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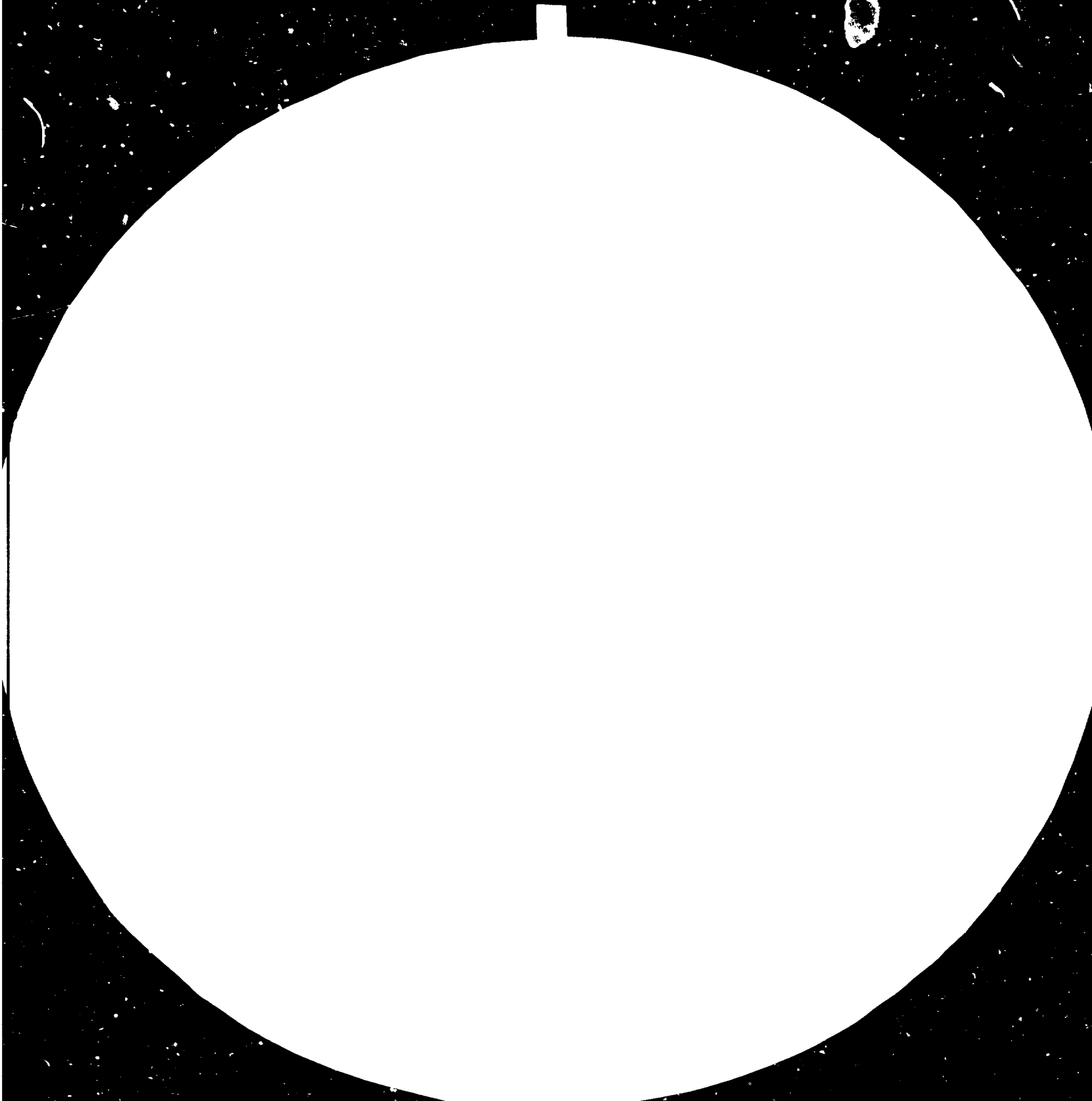
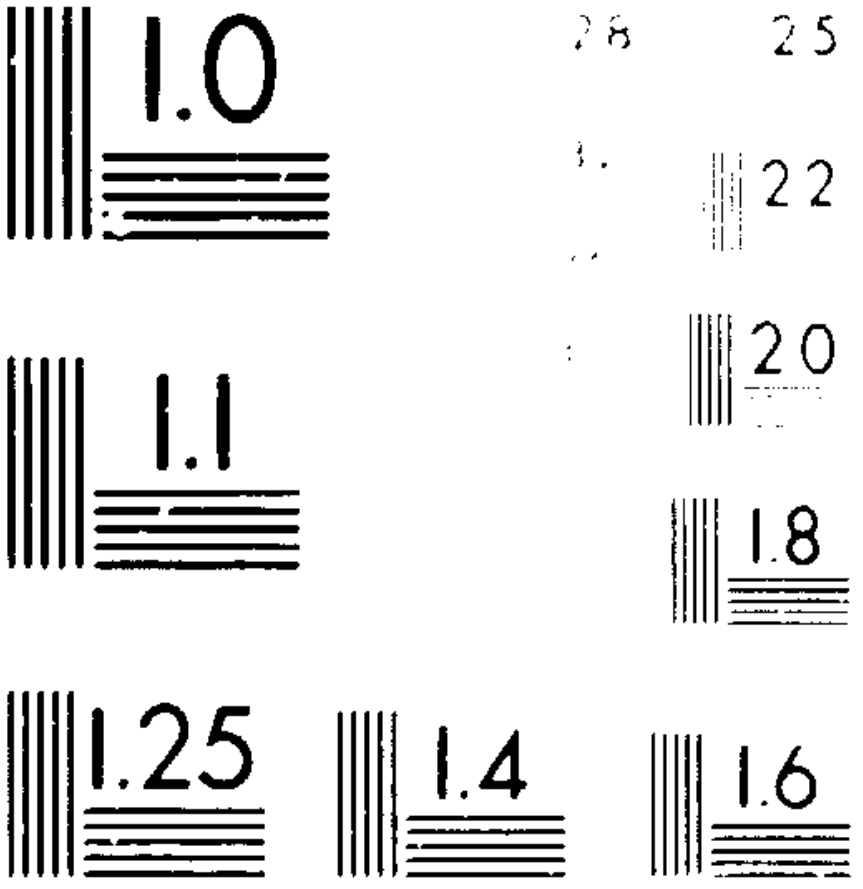
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

