ASIA AND PACIFIC COMMISSION ON AGRICULTURAL STATISTICS

TWENTY-SEVENTH SESSION

Nadi, Fiji, 19 – 23 March 2018

Agenda Item 9.3

Use of Information Technology in the Census of Agriculture 2015 in Korea

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Overview of the Census of Agriculture, Forestry, and Fisheries
1. History

- **1960**: Census of Agriculture
- **1970**: Census of Fisheries
- **1998**: Census of Forestry

**Consolidated into** ‘Census of Agriculture, Forestry, and Fisheries’ in 2010

Census of Agriculture and Census of Fisheries: since 2000

Census of Forestry: since 2005

Statistics Korea has been in charge

2. Legal Grounds

- **Census of Agriculture, Forestry, and Fisheries** is based on the Statistics act and has a separate regulation item.

- **Statistics Act** (item 3 of the article 5), Regulations of the Census of Agriculture, Forestry, and Fisheries (Ministry of Strategy and Finance regulation number 502)
3. Periodicity : Quinquennial

- Every five years, the years ending in number 「0」 and 「5」
- The Agriculture, Forestry, and Fishery Survey is carried out in all the years when the Census is not conducted.

4. Reference Date & Reference Period

- Reference date : December 1, 2015
5. Survey Method

- Household survey: through interview visits
- Community survey: through a village foreman meeting
  - Survey is taken by the administrative unit ‘Ri’ through the village foreman meetings in each Eup/Myeon

+ Accompanied by internet survey

6. Target Population/Coverage

- All agriculture, forestry, and fisheries households corresponding to the definition of the target household as of the reference period
- Administrative unit ‘Ri’ under Eup/Myeon districts
7. Questionnaires and Survey Items

- Questionnaire(4 types) : Agriculture/Forest Households, Sea Water Fishery Households, Inland Water Fishery Households, Regional Survey
- Survey items: 130 items

• Engagement type
• Engagement period
• Residence 5 years ago
• Engagement status 5 years ago
• Farming area

• Water & sewage facilities
• Town gas facilities
• Electricity, security facilities
• Waste treatment facilities
• Cultural, welfare facilities
• Local amenities

• Changes in households

• Types of livestock pen
• Crops of Si/Gun/Gu
• Sales location, employment
• Participation in the producer organizations
• Computerization

• Quality of living

• Competitiveness
8. Survey Structure

- **Host agency:** Statistics Korea
- **Implementation agency:** Provincial governments
9. Human Resources

- Total 23,500 manpower
  - 2,500 civil servants
  - 21,000 enumeration staff

  1,716 General Supervisors
  16,971 Enumerators
  806 Survey Managers
  1,670 Assistant staff

- Preferentially hire people with experiences in census such as the Population and Housing Census.

- Use E-Census integrated management system for hiring and managing enumeration staff.
10. Budget

* Marketing & PR: 4 billion KRW

* Supplies & Materials: 1.4 billion KRW
  (survey questionnaires and other survey materials)

* Activities: 2.8 billion KRW
  (transportation, rent, utilities, etc.)

* Labor: 16.1 billion KRW
  (including the pay for enumeration staff)
11. Linkage with the Population and Housing Census

- Increased efficiency through the linkage with 2015 Population and Housing Census
- Reflect the WCA 2010 recommendations of the Food and Agriculture Organization of the United Nations (UN FAO)
  * WCA: World programme for the Census of Agriculture

**Sharing human resources · physical resources**

- Human resources
- Physical resources
- System
- Marketing/PR
- Meeting
- Follow-up interviews
12. Use of Administrative Data

- The census turned into a register-based census in 2015
- The Economic Census and the Census of Agri., Forestry, and Fisheries will seek ways to introduce the register-based census after 2020.

Creating a Database of administrative data

As of June 2016, 19 kinds of administrative data on agriculture, forestry, and fisheries are collected and built into a database.

Description of the administrative date use in 2015 Census

1. Compilation of the target household register
2. Replacement of the survey items

Replaced 4 survey items regarding the houses and the regions.
Use of Information Technology in the Census of Agriculture, Forestry, and Fisheries
1. Internet Survey

- Coping with the contingencies (foot and mouth disease, AI, etc.) and refusal to interview visits and response

- Targeting young business owners and livestock households
  - Consider the issues including the aging of rural area and fishing village, low internet usage rate*, and the complication of the survey items.
  - * Internet usage rate of farmers and fishermen in 2014

- Survey method: interview visit + internet survey

- Assigned numbers to the voluntary participating households

- Participation rate of the internet survey (tentative)

<table>
<thead>
<tr>
<th></th>
<th>Entire numbers</th>
<th>Numbers of internet survey participation</th>
<th>Participation rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Survey</td>
<td>1.2 million households</td>
<td>370,000 households</td>
<td>30.8</td>
</tr>
<tr>
<td>Community Survey</td>
<td>36,700 (administrative unit) ‘Ri’s</td>
<td>10,800 (administrative unit) ‘Ri’s</td>
<td>29.4</td>
</tr>
</tbody>
</table>
Internet Survey Workflow

Preparation
- Household register: generating the participation numbers

Public Relations
- Distribution of the survey information leaflet
- Number assigning to the participants

Participation
- Confirmation of the participation number
- Thank you note (pop-up window)

Entry of the questionnaires
- Preliminary inspection

Completion of the entry
- Management of the entry status
- Management of the incomplete entries

Questionnaire DB
- Encouragement (SMS)
- E-Census Integrated Management System
e-Census system enables the efficient management of the census by networking the survey fields and the survey headquarters.

- Provide multidimensional assistance by linking the 080 call center, homepage website, and the internet survey system to the e-Census system.
- Provide various administrative support in hiring enumerators, linking the household registers, and carrying out the survey through the computerization.
080 Call Center

- Provide accurate, fast answers by professional consulting agents
- Develop a specialized consultancy program for: management of the consulting, sharing consulting cases, consulting manuals, bulletin board, etc.

Service target:
- General public
- Management staff
- Local government civil servants
- City/Province civil servants

080 Call Center:

1st consulting:
- Regular consulting agent

2nd consulting:
- Staff member of the Population Census Division
- System development company
- Staff member of the Population Census Division
A technique converting handwritten numbers, Hangeul, and marks on the questionnaires into data through scanning and automatic recognition

- In the year 2010: Population and Household Census/Census of Agriculture, Forestry, and Fisheries/Economic Census
- In the year 2015: Population and Household Census/Census of Agriculture, Forestry, and Fisheries

ICR data entry workflow:

- Collection of the questionnaires
- Decomposition of the questionnaires
- Scanning
- Key correction
- 1st correction
- 2nd correction
- Verification
- Data transmission
- Preliminary inspection
Background

Changes of environment for data entry
- Amount of data collected increased while data collection time was reduced.
- Database was set up using the advanced ICR data entry software
- Data going into questionnaire was linked to household register
- Accuracy of data was achieved

Highly efficient yet low budget census with use of ICR technology
- Latest information technologies and infrastructure was developed for data collection, processing and analysis
- Population Census and AFF Census allowed establishment of basic environment for ICR
- Large volume data and short-period projects required technical skills
4 Use of GIS (Geographic Information System)

- Building and providing maps which combine the data from the Census of Agriculture, Forestry, and Fisheries with GIS.

- Verifying any duplication and omission in the survey target register using the LBDMS (Location Based Data Management System) (after 2020)
Thank you