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Expert Group Meeting on the Design and Manufacture of Wet-land (Rice) Mechanization, Harvesting and Threshing Machinery in Developing Countries of Asia and the Far East Region. 1/

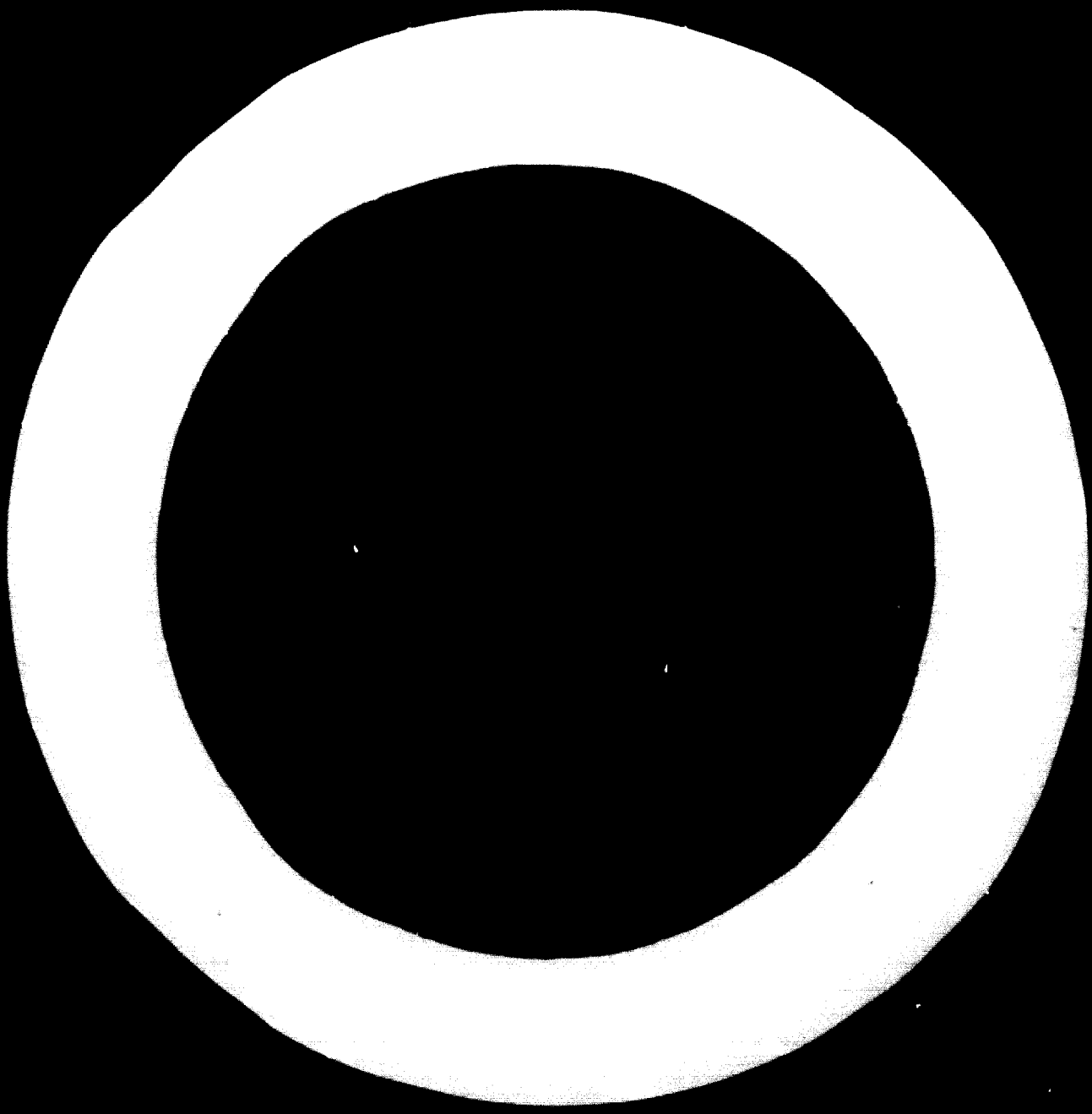
Los Banos, Laguna, The Philippines
12 - 17 March 1973

AIDE - MEMOIRE

1. Background information:

1.1 Of all the agricultural crops in general and food crops in particular, rice is one of the least mechanised and yet one of the most labour intensive crops in developing countries. Engineering product specifications, and technical information on agricultural machinery and equipment dealing with the specific needs of wet-land cultivation, are lacking. However, it appears from the past few years that the developing countries as well as the manufacturers in industrialised countries are aware of the importance to promote the development and manufacture of appropriate machinery and implements for rice production. In most of the countries of Asia and Far East a number of institutions for agricultural research, engineering design and development, have undertaken significant activities oriented to the development and local manufacture of such machinery.

