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SEMINAR-WORKSHOP ON THE CONSEQUENCES OF SMALL FARM
MECHANIZATION ON PRODUCTION, EMPLOYMENT
AND INCOME IN THE PHILIPPINES

A Review of Mechanization
Strategies in the Philippines

The Effects of Small Farm
Mechanization on Employment and
Output

Changes in Harvesting-Threshing
Arrangements and Landless Laborers

Tractor and Carabao Use in Rice Land
Preparation

The Private and Social Profitability
of Mechanical Threshing

The Impact of Mechanization on
Agricultural Production

Effects of Agricultural Mechanization
on Farm Income Patterns

Credit Programs Supporting
Agricultural Mechanization

MA-IRRI Industrial Extension
Program for Small Farm Equipment

Reynaldo M. Lantin
and Lilla O. Faigmane

Jerome F. Sison,
Robert W. Herdt and
Bart Duff

Leonardo Z. Ebron,
Gertrude Castillo and
Purificacion M. Kaiser

Celerina L. Maranan

Fleurdeliz S. Juarez

Dermot Shields

Pilar C. Lim

Blanquita Y. Reyes and
Meliza H. Agabin

Benito C. Gonzalo and
Robert E. Stickney
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Editorial Assistants: CESAR F. DIZON and LILIA Q. SANTIAGO
SEMINARY-WORKSHOP ON THE CONSEQUENCES OF SMALL FARM MECHANIZATION ON PRODUCTION, EMPLOYMENT AND INCOME IN THE PHILIPPINES

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This Special Issue of the Journal of Philippine Development is a joint publication of the Philippine Institute for Development Studies and the International Rice Research Institute.

FOREWORD

This special issue of the *Journal of Philippine Development* features most of the papers presented during the Seminar-Workshop on "The Consequences of Small Farm Mechanization on Production, Employment and Incomes in the Philippines" held on 1-2 December 1983 at the Development Academy of the Philippines in Tagaytay City.

The workshop, which was jointly sponsored by the International Rice Research Institute, Philippine Institute for Development Studies, National Economic and Development Authority and Ministry of Agriculture, attempted to look into the effects of small farm mechanization in areas where it has been adopted. The workshop had three objectives: (1) to evaluate the available evidence relating to the use of mechanization. It also analyzed the impact of mechanization on employment, income and income distribution, and determined whether it produced a measurable change in the level or composition of output; (2) to evaluate, based on a review of the evidence, the strategies adopted in the introduction and use of machines which maximize potential benefits and at the same time minimize the costs to the country and to the people; and (3) to explore the public and private sector initiatives that are needed to meet the requirements of an efficient mechanization strategy.

In addition, the workshop also addressed the question of institutionalizing the process of mechanization. It found out that (1) the demand for farm machineries was induced by changes in the demand and supply for agricultural products and in the prices of inputs and outputs which make up the agricultural production system; and (2) the management of a mechanization strategy involved a long-run commitment and that there was a need for the right mix of capable leaders, adequate resources and policies which were flexible and responsive to changing needs and economic conditions and uniquely tailored to the needs of the rural poor.

This volume containing the workshop papers, therefore, provides ample evidences on the impacts and/or consequences of small farm mechanization.

*The Editors*
EXECUTIVE SUMMARY

A Seminar-Workshop on "The Consequences of Small Farm Mechanization on Production, Employment and Incomes in the Philippines" jointly sponsored by the Ministry of Agriculture (MA), the National Economic and Development Authority (NEDA), the Philippine Institute for Development Studies (PIDS) and the International Rice Research Institute (IRRI) was held recently at the Development Academy of the Philippines, Tagaytay City.

With participants from government, the private sector and the research community, the workshop focused on four major issues:

(1) A review of empirical research on the impact of farm machinery on small rice farmers and landless workers.

(2) Economy wide methods for evaluating the direct and indirect impact of mechanization on employment and income opportunities in the economy.

