Household Food Stock in Food Security Monitoring

Experience from Nepal
PRESENTATION OUTLINE

1. Brief about Nepal and Nepalese Agriculture Statistics System

2. Current methodologies adopted by MOA on measuring food security

3. Data Generation, Analysis and Products Details on Food security monitoring including stocks

4. Some Results (more focus on April 15 Earthquake)

5. Lesson Learned and Way Forward
Nepal- a small but diverse country

7 provinces
5 development regions
3 ecological region

10 religions
125 caste/ethnic groups
123 languages spoken as mother tongue

60 m above the sea level to highest peak in the world
The Mount Everest-8848 m
Poverty ranges from 4 to 64 percent
PoU ranges from 5 to 30 percent
Nepalese Statistical System and Nepalese Agriculture

• The NSS consist
  • Producers; CBS, NRB, Ministries and others
  • Data Suppliers, Individuals, HHs, Enterprises etc
  • Users of statistics; wide range of people and inst.
  • Universities, Research & training institutions; for capacity building

• Agriculture Statistics is managed by CBS (Censuses) and MoAD? (Surveys, Studies and Assessments)

• 27% land arable, 18 percent cultivated
• 54 percent irrigated; 33% has over the years irrigation facility
• >60% employment
• >33% GDP contribution
• 78% hold land size < 0.7 ha (CBS 2011)
Food Security in Nepal Policy, Strategy and Practices

Constitutional provision for food and nutrition security
- Constitutional right
  - Right to food sovereignty as fundamental citizen right
  - Obligation of State
  - Policies of State

Agriculture Development Strategy
- Overarching policy document for agriculture sector for next 20 years
- Strong emphasis on food and nutrition security (FNS)
- **4 Strategic Components:** Governance, Productivity, Commercialization, Competitiveness.

Draft NSDS
- Consists a chapter on Ag statistics focusing food security
- **Zero hunger under Sustainable Development Goals 2**
Household food stock: traditional approach

• Stock for a year in subsistence farming or rural households
• Stock for a month or even a week in urban areas
• Stock for a season mainly during monsoon seasons due to frequent obstruction of transportation services caused by landslides and floods.
• Stock for 6 months (e.g. whole winter) in the mountain because of limited movements due to snow.
Food Security Monitoring Techniques currently applied in Nepal

• Short term; Acute IPC/NEKSAP (Nepal Food Security Monitoring System: Nepal Khadya Surakshya Anugaman Pranali)

• Medium term; Food Balance Sheet, FBS

• Long term; Poverty, dietary diversity, Chronic, ADEPT FSM, PoU

NeKSAP—is the comprehensive food security monitoring and analysis system in Nepal, which collects and analyzes the food security information across Nepal and effectively communicates the results to decision makers to achieve coordinated, appropriate, and timely action to prevent human suffering due to food insecurity.

NeKSAP uses IPC* approach conducting periodic food security situation analysis at VDC/Ward level.

*IPC—is a set of tools and procedures for classifying the nature and severity of current and projected food security situations. Hence this is considered as protocol for ‘Situation Analysis’. 
NeKSAP Acute Food Security Phase Classification indicators:
Stock gets high importance as contributing factor for food availability

1. Food Consumption food and dietary diversity, food groups);
2. Livelihood Change (and Coping strategies);
3. Acute child malnutrition (6-59m), wasting as per the prevalence of Global Acute Malnutrition (GAM);
4. Crop production situation;
5. Food stock at household level;
6. Stock of main staples in key markets (food availability in the market);
7. Employment opportunities within and neighboring districts;
8. Income through sales: NTFP, cash/high value crops, and small enterprises;
9. Income: meat, milk, egg, fish, honey
10. Market price of main staple like rice, wheat flour, and others.
11. Remittances
12. Human disease incidence, and epidemics
13. Water supply for drinking, sanitation (ODF)
14. Out-migration (stress induced)
15. Civil security (social violence, and bandh/blockade)
16. Climatic hazards: floods, landslides, dry spell, snowfall, hailstorm, and strong wind
17. Disaster: Earthquake, fire
Survey Module and Description

• NeKSAP survey design has sample size (of around 4000 rural households) per year divided into four quarters since 2010 and onward surveys. (now trimester)

• Increased accuracy was achieved by use of rotation sampling, which divided the sample into four nationally-based subgroups in each quarter,

• Resampling after initial selection in the following 2 quarter, the following year and the following year plus one quarter.

