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## **GAMBIA - Agricultural Census of the Gambia 2011/2012 – Explanatory notes**

### **1. Historical Outline**

The 2011/2012 Agricultural Census was the second comprehensive agricultural census exercise conducted in the country. The first was undertaken in 2001/2002.

### **2. Legal Basis and Organization**

The Census of Agriculture was conducted under the authority of the Gambia Bureau of Statistics (GBOS).

The Planning Services Unit of the Department of Agriculture (DOA), Ministry of Agriculture (MOA) conducted the Census in close collaboration with GBOS who provided the Statistical Frame comprising all Enumeration Areas (EAs) of the country. The GBOS also provided the Census of Population cartography and maps together with identification information.

The Gambia Bureau of Statistics provided professional and technical guidance with regard to the planning and carrying out of the Census, and the FAO and the Commonwealth Secretariat provided technical advisors and supervisors to assist and help direct the field operations, quality control procedures, data processing, tabulations and reports.

The Census of Agriculture was supported by various international development agencies, which included the United Nations Food and Agriculture Organization, World Food Program, African Development Bank, World Bank and United Nations Development Program.

### **3. Reference Period or Date**

For the Census, the agricultural year was essentially the crop year June 1, 2010 to May 30, 2011. With respect to crops and land, respondents were asked to report for the current year. For livestock, the reference date was the day in the year 2011 that the interview took place.

### **4. Enumeration Period**

Enumerators and Supervisors were dispatched to the assignment areas in late July 2011 and the data collection was largely complete by March 2012.

### **5. Definition of the Statistical Unit**

The definitions are essentially those recommended by the FAO. An *agricultural holding* is defined as including all the land that is used wholly or partially for agricultural production under one technical or operational unit by one person alone or with others without regard to title, legal form, size or location. Non-crop agricultural units producing livestock and poultry are also considered as holdings if the scope of the survey is extended to a count of livestock and poultry.

A *household* is a group of individuals, usually related, that conduct work activities (farming or non-farming) as a unit and pool their resources from their activities. A household may contain one or more sinkiros. A *sinkiro* is a group of persons living together and eating together from the same pot regardless of whether they live in the same house.

Agricultural production includes the growing, processing and marketing of field crops, fruits and vegetables and the rearing of livestock, cattle, ruminants including small ruminants such as goats and sheep, poultry, rabbits and their products.

### **6. Geographic Coverage**

Geographic coverage includes the entire country.

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## **7. Exclusions and Cut-Off Thresholds**

All the Enumeration Areas (EAs) in the non-agricultural communities (urban and some semi-urban) in Kombo North, were removed.

## **8. Methodology**

### ***FAO Modular Approach***

The modular approach consisting of six questionnaires plus an Enumeration Areas Listing Form was used for data collection.

### ***Frame***

The frame for the 2011/2012 Agricultural Census was the 2003 Census of Population obtained from the Gambia Bureau of Statistics. The primary sampling units in the sample selection were the Enumeration Areas (EAs) used in the 2003 Population Census.

### ***Complete or sample enumeration methods***

The 2011/2012 Census of Agriculture was a sample survey of approximately 15 percent of all households in the 2003 Census of Population.

### ***Sample Design***

The sampling design was a stratified two-stage design with Districts forming the strata and the first-stage units being the Enumeration Areas (EAs) selected systematically in proportion to the 2003 total number of households. The second-stage sampling units were the holders (of agricultural holdings) within EAs from which a systematic random sample of five (5) holders was selected for enumeration.

The required sample size of EAs was selected from each district with probabilities proportional to size (PPS), using systematic sampling while agricultural households were selected with the equal probability systematic sampling procedure.

### ***Collection Method***

Personal interviews and printed questionnaires were used.