1/ Organised by the United Nations Industrial Development Organization (UNIDO) in co-operation with the International Rice Research Institute (IRRI).



1.2. There has been no significant improvement in the animal-drawn implements used for rice cultivation in most of the developing countries. The local wooden plough and plank are the only implements that are generally used for puddling and levelling. At present, the only power equipment for rice cultivation is 2-wheel riding tractor with paddy-cage wheels and a disk harrow for puddling; in some cases a spring-type cultivator is replacing the harrow. P.T.O. driven rotovators as well as 2-wheel walking tractors (power tillers), are being used to some extent. Power paddy threshers are used on a very limited scale. Hand-weeders and pedal-threshers are not very popular in most of the countries while small engines and crop protection equipment is accepted and widely used in most of the developing countries. The present data on the existing park of agricultural machinery and implements does not specify the figures concerning equipment used for rice cultivation only. With the introduction of hybrid seed, multicropping system and irrigation, the need for proper management including water management, and in turn effective application of inputs and industrial processing of outputs has become an important factor for successful agriculture. Therefore, the demand for proper machinery and implements and their local development and manufacture has also been emphasized by most of the developing countries of Asian and Far East region.

1.3. There is a need to develop and manufacture agricultural machinery and implements covering the complete system of rice cultivation. Therefore, equipment for pre-sowing seed treatment, primary and secondary tillage equipment such as rotovators, seeding and transplanting equipment, threshers, harvesters, grain drainers, milling machines, and also power tillers and paddy tractors and matching hand tools have to be considered. At present, in most of the developing countries, hand-weeders, and pedal threshers are manufactured. Power paddy-threshers and rice mills are manufactured in some of the countries. Cage wheels are fabricated in all the countries. Efforts have been undertaken in some countries to develop a seeder and rotary cultivator. 2-wheel walking tractors are assembled in a few countries. General purpose tractors are assembled in a few countries and manufactured in one country. No specially designed paddy tractor is available.

2. Justification for the Expert Group Meeting (1973)

2.1. The major problems in the development and local manufacture of suitable machinery for rice cultivation, are the lack of accepted mechanized practices, of proven product specifications and product lines. In addition, technical service facilities for the collection and dissemination of information to the manufacturers are evidently necessary.

Therefore, integrated efforts should be made by all those concerned to assist in the development and local manufacture of suitable machinery and equipment for rice mechanization. However, these objectives can be realized only if research, development and testing institutions, agricultural engineering professional societies, local enterprises and manufacturers in the industrialized countries integrate their efforts in close co-operation with each other towards the development and local manufacture of suitable machinery and equipment.

2.2. One of the objectives of the United Nations Industrial Development Organization (UNIDO) is to assist the developing countries in their effort to expand the existing, and establish new manufacturing facilities together with allied services. Therefore, UNIDO wishes to co-operate with manufacturers, agricultural engineering professional organizations, and research, design, development and testing institutions in this important field of activity.

2.3. A number of national institutions for the development and testing of agricultural machinery, in all countries of Asia and the Far East and a number of small and medium sized manufacturers in developing countries and a few manufacturers in industrialized countries are aware of the importance of initiating local manufacture of such equipment and machinery.

2.4. The Agricultural Engineering Department of The International Rice Research Institute (IRRI) is engaged in equipment development for the production and processing of rice. Activities in this area are oriented toward encouraging the local manufacture of small-scale agricultural equipment in rice-producing regions of the developing world. This approach is based on certain aspects of machinery research which are specific to the needs of the developing countries. In Asia, medium-sized landholdings of from 2 to 10 hectares constitute the largest proportion of total land under paddy cultivation. As a group, farmers in this size category have the potential to support an intermediate level of mechanisation. The Institute's programme is specifically focused on the requirements of medium-sized tropical farm holdings which are too large to work economically with animals but are too small for investments in 30-plus hp equipment. In the processing area, equipment development activities are directed to provide modern village or community-size drying and processing equipment which can be locally manufactured in the tropical countries. Limited applied machinery research is also conducted to assist manufacturers outside the tropical regions in the development of new equipment. Such research emphasizes solving specific mechanization problems rather than the development of machines for production. Assistance is also provided in the evaluation of new concepts and in field-testing prototype equipment supplied by established manufacturers.

