Country Presentation

Nepal

The 10th Session of the Technical Committee of CSAM &
Regional Workshop on Establishing a Regional Database of Agricultural Mechanization in Asia and the Pacific

17-19 November 2014
Siem Reap, Cambodia

Shreemat Shrestha,
Chief, Agricultural Engineering Division
Nepal Agricultural Research Council
Database of Agricultural Mechanization in Nepal

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The legal frame and statistical advisory bodies:

• The present statistical system of Nepal can effectively be considered as a decentralized system with the Central Bureau of Statistics (CBS) discharging a pivotal role.
• CBS was created in 1958 by virtue of Statistics Act, 2058 as the sole agency for the collection, consolidation, publication and analysis of statistics. A National Statistical Council (NSC) was formed in 1988 as the coordinating and policy making body in the area of statistics.

The main Objectives of the NSC are:

I) To develop an integrated statistical system by formulating short term and long term statistical plans and policies and implementing them so as to ensure the availability of relevant, reliable and high quality data,

II) To bring about co-ordination among all the governmental and non-governmental organizations that conduct economic and social data collection, processing, analysis and publication activities and

III) To develop a standardized statistical system.
Source of Agricultural Statistics in the Country

- Central Bureau of Statistics (CBS) - decennial agricultural census and crop and livestock survey
- Ministry of Agricultural Development (MOAD) - data are based on the field reports of the extension workers and is mainly used for forecasts and early warning purposes
Nepalese Agricultural Statistics Publication

National Sample Census of Agriculture
Nepal
2011/12

National Report

Government of Nepal
National Planning Commission Secretariat
Central Bureau of Statistics, Kathmandu, Nepal
December 2013

STATISTICAL INFORMATION ON NEPALESE AGRICULTURE 2012/2013 (2069/070)

INDEX OF MAJOR AGRICULTURE PRODUCTION
BASE YEAR THREE YEAR'S AVERAGE (2000/01-2002/03)

Government of Nepal
Ministry of Agricultural Development
Agri-Business Promotion and Statistics Division
Statistics Section
Singha Durbar, Kathmandu
Nepal

Graph showing the index of major agriculture production with data from 2000/01 to 2011/12 for various crops and livestock categories.
Structure and organization of the major agricultural statistics agencies

Central Bureau of Statistics
Designation: Deputy Director General
E-mail: uttmmalla@cbs.gov.np
Fax: 977-1-4227720
Telephone: 977-1-4241801
Website/URL of institution: www.cbs.gov.np

Ministry of Agriculture and Cooperatives
Designation: Joint Secretary
E-mail: agribusiness@moac.gov.np
Fax: 977-1-14225825
Telephone: 977-1-14228137
## Major domains and selected indicator

<table>
<thead>
<tr>
<th>Domain</th>
<th>Statistics/Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Production</strong></td>
<td></td>
</tr>
<tr>
<td>Crops</td>
<td>Volume of crop production, Harvested area, Yield per hectare</td>
</tr>
<tr>
<td>Livestock and Poultry</td>
<td>Livestock and poultry population, Volume of livestock and poultry production</td>
</tr>
<tr>
<td>Fishery</td>
<td>Volume of fishery production, Pond area</td>
</tr>
<tr>
<td>Macroeconomic indicators</td>
<td>Gross Value Added in Agriculture sector (GVA), Agriculture Production Index (API), Productivity</td>
</tr>
<tr>
<td>Trade</td>
<td>Volume of export and import of agricultural commodity, Value of export and import of agricultural commodity</td>
</tr>
<tr>
<td>Price/Inflation</td>
<td>Average monthly prices of selected agricultural products, Consumer price index by commodity group (CPI), Wholesale Price Index by commodity group (WPI)</td>
</tr>
<tr>
<td>Food Consumption</td>
<td>Food Balance Sheet</td>
</tr>
<tr>
<td>Domain</td>
<td>Statistics/Indicators</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------</td>
</tr>
</tbody>
</table>
| **Land Use** | Agricultural land  
| | Land under temporary crop  
| | Land under permanent crop  
| | Land under permanent meadows and pastures  
| | Wood land and forest  
| | All other land |
| **Fertilizer** | Volume of fertilizer import  
| | Value of fertilizer import  
| | Value of sales  
| | Area treated with chemical fertilizer and quantity used |
| **Pesticides, Insecticides and Herbicides** | No. of holdings using for major crops |
| **Irrigation** | No. of holdings reporting and area irrigated |
| **Agricultural Machinery** | Number of holdings owning/using agricultural machineries |
| **Labor and employment** | Rural population  
| | Active population in agriculture  
| | Labor force in agriculture  
| | Total employment  
| | Nominal and real wage rates by sectors  
<p>| | Agricultural workers |</p>
<table>
<thead>
<tr>
<th>Domain</th>
<th>Statistics/Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Services</td>
<td>Rural employment</td>
</tr>
<tr>
<td></td>
<td>Rural income</td>
</tr>
<tr>
<td></td>
<td>Agricultural credit</td>
</tr>
<tr>
<td>Others</td>
<td>Demography of holder</td>
</tr>
</tbody>
</table>

