

COUNTRY PRESENTATION PAPER

THAILAND

The 2th Regional Forum on Sustainable Agricultural Mechanization
Environment for Custom Hiring of Agricultural Machinery

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THAILAND

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General Information on Agriculture and Mechanization

Thailand is a newly industrialized country. Its economy is heavily export-dependent , with exports accounting for more than two thirds of its GDP.

In 2012, Thailand had a GDP of THB11.375 trillion (US\$366 billion). Per-capita GDP was \$5,390.

Thailand's agricultural sector produces 8.4 percent of the GDP. The Thai economy grew by 6.5 percent, inflation rate of 3.02 percent.

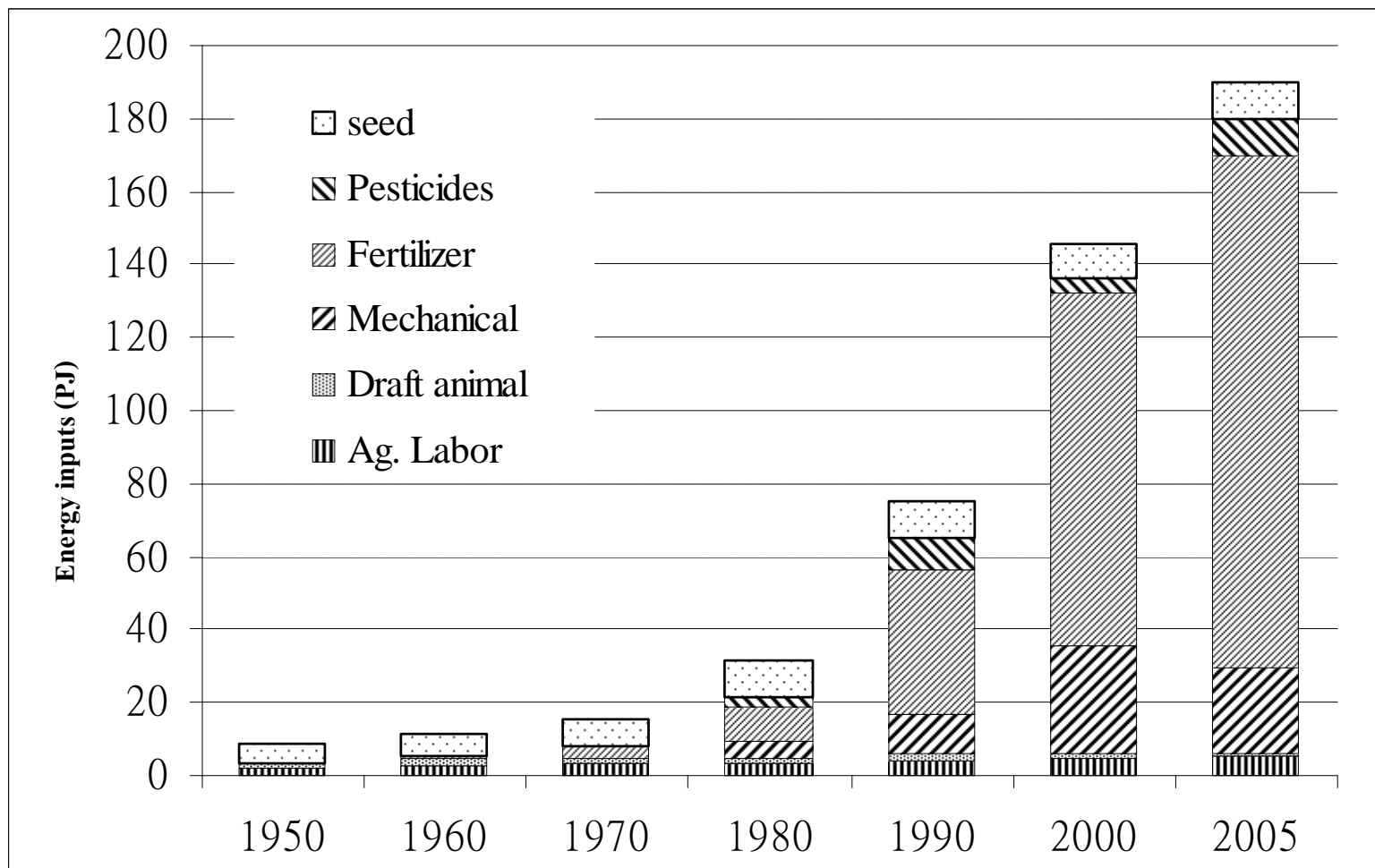
In 2013, GDP grew 2.7 percent.

