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Department of Agriculture
Ministry of Agriculture and Livestock Development
Nepal

The 6th Regional Forum for Sustainable Agricultural Mechanization in Asia and the Pacific - Enabling Environment for the Private Sector
25 October 2018, Wuhan, China
The role of the public sector for "Enabling Environment for the Private Sector" in Nepal

Presented & Prepared by
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Department of Agriculture (DoA)
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Center for Agricultural Infrastructure Development and Mechanization Promotion (CAIDMP)
» Land area 147,181 sq km Only 0.1% of total land mass of earth (EW-885 km, NS-193 km)
» Population 28.98 M (2016)
» Elevation ranges from 70 m to 8848 m
» Climate temperate to sub tropical
Nepal at a glance

- Total land area - 147,181 sq. km, Only 0.1% of total land mass of earth
- 77 districts, 276 Municipalities, 3157 VDCs
- 125 caste/ethnic groups, 123 languages spoken as mother tongue
- Predominantly an agrarian country
- 21% people still below poverty line as of 2015
- Agriculture contributes 29.37% to GDP, 66% employment
- 21% of the land is cultivable (47% rain-fed)
- Average land holding – 0.68 ha
- Major crops Paddy, Maize, Wheat and Horticulture
- Livestock: Cattles, Buffaloes, Sheep/Goat, Pigs and Poultry


Article 51. State policies: Section (e) Policies regarding agriculture and land reform:

- Protecting and promoting rights and interests of peasants and utilizing the land use policy for increasing production and productivity of agriculture and for commercialization, industrialization, diversification and modernization of agriculture;

- Making arrangements for agricultural tools and an access to market with appropriate price for the produce.

Agricultural Mechanization Promotion Policy, 2071 (2014)

Approved on 29th August 2014

- Need to be updated as per Federal System
- Most section in favor of Private Sector Involvement
- 2nd Objective

To develop the services and business of agriculture machineries through the coordination among the government, private sectors and cooperatives in order to increase the access of the farmers and the business people.
20-year strategic planning from 2015 to 2035

Agricultural Mechanization as one of the thirteen outputs/core priorities

Vision

A self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth, and contributes to improved livelihoods and food and nutrition security leading to food sovereignty

ADS activities will have impact on three groups of farmers:
Commercial, Subsistence and Landless

Private Sector is the major player to boost agricultural mechanization
The Role of Public Sector

ADS has given high priority to Private Sector Lead Agril Mech

Public Sector support for Private Sector

Public Sector — Government, Development Organization etc.

Private Sector — NGO/INGO/Individual farmer, Farmers group, Farmers cooperatives, Private Farms, Agril Machine-Manufacture, Repair Workshops, Blacksmiths, Importer, Distributor, Wholesalers, Dealer, Retailers,
Public Sector support for Private Sector

- Establishment of Post Harvest Service Center
  For safe storage with processing and packaging machines of seed

- Establishment of Seed Bank
  For earthquake district for safe storage with processing machines

- Rural Livelihood Program
  Training Blacksmiths, Operator, Mechanics

- Establishment of Resource Center
  For repair and maintenance of hand tools and Agricultural machine

- Training and Demonstration
  PPP model - operation and demo of machines to farmers
The Role of Public Sector

ADS has given high priority to Private Sector Lead Agril Mech

Public Sector support for Private Sector

✓ **Appropriate Research and Development**
  After Appropriate and Adoptive research and manufacturing is done by private manufactures

✓ **Subsidy**
  Interest Subsidy for Machine Financing
  Demand based 50% Capital Subsidy for Machine

✓ **Sole Agricultural Mechanization Exhibition**
  In collaboration with NAMEA 3 National and 1 International

✓ **Mechanization Irrigation**
  Subsidy in Drip, Sprinkler, Mechanical Pumping, Solar Lift etc.

✓ **Establishment of Custom Hiring Center**
  Model Custom Hiring Center, Service Provider is Increasing. Guideline Prepared – Under process of Approval

✓ **Prime Minister Agricultural Modernization Project**
  Main Component is Community Custom Hiring Center and Community Post Harvest Service Center
Case Study

Custom Hiring Service

Why?

