COUNTRY REPORT INDONESIA
AGRICULTURAL MACHINERY
TESTING DEVELOPMENT

MINISTRY OF AGRICULTURE
2012
BACKGROUND

• Food security and sustainability issue in Indonesia for 240 million people

• The MoA’s target in 2014: in providing an extra rice stock of 10 million ton (grain)

• The role of agric mechanization is important (to increase productivity & efficiency, reduce product losses, increase added value as well as maintain the quality)

• To support AM → qualified machine is required → testing is needed

• The paper covers: (1) AM development; (2) Policy and strategy; (3) AM testing activity.
WHY ... AM is slow developed?

• In general: Utilization of AM is still low (< 50%) for rice cultivation and < 30% for others

• Specifically:
  – Land holding and conversion
  – Infrastructures & institution
  – Financial/ capital
  – Human resource capability
  – Information and technology
  – Lack of agric. machinery quality.

• Solution: → may increase no. of AM in the field with better quality (*via grand aid, financial subside, and management help*)
IMPORTANT of TESTING

- To protect the consumers need;
- To guarantee quality agric. tool or machinery;
- To support manufacturers in evaluating their product;
- To strengthen R&D on agric. machinery;
- To strengthen the growth of local industry via development of National Standard (SNI).
AGRIC MACHINERY TESTING

• LEGISLATION/ REGULATION
  • Gov. Act No. 81/2001: A compulsory of testing
  • Permentan : list of 15 laboratories for AM testing

• STANDARDIZATION
  • Test code & procedure
  • National Standard (SNI: Prosedure & Min. Req.)
  • Testing Management System (ISO 17025: 2005)

• INSTITUTION
  • Mainly 2 testing laboratories (ICAERD & AMTQC) and others (13 lab.)
  • Certification Body (LS-Pro Alsintan)
## TESTING FACILITY

### Laboratory of IACERD, Serpong

<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 4 Wheel and 2 Wheel Tractors</td>
<td>Max 100 kW</td>
</tr>
<tr>
<td>2</td>
<td>Testing Laboratory for Irrigation Centrifugal Pumps</td>
<td>Max 250 mm discharge pipe</td>
</tr>
<tr>
<td>3</td>
<td>Outdoor Testing Laboratory for grain post harvest machinery.</td>
<td>Up to 3,000 kg/hour</td>
</tr>
<tr>
<td>4</td>
<td>Laboratory for post harvest and processing agricultural machinery</td>
<td>Any machine for food and horticultural production</td>
</tr>
<tr>
<td>5</td>
<td>Testing Facilities for sprinkler irrigation and hand sprayer</td>
<td>Big gun sprinkler (25 m) and 25 L tank hand sprayer.</td>
</tr>
<tr>
<td>6</td>
<td>Other tool and agricultural machinery</td>
<td>From: sickle, manual pump, crusher, grass chopper, palm shredder and so on.</td>
</tr>
</tbody>
</table>

### Laboratory of AMTQC – MoA, Depok

<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 pre and post harvest tools.</td>
<td>18 kinds of tools</td>
</tr>
<tr>
<td>2</td>
<td>Testing Laboratory for pre and post harvest machinery</td>
<td>68 kinds of agricultural machinery</td>
</tr>
<tr>
<td>3</td>
<td>Testing Facilities &amp; Instrumentation</td>
<td>About 45 kinds of instrumen and measuring tool</td>
</tr>
</tbody>
</table>
TESTING FACILITY

- Lab of IACERD, Serpong (Scope of ISO 17025:2005)

- 2-W tractor
- 4-W tractor
- Irrigation pump
- Post harvest analysis
TESTING FACILITY

- Lab of IACERD, Serpong (Beyond Scope of ISO 17025:2005)

- Testing for Multipurpose Power thresher

- Organic Crusher - Testing

- Granulator Siever
TESTING OUTPUT

• TEST REPORT (TR)
  • output of each testing laboratory
  • contains the performance of machine tested

• LETTER OF CONFORMITY (LC)
  • issued by the Director of Stanadard Society
  • comparison between TR and respective SNI
  • used for gov bidding / machine procurement.

