Agricultural Mechanization and Agricultural Development Strategies in Cambodia

Country report of Cambodia
Presented by Chao Lay Under Secretary General of National Committee on Economic and Social for Asia and the Pacific
Introduction to Cambodia Agriculture

I - An Overview of Cambodia Agriculture

II - Agricultural Development Strategy

III - Impact of poor technology on agro-products
I – An Overview of Cambodia Agriculture
(continued)

1.1 Main Objectives

• Food security, productivity and diversification

• Improvement and strengthening of agricultural research and extension;

• Market access for agricultural products
I – An Overview of Cambodia Agriculture
(continued)

• Improving institutional capacity and legislative framework;

• Land reform and mine clearance;

• Fisheries reform and;

• Forestry reform.
1.2 The Regional Agricultural Engineering Development

• The North West Region
• The South East Region
• The South West Region
1.3 General Achievement

- The Agricultural of Cambodia contributed to the country economy with 46.1% of the GDP in 1993, 33.5% of the GDP in 2002, 30.0% of the GDP in 2007 and 34.4% of the GDP in 2008.

- Farmers’ living standard have improved

- Agricultural Commodities meet the need of domestic and export market
1.3–General Achievement
(continued)

• Exported 3.16 million ton of rice in 2008
• Rice Yield 2.74 ton per hectare
• Cultivation of other crops such as maize, cassava, rubber, soy bean, mung bean, etc.
• Irrigated areas is 22 % of the total agricultural areas
• Land reform–No of land title issued to farmers 20% in 2008
1.3 - General Achievement (continued)

- Forest cover 59% of total land
- Firewood and charcoal dependency 84% of households
II– Agricultural Development Strategy

The Royal Government formulated the five programs as follow:

- Institutional capacity building and management support program for agriculture and water;
- Food security program;
- Agriculture and agri–business (value chain) support program;
1.1.1 – To achieve the main objectives
(continued)

• Water resources, irrigation management and land program and

• Agricultural and water resources research, education and extension program.
Rectangular Strategy of RGC

Enhancement of Agriculture Sector
- Improving productivity and diversifying agricultural sector
- Fisheries reform
- Forestry reform

Good Governance
- Peace, political stability and social order
- Fighting corruption
- Legal and judicial reform
- Armed forces reform and demobilization
- Management of water resources and irrigation
- Development of the energy sector and electricity network
- Public administration reform
- Armed forces reform and demobilization

Favorable macroeconomic and financial environment

Capacity Building and Human Resource Development
- Enhancing quality of education
- Improving health services
- Fostering gender equity
- Implementing population policy

Partnership in development
- Further construction of transport infrastructure
- Development of the energy sector and electricity network
- Management of water resources and irrigation
- Integration of Cambodia into the region and the world
- Favorable macroeconomic and financial environment
- Partnering with the region and the world

Private Sector Development and Employment Generation
- Strengthening private sector and attracting investments
- Creating jobs and ensuring improved working conditions
- Ensuring social safety nets
- Promoting SMEs
- Implementing population policy
Enhancement of Agricultural Sector

<table>
<thead>
<tr>
<th></th>
<th>Improving productivity and diversifying agricultural sector</th>
<th>Land reform and mines clearance</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Fisheries reform</td>
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<tr>
<td>2</td>
<td></td>
<td>Forestry reform</td>
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III– Introduction to Cambodia Agricultural Engineering and Machinery

i– Current status

ii– New achievements

iii– Impacts of poor technology
i- Current status

- As compare to 2004 the a mound of machinery using has high increase (slide number 12);

- Considerably increase in the number of other farming, animal husbandry machinery, rural transportation means;

- The percentage of cultivate areas prepared by machines is increased 14.08% if we compare with 2007 (1,190,839 hectare)
• Positive change have been made in the processing agricultural products and;
• There are a few processing industrials that have low technologies and out of date equipments
  ( rice, rubber, cassava, cashew nut )
# Agricultural Machinery statistic from 2004–2008