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United Nations Industrial Development Organization

Technical Congress held in conjunction
with the Third International Fair -
"Technology for the People"

Manila, Philippines, 23-25 November 1983

DRAFT REPORT*.

(Technical Congress, Manila.)

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I. CONCLUSIONS AND RECOMMENDATIONS

The strengthening of business ties among small- and medium-scale enterprises in Third World countries, or of South-to-South business relationships, especially in the agricultural machineries and implements industrial sector and in the rural energy sector, depends on the successful implementation of communications and promotions programs, as well as on concluding mutually beneficial transactions among these countries.

The role of communications and the proper utilization of and links with communications channels in promoting business ties between and among these countries cannot be overemphasized. For, through communications and the proper utilization of communications tools, enterprises all over the world are able to inform their publics, tap their markets and create demand.

The promotion of technological products and processes by government or private and public firms likewise achieve similar results. Potential users of these products or processes find an indispensable ally in the print and broadcast media where product marketing is concerned. Through product catalogues, brochures and magazines, interested entrepreneurs are linked to different sources of technology products, processes and services.

If firms in the developing nations are not well linked to commercial channels of communication, which means that their products are not being promoted well, then, the opportunities for South-to-South transactions are considerably minimized.

More than knowledge and utilization of communication and its various channels, however, small-and medium-scale enterprises in the Third World engaged in these two industrial sectors will benefit most from a government which understands their needs, adopts policies supportive of these needs and provides services that will develop the industrial sectors to the fullest.

Both the agricultural machinery and implements sector and the rural energy industrial sector will develop if the development policies of Third World countries are continuing, well-defined and integrated into national development programs. This would include the establishment of appropriate institutional support services, planning mechanisms aimed at the improvement of technological capacities and capabilities, research development, as well as linking institutions that would serve to foster cooperation on the internal and external levels.

General Recommendations

- There should be partnership and cooperation between the government and the private sector, and between and among the research institutions and the manufacturing sectors.
- An exchange and sharing of expertise and training between developing countries particularly between Asian and African countries should be encouraged.
- There should be an inter-enterprise cooperation with regard to R & D on rural energy needs and agricultural mechanization.
- In order to promote TCDC activities through enterpreneurs level, cooperation (plant-level cooperation) is recommended. Successful case studies including proper mechanisms and to disseminate it to other developing countries must be studied.

Further to that, trial cases should be implemented in agricultural machinery and implements, and energy for rural needs area, utilizing UNIDO's and other successful mechanisms.

To implement and concretize these recommendations, the following courses of action should be taken:

1. Granting of fiscal and economic incentives to R & D institutions;
2. Collection and dissemination of R & D incentives law of both advanced and developing countries to serve as guide for those countries which must still adopt R & D incentive laws;
3. Setting aside 1 per cent target of GNP of each country for R+D activities to generate funds for R & D institutions;
4. Seeking assistance from national and international funding institutions for R & D activities, including the dissemination of criteria and mechanism for funding assistance;
5. Intensifying linkages between and among Asian and African countries for R & D information training and expertise exchanged through UNIDO and other similar organizations;
6. There should also be efforts from the different sectors concerned to generate funds not only for R & D purpose but also to provide funds for small entrepreneurs that lack needed capital; and
7. Small entrepreneurs should form associations to facilitate funding assistance.

II. INTRODUCTION

The Technical Congress in conjunction with the Third International Trade Fair - "Technology for the People " (TFTP), organized by the UNIDO together with TFTP Secretariat and Technology Resource Centre of Philippines in Manila, 23-25 November 1983 and had the following objectives:

a. To establish link between the Fair and the Congress effectively through the presentation of country papers and case studies and the exchange of information and experiences;

b. To promote TCDC activities through the exchange of experiences and information in the agricultural machinery and implements sector and in the energy for rural needs sector; and

c. To elaborate and compare national technology and industrial development policies in the two sectors.

ORGANIZATION OF THE MEETING

The Technical Congress was held at the Philippine Center for International Trade and Exhibitions (PHILCITE), site of the TFTP Fair. A total of 89 participants from developing and developed countries, representing governments, private and public sector corporations, research institutions and organizations attend the Congress. Of this number, 25 were foreign participants and 64 were from the Philippines.