In 2014, the Thai economy is expected to grow 2.9 percent.

Major crops:

Rice, maize, sugarcane,
soybean, cassava, rubber,
horticulture crops, oil palm

Crops	Planting area mil. ha	Production mil. tons
Rice	9.5	20
Maize	1.2	4.1
Cassava	1	18



Contribution of different energy inputs in crop production in Thailand during 1950-2005

Thailand has developed its own range of **agricultural machinery** and **agricultural equipment** to suit the special needs and pockets of its mainly agrarian population. Rice production is the foremost user of this equipment.

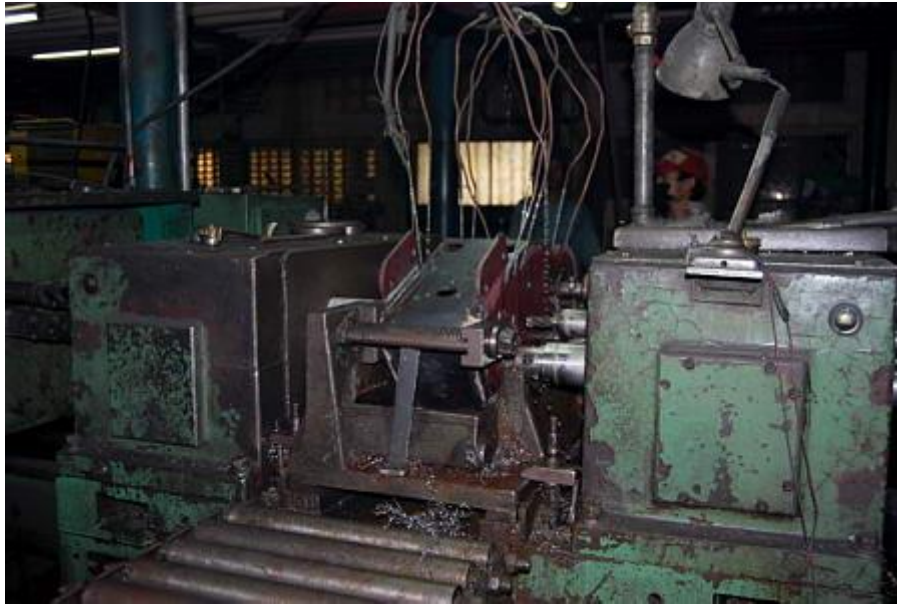
Planting machinery, Rice threshers, tractors and walking ploughs and nowadays machines that help with the cultivation, caring and harvesting.

In the present, most of the agricultural equipment used in Thailand is locally produced such as tractor, power tiller, disc plough, disk harrow, water pump, sprayer, threshing machine, reaper, combine harvester, cleaning equipment, dryer, rice milling machines, and processing equipment etc.

However local machines produced from small manufacturer, are not standardized in quality, efficiency and durability. Some agricultural machines are imported from overseas by companies for Thai agricultural productions.

Mechanization play very important role in the present agricultural production of Thailand. Labor shortage and necessity to reduce production cost have obviously shown off. Undoubtedly, demand for agricultural machinery will remarkably increase during next ten years.

Agricultural mechanization for rice production is the most progressive compare to other crops. The Central plain region is the highest progressive mechanization and nearly full mechanization then increased and expanded to other regions of the country.