• In each quarter, one new rotation group is introduced and one dropped, so that the four rotation groups sampled in each quarter have been in the sample 1, 2, 3 and 4 times respectively.

Note:

• Rotation sampling, which was first proposed in the 1940s and has been in use internationally since the 1960’s, gains its extra accuracy for estimating quarterly and annual change from the positive correlation over time for the households within each rotation group.

• In this context, it is more accurate and involves slightly less fieldwork than choosing a completely new sample each quarter, and also avoids the long term response fatigue associated with cross-sectional / panel surveys.
Questionnaire on Stock and its use on making threshold for Phase Classification Outcomes

**Questionnaire Module used for Household Stock data collection**

**Module 4: Availability - Food stocks (Kg)**

1. What is your current level of rice stocks?
2. What is your current level of paddy stocks?
3. What is the current level of wheat grain stock?
4. What is your current level of wheat flour stocks?
5. What is your current level of maize stocks?
6. What is your current level of millet stocks?
7. What is your current level of barley stocks?
8. What is your current level of potato stocks?

**IPC Phase Classification**

<table>
<thead>
<tr>
<th></th>
<th>Minimally Food Insecure</th>
<th>Moderately Food Insecure (or Stressed)</th>
<th>Highly Food Insecure (or Crisis)</th>
<th>Severely Food Insecure (or Emergency)</th>
<th>Humanitarian emergency/Famine (or Declared famine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food stock at household level</td>
<td>&gt; 50% HHs with food stock for more than 4 months</td>
<td>T: &gt; 50% HHs with food stocks for 2-4 months;</td>
<td>T: 30-50% HHs with food stocks for 1-2 months;</td>
<td>T: 30-50% HHs with food stocks &lt;1 month;</td>
<td>&gt;50% HHs with depleted food stocks</td>
</tr>
<tr>
<td>Stock of main staples in key markets (food availability in the market)</td>
<td>Stocks are at normal level (reserve levels are good and supply is sufficient to meet demand)</td>
<td>Stocks are reducing but still sufficient to meet demand</td>
<td>Very low stock levels, partially able to meet demand</td>
<td>stocks depleted</td>
<td>stocks depleted / markets not functioning</td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hill_districts</strong></td>
<td>272</td>
<td>252</td>
<td>164.34</td>
<td>389.34</td>
<td>366.09</td>
</tr>
<tr>
<td><strong>Mountain_districts</strong></td>
<td>344</td>
<td>218</td>
<td>195.44</td>
<td>478.36</td>
<td>424.09</td>
</tr>
<tr>
<td><strong>Terai_districts</strong></td>
<td>223</td>
<td>438</td>
<td>319.91</td>
<td>337.89</td>
<td>455.99</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>255</td>
<td>338</td>
<td>239.47</td>
<td>371.95</td>
<td>414.01</td>
</tr>
</tbody>
</table>
### Results

#### Household Food Sufficiency in Months

<table>
<thead>
<tr>
<th>Hill_districts</th>
<th>Mountain_districts</th>
<th>Terai_districts</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul-Nov 2013</td>
<td>3.7</td>
<td>5.4</td>
<td>2.6</td>
</tr>
<tr>
<td>Nov 2013-Mar 2014</td>
<td>3.5</td>
<td>3.3</td>
<td>5.1</td>
</tr>
<tr>
<td>Mar 2014-July 2014</td>
<td>2.5</td>
<td>2.6</td>
<td>5.0</td>
</tr>
<tr>
<td>July to Nov 2014</td>
<td>4.99</td>
<td>5.87</td>
<td>4.21</td>
</tr>
<tr>
<td>Nov 2014-Mar 2015</td>
<td>4.80</td>
<td>5.23</td>
<td>5.54</td>
</tr>
</tbody>
</table>

