Namibia 2013-2014 - Agricultural census

1. Historical Outline

The 1994/95 Census was the first Agricultural Census taken after independence. The 2004/2005 Census was the second Agricultural Census planned and carried out but results were not published. The 2013/14 Namibia Census of Agriculture is third census to be conducted and results were published in November 2015.

2. Legal Basis and Organization

There is no specific agricultural census law enshrined in the Statistical Act No. 9 of 2011. Reference is only made to "a population and housing census to be taken every 10 years on a date determined by the Minister by notice in the Gazette, unless the Minister, on the advice of the Statistician-General and by notice in the Gazette, determines otherwise". "Agriculture statistics" is only mentioned under Schedule I, as a matter on which statistics may be collected, produced, analyzed or disseminated. The Namibia Census of Agriculture (NCA) 2013/14 was carried out in collaboration with the Ministry of Agriculture, Water and Forestry (MAWF). A Planning team consisting of the subject matter from NSA and MAWF, reporting to the project manager, was responsible for the day to day running of the census under the existing MoU between the two institutions. The project manager was reporting to the Statistician-General, the CEO of the NSA. The Food & Agriculture Organization of the United Nations (FAO) was mainly responsible for funding, technical assistance and expert visits of the census. AfDB also gave technical assistance to a certain extend. Teams of 5 members each consisting of 4 enumerators and one supervisor were used for enumeration. Number of interviewers were 708 and supervisors 177.

3. Reference Period or Date

The reference period for the communal census was past 12 months. Number for stock/inventory was the day of enumeration. The reference period for all crops (except wheat) was October 2013 to September 2014 and for wheat it is July 2013 to February 2014.

4. Enumeration Period

The Namibia Census of Agriculture commenced in February/March 2014 starting in Zambezi, Kavango East and Kavango West regions due to the early rains and cultivation in those regions. It was followed by the rest of the regions (Ohangwena, Omusati, Oshana, Oshikoto, //Karas, Hardap, Erongo, Khomas, Omaheke and Otjozondjupa) in April/May 2014. The first phase (listing and area measurement) was conducted on while the second phase (crop cutting took place during

5. Definition of the Statistical Unit

An agricultural holding is an economic unit of agricultural production under single management comprising all livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title, legal form, or size. A household consists of one or more persons related or unrelated who live together in one or part of one or more than one housing unit/dwelling unit and have common catering arrangements.

6. Geographic Coverage

There was no area of the country excluded from the census/survey**.** The NCA2013/2014 was designed to cover all the agricultural households/population in Namibia. This coverage encompasses all the households engaged in subsistence farming activities in the communal sector and all the farms engaged in commercial farming activities in the commercial sector. This means geographically all the 14 regions are covered either through the communal sector survey or the commercial sector census.

7. Exclusions and Cut-Off Thresholds

None

8. Methodology

The agricultural sector in Namibia consists of the commercial and the communal agriculture sectors. Commercial agriculture sector covers large farms which are mainly concentrating on livestock production for commercial purposes. In the case of communal sector, a large part of the population in the northern regions (Kavango East, Kavango West, Ohangwena, Omusati, Oshana Oshikoto, Zambezi, and Kunene) are involved in subsistence farming activities which include crop and livestock farming. In the remaining regions also one may find subsistence farming activities mainly livestock farming but not in the same magnitude as the northern regions.

Target population

The target population for the NCA 2013/14 consists of all the agricultural households engaged in both commercial and communal farming activities in the 14 administrative regions. However, only the results of the communal agricultural sector are presented in the NCA report. Consequently, the target population for the communal sector survey consists of all the agricultural households in the rural communal areas of Namibia including the semi-urban areas around the urban Centers.

Framework

The sampling frame used for the NCA is based on the Enumeration Areas of the 2011 Population and Housing Census. Three questions were included in the 2011 PHC questionnaire about own account agricultural activities carried out by the households. Based on those questions it was possible to classify a household as an agricultural household. A Household carrying out agricultural activities (crop or livestock or both) for their own consumption were taken as an agricultural household. The number of agricultural households for each EA in the EA frame was compiled. Some EAs had only very small number of agricultural households especially in the southern part of the country. Such EAs were merged with adjoining EAs to form larger areas with sufficient number of agricultural households but taking the distances between households also into consideration. However, there was no independent mechanism to evaluate the completeness of the frame. For the selection of Households, an updated listing of households in the selected EA was done prior to data collection.