<table>
<thead>
<tr>
<th>Items</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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<tbody>
<tr>
<td>Harvesters</td>
<td>–</td>
<td>–</td>
<td>395</td>
<td>395</td>
<td>430</td>
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<tr>
<td>Tractors</td>
<td>3,857</td>
<td>4,166</td>
<td>4,247</td>
<td>4,475</td>
<td>4,611</td>
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<tr>
<td>Threshers</td>
<td>6,220</td>
<td>7,338</td>
<td>7,795</td>
<td>8,036</td>
<td>8,237</td>
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<td>Hand tractors</td>
<td>20,279</td>
<td>26,504</td>
<td>29,706</td>
<td>34,639</td>
<td>38,912</td>
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<tr>
<td>Millings</td>
<td>36,531</td>
<td>38,606</td>
<td>38,618</td>
<td>38,680</td>
<td>39,429</td>
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<tr>
<td>Eng. Pumps</td>
<td>106,569</td>
<td>120,968</td>
<td>127,610</td>
<td>131,702</td>
<td>136,061</td>
</tr>
</tbody>
</table>
ii– New Achievement & Current Needs

2.1 Soil working

• Techniques for working with soil prepare for paddy rice, many cultivating procedures and consultative recommendations are high considered for farmers;

• At present, efforts are concentrated on rice, maize, cassava, other crops cultivation;
ii– New Achievement & Current Needs
(continued)

• Need suitable machineries for farmers’ cultivating areas and not damage soil structure;
• Need green machineries and fit to farmers’ living standard;
• It’s easy to use and home made
ii– New Achievement & Current Needs
(continued)

2.2– Seeding Production and transplanting

- Transplanting experts show that Cambodia needs transplanting machinery with using mat paddy seedlings thus, research for mechanization of paddy cultivating is a key duty.
- Direct sowing
- Mechanization in seedling production for industrial plants
ii– New Achievement & Current Needs
(continued)

2.3- Harvesting

• Windrow reaper is harvest machinery that can help improve the efficiency of rice
• It’s easy to pick and manually tie into handles;
• Windrow reaper should be locally designed, Manufactured and have low price and low risks;
• Combine harvester
ii– New Achievement & Current Needs  
(continued)

2.5- Threshing

• Nearly all thresher are imported;

• Many different mechanical threshers are available to the farmers. There are issues relating to portability and they are high risk to lose and breakage;

• Need local designed and manufacture
2.5- Transportation

- Transportation throughout Cambodia needs to be improved to decrease grain losses.
- There hasn’t been research in this case.
- Cambodia’s transportation is long, narrow, and very difficult in provinces.
ii– New Achievement & Current Needs
(continued)

2.6- Drying

• Drying rice, maize and Cassava are still low standard equipments;
• High technology solution needs
• Need the advantage of dryers is in energy and drying duration saving and low price
• Need more concentration on local made
ii– New Achievement & Current Needs
(continued)

2.7- Storage

• Need to improve the number, capacity, and quality of rice, maize, cassava storage facility throughout Cambodia;

• Developing storage and handling procedures especially for rice and maize that minimize affect toxin production are desirable;
2.8– Seed processing

• Recently, the Cambodia government and agricultural sectors concentrate on this field.

• Technology and equipment need to be developed and improved for seeds of rice, maize and cashew nuts processing.
ii– New Achievement & Current Needs
(continued)

2.9- Machinery test

• Research on farm machinery and equipment and identified zoning for using agricultural equipment and machinery based on classification of soil and type of crops in order to develop agriculture sector;
ii– New Achievement & Current Needs
(continued)

• Formulate guidelines and regulations on utilization of farm machinery for agricultural production effectively; and

• Advice and provide extension on utilization farm equipment and machinery effectively to users and relevant stakeholders

• Research on appropriate post harvest technology and value added for agricultural production
iii– Impact of poor technology on agro-products

• Post harvest loss in rice, maize, seam, mung bean and soy bean products;
• Delay storage and processing cause many loss of farmers’ income
• High risk and high cost for processing
• Low quality rice after processing can’t meet in the need of export standard
Recommendations and Proposals

- Increase the efficiency in activities to support for member countries, that are less development in agricultural engineering and machinery
- APCAEM should have exact plans to support member countries
- Build agro–industry development for eco–economics in the regions and member countries which have the same conditions
Recommendations and Proposals

• Promote cooperation within network of member countries to share experiences with each others

• Cambodia needs and asks APCAEM and member countries to help of its engineering and mechanization