### ***Questionnaire(s)***

The Census of Agriculture questionnaire collected all the recommended core data for agriculture. The data were collected using seven structured questionnaire forms:

- Form 1 (Listing Questionnaire) used to list all the households in a sampled Enumeration Areas (EAs), to identify those which had at least an agricultural activity or livestock (i.e. Agricultural Holdings)
- Form 2 (Household Questionnaire) used to collect data on the demographic characteristics of household members as well as structural type of data on the Agricultural Holding
- Form 3 (Area Measurement Questionnaire) used for collecting data on field areas using a GPS device
- Form 4 (Harvest Questionnaire) used for recording harvest from yield plots
- Form 5 (Village Questionnaire) designed to collect community-level data
- Form 6 (Groundnut Questionnaire)
- Form 7 (Mango Questionnaire)

### ***Controls to Minimize Non-Sampling Errors***

During the enumerator training, the Statistician General gave a presentation on the importance of data collection with particular emphasis on agricultural surveys.

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## ***Innovative Methodologies***

The 2003 Census of Population, obtained from the Gambia Bureau of Statistics, was used to establish the sampling frame and cartography for the Census of Agriculture.

The Gambia used the modular approach to data collection as recommended by the FAO.

### **9. Data Entry, Edits, Imputation and Tabulation**

All the questionnaires received from the field are first checked and verified by a team of Senior Statisticians immediately they reach Headquarters. The statisticians checked and reviewed the work done by the enumerators for accuracy in the implementation of the proper selection procedures, correct measurement of fields, etc. All questionnaires with major inconsistencies, inaccuracies, omissions and unsatisfactory work were returned to the field for resolution and correction. Satisfactory questionnaires were sent to the Data Processing Unit.

The National Consultant, National Data Analyst and the Data Processing Specialist, developed the main programs, for Data Entry, Batch Edit/Validation, and Tabulation using CSpPro. The Data Entry clerks were trained to use the CSpPro application.

The census questionnaires' layout, captions, and instructions were used to design the Data Entry program so that the entry process would be faster, easier and more error-free. Furthermore, error controls were built in for every stage of the data processing cycle. For example, reasonableness checks, range checks and data type checks were incorporated in the data entry program to avoid field, record and typographical errors during the data collection and data entry stages.

Two IBM 120Gbyte external mass storage devices were used for weekly backups on the census data. CSpPro was used to produce most of the tabulation from the dummies designed by the Census Technical Committee. In some cases, Microsoft Excel was used to generate data charts.

### **10. Data Dissemination and Use**

The Census of Agriculture is available from printed reports and upon request. With Gambia's rapidly increasing population, changes in the global economy and climate change, increasing pressure has been placed on the Government to develop and establish frameworks to address these demands. The agriculture sector has been central in these frameworks essentially because of its measurable current role and contribution to the economic and social development of the country, and more so because of its tremendous potential to make even more significant contributions to meet the rising challenges to sustainable economic growth of the country.

### **11. Census Data Quality**

CSpPro data verification techniques were also used to control the quality of the census data. In this process, data were keyed again and compared with the value currently in the data file. The system would flag errors if there was any discrepancy between the item in the file and the keyed item.

STATA statistical software was used to calculate standard errors and coefficients of variation for the Census of Agriculture estimates.

### **12. Data Sources**

FAO ESS World Census of Agriculture 2010, Country Documents  
[www.fao.org/economic/ess/ess-wca/wca-2010/countryinfo/en/](http://www.fao.org/economic/ess/ess-wca/wca-2010/countryinfo/en/)

Unpublished Preliminary draft reports on the Gambia Census of Agriculture, obtained from the FAO January 30 2014.

- (1) Report of the Agricultural Census of The Gambia 2011/2012, Volume 1: Background and Methodology
- (2) Report of the Agricultural Census of The Gambia 2011/2012, Volume 2: Household and

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Holding Characteristics, Area, Yield and Production  
(3) Report of the Agricultural Census of The Gambia 2011/2012, Volume 2: Village Characteristics

**13. Contact**

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