- Small land holding
- Low purchasing capacity
- Less technical capability
- Economy in renting of agricultural machinery than self owning
Case Study

Custom Hiring Service

Characteristics

- Mostly Informal business now Some Formal registered
- Various types
  - **Means of Livelihood** (animal drawn Plough, traditional water mill)
  - **Partially commercial** (power tiller, pedal operated thresher, winnower, pumping set, sprayer etc.)
  - **Commercial business** (Tractor, power tiller, tractor operated thresher, combine harvester, grain processing mills etc.)
- Mainly Individually owned machinery
- Lack of capacity on technical maintenance, management including record keeping
- Wide range of renting charge of same equipment service in various location.
Case Study

Custom Hiring Center (CHC)

Program Support with Working Modality

- **Prime Minister Agricultural Modernization Project (PMAMP)**
- Pocket, Block, Zone, Super Zone
  - 40 small to medium Custom Hiring Center already in function
  - 160 under process of completion.
Case Study

Custom Hiring Center (CHC)

Program Support with Working Modality

- Directorate of Agricultural Engineering (DoAEngg) now Center for Agricultural Infrastructure Development and Mechanization Promotion (CAIDMP)
- 4 Model CHC already in function in Province 1, 2, 5 & 7
Case Study

Custom Hiring Center (CHC)

Supported by DoAEngg for Model Custom Hiring Center

Features

- Service Provider should have their own land to establish the center
- Subsidy 85% - the Government, 15% - private sector for Infrastructure Development like Workshop, Garage, Training Hall, Office.
- Matching fund 50-50% for machinery like Tractor, Tractor Attachments, Threshers, Laser Land Leveler, Combine Harvester, Straw management machines etc.
- Rental rate of machine less than general in the market.
Case Study

Custom Hiring Center (CHC)

Supported by DoAEengg for Model Custom Hiring Center

- Tankisinwari Agro Commodity Marketing Co-operative Ltd. Morang, Province 1
- Member-279
- Command Area-350 hectares

Hiring Rate

<table>
<thead>
<tr>
<th>Machine</th>
<th>Unit</th>
<th>Co-Rate (NPR)</th>
<th>General Rate (NPR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combine Harvester</td>
<td>Per hour</td>
<td>5000</td>
<td>6000</td>
</tr>
<tr>
<td>Cultivator, Leveler, Harrow</td>
<td>Per hour</td>
<td>1600</td>
<td>1800</td>
</tr>
<tr>
<td>Rotavator</td>
<td>Per hour</td>
<td>2200</td>
<td>2400</td>
</tr>
</tbody>
</table>
Case Study

Custom Hiring Center (CHC)

Supported by DoAEngg for Model Custom Hiring Center

- Tankisinwari Agro Commodity Marketing Co-operative Ltd. Morang, Province 1
Case Study

Custom Hiring Center (CHC)

Supported by DoAEngg for Model Custom Hiring Center

- Small Farmer Agriculture Co-operative Limited, Bara, Province 2
- Member-9784, Female-9276, Male-508
- Command Area-520 hectares

**Hiring Rate**

<table>
<thead>
<tr>
<th>Machine</th>
<th>Unit</th>
<th>Co-Rate (NPR)</th>
<th>General Rate (NPR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivator/leveler</td>
<td>Per hour</td>
<td>900</td>
<td>1000</td>
</tr>
<tr>
<td>Disk Harrow</td>
<td>Per hour</td>
<td>900</td>
<td>1100</td>
</tr>
<tr>
<td>Rotavator</td>
<td>Per hour</td>
<td>1200</td>
<td>1500</td>
</tr>
<tr>
<td>Reaper</td>
<td>Per Hecto</td>
<td>2700</td>
<td>4000</td>
</tr>
<tr>
<td>Rice/Wheat Thresher</td>
<td>Per hour</td>
<td>1300</td>
<td>1500</td>
</tr>
<tr>
<td>Maize Thresher</td>
<td>Per hour</td>
<td>1500</td>
<td>1700</td>
</tr>
<tr>
<td>Wheat/Maize Seed Drill</td>
<td>Per hour</td>
<td>1500</td>
<td>1700</td>
</tr>
<tr>
<td>Transport by Tractor Trailer</td>
<td>Per Trip</td>
<td>1300</td>
<td>1400</td>
</tr>
</tbody>
</table>
Case Study

