

## The Philippines

# Status of Agricultural Mechanization in the Philippines

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The Philippines has a land area of 30 million hectares, while agricultural area covers 9.5 million hectares, among which 4.8 million hectares are used for rice production, 2.6 million hectares for corn production, and other areas are for major plants including coconut, sugar cane, banana, pineapple, cassava, rubber, mango, and vegetables. The Philippines is a net rice importer, and total rice production in 2013 was 18 million tons. Corn production reached 7.4 million tons in the same year.

In 1890s, agricultural machines from Spain and United States were introduced in the Philippines, particularly in large estates. In 1940s, preferential tax incentives were given to imported agricultural machines, and still mechanization was heavily biased to large scale farming. At that time, mechanization was synonymous to tartarisation.



From 1966 to 1980, the CB-IBRD loan encouraged the acquisition of four-wheel tractors, and later, small power tillers. In 1970s, the Green Revolution saw the growth of local agricultural machinery manufacturing industry. Power tillers and threshers were locally designed and fabricated at the time. And the 1970s saw a shift of model of mechanization from large scale to small scale.

Laws adopted in the Philippines affecting agricultural mechanization include the Agriculture and Fishery Modernization Act (AFMA) of 1998, the Agricultural Engineering Law issued in 1998, and the Agricultural and Fishery Mechanization Law (AFMech Law) issued in 2013.

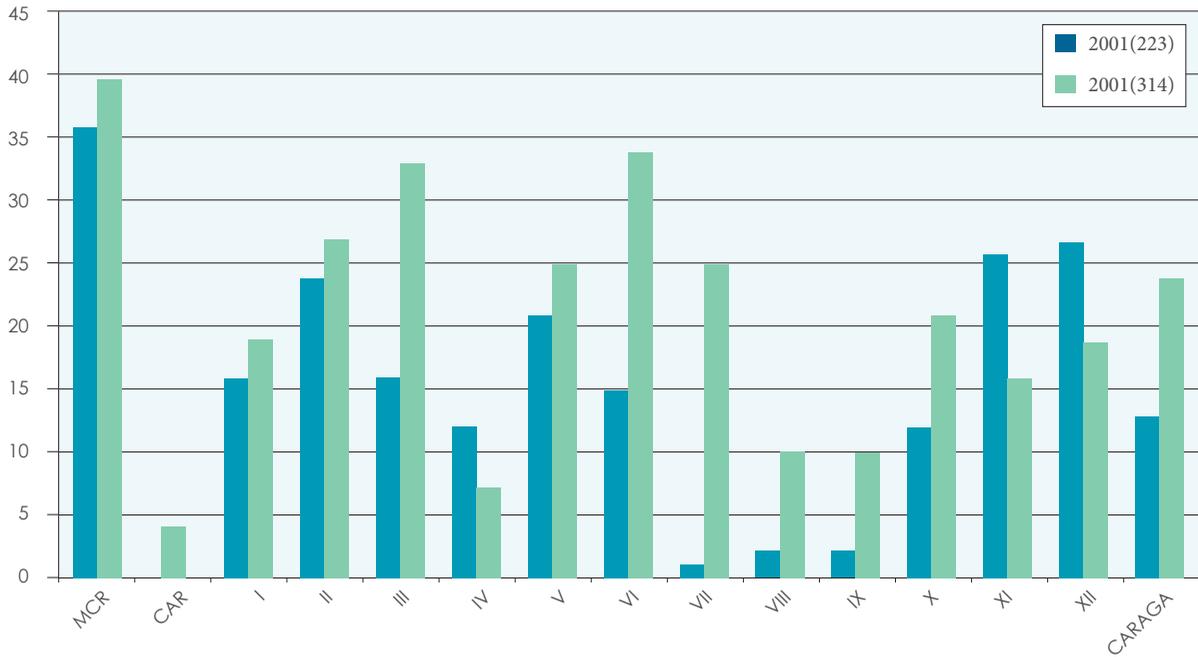
Below is an overview of mechanization status of various crops in the Philippines:

Operation	Rice/Corn	Vegetable, legumes & rootcrops	Coconut/Fruits / Fiber crops	Sugarcane, pineapple
<b>Land preparation</b>	Intermediate to high	Low		Intermediate to high
<b>Planting/transplanting</b>	Low	Low	Low	Low to intermediate
<b>Crop care/cultivation</b>	Low	Low	Low	Low to high
<b>Harvesting</b>	Low	Low	Low	Low
<b>Threshing/shelling</b>	Intermediate to high	Low (legumes)		
<b>Cleaning</b>		Low		
<b>Drying</b>	Low	Low (legumes)	Low	
<b>Milling/village level processing</b>	High	Low	Low	

The agricultural machinery industry in the Philippines has the following characteristics:

- 1) import of heavy machines and prime movers, and local assembly and fabrication of small equipment; and
- 2) locally manufactured machines have high import content sometimes constituting more than half of the total machinery cost.

The status of the agricultural machinery industry in the Philippines is showed in the following diagram:



While, the geographical distribution of the agricultural machinery industry in the Philippines is illustrated in the map below:



Research and development efforts in the Philippines is focusing on power tillers and hydrotillers, irrigation pumps, rice transplanters, drum seeders, weeders, rice reapers, rice threshers, rice strippers, corn threshers and shellers, village rice mills, grain moisture meters, coconut husk decorticators, abaca extractor, and grain and copra dryers.

There are strong demands for appropriate agricultural machinery in the Philippines including transplanter, harvester and drier for rice production, machinery for production of corn, vegetables and upland crops, coconut and other fruit crops, and the ones used for livestock, poultry and aquaculture. Attention shall also be paid to structures and controlled-environment agriculture, precision agriculture/smart farming, and high energy utilization for the future development of agricultural mechanization in Philippines.

The challenges facing the Philippines in terms of research, development and extension of agricultural mechanization in the country cover low farm gate

prices, lack of alternative market outlets, dictated prices by middlemen, high costs of farm inputs, incidence of pests and diseases, environmental problems, lack or inadequate support infrastructures (roads, irrigation), and lack of access to current farming technologies.

While, the policy recommendations for addressing these challenges and improving the situation include non-interference by government on price levels of commodities, increased availability of loans/less stringent requirements, more cooperative buying stations, more machinery centers (custom hiring, repairs), support to manufacturers, more support infrastructures, and discourage land division.

The newly enacted law on Agriculture and Fishery Mechanization (AFMech Law of 2013) is expected to promulgate plans for a sustainable mechanization development contributing to the agriculture modernization in the Philippines.