Keynote speaker in the opening session of the Congress was Philippine Minister Emil Javier of the National Science and Technology Authority. In his address, Minister Javier underscored the fact that a country's progress depends to a large extent on the people's capability to exploit and incorporate new and improved technologies, whether imported or indigenous, by the people themselves, into the means of production. He recognized the significance of the Technical Congress in reinforcing the technology transfer and application processes of the developing countries.

In his opening remarks, Mr. H. W. Pack, representative of UNIDO, stressed the purpose of the Technical Congress, which is to guide the participants in selecting the most appropriate technologies for their country's particular needs. Further, the Technical

Congress hopes to promote technological cooperation among developing countries through exchange of experiences and information, and facilitate co-operative programs with UNIDO.

Mr. D. Dichter, the Fair Director, expressed the hope that the Technical Congress would trigger discussions on appropriate technologies for developing countries, including financing sources and ways and means of accelerating technology transfer on a south-to-south basis.

Mr. E. Smith, UNDP representative, emphasized the significance of the Technical Congress and hoped that the meeting would come up with new ideas for solving the problems of developing countries.

Mr. J. U. Yulo, Jr., PHILCITE managing director, welcomed the delegates and wished the Congress every success.

Likewise, Mr. B. H. Milano, deputy managing director of Technology Resource Center, Congress organizer, read the welcome remarks of the TRC Director General. He also wished the participants success during the Congress.

The Congress then proceeded to elect the following officers:

Chairman	:	Mr. Quintin Tan (Philippines)
Co-Chairman	:	Mr. Melito Salazar, Jr. (Philippines)
Rapporteur	:	Mr. Titus M. J. Gitonga (Kenya)

Working Group I - Agricultural Machinery and Implements

Chairman	:	Mr. Ceferino Follosco (Philippines)
Rapporteur	:	Mr. Phillimon M. Kapesebele (Zambia)

Working Group II - Energy for Rural Needs

Chairman	:	Mr. Ibarra Cruz (Philippines)
Rapporteur	:	Mr. Edward N. Ngaiza (Tanzania)

The proposed agenda was adopted, as per Annex I.

III. SUMMARY OF COUNTRY PAPERS

List of papers presented at the Technical Congress is given in Annex II.

Tanzania

Tanzania is largely an agricultural country, but its state of agricultural mechanization is still very backward. Most of the agricultural implements used are still handheld or ox-drawn. Although the country has imported 11 models of tractors, their diversity has prevented standardization and consequently, spare parts are very costly.

To remedy these problems, factories have started to produce agricultural implements and machineries needed in the rural areas. Tanzania has also implemented research activities aimed at adopting, modifying and perfecting agricultural implements and machineries for local requirements.

Extensive efforts have been made so that appropriate agricultural technologies may be accepted by the farmers. Rural Craft Workshops have been established to adapt implements, design new implements, and utilize local raw materials.

Research and development activities have been directed to this end, particularly cost reduction experiments, establishment of centers for rural agriculture mechanization and technology.

Policies have been formulated to direct the course of the country's agricultural development.

The International Inventors Award (Sweden)

The International Inventors Award deals on the rationale and general guidelines of the International Inventors Award which was conceptualized to stimulate indigenous activity and focus the attention of inventors on four important target areas: water, industry, forestry and energy. These areas were identified as the most vital factors for the sustained development of a country.

Kenya

Kenya's economy, like many developing countries', is faced with many problems such as population explosion and unemployment.

The present population growth rate is 3.8 percent and is expected to reach 30 million by the turn of the century. Eighty per cent of the population is located in the rural areas.

Some of the major agro-products include coffee and tea processing, sugar processing and breweries; and food processing industries such as fruit canning, vegetable oil extraction, cereal milling and bakeries.

Climatic conditions affect the agricultural sector.

The farming system can be classified into small-scale farms (8 acres) and large-scale farms (over 2000 acres). The government is slowly acquiring land from the large-scale sector because small-scale farmers produce higher yields.

Farm work is done manually using handtools such as pangan, hatches and shovels which are locally produced although the raw materials are imported. These traditional tools limit the farmers' production capacity and therefore, need improvement. But in case of large-scale farms, some degree of agricultural mechanization has been attained. Kenya's problem in agricultural mechanization is the lack of spare parts for the farm implements in case of breakdown.

Local manufacturers are in a position to export traditional tools to neighboring countries. But they lack the raw materials to produce these farm equipment.

There are about 10,000 tractors currently in use in large-scale farms together with some self-propelled machines. Of these, one-half is owned by individual farmers or farmer organizations; 2,500 by the government; and the rest are owned by contractors rendering agricultural services.

Zambia

Like other developing countries in Africa, Zambia is dependent on an agricultural economy. Its agricultural productivity suffers from lack of financial resources that would help expand and improve present-day technologies being employed in farming and other agricultural activities.

The Zambian government's agricultural development programmes are geared towards benefitting its farmers, 60 percent of who belong to the traditional subsistence group; 25 percent to

emergent farmers' group, and only 15 percent to the commercial farmers' classification.

The full development of the country's agricultural machinery industry is foreseen to greatly increase Zambia's percentage of emergent farmers, or those who rely heavily on draft animals and hand labour for the cultivation of their farms. This is likewise expected to cut down on the import bill for agricultural implements by the Zambian government.