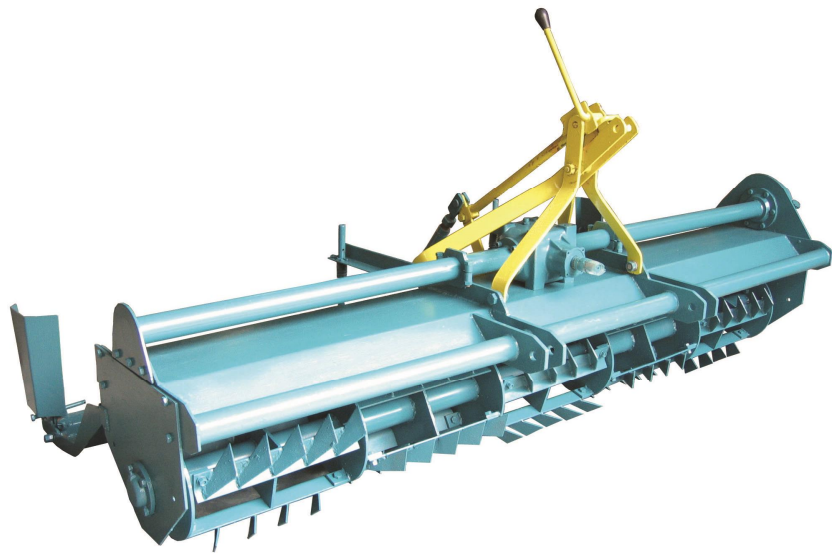
Status of Custom Hiring

At present there are two forms of utilizing agricultural machinery as machine owner and/or machine hiring service. The ratio of machine owner to machine hiring service depends on size, type and price of machine or equipment.

Most farmers own the small and inexpensive machine such as two-wheel tractor, water pump and chemical sprayer etc.

For four-wheel tractor (attached with rotovator for land preparation) and power thresher, only 6.4% and 6% of total machines were possessed by farmers.

However, there still are a number of farmers who have small holding area or in the remote rural area, they are unable not only to possess farm machinery and also can not call for the hiring service because their production is too small.



Puddler



Track tractor 175 Hp



Mechanization in Thailand is rolling forward from power intensive to control intensive machines. Thai mechanization system can be cited as one of high efficient pattern. Farmers are needless to invest high cost to own an expensive machine. Farmers normally own small simple machines and equipment.

Custom-hire contracting with large farm machinery in Thailand happens to be a reliable and appropriate service for most farmers. More than 99 percent of combine harvesters are operated on custom-hire service basis. With this pattern of farm machinery utilization, mechanization for agricultural production will keep expanding and will catch up with the requirement of farmers.



Thai rice combine harvester

Supporting Policies

Government policy on the sector

There is no declared policy on farm mechanization by the government in Thailand. After determining the role which agricultural machinery has played in agricultural development in many other developing countries, and realizing its responsibilities, the government started showing increasing interest. These include formulation of policies; determining priority needs; selection of suitable agricultural machines; research and development; dissemination of information and extension services; provision of credit; coordination of activities; training of farmers, extension agents, and manufactures; assistance for manufacturing and on the farm use of mechanization inputs

Policy and strategies for agricultural mechanization are not usually explicitly stated in the National Development Plan as they are part of the overall agricultural development policies.

In the sixth National Economic Development Plan (1978-1991), the basic national policy for agricultural mechanization development was to increase agricultural production efficiency and to decrease production costs of agricultural commodities in order to be competitive in foreign markets.

The current plan is the Eleventh Plan (2012 . 2016). Strengthening of the agricultural sector and security of food and energy are stated in the plan. Development guidelines include:

Increase agricultural productivity. Research and development should be emphasized while agricultural production should be modified according to socio geographical conditions. Controls on imported chemical fertilizers and pesticides should be considered and their use on farms should be inspected to assure that they meet standards.

Agricultural practices that preserve biodiversity and are suitable for the climate and the environment should be encouraged, while basic services for agricultural production should be improved. Development of science and technology for agriculture is essential, including support for technologies for production whose utilizing is friendly to the environment.

Social and Economic Benefits

Farmers are needless to invest high cost to own an expensive machine.

Farmers normally own small simple machines and equipment. Custom-hire contracting with large farm machinery in Thailand happens to be a reliable and appropriate service for most farmers.

The custom-hire services for rice combine harvesters are used and popular among the farmers in the irrigated areas. Farmers having irrigation facilities generally grow rice twice or more a year. These fields are soft and deep clay soil and are in the central part of Thailand. However, these are used in the other part rapidly because of labor shortage especially in the north eastern part to avoid of losses for local rice varieties which must be harvesting in timeliness.