2.5. Therefore, with the objective of promoting local manufacture of appropriate machinery for rice production in the developing countries of Asia and Far East, UNIDO in co-operation with the International Rice Research Institute (IRRI), Philippines, is organizing an Expert Group Meeting at IRRI in March 1973.

3. Pre-project activities carried out in 1971-72

3.1. During 1972, six background papers for the 1973 Expert Group Meeting, five studies on design, maintenance, storage, professional societies and manufacturers' associations with a view to promoting the agricultural machinery industry have been completed. A paper on the scope and possible activities of the proposed Asian Agricultural Machinery Institute was prepared and presented at the ECAFE expert group meeting on an Asian Agricultural Machinery Institute held at Bangkok in October 1972. In addition, a paper on the interrelationship among mechanization, manufacture of agricultural machinery and employment was presented at the Agricultural Engineering Session of the Working Party of the International Rice Commission, Bangkok, in November 1972. These papers will be discussed at the 1973 Expert Group Meeting.

3.2. In 1972, UNIDO, through a team of consultants, carried out a regional study on the design and manufacture of rice mechanization machinery in selected developing countries of Asia and Far East. The study included an analysis of specific problems of local manufacture of agricultural machinery and implements, including storage and transport machinery and considering the problems generated by the "Green Revolution". Local manufacturers who are interested in product diversification and expansion of manufacturing facilities have been identified. The country reports and regional report prepared as a result of this regional study will be discussed at the 1973 Expert Group Meeting.

4. Purpose of the Expert Group Meeting: 1973

4.1. The Expert Group Meeting will be in the form of a workshop. The participants are to be carefully selected as to include the potential or existing small and medium scale manufacturers from the developing countries, representatives from the Governments, representatives from international manufacturing firms, technical personnel from design, development and testing organizations, representatives of financing institutions and selected technical experts in the field of production and establishment of manufacturing units. Emphasis will be placed on discussions on various agricultural machinery and implements

developed by various manufacturers and research institutions in general, and on demonstration and discussions on those developed by the International Rice Research Institute in particular. The meeting will also explore ways and means of making available the drawings, designs and prototypes of suitable machinery as well as on investment promotion for the establishment of manufacturing units on a commercial scale. It will also formulate specific guidelines for UNIDO-IRRI joint activities and also for UNIDO activities in co-operation with interested organizations to assist in adaptation, prototype fabrication and local manufacture by entrepreneurs in the selected developing countries.

5. Description of the project - 1973: Expert Group Meeting on the Design and Manufacture of Wet-land (rice) Mechanization, Harvesting and Threshing Machinery.

5.1. Participants in the five days Expert Group Meeting will be representatives from 10 developing countries, small and medium-scale manufacturers, technical experts from UNIDO and IRRI, and also officials from FAO and ECAFE. The Expert Group Meeting will consist of:

1 day: Technical discussions;
1 day: Review of design and prototypes;
1 day: Technical consultations;
1 day: Identification of designs for local manufacture and formulation of a suitable manufacturing programme;
1 day: Conclusions and recommendations.

5.2. During the Expert Group Meeting, discussions will be limited to the manufacture of specific product lines, most appropriate to the participating developing countries and to the region.

6. Date, place and organization

6.1. The Expert Group Meeting will be held at the Agricultural Engineering Department, International Rice Research Institute, Los Banos, Laguna, The Philippines, from Monday 12 to Friday 17 March 1973.

7. Participants

7.1. Experts nominated by the selected Governments of developing countries:

Selected Governments are invited to nominate up to two candidates either from the Government, or private or corporate sector to participate in the meeting as experts.

Such nominees should be senior level technical personnel having managerial capacity in the small and/or medium scale manufacturing units or in the policy planning level of the Government, responsible for product diversification or the establishment of additional production capacity for local manufacture of agricultural machinery and implements.

