Country Presentation
Nepal

The 3rd Regional Forum on Sustainable Agricultural Mechanization
Human Resource Development for Sustainable Agricultural Mechanization
9-11 December 2015
Manila, the Philippines
Role of Academic and Research Institutions in Human Resource Development for Sustainable Agricultural Mechanization in Nepal

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Nepal
Outline of Presentation

• Background
• Agriculture Scenario of Nepal
• Brief Introduction of Dept. of Agricultural Engineering
• Need of Agricultural Mechanization in Nepal, its Challenges and opportunities
• Role of Academic and Research Institutions, challenges and constraints
• Role of stakeholders for sustainable agricultural mechanization
• Suggestion for regional cooperation
• Conclusions
Background

Total Area = 147,181 sq km (EW 885 km, NS 193 km)
Altitude = 60 m to 8,848 m
Total Populations = 26.5 M
Population growth rate per annum = 1.35 %

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Region</th>
<th>Total Land Area %</th>
<th>Cultivated Land Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mountain</td>
<td>35</td>
<td>2.17</td>
</tr>
<tr>
<td>2</td>
<td>Hill</td>
<td>42</td>
<td>11.4</td>
</tr>
<tr>
<td>3</td>
<td>Terai</td>
<td>23</td>
<td>12.46</td>
</tr>
<tr>
<td>4</td>
<td>Total Area %</td>
<td>100</td>
<td>26.03</td>
</tr>
</tbody>
</table>
Agriculture Scenario of Nepal

**Productivity of main crops**

- **Paddy**
- **Wheat**
- **Maize**
- **Millet**
- **barley**

**Productivity (Ton/ha)**

- **Mountain**
- **Hill**
- **Terai**

**Production (M. Ton)**

- **Sugarcane**
- **Oil seed**
- **Tobacco**
- **Potato**

**Production of Cash crops (Year)**
Agriculture Scenario of Nepal

<table>
<thead>
<tr>
<th></th>
<th>Mountain</th>
<th>Hill</th>
<th>Terai</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugarcanne</td>
<td>244</td>
<td>909</td>
<td>63065</td>
</tr>
<tr>
<td>Oil seed</td>
<td>3947</td>
<td>42701</td>
<td>168952</td>
</tr>
<tr>
<td>Tobacco</td>
<td>20</td>
<td>34</td>
<td>1737</td>
</tr>
<tr>
<td>Potato</td>
<td>36739</td>
<td>83948</td>
<td>74427</td>
</tr>
</tbody>
</table>

Area covered by cash crops

<table>
<thead>
<tr>
<th></th>
<th>Mountain</th>
<th>Hill</th>
<th>Terai</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugarcane</td>
<td>100000</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>Oil seed</td>
<td>80000</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>Tobacco</td>
<td>60000</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Potato</td>
<td>50000</td>
<td>20</td>
<td>5</td>
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</table>

Productivity of cash crops
Dept. of Agricultural Engineering at a glance

• Campus Established :- 1977 (Project started)
• Project was completed:-1986
• Low level skill manpower was produced
• Since 1992 medium level skill man power was produced
• In the year of 2000/2001 Purwanchal Campus lunched undergraduate four years program in Agricultural Engineering
• 300 undergraduate Engineers are handover to the nation
Dept. of Agricultural Engineering at a glance

Courses offering by Dept. of Agricultural Engineering

• Farm Machinery and Power Engineering
• Soil Conservation and Watershed Management Engineering
• Irrigation and Drainage Engineering
• Dairy and Food Engineering
• Post Harvest Engineering and Technology
• Renewable Energy Engineering
Dept. of Agricultural Engineering at a glance

**Other Activities**

- Research, Innovation and Development
- Organize the Training jointly with RTCU
- Workshop and Seminar
- Agricultural Engineering Technology Exhibition
- Journal Publication jointly with Agricultural Engineering Students Society
Need of Agricultural Mechanization in Nepal

- Agricultural work is drudgeries, time consuming and tedious
- Lack of Agricultural worker
- Agricultural Occupation is Less Profitable Occupation
- Reduction of the Food Deficit Problem of Nepal
Mechanization Challenges in Nepal

- Diversified topography
- Small land holding size (< 0.65 ha)
- Lack of infrastructure development
- Traditional thinking of farmer
- Lack of education
- Low investment capacity of farmer
- Lack of trained manpower
- Lack of local level developer
- Lack of spare parts of machineries and maintenance facilities
- Lack of coordination between related stakes holders
- Lack of commercialization of agriculture
- Weak government policy
Mechanization Opportunities in Nepal

- Design, development and modification of hand tools, animal drawn implements and small size power operated machines in mountain region
- Design, development and modification of hand tools, animal drawn implements and power tiller operated implements in hilly region
- Design, development and modification of hand tools, animal drawn implements, power tiller operated implements and Tractor drawn implements in terai region
- Establishment of small scale industries for machine and implements fabrication
- Establishment of repair and maintenance workshop
- Establishment of commercialization agriculture system
- Establishment of custom hiring business
- Establishment of cooperative farming and land consolidation system
- Bust up the agri-business
Agricultural Mechanization Stakeholders in Nepal

- Academic Institutes (IOE; Purwanchal Campus, Department of Agricultural Engineering)
- Research Institutes (NARC, Agricultural Engineering Division)
- Directorate of Agricultural Engineering (MoA)
- Suppliers, Fabricators, Repair Maintenance shop & custom hiring Service Provider
Relation Between Agricultural Mechanization Stakeholders

Directorate of Agricultural Engineering (MoA)  Academic Institutions  Farmers  Research Institutions (NARC)  Suppliers, Fabricators, Repair Maintenance shop & custom hiring Service Provider
Role of Stakeholders for Agricultural Mechanization

- Qualified Manpower Production
- Research
- Training
- Dissemination
Role of Stakeholders for Agricultural Mechanization

- Research
- Testing
- Training
- Recommendation

Research Institutions
Role of Stakeholders for Agricultural Mechanization

- Directorate of Agricultural Engineering (MoA)
  - Formulation of Agricultural Mechanization Policy
  - Building the Agricultural Mechanization Act
  - Provide Mechanization Guidelines to Other Stakeholders
  - Technology Extension and Training
Role of Stakeholders for Agricultural Mechanization

- Farmers
- Blacksmiths
- Fabricators
- Suppliers
- Maintenance shops
- Custom hiring service provider
Suggestion for Regional Cooperation for Agricultural Mechanization in Nepal

- Bust up the Capacity of Academic Institutions Providing the Training to the Human Resources
- Scholarship to the Faculty Members and Students Should be Provided by Regional Cooperation
- Bust up the Capacity of Academic and Research Institutions Providing Laboratory Facilities and Fund
- Research exchange program should be established With regional cooperation and Academic and Research institutions of Nepal
Sustainable Agricultural Mechanization is not Possible With a Single Stakeholder; Therefore, Mutual Cooperation is Necessary of all the Stakeholders and Regional Cooperators to Solve the Problem Faced in Agricultural Mechanization in Nepal
THANK YOU