UNIDO ISSUE PAPER

The United Nations Industrial Development Organization (UNIDO) organized first technical congress in connection with the Technology for the People Fair which were previously held in 1980 at Geneva. This Technical Congress is intended to guide the participants on the appropriate selection route in technology and equipment requirements. The Congress would serve as an opportunity to exchange experience and information.

Both the fair and the congress serve as important venues and measures for the meaning, direction and impact of various types of technologies, manufacturing process and development support services of the developing countries.

The Technical Congress should emphasize practical ways and means of promoting business ties on TCDC, particularly among small- and medium-scale enterprises of developing countries.

Issues being covered are divided into policy issues, technology transfer issues, and TCDC issues and inter-enterprise cooperation.

South-to-south cooperation among developing countries should be based on quality and mutuality of interest in the true experience of interdependence. On the other hand, inter-enterprise technical cooperation is the collaboration between two or more countries for the promotion of industrial activities.

Likewise, in energy, the suitable technologies for the production of mechanical and electrical energy from biological wastes and solar, wind and water power are available and can be adapted for widespread applications in rural areas in most developing countries.

Rural energy policies should be an integral part of a comprehensive national energy policy, taking into account the needs of integrated rural development and the options provided by the newer alternative sources of energy such as mini-hydro power, biogas, solar and wind power, etc.

ESCAP

The ESCAP Regional Centre for Technology Transfer was established in July 1977 to assist countries of Asia and the Pacific, through regional cooperation, in strengthening their national capabilities in technology development, transfer and information.

There is lack of standardization and testing of products/processes. For agricultural machineries, Regional Network for Agricultural Machineries (RNAM) assesses the products and encourages the establishment of standards in various countries. For rural energy, many of the products/processes have yet to be tested for their efficiency, applicability and acceptability to local conditions.

A pragmatic approach for the future should be adopted by governments, science and technology and trade agencies, chambers of commerce, manufacturers associations, mass media and extension service firms . They should join hands in a practical fashion, to help firms in the South link to commercial channels of communication and thereby, promote their products.

UNIDO (ECDC)

The global economic recession and in particular its profound negative consequences for the developing countries has brought the need to take effective measures to restore and accelerate the pace of development. Inter-context ECDC/TCDC has now a very significant role to play in the process.

ECDC/TCDC has been reaffirmed in many international fora but unfortunately, very little has been attained in terms of implementation. This is due to several reasons.

The role of ECDC/TCDC cannot be effective without prerequisites such as the spirit and will to cooperate, proper support from all governments involved, development mechanisms and infrastructure setting and in general, the practical need for cooperation. TCDC is one of the main means of helping to promote industrial development.

Philippines

A. The Agricultural Machinery Industry

The Philippines is basically an agricultural country, although its national economic goal is to achieve a balanced agro-industry development. It has a total land area of 30 million hectares. Of the 8,217,510 hectares planted to food crops, rice accounts for 3,503,050 hectares and corn for 3,318,670 hectares. The rest are planted to root crops and vegetables. Commercial crops are planted in 3,905,890 hectares, of which 3,145,260 are planted to coconut and 424,620 hectares to sugarcane.

Farms are rather small, averaging about 2.0 hectares per landholding.

Agricultural machinery and equipment as discussed in this paper consist of the following:

1. Agricultural and horticultural machinery for soil preparation or cultivation. This include plows, seeders, planters and transplanters, fertilizer distributors, and manure soreaders, scarifiers, cultivators, weeders, hoes, and harrows, lawn and sport ground rollers and their machine parts.

2. Harvesting and threshing machinery; straw and fooder presses; hay and grass movers; winnowing and similar machines for seeds, grain or leguminous vegetables and egg grading and other grading machines.

3. Tractors

4. Machinery used in the bread grain milling industry and other machinery for the working of cereals or dried leguminous vegetables, such as rice hullers and conetype rice mills.

B. Introduction of the CAAMS-IRRI Mechanical Reaper

In 1982, the MA-IRRI Industrial Extension Program for Small Farm Equipment introduced the CAAMS-IRRI mechanical rice reapoer to interested manufacturing firms in the Philippines. The principal advantges of this reaper over existing machines are: low-cost; light weight; attaches to a hand tractor which may also be used for plowing and harrowing; locally produced (all other existing reapers are imported); availability of parts; simplicity of operation and repair.

This paper provides a description and evaluation of the reaper extension project of the MA-IRRI Program. The extension activities included field demonstrations, training courses, technical assistance visits, prototype testing, and marketing assistance.

The IRRI objective is to internationalize programs with the Ministry and related orga nizations.

C. Bio-Energy From Farm Wastes

The commercial biogas plants designed by Maya Farms are characterized by multi-digesters and separate floating gasholders . Where only manure is used as raw material, the digesters are of the continuous process, double-chambered, horizontal and constructed side by side multiple rows. Where manure and dry crop residues are used, the digesters are of the batch-process, single-chambered and constructed in a cluster. The digesters are discharged and re-charged sequentially, once a day, to ensure a continuous supply of biogas. Where the manure and green vegetable matter are used, the digester is of the combination batch and continuous-process, three-chambered, horizontal, and built in multiple rows.

The agro-industrial biogas plants use the same design as the commercial biogas plants. However, supplementary digesters are added to the process the excess wash water, thus, increasing biogas production.