Custom Hiring Center (CHC)

Supported by DoAEngg for Model Custom Hiring Center

- Small Farmer Agriculture Co-operative Limited, Bara, Province 2
Case Study

Custom Hiring Center (CHC)

Supported by DoAEngg for Model Custom Hiring Center

- Small Farmer Agriculture Co-operative Limited, Bardiya, Province 5
- Member-2319, Female-1749, Male-570
- Command Area-560 hectares

**Hiring Rate**

<table>
<thead>
<tr>
<th>Machine</th>
<th>Unit</th>
<th>Co-Rate (NPR)</th>
<th>General Rate (NPR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivator/leveler</td>
<td>Per hour</td>
<td>850</td>
<td>1200</td>
</tr>
<tr>
<td>Disk /9 tine Harrow</td>
<td>Per hour</td>
<td>850</td>
<td>1200</td>
</tr>
<tr>
<td>Rotavator</td>
<td>Per hour</td>
<td>1650</td>
<td>2200</td>
</tr>
<tr>
<td>Bond Former</td>
<td>Per hour</td>
<td>850</td>
<td>1300</td>
</tr>
<tr>
<td>Rice Thresher</td>
<td>Per 100 kg</td>
<td>5 kg</td>
<td>8 kg</td>
</tr>
<tr>
<td>Wheat Thresher</td>
<td>Per 100 kg</td>
<td>6 kg</td>
<td>9 kg</td>
</tr>
<tr>
<td>Lentil Thresher</td>
<td>Per 100 kg</td>
<td>4 kg</td>
<td>6 kg</td>
</tr>
<tr>
<td>Transport by Tractor Trailer</td>
<td>Per Trip</td>
<td>2500</td>
<td>3000</td>
</tr>
</tbody>
</table>
Case Study

Custom Hiring Center (CHC)

Supported by DoAEngg for Model Custom Hiring Center

Small Farmer Agriculture Co-operative Limited, Bardiya, Province 5
Case Study

Custom Hiring Center (CHC)

Supported by DoAEngg for Model Custom Hiring Center

- RCT Agro Machinery & Engineering Workshop, Kanchanpur, Province 7
- Privately owned Company
- Command Area- 300 hectares

Hiring Rate

<table>
<thead>
<tr>
<th>Machine</th>
<th>Unit</th>
<th>Co-Rate (NPR)</th>
<th>General Rate(NPR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivator/leveler</td>
<td>Per hour</td>
<td>1400</td>
<td>1600</td>
</tr>
<tr>
<td>Disk /9 tine Harrow</td>
<td>Per hour</td>
<td>1500</td>
<td>1600</td>
</tr>
<tr>
<td>Rotavator</td>
<td>Per hour</td>
<td>1600</td>
<td>1800</td>
</tr>
<tr>
<td>Reaper Binder/LLL</td>
<td>Per hour</td>
<td>2000</td>
<td>-</td>
</tr>
<tr>
<td>Self Propelled Reaper</td>
<td>Per hour</td>
<td>1000</td>
<td>1200</td>
</tr>
<tr>
<td>Rice/Wheat Thresher</td>
<td>Per 100 kg</td>
<td>5-6kg</td>
<td>8-9 kg</td>
</tr>
<tr>
<td>Combine Harvester</td>
<td>Per hour</td>
<td>4000</td>
<td>5500</td>
</tr>
<tr>
<td>Straw Bailer/Reaper</td>
<td>Per hour</td>
<td>1500</td>
<td>-</td>
</tr>
<tr>
<td>Transport by Tractor Trailer</td>
<td>Per Trip</td>
<td>2500</td>
<td>3000</td>
</tr>
</tbody>
</table>
Case Study

