



# CURRENT STATUS OF AGRICULTURAL MECHANIZATION IN INDONESIA

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## STATUS OF INDONESIAN AGRICULTURE

- Population:
  - Total : 237.6 million in 2010,
  - > 100 million rely on agriculture
- Rice :
  - staple food
  - as an indicator of food security
  - production increases : 34.38 million tones (2006) to 41.67 million tones (2010) ;
  - rice consumption was 139,15 kg/capita-year
- Other important food crops : Maize and soybean

## STATUS OF INDONESIAN AGRICULTURE (Cont)

- Lowland and irrigated agricultural area
  - 7.70 million ha (2005)
  - 7.88 million ha (2008)
  - Land holding 0.3 ha/farmer
- Agricultural machinery
  - the number is relatively small compared to agricultural land area
  - low affordability to buy and lack of knowledge to operate agricultural machinery.
- Climate change has shifted rainfall pattern → shifting in cropping calendar

## **AGRICULTURE DEVELOPMENT PROGRAM**

- Maintaining food security and food safety
- Promoting food diversification
- Promoting added value, competitiveness and export
- Improving farmer income and welfare

## TARGET OF FOOD CROPS PRODUCTION IN INDONESIA 2011

PADDY : 65.150.764 TON

CORN : 18.016.537 TON

SOYBEAN : 927.384 TON

## STRATEGY TO ACHIEVE THE TARGET

- Revitalization of agriculture
  - Land expansion and intensification
  - Providing good quality of seed
  - Improvement and building of new infrastructure and facilities
  - Strengthening human resources (researcher, extension worker and farmer)
  - Provide funding for farmer
  - Strengthening farmer organization
  - Promoting technology and agro industry

# DEVELOPMENT STAGE OF AGRICULTURAL MECHANIZATION IN INDONESIA

TO INCREASE  
PRODUCTIVITY

TO REDUCE  
POST HARVEST  
LOSSES

TO INCREASE  
ADDED VALUE

IMPROVE &  
MAINTAIN  
QUALITY

Agricultural machinery industry has been able to produce main agriculture machinery for Indonesia rice farming system.

Agricultural machinery industry has been growing from producing implement and then producing various types of machiney.

small scale rice farming with small machinery

Colonial era  
Sugar cane  
plantation

## NUMBER OF VARIOUS AGRICULTURAL MACHINERY IN INDONESIA 2010

NO	KINDS OF MACHINERY	PLANTING AREA (HA)	HARVESTING AREA (HA)	EXISTING NUMBER (UNIT)	NEEDS (UNIT)
1	HAND TRACTOR	14.324.166	12.891.749	109.429	148.406
2	WATER PUMP	14.324.166	12.891.749	90.310	100.679
3	HARVESTING	14.324.166	12.891.749	N.A.	470.974
4	POWER THRESHER	14.324.166	12.891.749	38.530	187.075
5	DRYER	14.324.166	12.891.749	5.699	58.760
6	RMU	14.324.166	12.891.749	36.622	13.127

Sources : Processed from Center for Agricultural Statistic data, 2011 & CBS, 2007



## **STRATEGY TO DEVELOP AGRICULTURAL MACHINERY**

- Promotion and dissemination of new technology
- Revitalization farmer group and Farm Machinery Service Unit
- Capital subsidy for farmer group to buy agricultural machinery
- Increasing the capacity of infrastructure (farm road, irrigation facilities and local workshop)
- Development/improvement of national standard and certification of agricultural machinery

## **THE OBJECTIVES OF THE DEVELOPMENT OF AGRICULTURAL MECHANIZATION**

1. Increasing crops productivity and reduce post harvest losses
2. Maintaining and improving quality of agric. product
3. Increasing efficiency and productivity of agricultural resources
4. Promoting local agricultural machinery manufacturer
5. Strengthening collaboration among small, medium and large scale industry

## **AGRICULTURAL MECHANIZATION RESEARCH AND DEVELOPMENT**

1. Indonesian Center for Agricultural Engineering Research and Development (ICAERD) was established in 1987
2. The mandate of the center are:
  1. To conduct research for agricultural mechanization development
  2. Design and develop prototypes of agricultural machinery suitable for Indonesian farmer condition
  3. Develop model for agricultural mechanization
  4. Test new prototypes and agricultural machinery which will be marketed in Indonesia (ISO 17025/1999 and ISO 17025/2005)
  5. To conduct research for policy formulation on agricultural mechanization development