D. Gas Producers Technology for Rural Applications

The original gas producer is the blast furnace stove which used coke to smelt iron, and in the process produced combustible gases. These combustible gases could be fired to heat the molds into which molten iron was poured, or to coke to attain the high temperatures necessary in the processing of steel. The paper, however, is not aimed at discussng the steel or industrial applications of producer gas, but rather to present the case of producer gas technology as used presently for rural energy requirements and its future potential.

An old technology has been reviewed, re-studied, and re-tested in laboratories. Innovations and modifications were made to make the technology more workable and practical for use in the rural areas of developing nations. Low cost and simplicity in operation are the primary objectives to make technology useful and acceptable . An effective collaboration among several government agencies ensued. Research and developmental work at two government institutions, the University of the Philippines and the Energy Research Development Center of the Philippines' National Oil Co., established that simplified designs using charcoal as fuel would be the most practical approach to introduce the technology for widespread use in the rural areas.

Working Group I Report - AGRICULTURAL MACHINERY AND IMPLEMENTS

Introduction

The working group reviewed the hypotheses of various plenary session papers, country reports, speakers during the opening ceremonies of the Technical Congress, including Issue Papers prepared by the UNIDO Secretariat and aspects that the working group tackled included the following issues:

1. Formulation of agricultural industry policies and strategies
2. Measures to undertake R & D
3. Measures to accelerate manufacturing
4. Measures to promote cooperation along regional, inter-regional, bilateral and enterprise levels

Issue I - Formulation of agricultural industry policies and Strategies

1. The Need for Agricultural Machinery

The working group recalled that the various country papers/reports emphasized the need for the formulation of agricultural mechanization policies, strategies and programs, integrating both the agricultural and industrial aspects. The participants emphasized the important role of agricultural mechanization in a country's economic development, especially with reference to increased productivity, hence, better income for farmers. Timeliness of operations and better farming practices were cited as resultant aspects.

2. State of Agricultural Mechanization

The group stressed that any agricultural mechanization policy and program should review and analyze the state of agricultural mechanization in the country. Participants were in agreement that the factors affecting agricultural mechanization development are soil and topography, climate, land cost, farm size,

type of farming system, farming practices, labor and cost availability, energy cost and availability, yield, degree of development of the machinery industry, equipment buying capacity, government policy, socio-cultural factors and skills available.

3. Agricultural Mechanization Data

The group emphasized the need for agricultural mechanization data along national and sectoral basis. It was also felt that much data be collected according to crop and farming activity.

4. Appropriate Technology

It was also emphasized that an appropriate agricultural mechanization policy be translated and the need for appropriate agricultural machinery and equipment. In order to ascertain what was appropriate, the Secretariat furnished the group the definition of "appropriate technology" as developed by UNIDO's International Forum on Appropriate Technology held in 1979 as follows: Appropriate technology should be one that contributes to economic, social and environmental objectives in relation to resource endowments and conditions of application in each country.

The group was in full agreement to this definition and further pointed out that appropriate agricultural machanization may not be uniform to the whole country, but may vary from region to region.

5. Mechanization Trends

The group reviewed the paper during the plenary session on mechanization trends in developed and developing countries like Asia and Africa. The participants were in agreement with the observations that the increasing sophistication of agricultural machineries made in developed countries and the actual

needs of farmers in developing countries was resulting in a widening gap between what was available and what was required, highlighting the urgent need to develop and manufacture appropriate agricultural machinery in the developing country. This was particularly true of subsistence farming and not to save plantation farming where technologies from developed countries were still appropriate.

The group also reviewed the various crop practices and noted the increasing emphasis on animal power use in some countries.

6. Review of Technologies

The group reviewed the technologies available and what was needed to various major crops from the region such as rice, corn, root crop, etc.

7. Agricultural Mechanization Policy Components

It was agreed that the policy should touch on major areas such as:

a. state of agricultural mechanization in the country
b. review of mechanization trends and technologies
c. R & D
d. manufacturing and imports
e. financing and credits
f. training and extension

Concern was expressed by some participants that while some countries have developed their own agricultural machineries policies and that some guidelines are available with UNIDO and FAO, these were not disseminated.

It was recommended that UNIDO and RNAM compile available agricultural machinery policies and program prepare a model and assist developing countries in translation of their own policies and programs.

Issue II - Measure to Undertake R & D

Considering the inapporpriateness of some available agricultural machinery, there was a strong need to sharpen the R&D capabilities of each country. Various constraints were expressed in R&D, such as lack of private sector initiatives, inadequate resources, lack of S&T personnel. To assist in accelerating R&D, the group agreed that a comprehensive R&D policy and program be translated, emphasizing the following:

1. Review of the state of R&D in the country
2. Development of R&D priorities
3. Encouraging the private sector to undertake R&D by asking them to allocate funds for their own R&D in cooperation with others. The need for fiscal and economic incentives by government was stressed.
4. Strengthening of linkages between R&D institutions, manufacturers and farmers.

It was also pointed out that priorities on R&D should not just be developed on a national level, but where possible along regional or sub-regional basis, considering scarce resources in developing countries.

It was further pointed out that there was need to strengthen intellectual property protection.