**Department of Transport:**
- Tractors and Power tillers registered in each fiscal year

**Department of customs:**
- Import and Export of agricultural machinery
Land Holding (Agricultural Census)

![Graph showing land holding distribution across different size categories.]
### Status of Agricultural Mechanization
(Source: National Sample Census of Agriculture, CBS, 2012)

<table>
<thead>
<tr>
<th>Machinery/Equipments used</th>
<th>No of Households</th>
<th>% Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron ploughs</td>
<td>1,073,441</td>
<td>28.02</td>
</tr>
<tr>
<td>Tractor &amp; Power tillers</td>
<td>920,371</td>
<td>24.03</td>
</tr>
<tr>
<td>Thresher</td>
<td>803,154</td>
<td>20.96</td>
</tr>
<tr>
<td>Pumping sets</td>
<td>548,203</td>
<td>14.31</td>
</tr>
<tr>
<td>Sprayers</td>
<td>574,014</td>
<td>14.98</td>
</tr>
<tr>
<td>Shallow tubewells</td>
<td>367,744</td>
<td>9.56</td>
</tr>
<tr>
<td>Deep tubewells</td>
<td>159,725</td>
<td>4.17</td>
</tr>
<tr>
<td>Treadle pump (Dhiki)</td>
<td>79,145</td>
<td>2.06</td>
</tr>
<tr>
<td>Animal drawn cart</td>
<td>334,978</td>
<td>8.74</td>
</tr>
<tr>
<td>Other Equipments</td>
<td>290,084</td>
<td>7.57</td>
</tr>
</tbody>
</table>
Share of HH Using Rented Agricultural Equipment and Self Owned Equipment

Iron ploughs
Tractor & Power tillers
Thresher
Pumping set/Motor
Animal drawn cart
Sprayer
Other equipments

- Owned & Used
- Used by Custom hiring
<table>
<thead>
<tr>
<th>Custom Hiring Service</th>
<th>Eastern</th>
<th>Central</th>
<th>Western</th>
<th>Mid Western</th>
<th>Far Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor with Cultivator (Rs. Per hour)</td>
<td>1200 to 1500</td>
<td>1200 to 1500</td>
<td>1200</td>
<td>1000 to 1200</td>
<td>1100 to 1500</td>
</tr>
<tr>
<td>Tractor with rotovator (Rs. per hour)</td>
<td>1600 to 2000</td>
<td>1500 to 2000</td>
<td>2000</td>
<td>1400 to 2000</td>
<td>-</td>
</tr>
<tr>
<td>Power Tiller (per hour)</td>
<td>500 to 600</td>
<td>500- 600</td>
<td>600</td>
<td>300 to 500</td>
<td>400 to 600</td>
</tr>
<tr>
<td>Animal Drawn Plough (Rs. Per day)</td>
<td>450 to 1000</td>
<td>1000</td>
<td>1000</td>
<td>700 to 1000</td>
<td>1300</td>
</tr>
<tr>
<td>Sprayer (per day)</td>
<td>25 to 100</td>
<td>80 to 100</td>
<td>25 to 40</td>
<td>80 to 100</td>
<td>15 to 50</td>
</tr>
<tr>
<td>Pump set (Rs. Per hour)</td>
<td>300 to 400</td>
<td>250 to 350</td>
<td>300 to 500</td>
<td>250 to 400</td>
<td>250 to 300</td>
</tr>
<tr>
<td>Thresher ( grain: grain threshed)</td>
<td>1:20 to 1:10</td>
<td>1:12 to 1:8</td>
<td>1:15 to 1:10</td>
<td>1:13 to 1:8</td>
<td>1:9 to 1:07</td>
</tr>
<tr>
<td>Combine Harvester (Rs./hr)</td>
<td>5000</td>
<td>5000</td>
<td>4800 to 5000</td>
<td>-</td>
<td>4500</td>
</tr>
</tbody>
</table>