## **PRODUCT OF AGRICULTURAL MECHANIZATION RESEARCH AND DEVELOPMENT**

1. Various prototypes of agricultural machineries
2. Patents
3. Model development of agricultural mechanization in various region
4. Model integration of crops, livestock and agricultural machinery to increase farmer income
5. A number of policy recommendation for development of mechanization
6. Various national standards for agricultural machinery (Test codes, procedure and methods, Minimum technical performance requirement for agricultural machinery)

## INDONESIA AGRICULTURAL MACHINERY INDUSTRY

1. Number of Agricultural Machinery Manufacturer
  - a. Large scale manufacturer : 3
  - b. Medium Scale manufacturer : 30
  - c. Small scale manufacturer : 1063
2. Production Capacity
  - a. Large Scale manufacturer : 955.550 units/year
  - b. Medium Scale manufacturer : 125.000 units/year
  - c. Small scale manufacturer : 15.000 units/year
3. Level of technology : Low and medium technology
4. Target : Local Market and Export

## Value of export and Import of agricultural machinery (US\$)

No	Export / Import	Type of Agricultural Machinery	Year	
			2005	2010
1		Field machinery and tools	66 000	270000
	Export		48 992 061	53 623 679
2	Import	Post harvest machinery & tools		
	Export		20 000	100 000
3	Import	Processing machinery & tools	454 027	68 104
	Export		734 000	100 000
4	Import	Component and tools	25 974 989	37 014 359
	Export		546 000	1 400 000
	Import		24 416 535	48 827 070

## STANDARDIZATION OF AGRICULTURAL MACHINERY

### THE REGULATION

- Based on government act 81-2001
- Agricultural machinery which will be marketed in Indonesia must be tested by legal testing institution based on national standard test code and procedure and certified by legal institution

### OBJECTIVES

- Protect the farmers need
- Quality assurance
- Strengthen the growth of local agricultural Machinery industry
- Strengthen research and development

**AGRICULTURAL MACHINERY  
TESTING AND QUALITY INSTITUTE**



**TESTING  
LABORATORY**



**CERTIFICATION  
BODY**



## Testing laboratory facility of ICAERD - IAARD - MoA

No	Testing Laboratory	Capacity / Scope
1	Testing Laboratory for 4 Wheel and 2 Wheel Tractors	Max 100 kW
2	Testing Laboratory for Irrigation Centrifugal Pumps	Max 250 mm discharge Pipe
3	Outdoor Testing Laboratory for grain post harvest machinery.	Up to 3,000 kg/hour
4	Laboratory for post harvest and processing agricultural machinery for various product	Various machinery for processing grain, tuber, fruit product, chopper and feed processing machinery
5	Testing Facilities for hand tools	hand sickles, sprayer. manual pump, pedal thresher etc.

## Scope and testing laboratory facility of AMTQC - MoA

No	Testing Laboratory	Capacity / Scope
1	Testing Laboratory for production and post harvest tools.	18 types of hand tools
2	Testing Laboratory for small powered pre and post harvest machinery	68 types of agricultural Machinery

## AGRIC. MACHINERY TESTED

NO	YEAR	TOTAL (MODEL/TYPE)		
		ICAERD	AMTQC	TOTAL
1	2002	24	0	24
2	2003	38	0	38
3	2004	30	15	45
4	2005	30	40	70
5	2006	36	63	99
6	2007	46	152	198
7	2008	49	143	192
8	2009	55	220	275
<b>TOTAL</b>		<b>308</b>	<b>633</b>	<b>941</b>

# CERTIFICATE

## 6 MANUFACTURES have already had certificate

1. CV. Pabrik Mesin Guntur, Malang  
9 models/types of water pump
2. CV. Karya Hidup Sentosa, Yogyakarta  
7 models/types of hand tractor
3. CV. Bahagia Jaya Sejahtera, Bogor  
1 models/types of power thresher
4. PT. Ebara Indonesia, Bogor  
4 models/types of water pump
5. PT. Agrindo, Surabaya  
4 models/types of hand tractor
6. PT. Yamindo, Pasuruan  
5 models/types of hand tractor

**Thank You Very Much**

**FOR YOUR ATTENTION**

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