Challenges and Constraints faced

Generally, the rice combine harvesters for custom hire service are transported to the field by truck or tractor trailer, these are one investment cost for the owner of combine harvesters. Transportation of the machine on the road is a serious problem because the total width of the machine is more than the width of the truck and such width is in violation of the highway traffic rules. Therefore, the contractors have to pay ransom during traveling on the highway, which also increases the hiring charges of the machines





One of the common problems faced by both contractors and farmers are frequent breakdown of the components of rice combine harvester. The replacement and repair of which needed a considerable time and effort and these are one of the most serious drawback of the machine for effective operation.

Serious accidents with rice combine harvester during operation, many accidents were reported while working in the field. The main reasons for their occurrence were the operator's skill, machine design, and the condition of surroundings. Direct drive rice combine harvester which using the belt . pulley and chain . sprocket mechanisms in their transmission system, is one of the reasons of accidents. The operator had many accidents due to failures in the other moving parts of the machine such as clogging in the re-threshed grain auger and front auger. The operator had to de-clog these faults in the field during harvesting only.



Solutions and Suggestions

In Thailand standards of some agricultural machinery are already defined but few number of agricultural machinery manufactures requested for the certificate for their products. However, only few numbers of requested cases were awarded the certificates. Therefore, revising standards is required. This will able agricultural machinery manufactures to increase their potential to compete in the market against imported machines.

Recommendations set up are:

1. Revise the existing standards and mechanism to achieve those standards.

2. Improve regulation to ensure using of the standards.

3. Stimulate and promote agricultural machinery production in line with standards.

The following incentives may be used:

- Reduce tax charged from the registered manufactures.

- Support low interest rate of loan money for their improvement and for their products that received standard certificate.

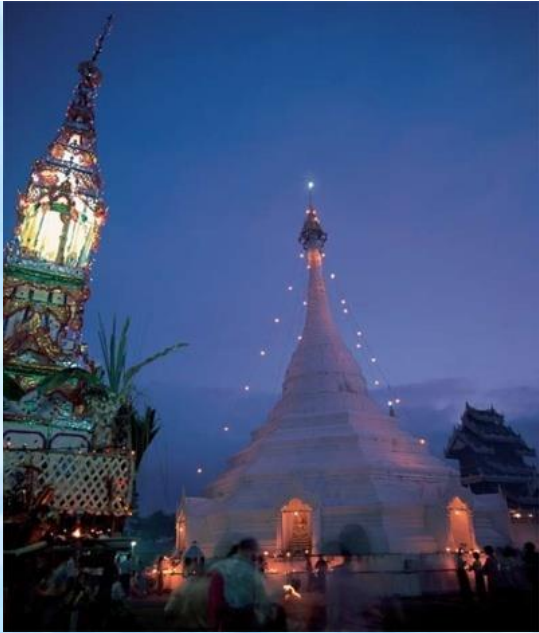
Promote standardization of local agricultural machinery is needed: Good and high standard agricultural machinery will benefit to both farmers and agricultural machinery manufactures.

In Thailand there is a need for capacity building of farmers and operators for efficient use of agricultural machinery as following.

Impart knowledge for using and repair and maintenance of agricultural machinery to farmer: Various agricultural machinery are being used for various crops production. Increase knowledge on using and repair and maintenance will increase usage efficiency of agricultural machine, reduce cost of repair and maintenance, and extend life of machine.

Extend knowledge and training for operators of big size, high price and high performance agricultural machinery: Trend of using these machines for crops production in Thailand is increasing viz. rice combine harvester, sugarcane harvester etc. High skilled operators are required to maximize utilization efficiency of these machines. This will result in good quality of work done; decreasing repair and maintenance cost and thereby reducing cost for custom service may be possible.

Supporting custom service system of agricultural machinery: Agricultural machinery in custom service is popularly used in Thai crop production. The advantages are: increased utilization of machine; reduced fixed cost for holding machine; option to use high performance machine for increasing production efficiency; and relax the problem of labor shortage. This is practiced intensively in the Central, as compared to the North and the Northeast, which have low competition causing high hiring rate and increased cost of production. Therefore, the promotion of custom service for agricultural machinery should be practiced.



Thankyou

