts, allied and transport vehicles, electricals, electronic goods
 - (iii) Agricultural products
 - (iv) Food products
 - (v) Construction industry

Section 2

Figure 1



Complex Plane

- Preimage of a point z is the point z itself.
- Preimage of a line L is a line parallel to L .
- Preimage of a circle C is a circle parallel to C .
- Preimage of a point w is a point w itself.
- S^1 is mapped onto the real axis.

Real Axis

- 1.00
- n=11
- (a) $\text{Re}(z) > 0$ $\Rightarrow z$ is in the right half-plane.
 - (b) $\text{Im}(z) < 0$ $\Rightarrow z$ is in the lower half-plane.
 - (c) $|z| < 1$ $\Rightarrow z$ is in the unit disk.
 - (d) $|z| > 1$ $\Rightarrow z$ is outside the unit disk.
 - (e) $\text{Re}(z) < 0$ $\Rightarrow z$ is in the left half-plane.
 - (f) $\text{Im}(z) > 0$ $\Rightarrow z$ is in the upper half-plane.
 - (g) $|z| < 2$ $\Rightarrow z$ is in the annulus $1 < |z| < 2$.
 - (h) $|z| > 2$ $\Rightarrow z$ is outside the annulus $1 < |z| < 2$.
 - (i) $\text{Re}(z) > 2$ $\Rightarrow z$ is in the right half-plane, $|z| > 2$.
 - (j) $\text{Im}(z) < -2$ $\Rightarrow z$ is in the lower half-plane, $|z| > 2$.
 - (k) $1 < |z| < 2$ $\Rightarrow z$ is in the annulus $1 < |z| < 2$.
 - (l) $|z| < 1$ $\Rightarrow z$ is in the unit disk, $|z| < 1$.

(c) *For approximate values*

$$\begin{aligned} \text{For } t = 0, & \quad P_{\text{initial}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-3}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-2}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-1}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^0, & \quad P_{\text{final}} = 10^8 \text{ Pa} \end{aligned}$$

(d) *For exact values* (approximate values)

$$\begin{aligned} \text{For } t = 0, & \quad P_{\text{initial}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-3}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-2}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-1}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^0, & \quad P_{\text{final}} = 10^8 \text{ Pa} \end{aligned}$$

(e) *For exact values* (approximate values)

$$\begin{aligned} \text{For } t = 0, & \quad P_{\text{initial}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-3}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-2}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^{-1}, & \quad P_{\text{final}} = 10^8 \text{ Pa} \\ \text{For } t = 10^0, & \quad P_{\text{final}} = 10^8 \text{ Pa} \end{aligned}$$

Item 17 Q12 AnsThe following table gives the values of P (in Pa) at $t = 10^{-3}$, 10^{-2} , 10^{-1} , 10^0 .Diagram 21 AnsSchematic diagram Ans

A vessel containing air is connected to a pump which is connected to a reservoir.

A valve is closed.

Diagram 22 AnsAt $t = 10^{-3}$, $P = 10^8 \text{ Pa}$ At $t = 10^{-2}$, $P = 10^8 \text{ Pa}$ At $t = 10^{-1}$, $P = 10^8 \text{ Pa}$ At $t = 10^0$, $P = 10^8 \text{ Pa}$

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PLAN OF WORKING

It is recognized that agricultural machinery and equipment is one of the most important factors for increasing food-fiber production through efficient, economic and judicious application of inputs. There has been growing concern in the developing countries regarding self-reliance towards the adoption of viable industrial technology integrated with the domestic engineering industry. The Asia and Industrial Development Organization would like to explore the various avenues of assistance that it can render to the developing countries towards various aspects of agricultural machinery manufacture. The objectives of this meeting are:-

- (i) To explore and discuss various aspects of agricultural machinery development, design, production, marketing, service, financing and other allied elements in the developing countries.
- (ii) To recommend the future activities of FAO in the area of agricultural machinery in the developing countries, ultimately leading to production of such machinery and implements in developing countries.

Participants

This interregional meeting is organized by FAO. About forty participants from industrialized and developing countries, from other United Nations agencies and various international institutions and from manufacturers, research organizations, etc. will attend.

Nine full papers on rural mechanization of agriculture and agricultural machinery in the developing countries are expected to be prepared by experts in this field. The papers or descriptive background literature will be mailed in advance to the participants for reference and study.

Nature of meeting

The "Programme" paper to be mailed in advance will be in English, and will consist of about 40 pages. It is not proposed to have a formal presentation of these papers at the time. These papers are intended to give a general background of the core machinery field. However, a sample of the papers is expected to be presented at the meeting. The meeting is expected to proceed mainly on the basis of discussions. In order to assist the discussions, a draft report will be prepared and issued by WIPO.

Working language

Working language will be English, considering the limited number of participants. It is not likely possible to provide simultaneous interpretation in another language.