Issue III - Measures to Accelerate Manufacturing

The workshop has recognized the urgent need to accelerate manufacturing in the agricultural machinery sector in theface of the widening gap between sources of agricultural machinery from developed countries and the demand in developing countries. Towards the achievement of this need, the workshop is recommending that in the formulation of agricultural mechanization policy and proram, special attention be directed to manufacturing.

1. State of manufacturing

In the formulation of a program, in the workshop felt that the state of manufacturing including available manufacturing capabilities not only in the agricultural machinery sector, but in the whole engineering and metal working sector, should be reviewed. Products imported should be analyzed for the purpose of input substitution.

2. Manufacturing problems

The workshop summarized the existing problems of the manufacturing sector and suggested that efforts be directed towards the solution of these problems such as:

a. raw materials prices and supply
b. financing availability and cost
c. marketing problems
d. lack of good quality basic facilities such as foundry, machining, heat treatment, etc.
f. agricultural machinery production

It was agreed that market demand in many instances is scarce and should be expanded in order to achieve economies of scale. The organization of machinery for hire services and formation of machinery cooperatives have been regarded as some measures to increase market demand.

The need to upgrade basic facilities was emphasized in order to build a viable agricultural machinery industry.

The increase of productivity through of infusion of technlogy, standardization and quality control and training of personnel was highlighted.

A Philippine participant called attention to decentralized testing of agricultural machinery which is required by financing institutions from Manila to the regions.

3. Measures to Promote manufacturing

The workshop discussed various means by which manufacturing can be promoted. Specific recommendations are as follows:

a. Formulation of an economic and fiscal incentives policy to encourage businessmen to go into agricultural machinery manufacturing.

b. Institution of an import and manufacturing policy for priority agricultural machinery products.

c. Dissemination of technology profiles of certain agricultural machinery products to prospective manufacturers. Towards this end, the workshop recommended that UNIDO and other international agencies in agricultural machinery such as RNAM, IRRI, etc. make available such technology profiles.

Issue IV - Cooperation

The workshop took note of the various measures to increase activities in agricultural machinery, such as R&D manufacturing, marketing and others. As discussed in a paper during the plenary session, some of the examples cited were the activities in ASEAN and RNAM.

The workshop agreed that more attention be given to enhancing cooperation along the following areas:

1. Regional or sub-regional cooperation, similar to the ASEAN and RNAM Programs

2. Inter-regional cooperation

   It was recommended that cooperation between Asia and Africa be encouraged and UNIDO has been requested to establish a mechanism to link these two regions.

3. Bilateral cooperation on a government-to-government level and on agricultural machinery association-to-association level

4. Enterprise cooperation

   Efforts at encouraging licencing and joint-venture agreements on an enterprise level should be enhanced. It was suggested that the more advanced developing countries extend their assistance to other developing countries in facilitating training and study tours. This scheme will also promote exports.

Recommendations

- Farm machineries and implements to be developed and marketed should be low-cost and adaptable to conditions of the countries concerned.

- R&D on agricultural machineries and implements should be strengthened to determine the areas of concentration for appropriate technologies to be adopted.

- Developing countries should formulate agricultural mechanization policies.

- Linkages through international agencies and governments should be established for exchanges of technical expertise and information particularly on technology profile and agricultural mechanization policies.

- A pool of facilities to service farm needs should be developed to optimize the use of equipment.

- Incentives hould be provided to farm machineries manufacturing to promote agricultural mechanization.

- Cooperation among developing countries on the regional, inter-regional, national and orga nizational levels should be maintained for agricultural mechanization to be effective.

- There are manufacturing opportunities on the following fields of machineries:
  - IRRI rice transplanter
  - Power tiller
  - Manual IRRI type weeder
  - Hand sprayer
  - CAMS-IRRI rice reaper
  - IRRI rice thresher, axial flan
  - Grain dryer
  - Rice mill, rubber roller type

- There should be further R&D activities on the following machineries:
  a. Mini Tractor
  b. Fertilizer applicator
  c. Low cost storage equipment
  d. Grain Planter

Working Group II Report - ENERGY FOR RURAL NEEDS

Introduction

The members of the workshop group on "Energy for Rural Needs" recognized the need to adopt policy, thechnology transfer and cooperation issues that would further strengthen and promote inter-enterprise ties among developing countries.

Towards this end, the workshop discussions were focused mainly on the country reports and case studies presented during the first day of the TFTP/3 Technical Congress and during the plenary sessions conducted, before the participants were divided into workshop groups.

The country reports were given by representatives from Kenya, Tanzania and Zambia; case studies were likewise presented by the host country, the Philippines.

The group discussions revolved on: renewable energy sources, bio-gas utilization and development and on alternative energy sources, as well as on the development of policy, technology transfer and cooperation among developing countries. The workshop also discussed the exploration of renewable energy sources such as small hydro power resources, solar energy and biomass utilization.

Recommendations

- Bio-gas as a source of power for household-level consumption is expensive. Return of investments on bio-gas systems for households is three times longer than investment returns for large-scale application.

- The use of gasifiers for industrial purposes is increasing, not only in developing countries, but in other countries as well. Yet, charcoal, its main fuel, is fast becoming an expensive and therefore, rare commodity. Charcoal demand cannot be met in African countries, particularly in Kenya.

- The use of liquid fuels, such as hydrous alcohol, petrol, etc., might be considered for mobile engines. Furthermore, the applicability of hydrous alcohol as an alternative fuel must be studied for its economic potentials.

