Human Resource Development for Sustainable Agricultural Mechanization in Indonesia

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Ministry of Agriculture

3rd Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific
3rd ASEAN Conference on Agricultural and Biosystems Engineering
Co-located with the 12th Engineering Research and Development for Technology in Agriculture
9-11 December 2015, Manila, the Philippines
Outline

1. Role of Agriculture in National Development
2. Strategies, policies, and national program to achieve national agricultural development
3. Human resources development in agriculture
4. Government strategy to achieve agricultural mechanization in Indonesia
5. National training program for sustainable agricultural mechanization
ROLE OF AGRICULTURE SECTOR ON NATIONAL DEVELOPMENT

Slide #3

- Provides food for 250 million Indonesian People
- Provides industrial raw materials (FOOD, FEED, FIBRE, BIO ENERGY) for 87% of small and medium enterprises
- Contribute 14.72% GNP
- Absorbs >27% of total worker
- Provides income source for 70% of rural household

Income-producing countries U.S. $ 43.37 M
TARGET OF INDONESIA AGRICULTURE DEVELOPMENT

- SUSTAINABLE FOOD SELF SUFFICIENCY & SECURITY
- INCREASE ADDED VALUE, COMPETITIVENESS EXPORT
- INCREASE FOOD DEVERSIFICATION AND
- INCREASE FARMER WELLFARE
Strategies, Policies, and National Programs to Achieve National Target in Agricultural Development

- Irrigation
- Seed
- Fertilizer
- Agricultural Machinery
- Land Expansion
- Policy and regulation
- Storage

Capacity Building of human resources
Pre-harvest machinery:
1. Four wheel tractor
2. Two wheel tractor
3. Pump
4. Rice Transplanter
5. Chopper
6. Cultivator

Agricultural machinery grand

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>24,000</td>
</tr>
<tr>
<td>2015</td>
<td>60,000</td>
</tr>
<tr>
<td>2016</td>
<td>83,000</td>
</tr>
</tbody>
</table>

Target:
- Increase cropping area
- Increase cropping index
- Reduce post harvest losses
- Reduce production cost

Number of Agricultural Machinery (units)

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1,346</td>
</tr>
<tr>
<td>2012</td>
<td>2,217</td>
</tr>
<tr>
<td>2013</td>
<td>6,505</td>
</tr>
<tr>
<td>2014</td>
<td>23,401</td>
</tr>
<tr>
<td>2015</td>
<td>54,053</td>
</tr>
</tbody>
</table>
Government subsidies and grand for harvesting and post-harvesting machinery in 2015

<table>
<thead>
<tr>
<th>Machine</th>
<th>Number of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combine harvester</td>
<td>2,790</td>
</tr>
<tr>
<td>Paddy vertical dryer</td>
<td>170</td>
</tr>
<tr>
<td>Corn vertical dryer</td>
<td>220</td>
</tr>
<tr>
<td>Corn sheller</td>
<td>2,000</td>
</tr>
<tr>
<td>Power thresher</td>
<td>1,500</td>
</tr>
<tr>
<td>Rice milling unit</td>
<td>666</td>
</tr>
</tbody>
</table>
Agricultural Extension Worker in Indonesia

Number of extension worker: 47,955 person
Very few are expert on agric. Mechanization
Number of researcher in agricl mechanization: 40 person

Number of agricultural extension worker in Indonesia in 2014
Constrain in developing sustainable agricultural mechanization

1. Low capability of custom hiring manager, operator and technician of agricultural machinery
2. Lack of agricultural mechanization training program
3. Limited number of agricultural mechanization extension worker
4. Lack of agricultural mechanization expert including engineer and researcher
5. Limited number of agricultural machinery workshop
4. Government strategy to achieve sustainable agricultural mechanization

1. Increase the capacity of agricultural machinery custom hiring from beginner to advance through national training program

2. Increase the number and capacity of extension worker (10,000 new extension worker in 2016)

3. Increase the number of farm machinery workshop up to district level

4. Improve extension program of agricultural machinery for: Extension worker, manager of custom hiring, farmer group and operator of agricultural machinery and technician for repair and maintenance

5. Improve the capacity of engineers, researchers & lecturers of agricultural mechanization
Agencies/institutions involved in agricultural mechanization development

- Farmers, Farmer group, custom hiring business unit
- Extension worker
- The main agent (agricultural machinery dealer)
- Importer
- Local machinery and spare part industry
- Research institutions
- University
## National and Regional Training Program in Agricultural Engineering - 2015

<table>
<thead>
<tr>
<th>No</th>
<th>District</th>
<th>Number Participans (person)</th>
<th>Duration (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aru</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Merauke</td>
<td>40</td>
<td>84</td>
</tr>
<tr>
<td>3</td>
<td>Timor Leste</td>
<td>20</td>
<td>84</td>
</tr>
<tr>
<td>4</td>
<td>South Kalimantan</td>
<td>20</td>
<td>42</td>
</tr>
<tr>
<td>5</td>
<td>West Sumatera</td>
<td>20</td>
<td>42</td>
</tr>
<tr>
<td>6</td>
<td>North Sulawesi</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>7</td>
<td>Eastern Nusa Tenggar</td>
<td>40</td>
<td>24</td>
</tr>
<tr>
<td>8</td>
<td>a</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>Banten</td>
<td>40</td>
<td>24</td>
</tr>
<tr>
<td>10</td>
<td>Medan</td>
<td>61</td>
<td>60</td>
</tr>
<tr>
<td>11</td>
<td>National (TOT)</td>
<td>40</td>
<td>24</td>
</tr>
<tr>
<td>12</td>
<td>West Java</td>
<td>40</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>West Kalimantan</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>413</strong></td>
<td><strong>630</strong></td>
</tr>
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</table>
National training program

1. Training for Trainer (TOT):
   - University lecturer: 15 people
   - Extension worker: 25 people
   - Agricultural extension officer: 21 people

1. Time:
   15 – 24 October 2015

3. Topic of Training: operation, repair and maintenance of various agricultural machinery and management
   - Two wheel tractor
   - Four wheel tractor
   - Pump
   - Rice transplanter
   - Power weeder
   - Rice combine harvester
   - Power thresher
   - Rice milling unit
1. Training for Operator
   - University Student : 5 people
   - Vocational school student : 10 people
   - Operator : 6 people

2. Time:
   20 – 24 October 2015

3. Location: Sukamandi - West Jawa

4. Topic of Training
   Operation of rice Transplanter and Combine harvester
Regional Training and Supervision:

- Technical supervision for seeding for rice transplanter, operation and maintenance of rice transplanter, power weeder and combine harvester
- Integrated farming system
- Custom hiring and farming business

Time and location:

September 15 – November 29, 2015
Regional Training and Supervision

- Training and technical supervision for design and fabrication of rice direct seeder
- Training and technical supervision for operation and maintenance of rice transplanter

Time and location:
30 Nov – 5 Des 2015
Merrauke, Papua
FUTURE NATIONAL TRAINING PROGRAM

1. Increasing training program for agricultural mechanization by DG of Agricultural Human Resources Development, Ministry of Agriculture

2. R&D and Planning:
   - Need assessment of agricultural mechanization

3. Technical Aspects:
   - Agricultural machinery & equipment design and manufacturing
   - Production, storage, processing, packaging techniques
   - Cultivation
   - Pest control

4. Management Aspects:
   - Agricultural machinery & equipment and management
   - Farming management
   - Marketing, human resource and information management
THANK YOU VERY MUCH