CURRENT STATUS OF AGRICULTURAL MECHANIZATION IN INDONESIA

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MINISTRY OF AGRICULTURE REPUBLIC OF INDONESIA
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.

Colonial era
Sugar cane plantation

Small scale rice farming with small machinery

Agricultural machinery industry has been growing from producing implement and then producing various types of machinery.
<table>
<thead>
<tr>
<th>KINDS OF MACHINERY</th>
<th>PLANTING AREA (HA)</th>
<th>HARVESTING AREA (HA)</th>
<th>NEEDS (UNIT)</th>
<th>EXISTING NUMBER (UNIT)</th>
<th>NEEDS (UNIT)</th>
<th>EXISTING NUMBER (UNIT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>1 HAND TRACTOR</td>
<td>14,324.166</td>
<td>12,891.749</td>
<td>148,406</td>
<td>109,429</td>
<td>12,891.749</td>
<td>13,127</td>
</tr>
<tr>
<td>2 WATER PUMP</td>
<td>14,324.166</td>
<td>12,891.749</td>
<td>100,679</td>
<td>90,310</td>
<td>12,891.749</td>
<td>36,622</td>
</tr>
<tr>
<td>3 HARVESTING</td>
<td>14,324.166</td>
<td>12,891.749</td>
<td>470,974</td>
<td>N.A.</td>
<td>12,891.749</td>
<td>58,760</td>
</tr>
<tr>
<td>4 POWER THRESHER</td>
<td>14,324.166</td>
<td>12,891.749</td>
<td>187,075</td>
<td>38,530</td>
<td>12,891.749</td>
<td>187,075</td>
</tr>
<tr>
<td>5 DRYER</td>
<td>14,324.166</td>
<td>12,891.749</td>
<td>58,760</td>
<td>5,699</td>
<td>12,891.749</td>
<td>58,760</td>
</tr>
<tr>
<td>6 RMU</td>
<td>14,324.166</td>
<td>12,891.749</td>
<td>13,127</td>
<td>36,622</td>
<td>12,891.749</td>
<td>13,127</td>
</tr>
</tbody>
</table>

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

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STRATEGY TO DEVELOP AGRICULTURAL MACHINEY

• 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.
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
<table>
<thead>
<tr>
<th>No</th>
<th>Tipe of Agricultural Machinery</th>
<th>Year</th>
<th>Export</th>
<th>Import</th>
<th>Export</th>
<th>Import</th>
<th>Export</th>
<th>Import</th>
<th>Export</th>
<th>Import</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Field machinery and tools</td>
<td>2005</td>
<td>276000</td>
<td>53623679</td>
<td>48992061</td>
<td>20000</td>
<td>454027</td>
<td>734000</td>
<td>37014359</td>
<td>546000</td>
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<tr>
<td>2</td>
<td>Post harvest machinery &amp; tools</td>
<td>2010</td>
<td>66000</td>
<td>68104</td>
<td>48920061</td>
<td>100000</td>
<td>100000</td>
<td>37014359</td>
<td>1400000</td>
<td>24416535</td>
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<tr>
<td>3</td>
<td>Processing machinery &amp; tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Component and tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Value of export and import of agricultural machinery (US$)
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

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

OBJECTIVES
AGRICULTURAL MACHINERY
TESTING AND QUALITY INSTITUTE

TESTING LABORATORY

CERTIFICATION BODY

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<table>
<thead>
<tr>
<th>No</th>
<th>Testing Laboratory</th>
<th>Capacity / Scope</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Testing Laboratory for 4 Wheel and 2 Wheel Tractors</td>
<td>Max 100 kW</td>
<td>Various machinery for processing grain, tuber, fruit product, chopper and feed processing machinery</td>
</tr>
<tr>
<td>2</td>
<td>Testing Laboratory for Irrigation Centrifugal Pumps</td>
<td>Max 250 mm discharge Pipe</td>
<td>Laboratory for post harvest and processing agricultural machinery for various product</td>
</tr>
<tr>
<td>3</td>
<td>Outdoor Testing Laboratory for grain post harvest machinery.</td>
<td>Up to 3,000 kg/hour</td>
<td>Testing Facilities for hand tools</td>
</tr>
<tr>
<td>4</td>
<td>Laboratory for post harvest and processing agricultural machinery</td>
<td></td>
<td>hand sprayer, sickles, manual pump, pedal thresher etc.</td>
</tr>
<tr>
<td>5</td>
<td>Testing Laboratories for hand tools</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Scope and testing laboratory facility of AMTQC - MoA

<table>
<thead>
<tr>
<th>No</th>
<th>Testing Laboratory</th>
<th>Capacity / Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Testing Laboratory for production and post harvest tools.</td>
<td>18 types of hand tools</td>
</tr>
<tr>
<td>2</td>
<td>Testing Laboratory for small powered pre and post harvest machinery</td>
<td>68 types of agricultural Machinery</td>
</tr>
<tr>
<td>YEAR</td>
<td>ICAERD</td>
<td>AMTQC</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>2002</td>
<td>24</td>
<td>0</td>
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<tr>
<td>2003</td>
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<td>2006</td>
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<tr>
<td>2007</td>
<td>198</td>
<td>192</td>
</tr>
<tr>
<td>2008</td>
<td>152</td>
<td>143</td>
</tr>
<tr>
<td>2009</td>
<td>220</td>
<td>275</td>
</tr>
<tr>
<td>TOTAL</td>
<td>308</td>
<td>633</td>
</tr>
</tbody>
</table>
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