• CERTIFICATE (LABEL on MACHINE)
  • issued by the Certification Body
  • labelling on each machined tested
  • based on both LC and good manufacturing practices (quality management system)
TESTING PROCEDURE

Source: AMTQC – MoA, Depok
PROCEDURE OF CERTIFICATION OF AM

APPLICANT/PRODUCERS

SNI

TEST REPORT

CERTIFICATE

CERTIFICATION INSTITUTE

TECHNICAL COMISSION

QUALITY MANAGEMENT SYSTEM

AUDIT

TESTED

TESTING INSTITUTE

Source: AMTQC – MoA, Depok
## Results of AM. Testing in Indonesia

### NO. and KINDS OF AGRIC. MACHINERY TESTED BY ICAERD

<table>
<thead>
<tr>
<th>No</th>
<th>YEAR</th>
<th>4-Wheel Tractor</th>
<th>2-Wheel Tractor</th>
<th>Irrigation Pump</th>
<th>Power Thresher</th>
<th>RMU</th>
<th>Dryer</th>
<th>Organic Crusher</th>
<th>Sprayer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2000</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>2001</td>
<td>4</td>
<td>19</td>
<td>20</td>
<td>-</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>2002</td>
<td>-</td>
<td>11</td>
<td>13</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>2003</td>
<td>-</td>
<td>11</td>
<td>5</td>
<td>-</td>
<td>11</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>2004</td>
<td>-</td>
<td>12</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>4</td>
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<td>5</td>
</tr>
<tr>
<td>6</td>
<td>2005</td>
<td>-</td>
<td>22</td>
<td>17</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>-</td>
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<tr>
<td>7</td>
<td>2006</td>
<td>2</td>
<td>9</td>
<td>10</td>
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<td>6</td>
<td>7</td>
<td>-</td>
<td>-</td>
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<tr>
<td>8</td>
<td>2007</td>
<td>2</td>
<td>26</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>-</td>
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<tr>
<td>9</td>
<td>2008</td>
<td>5</td>
<td>11</td>
<td>16</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>2009</td>
<td>2</td>
<td>13</td>
<td>23</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>11</td>
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</tr>
<tr>
<td>11</td>
<td>2010</td>
<td>2</td>
<td>20</td>
<td>7</td>
<td>3</td>
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<td>-</td>
<td>6</td>
<td>-</td>
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<tr>
<td><strong>JUMLAH</strong></td>
<td><strong>23</strong></td>
<td><strong>159</strong></td>
<td><strong>122</strong></td>
<td><strong>11</strong></td>
<td><strong>37</strong></td>
<td><strong>11</strong></td>
<td><strong>32</strong></td>
<td><strong>13</strong></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**: 408
Results of AM. Testing in Indonesia

- The number of machines tested → **1,540 unit** (any machines)

- The number of LC (till 2010) is 109 unit model from a total of 307 unit model or about **35%**.

- The number of Certificate has been issued is 43 model from a total of 307 model or about **14%** only.
PROBLEMs in TESTING Development

(1) Testing aspect
• Awareness of manufacturer regarding to testing
• Knowledge about: test report is not the same as a certificate
• Testing is a long procedure and very costly.

(2) Standardization aspect
• Application of national standard (SNI) is still not a compulsory
• Awareness to standard for low to middle manufacturer still low
• Time consume dan costly to produce a national standard (SNI)
• Lack of dissemination on standard to the society.

(3) Certification aspect
• Cost for application of quality management system quite high
• Conselling on quality management system of producer limited
• Ability of certification body still limited (human resource)
• Lack of coordination on conselling certification to producer.
## CERTIFICATE

<table>
<thead>
<tr>
<th>AGRICULTURAL MACHINERY</th>
<th>2010 (UNIT)</th>
<th>2011 (UNIT)</th>
<th>TOTAL (UNIT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water pump</td>
<td>5 model</td>
<td>11 model</td>
<td>16 model</td>
</tr>
<tr>
<td>HAND TRACTOR</td>
<td>5 model</td>
<td>16 model</td>
<td>21 model</td>
</tr>
<tr>
<td>POWER THRESHER</td>
<td>1 model</td>
<td>4 model</td>
<td>5 model</td>
</tr>
<tr>
<td>HAND SPRAYER</td>
<td>0</td>
<td>3 model</td>
<td>3 model</td>
</tr>
<tr>
<td>PADDY REAPER</td>
<td>0</td>
<td>1 model</td>
<td>1 model</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>11 model</strong></td>
<td><strong>35 model</strong></td>
<td><strong>46 model</strong></td>
</tr>
</tbody>
</table>
Challenges for Testing Improvement

• Regulation on testing activity, standardization and certification of agricultural machinery;
• Regulation utilization, monitoring and distribution of machinery (including procurement) in district area;
• Laboratory status on capability and competency;
• To complete or improve facility/instrument of laboratory with regard to SNI or test code;
• To strengthen testing collaboration on with other laboratory either within country or abroad testing institution → comparison testing
Priority Area of TC for Machinery Testing

- Strengthening collaboration among agricultural machinery testing institutions;
- Establishing testing network in terms of the development of methods, procedures and standardization of agricultural machinery;
- Strengthening collaboration on dissemination agricultural machinery testing information;
- Strengthening capacity building (facilities and human resource) of agricultural mechanization institutions for research and testing of agricultural machinery;
Thank You

TERIMA KASIH