(3) A historical review of the impact of Philippine government policies and programs on agricultural mechanization.

(4) The proper role of government in the identification of plan, policy and program directions for the mechanization of agriculture.

* A large body of empirical evidence was presented with the following major results;

- Mechanization of land preparations does not increase yields or cropping intensity in rice production.

- Machines reduce overall labor requirements, principally family labor. The use of hired labor either remained constant or increased.

- The incomes of landless households, representing up to 15 percent of the rural population, have not yet been degraded by mechanization, although there is concern that further use of machines may erode an already declining real wage.
• Tractors, power tillers and threshers appear to be only marginally profitable, yet the number of machines has grown rapidly in the past decade.

* At the macro level, an assessment of the direct and indirect impacts of mechanization indicates that:

• There are significant multiplier effects on income and employment achieved from local manufacturing which are not normally included in evaluating mechanization.

• Improved techniques are badly needed to properly assess the impacts of mechanization at the regional and national levels and to harmonize these with development goals.

• Credit programs for mechanization aimed at the small farmers have largely been ineffective in improving equity, employment or output objectives.

• Distortions created through exchange rate controls, tariffs and pricing policies have generally resulted in an inefficient allocation of resources in the use and ownership of agricultural equipment.

• Government should not participate directly in the provision of credit to farmers for farm machinery. Alternatives such as lending to manufacturers or distributors through the commercial banking sector at market rates of interest should be explored.

* Conflicting views emerged on the role of government in the promotion of farm mechanization. Attention was called, however, to the following program and policy statements outlined in the 1983-1987 Philippine Development Plan which provide that “(1) farm mechanization will be applied on a selective basis and will be adapted to local conditions and available resources, (2) the development and utilization of farm implements to augment the farmer’s productivity will be encouraged, and (3) mechanization will likewise be adopted as a measure to minimize post-harvest losses whenever possible.”

There is a need to specify the implementing details of these statements by concerned sectors and agencies. However, avenues for government participation and constructive contribution appeared to be favorable in the following areas:
• The training of farmers, mechanics, and drivers.
• Technical assistance in the selection of appropriate designs, and in testing and infrastructure development.
• The fostering of an environment conducive to innovation in the design of equipment which can be manufactured domestically.
• The provision of needed incentives for local manufacturers of agricultural machineries.
• Ensuring that the beneficiaries of farm equipment are farmers and consumers.
• Supporting additional research to clearly identify the needs of farmers by region, crop and operation.
• A careful review of existing policies affecting mechanization to ascertain requirements for elimination, modification or adjustments.

* The appropriate mechanism for institutionalizing the use of agricultural machinery in government planning and policy development, including incorporation in regional agricultural development strategies, is currently under review. The National Economic and Development Authority (NEDA) expressed an interest in cooperating in further research on farm mechanization.
SEMINAR-WORKSHOP ON THE CONSEQUENCES OF SMALL FARM MECHANIZATION ON PRODUCTION, EMPLOYMENT AND INCOME IN THE PHILIPPINES

December 1-2, 1983
Development Academy of the Philippines
Tagaytay City

Seminar Program

Wednesday, November 30

1730 Arrival of participants at DAP/Tagaytay
1830 Dinner-reception

Thursday, December 1

Opening session Chairperson: F. Pante, NEDA

0810 Opening remarks and objectives and goals of the workshop

0830 A Review of Past, Present and Proposed Mechanization Strategies in the Philippines R. Lantin, AMDP

I. MODELLING THE ROLE OF ENGINEERING TECHNOCITIES IN AGRICULTURAL DEVELOPMENT

Chairperson: M. Lim
Discussant: A. Rijk, ADB
Rapporteur: John Lingard, Newcastle Univ.

0855 Chairperson's opening remarks

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5. Onofre Ballesteros
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List of Observers

1. Rene Benitez                                           | NEDA                                                   |
2. Mary Ann de Guzman                                     | DAP                                                    |
3. Roldolfo Sabas                                         | NEDA                                                   |
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