Arrival of participants

The main programme will be starting on Monday, 13 August 1967, at 10 a.m. All participants are expected to arrive in Vienna by the evening of Sunday, 12 August 1967. It is recommended that, on arrival at Vienna Airport (Schwechat) participants take the airport bus to "Landstrasse-Empfangsstraße", which is the terminal, and then proceed by taxi to the hotel.

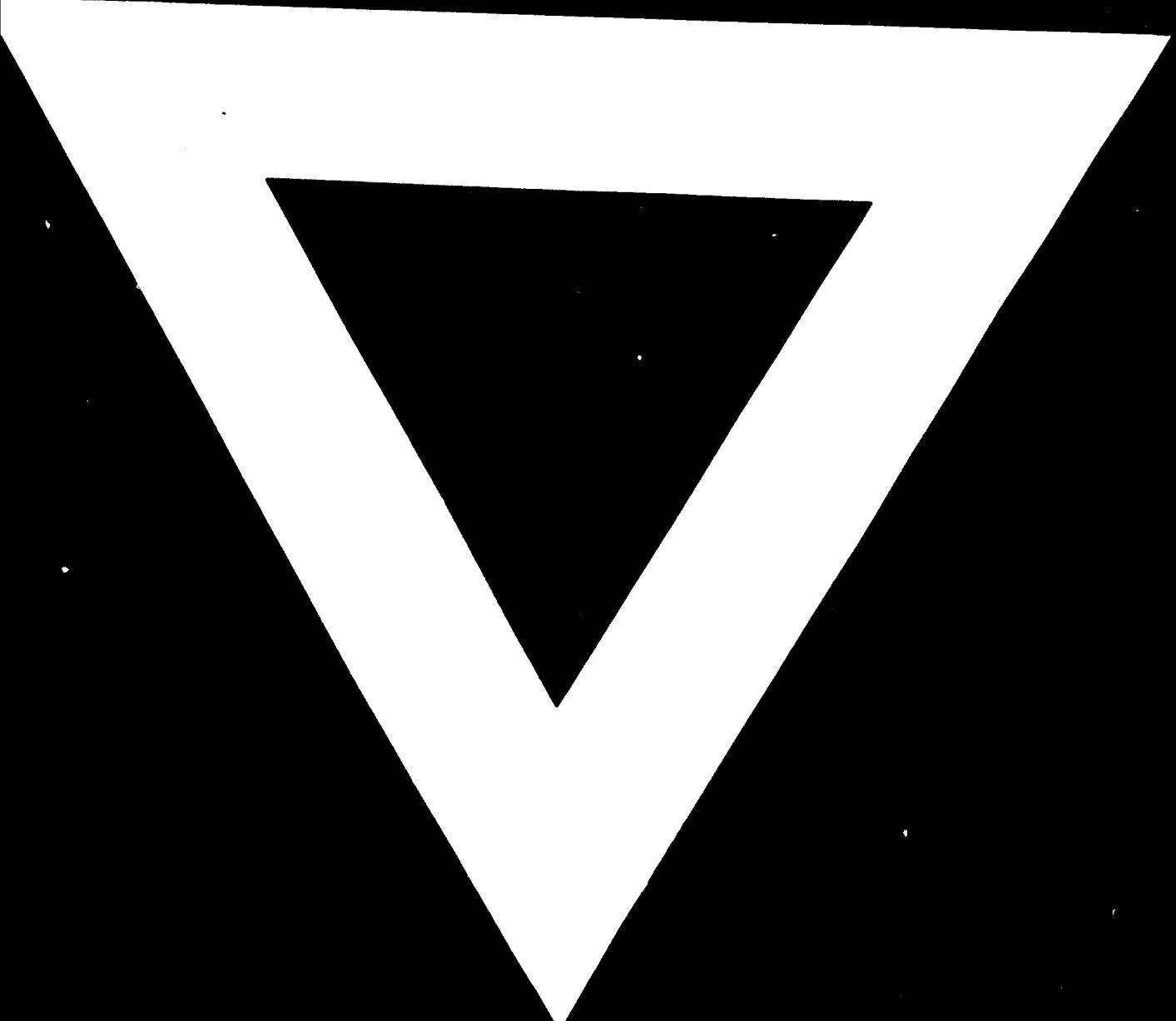
Registration

Registration of participants will start at 7.30 a.m. on Monday, 13 August 1967, at the registration desk in the conference room. The First Meeting (Technical Session) will commence at 10.30 a.m.

Seating

Seating arrangements will be indicated on a chart to be issued at the registration desk.

WIPO Secretariat: Mr. L. Rethlefsen
Deputy Director, Industrial Technology Division
Mr. G. H. Murphy
Chief of Planning, Industrial Section
Mr. Stuart G. A. H.
Industrial Development Officer, Industrial Technology
Division



10. 8. 72