Custom Hiring Center (CHC)

Supported by DoAEngg for Model Custom Hiring Center

RCT Agro Machinery & Engineering Workshop, Kanchanpur, Province 7
Constraints

- Monopoly of custom hiring service provider
- High rate but quite cheaper than traditional practice
- Service not available at right time and have to wait for long time
- Some case poor quality of service (grain cracking in threshing)
- Some times operation at night
- Difference in rate from service provider and depend upon location
Custom hiring service providers have a major role in promotion of agricultural mechanization among small holder farmers in Nepal.

Privately owned agricultural machine custom hiring service is found to be more successful than the group owned agricultural machinery service provider.

Custom hiring service in tillage, water pumping, harvesting and threshing has been successfully used in terai region, milling and transportation all over Nepal.

Almost all the custom service providers are informal. As some of them are registered.

There are several important issues raised by custom hiring service provider and the farmers which is needed to be addressed by the government for promotion of agricultural mechanization in Nepal.
Custom hiring service provider should be well recognized as major and strong stakeholder in promotion of sustainable agricultural mechanization in Nepal. Government as facilitator and should create enabling environment for custom hiring service provider in following area:

- **Recognition of service provider** through registration. (Nominal registration fee and tax waived).
- Create a database and monitoring of service.
- Innovative and best custom hiring service provider should be awarded
- **R & D on appropriate models** of custom hiring
- **Capacity development of service provider** on selection, procurement, operation and maintenance of agricultural machinery, record keeping and service management and marketing skill
- Policy for easy access to credit and subsidy in bank interest.
- **Selective, targeted and sustainable subsidy** on agricultural machinery
- Promote **custom hiring service providers** for competitive renting.
Way Forward

Public Sector's Role:

- As custom hiring service provider can also be promoter of improved agricultural technology, they should also be **trained in improved agricultural technologies**
- **Human resource development to develop the operators and technicians**
- Facilitate to **fix maximum rate of service** in consultation with leader farmers and service provider.
- **Demonstration of innovative and efficient agricultural machinery through custom hiring service providers**
- Preparation & implementation of **law, regulation and standard of custom hiring service. Testing and Standardization of Agricultural Machinery.**
- **Other subsidiary policy and regulation viz. land consolidation, rural development, agricultural credit, rural energy, agricultural road, market storage facilities, custom duty etc.**
- **Support / policy incentives for green technologies viz. energy efficient technologies, conservation agricultural technologies, GAP, RETs etc.**
- **Insurance in agricultural machines/operators**
Farmer's Role

- Plan the agricultural operation in advance and inform the service provider in advance.
- Block approach/group approach for small holders.
- Record keeping.
- Get information about the new technology, available custom hiring service providers.
- Maintain farm roads, irrigation, field condition in advance.
- Pay immediately after service. Commercialize their production system with direct access to the market.
- Primarily processing in farm itself – value addition.
Way Forward

Service Provider' Role

- It is their business **it should be profitable** to be sustainable. Preparation of complete updated **business plan** (technical, financial, marketing, human resource etc.) and seasonal planning.
- **Record keeping** financial, customer, maintenance, service etc.
- **Focus on** **Quality service, competitive price and customer’s satisfaction**
- Custom hiring service provider should **use ICT for communication to customer and other service providers for timely and quality service**
- Custom hiring service provider should **diversify their service** through the introduction of new and innovative agricultural machinery.
- **Other agriculture technology and input service be linked** with machinery service (marketing strategy)
- **Take care of safety with primary responsibility** (operator, environment and consumer)
- **Custom hiring service provider should be organized** and create a network to share the problems and lobby the government for favorable policy.
Regional Coordination

- Share Lesson Learned within different member country.
- Best practice to be piloted in member country.
- Exchange of technology.
- Seek funding for pilot program.