- Funding assistance in research and development efforts of developing countries in the areas of alternative energy sources must be sought collectively by thse countries from international development-oriented institutions.

Technology Transfer Issues

- Technological expertise and training exchange must be strengthened between and among developing countries using UNIDO as catalytic organization.

- To facilitate technology transfer in gasifier technology as well as in other areas of energy utilization and energy sourcing, developing countries must, on their own, or collectively, provide funds for technology transfer activities such as expertise-sharing and information exchange.

- Publications on the benefits of alternative technologies must be provided to encourage the user or prospective user to apply the technologies being promoted.

TCDC Issues (Inter-enterprise Cooperation)

- Governments may establish linkages with the private business sector in the conduct of research and development activities not only bio-gas utilization, but also in the use of other alternative sources of energy such as biomass mini hydro power equipment, and other solar energy devices.

- Countries with expertise in gasifier technology and other technologies on energy should be encouraged to share these technologies with other interested developing countries.

- There is a need to strengthen the technological capabilities of industrial research institutions in developing countries. This need can be filled with the adoption and implementation of a program that would promote cooperative research and development arrangements among industrial research institutions and manufacturers in developing countries.

A G E N D A

Wednesday, November 23, 1983

8:00 - 9:00 A.M. Registration

9:00 - 10:30 A.M. Opening Session

10:45 - 12:00 Noon Plenary Session

Chairman: Quintin Tan
Director
Bureau of Small and Medium Scale Industries

Country Reports

Tanzania: Edward M. Ngaiza
Director General
Centre for Agricultural Mechanization

Sweden: Sten Joste
Executive Secretary of the International Inventors Award

Kenya: Titus M. Gitonga
Assistant Science Secretary
National Council for Science and Technology

2:00 - 6:00 P.M. Country/Agency Reports

Zambia: Phillimon M. Kapesebele
General Manager
A.F.E. Limited

UNIDO: Dr. Han W. Pack
UNIDO, Vienna

ESCAP-RCTT: Dr. Wilfredo A. Clemente III
Adviser
ESCAP-Regional Centre for Technology Transfer

UNIDO-ECDC: Abdul Karim Hasson
UNIDO

OPEN FORUM

Thursday, November 24, 1983

8:30 - 12:00 Noon

Plenary Session

Presentation of Case Studies

"Agricultural Machinery Industry in the Philippines"

by: Ceferino Follosco
President
Alpha Machinery & Engineering Corporation

"Adaptation and Promotion of CAAMS-IRRI Rice Reaper in the Philippines"

by: Dr. Robert E. Stickney
IRRI

"Gas Producers Technology for Rural Applications"

by: Dr. Ibarra E. Cruz
PNOC-Energy Research Development Center

"Bio-energy from and/or by Farm Wastes for Rural Development"

by: Dr. Felix Maramba, Sr.
Maya Farms

Open Forum

2:00 - 6:00 P.M.

Workshop Group Discussions

Group I - Agricultural Machinery and Implements

Chairman: Ceferino Follosco

Group II - Energy for Rural Needs

Chairman: Dr. Ibarra E. Cruz

Friday, November 25, 1983

8:30 - 12:00 Noon	Plenary Session
	Co-Chairman: Melito Salazar, Jr. Director University of the Philippines-Institute of Small Scale Industry
	Reports of the Working Groups
	- Presentation
	- Open forum
2:00 - 3:00 P.M.	Adoption of Draft Reports
3:00 - 5:00 P.M.	Closing Ceremonies

LIST OF PAPERS PRESENTED

1. Agricultural Machinery and Implements (ID.WG.418/7)

   Presentor: EDWARD M. NGAIZA
   Director General
   Centre for Agricultural Mechanization and
   Rural Technology (CAMARTEC)
   Arusha, Tanzania

2. The International Inventors Award: An Experiment in the Dissemination of Innovation (ID/WG.418/6)

   Presentor: STEN JOSTE
   Executive Secretary of the International
   Inventors Award
   Stockholm, Sweden

3. Country Paper (ID/WG.418/10)

   Presentor: PHILLIMON M. KAPESEBELE
   General Manager
   A.F.E. Limited
   Lusaka, Zambia

4. Agricultural Machines and Implements in Kenya (ID/WG.418/8)

   Presentor: TITUS M.J. GITONGA
   Assistant Science Secretary
   National Council for Science and Technology

5. United Nations Industrial Development Organization Issue Paper (ID/WG.418/5)
   Presentor: DR. HAN W. PACK
   UNIDO, Vienna

6. Strengthening South-South Business Ties on Agricultural Machinery and Rural Energy (ID/WG.418/1)

   Presentor: DR. WILFREDO A. CLEMENTE III
   Adviser
   ESCAP Regional Centre for Technology
   Transfer
   Bangalore, India

7. Agricultural Machinery Industry in the Philippines (ID/WG.418/3)

   Presentor: CEFERINO FOLLOSCO
   President
   Alpha Machinery and Engineering Corporation

8. Adaptation and Promotion of CAAMS-IRRI Rice Reaper in the Philippines (ID/WG.418/9)

   Presentor: DR. ROBERT E. STICKNEY
   Engineer
   International Rice Research Institute

9. Gas Producers Technology for Rural Applications (ID/WG.418/2)

   Presentor: DR. IBARRA E. CRUZ
   Manager
   Philippine National Oil Company/Energy Research and Development Center

10. Bio-energy from and/or by Farm Wastes for Rural Development (ID/WG.418/4)

    Presentor: DR. FELIX MARAMBA, SR.
    President
    Liberty Flour Mills, Inc.