1USD = Rs. 98
Lack of detailed information on agricultural mechanization in Existing agricultural Statistics

- Crop wise agricultural mechanization status
- Operation wise agricultural mechanization status in each crop
- Horsepower used per ha in each crop
- Numbers of agricultural machinery owned/rented/used in an area and service centers
- Numbers of Machinery manufacturing establishments and their annual production
- Import and export of agricultural machinery
- Accidents related to agricultural machinery
- List of service centres/dealers of agricultural machinery in each area
- List of training centre and human resource lower level/mid level and higher level agricultural mechanization related
- Number of local artisans and their workshop in each area and hand tools produced volume
- Gender disaggregated data in involvement of labour in each operation
Challenges and Constraints

• Lack of awareness by CBS and MOAD on importance of mechanization database
• Lack of agricultural mechanization related trained manpower in CBS and MOAD
• Need to involve more agencies viz. Department of transport management, department of commerce and trade, department of industry, Custom department etc.
• Lack of proper Adoption of harmonized code of import/ export of agricultural machinery
Sample Survey on the status of Agricultural mechanization in Nepal

- Agricultural Engineering Division, Nepal Agricultural Research Council has recently started to conduct the Sample Survey on Agricultural mechanization in Nepal. Field work of terai region is accomplished and data entry and analysis is going on. The survey of mid hill and high hill will be accomplished in 2015. and Final report will be published by the end of 2015.
Farm Power Used in Agricultural Operation in Terai

- **Primary and Secondary...**
- **Farm yard manure...**
- **Planting/ Sowing**
- **Fertilizer application**
- **Weeding**
- **Irrigation**
- **Plant Protection**
- **Harvesting**
- **Threshing**
- **Cleaning/ winnowing**
- **Transportation**
Gender-wise Farm Labour Involvement in Agricultural Operation in Terai

- Primary and Secondary Tillage
- Farm Yard manure Transportation
- Planting/ Sowing
- Fertilizer application
- Weeding
- Irrigation
- Plant Protection
- Harvesting
- Threshing
- Cleaning/ winnowing
- Transportation

<table>
<thead>
<tr>
<th>Task</th>
<th>Female %</th>
<th>Male %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary and Secondary Tillage</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>Farm Yard manure Transportation</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>Planting/ Sowing</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>Fertilizer application</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Weeding</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Irrigation</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>Plant Protection</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>Harvesting</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>Threshing</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>Cleaning/ winnowing</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Transportation</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Legend:
- Female
- Male
Regional Database on Agricultural Mechanization

- Need of common format, terminology methodology so that data from each country can be compared and build the regional database
- Help to facilitate trade on agricultural machinery and technology transfer within and across the regions.
- Learning on success/ failures in agricultural mechanization from similar agro ecosystem
- Strong base for the preparation of regional agricultural mechanization strategy
Suggestions and Recommendations

• Minimum common framework for national database on agricultural mechanization (data sets, methodology, data updating time frame)

• Awareness of the stakeholders on the importance of national and regional database on agricultural mechanization

• As multiple agencies are involved the framework need to be agreed and owned by each agencies within the country

• Capacity building in data collection and analysis

• Focal agency for coordination and updating within the country.

• Regular sharing of member country data to CSAM

• CSAM responsible to maintain regional database make available to all the countries. Web based data management.
Thank You