UNIDO will select the participants from among the nominations received, giving due regard to professional qualifications, level of experience and other relevant considerations. Participants will attend the Expert Group Meeting in their individual capacity although they have been officially nominated by their respective Governments. UNIDO would be bearing the travel expenses and pay a daily subsistence allowance to the selected experts.

7.2. Experts from industry from selected developing countries:

UNIDO will be inviting individual experts from the agricultural machinery and implements industrial sector from selected developing countries. Such an expert will have sufficient knowledge in product identification, specification, prototype development and manufacturing aspects. He is expected to be capable, during the Expert Group Meeting, to establish product specifications and identify prototypes which may have a potential for local manufacture in a manufacturing unit in his country and recommend ways and means for eventual local adaptation, prototype fabrication and manufacture. It is desirable that the nominee has knowledge of simple machine tools requirements and financial aspects relevant to the manufacture of these products. UNIDO would be bearing the travel expenses and pay a daily subsistence allowance to the experts invited to participate.

7.3. Consultants:

UNIDO will be inviting a limited number of consultants who have a deep knowledge in the various aspects of wet-land mechanisation machinery manufacture to present papers, take part in discussions and assist in the proceedings of the meeting. Such consultants will be engaged by UNIDO on a contractual basis.

7.4. Other participants (observers):

It is proposed to invite participants from selected international organizations, professional institutions and interested manufacturers both from industrialised as well as developing countries. However, due to the limitation of UNIDO funds, such participants will be requested to bear all expenses involved in the participation through their own resources.

8. Documentation

8.1. UNIDO will be forwarding to all participants the detailed agenda, background papers and other documents at a later date. Other technical papers will be presented during the Expert Group Meeting.

8.2. Detailed "Notes for the Participants" highlighting the administrative aspects of participation will be mailed by UNIDO at a later date.

9. Working Language

9.1. The Expert Group Meeting will be conducted in English. Consequently, all participants must have a good knowledge of the English language.

10. Financial and administrative arrangements

10.1. For all experts nominated by the Governments and accepted by UNIDO, and experts invited by UNIDO (reference item 7.1. and 7.2.)

10.1.1. UNIDO would provide

(a) round trip economy class air transportation between airport of departure in the home country and airport in Manila, The Philippines, in accordance with the existing rules of the United Nations, and

(b) a daily subsistence allowance of US$ 17.00 per day for 3 days (to cover arrival and departure days expenses and incidental expenses) plus an "out of pocket" allowance for a duration of 5 days of the meeting according to the existing rules of the United Nations. (Note: Lodging and Boarding will be provided by the International Rice Research Institute).

10.1.2. International Rice Research Institute will provide

(a) lodging and boarding for a duration of 5 days (12-17 March 1972) and will make

(b) internal travel arrangements between Manila and Los Banos.

10.2. For all consultants engaged by UNIDO and other observers invited (reference item 7.3. and 7.4.)

10.2.1. International Rice Research Institute will provide

(a) lodging and boarding at a nominal cost and

(b) make arrangements for internal travel between Manila and Los Banos.

10.3. For the Expert Group Meeting, the International Rice Research Institute will also provide

(a) conference services and

(b) reproduction of a limited number of technical papers.

10.4. All participants will be requested to bear the following costs:

10.4.1. All expenses in the participants' home country with reference to travel abroad, including expenditures for passports, visas, medical examinations, vaccinations and other such miscellaneous items, as well as internal travel to and from the airport of departure in the home country.

10.4.2. Salary and other benefits for the participants during the period of the Expert Group Meeting.

10.5. Neither the United Nations nor the host Institute will assume responsibility for the following expenditures:

10.5.1. Travel and any other costs incurred by dependants who might accompany the participants.

10.5.2. Compensation in the event of death, disability or illness of participants in connexion with their attending the Expert Group Meeting.

10.5.3. Costs incurred to participants with respect to travel insurance, accident insurance, medical bills and hospitalization fees in connexion with their attending the Expert Group Meeting.

10.5.4. Loss of or damage to personal property of participants while attending the Expert Group Meeting.

10.5.5. Purchase of personal belongings and compensation in the event of damage caused to them by climatic or other conditions.