WORKING GROUP I - AGRICULTURAL MACHINERY AND IMPLEMENTS

Chairman : Ceferino Follosco
President, Alpha Machinery & Engineering Corporation

Rapporteur : Phillimon M. Kapesebele
General Manager, A. F. E. Limited

Members : Dr. Han W. Pack
UNIDO

Jon Bickel
Manager, Swisscontact

Titus M. Gitonga
Asst. Science Secretary
National Council for Science & Technology

Sten Joste
Executive Secretary
International Inventors Awards

Isaac K. Langat
Regional Manager
Kenya Industrial Estates Ltd.

Alfred M. Shikhule
Operations Manager
National Structure & Engineering Ltd.

Jose A. Beduya
Sales Supervisor
Mariwasa-Honda, Inc.

Armando M. Caancan
Area Supervisor, Peyette Machineries & Engine Rebuilding, Inc.

Ilustre A. Casacop
Shop Superintendent
Peyette Machineries & Engine Rebuilding,Inc.

Domingo E. Cigaral
Project Development Officer
Southeast Asian Regional Center for Graduate Study & Research Institute (SEARCA)

Pacificador C. Directo
President, Directric Industries, Inc.

Carlito Fernandez
Agricultural Engineer, Agricultural
Engineering Division
Bureau of Plant Industry

Malcolm M. Hammond
Team Leader, IRRI Burma Engineer
International Rice Research Institute (IRRI)

Virgilio V. Leyretana
President, Asia-Pacific Agribusiness
Products & Exports, Inc.

Rosita G. Mendoza
President, 5th World Development Corp.

Zhang Xian da
CAAMS, China

Roberto Untalan
Technical Staff
Sacobia Development Authority
Ministry of Human Settlements

Wilfredo Buenavista
Science Research Specialist IV
Philippine Invention Development
Institute

Leticia Zerda
Officer-in-Charge
Science Clubs & Societies Development
Division.

Dr. Bill Cochran
IRRI

Eduardo A. Castalone
Aboitiz Agrosystems

Hector Sanvictores
PCIERD

Raul Sabalarse
Sr. Industry Division Specialist
Philippine Council for Industry
Research and Development Center

Wilner Dessources
Chief, Technical Services Department
Fonds Developmentz Industries

Jose Arce
Owner-member
Jose Arce Wood & Metal Works

Maximino Ravena
Assistant Head, Metals Industry Desk
Ministry of Trade & Industry Small
Business Assistance Center

Rcbert Stickney
Engineer, International Rice Research
Institute

Reynaldo Lantin
UP, Los Baños

Andrianus Rijk
Asian Development Bank

Basilio C. Presto
Prefamine

WORKING GROUP II - ENERGY FOR RURAL NEEDS

Chairman : Dr. Ibarra E. Cruz
Manager, PNOC-Energy Research & Development Center

Rapporteur : Edward M. Ngaiza
Director General, Centre for Agricultural Mechanization & Rural Technology (CAMARTEC)

Members : Abdul Karim Hasson
UNIDO

Dr. Wilfredo A. Clemente II
Adviser, UN-ESCAP Regional Centre for Technology Transfer

Dr. Felix Maramba, Sr.
President, Liberty Flour Mills, Inc.

Rudolf Andres
Sales Manager, Electrona Ltd.

Prasanaya Rasbhandary
Director, National Structure & Engineering, Ltd.

Albert P. Wickramasingha
Deputy Director, Department of Small Industries

Ram S. Mauni
Irrigation & Water Conservancy Engineer
Agricultural Development Bank

Violeta P. Arida
Sr. Science Research Specialist
National Institute of Science & Technology

Alfredo A. del Rosario, Jr.
Project Officer, Development Project Fund Secretariat
Ministry of Human Settlements

Gregory R. Forbes
Research Coordinator
Gamboa Hermanos, Inc.

J. Emlyn Forlin
Professor, Asian Institute Management

Lydia Joson
Science Research Specialist IV
National Institute of Science & Technology

Rizal A. Obligar
Proprietor/General Manager
G.O. Engineering Enterprises

Marie S. Odejar
Researcher, Bureau of Small & Medium Industries
Ministry of Trade & Industry

Renato P. Olegario
Supervising Industry Development Specialist
Philippine Council for Industry & Energy Research & Development (PLIERD)

Anton Kienle
Head, Renewable Energy Programme
Kenya Industrial Estates, Ltd.

Xu Wen-hao
Observer

Rodolfo Undan
Associate Professor & Dean
College of Engineering
Central Luzon State University (CLSU)

Corazon V. Orcullo
Bureau of Plant Industry

Cesar D. Cruz
Head, Agri-Engineering Department
REM Corporation

Dr. Enrico Obias
Observer

Alejandro Judan, Jr.
Observer

Titus M. J. Gitonga
Assistant Science Secretary
National Council for Science & Technology

Celso Bendoy
Manager, Agro-Philippine Marketing, Corp.