#### Household food sufficiency period (months)

<table>
<thead>
<tr>
<th></th>
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<td>Hill_districts</td>
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<td>Terai_districts</td>
<td>2.6</td>
<td>5.1</td>
<td>5.0</td>
<td>4.21</td>
<td>5.54</td>
</tr>
<tr>
<td>Total</td>
<td>3.3</td>
<td>4.2</td>
<td>3.7</td>
<td>4.69</td>
<td>5.19</td>
</tr>
</tbody>
</table>
Food Security Situation Before and After 2015 April Earthquake

Before Earthquake

After Earthquake
Food Security Situation Before and After 2015 April Earthquake

Before Earthquake

After Earthquake
Results and Reasons

### 11 earthquake affected districts

<table>
<thead>
<tr>
<th>Acute food security phase</th>
<th>Pre-earthquake As of March 2015</th>
<th>Post-earthquake As of May 2015</th>
<th>Total Population (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 4 (Severe)</td>
<td>0</td>
<td>80</td>
<td>240,000</td>
</tr>
<tr>
<td>Phase 3 (High)</td>
<td>0</td>
<td>277</td>
<td>1,100,000</td>
</tr>
<tr>
<td>Phase 2 (Moderate)</td>
<td>0</td>
<td>172</td>
<td>930,000</td>
</tr>
<tr>
<td>Phase 1 (Minimal)</td>
<td>627</td>
<td>98</td>
<td>774,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>627</td>
<td>627</td>
<td>3,044,000</td>
</tr>
</tbody>
</table>

### Food Security Indicators

- **Severely Food Insecure (Phase 4)**: 240,000 (total population)
  - Poor dietary diversity: 66%
  - Poor dietary consumption: 46%
  - Restricted market access: 85%
  -需立即获得食品援助

- **Highly Food Insecure (Phase 3)**: 1,100,000 (total population)
  - Poor dietary diversity: 52%
  - Poor dietary consumption: 26%
  - Restricted market access: 34%
  -需立即获得食品援助

- **Moderately Food Insecure (Phase 2)**: 930,000 (total population)
  - Poor dietary diversity: 44%
  - Poor dietary consumption: 16%
  - Restricted market access: 44%
  -需立即获得食品援助

- **Minimally Food Insecure (Phase 1)**: 774,000 (total population)
  - Poor dietary diversity: 18%
  - Poor dietary consumption: 8%
  - Restricted market access: 11%
  -需立即获得食品援助

- 食品供应的可用性
  - 食品可通过市场获取
  - 需要获得食品援助
Results from FBS: Estimating stock as a residual element (not for household)

<table>
<thead>
<tr>
<th>Ratio in Percentage</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import Dependancy Ratio</td>
<td>9.3</td>
<td>12</td>
<td>11.2</td>
<td>13</td>
<td>15.4</td>
</tr>
<tr>
<td>Trade Dependency Ratio</td>
<td>-6.4</td>
<td>-10.9</td>
<td>-10.3</td>
<td>-12</td>
<td>-14.3</td>
</tr>
<tr>
<td>Stock Dependency Ratio</td>
<td>1.5</td>
<td>-1.6</td>
<td>1.2</td>
<td>6.5</td>
<td>2.9</td>
</tr>
<tr>
<td>Self Sufficiency Ratio</td>
<td>95.1</td>
<td>87.5</td>
<td>90.9</td>
<td>94.5</td>
<td>88.6</td>
</tr>
</tbody>
</table>
Figure 15: Edible cereal balance at regional level and food self-sufficiency at district level. (Source: MoAD)
Lessons learned

• Multi-dimensional effort; merged as a component with the vague concept of food security
• Not useful for FBS, which needs stock data at area level
• Challenges in resource mobilization: External support
• Coordination with the national stakeholders through existing as well as new survey initiatives and programs
• Coordination on implementation of activities with different stakeholders working on statistics
• Need also an updated per capita cereal food consumption to assess actual consumption of cereal foods (rice, wheat, maize etc).
• Hard to get accurate trade data at national level due to informal trade through open porous border with India
Thank you