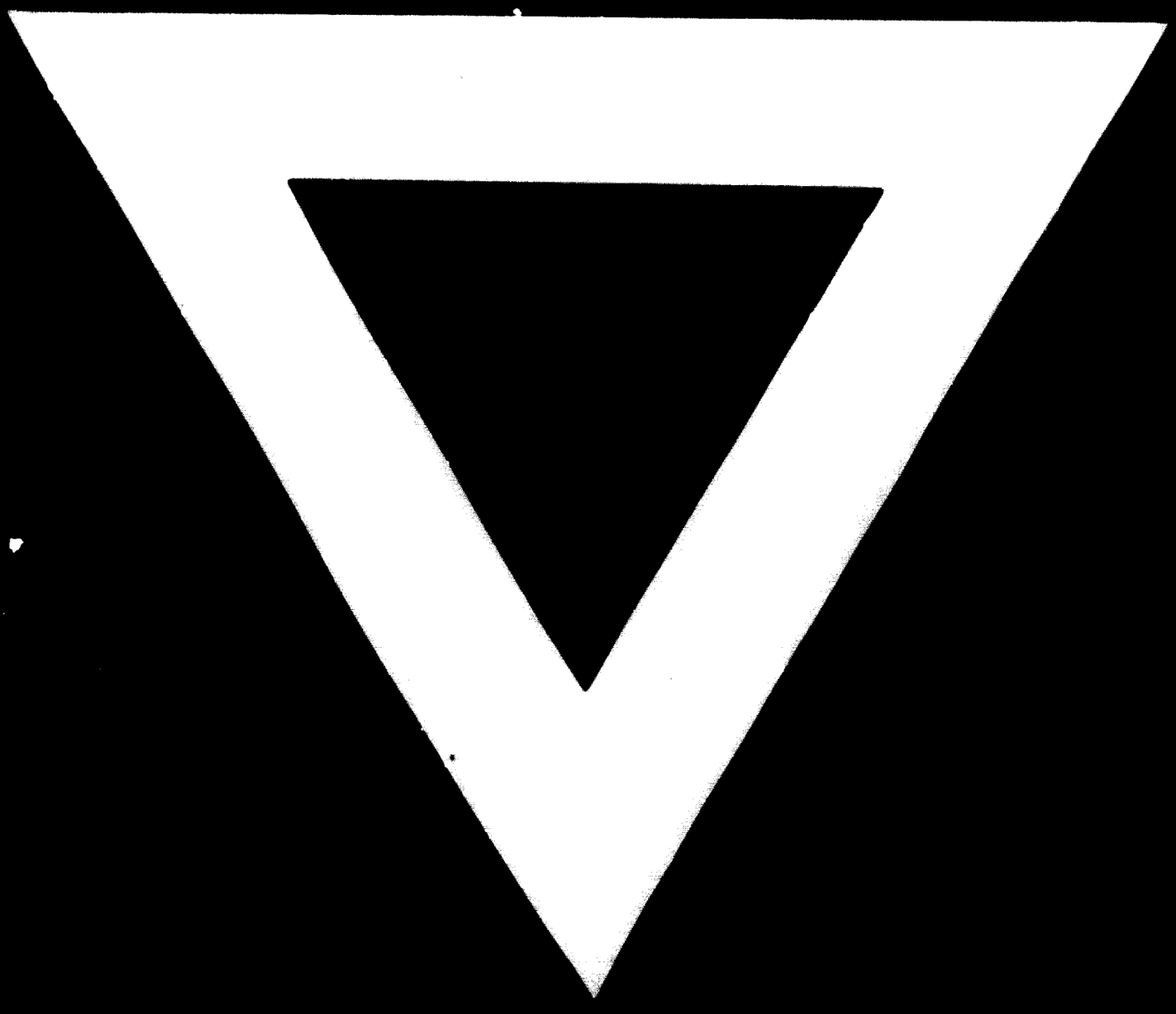
NOTE: Participants are strongly advised not to have members of their family accompany them, since there will be no accommodation available for family members.

11. Correspondence with UNIDO

11.1. Official correspondence up to 10 February 1973 from the participants should be addressed as follows:

Mr. Swamy Rao A.A.
Interregional Adviser
Engineering Industries Section
Industrial Technology Division
UNIDO, P.O. Box 707
1010 Vienna, AUSTRIA
(Telephone: 4350-842
cable UNIDO.WIEN)

11.2. UNIDO will be advising the participants at a later date regarding the persons to whom specific communications should be addressed.



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