Complete or Sample Enumeration Methods

A significant sample of 1 025 PSUs out of 2663 PSUs was used for the communal sector census whereas the commercial sector census was a complete enumeration through mail enquiry. The commercial sector census covered private farms, government farms etc.

Sample Design

The NCA 2013/14 used a stratified two stage cluster sample design for the communal sector survey. At the first stage, primary sampling units (PSUs) were selected with Probability Proportional to Size (PPS) from the sampling frame based on the Enumeration Areas of 2011 Population and Housing Census. The size measure of the PSU in the sampling frame was the number of agricultural households which was derived from the questions included in 2011 Population and Housing Census as per the FAO recommendations. The main strata was the regions which are also the primary domains of estimation. The frame units (PSUs) were further stratified implicitly by the constituencies within the regions. The list of agricultural households prepared within a selected PSU formed the secondary sampling frame from which a sample of agricultural households was selected systematically. A third stage of sampling was introduced to measure objectively the average yields of the three major crops Maize, Sorghum and Millet for the purpose of estimating the production instead of the farmer's estimates. Hence a crop cutting experiment was conducted to measure the average yields of these crops. A list of plots under each of these crops in a sampled PSU was made using the plot information of the selected households within the PSU. These lists then formed the sampling frames for each of the crops in the PSU. Three plots were then randomly selected from each of the crop lists. If the list contained

less than 3 plots then all were included in the experiment. An area was marked within the selected plot according to the FAO guidelines and the matured crop inside this marked area was cut and weighed when the crop was wet and dry. These figures were then used to estimate the average yields of each of the crops. Design weight was computed to make inference to the agricultural population

Sample size

A total sample size of 10,550 agricultural households was determined to give reasonably reliable estimates at the regional level for the most important variables. The proportional allocation of this sample did not yield the minimum sample sizes for some of the sparsely populated regions hence a power allocation with some adjustments had to be carried out as a compromise procedure while keeping the overall national sample fixed. In general, 10 agricultural households were sampled from each of the selected PSUs thus having a larger spread of the sample across the population of agricultural households. However, in some of the southern regions having less communal farming activities, the sample size per PSU was raised to 16 agricultural households. Ultimately a total of 1025 PSUs were covered in the survey.

Method of collection

Data collection and capturing carried out during the NCA 2013/14 was done following international best practices. The enumeration was conducted face-to-face using Computer Assisted Personal Interview (CAPI) using notebooks in communal sector while for the commercial sector mail enquiry approach was used.

Use of administrative data as census data source.

None. An administrative database was used to verify/compliment some identification gaps where applicable.

Questionnaire(s)

The questionnaire used for the 2013/2014 was long. It was necessary to cover the data gap of over more 20 years. It comprises the following sections**:** Land under different land uses; Extension Visits/ Services and agriculture information; Access to Facilities; Means of Transportation; Storage Facilities; Source of Loan/ Credit; Farm Management Practices (ONLY CROP FIELDS); Aquaculture; Forestry; Apiary (Bee keeping); Food Security; Economic Activity; Labor Inputs; Equipment; Production and Disposition of Crops; Livestock; Area measurement; Selection of plots for Crop Cutting; Crop-cutting results.

Controls to Minimize Non-Sampling Errors

The was a close supervision for the field staff by the regional statistician as well as monitoring team from the head office

Innovative Methodologies

CAPI application used during field work had built in validations coded into the application questionnaire which guided the enumerator through the questionnaire and also detected and flagged out erroneous data entered. Data transmission in the field (from enumerators to supervisors using notebooks) was done in the presence of well-trained supervisors who in turn transmitted the data to HQ. The first transmission was done in the presence of HQ staff.

9. Data Entry, Edits, Imputation and Tabulation

CAPI data entry application design using CSPro 5.0; Manual data entry was used for crop cutting; CAPI was used for data capture and processing methods. Script using Bluetooth was used for data transmission between laptops; STATA was used for analysis and tabulations. Primary data edits and data cleaning was done in CSPro; Secondary data editing and data cleaning is done in Stata 13; Tabulation (summary tables) Stata 13 and Excel.

10. Data Dissemination and Use

Data have been disseminated using Printed Publications reports, websites, and dissemination during workshops. Publication reports have been sent to the regions. Micro data policy is still in progress. Intend to do specific analysis on Resettlement Farm.

11. Census data quality

Post enumeration surveys were not conducted due to lack of funds. Most data could not be compared with other data sources due to the difference in methodology used.

12. Data Sources

In any agricultural census, data were collected directly from those identified agricultural households and agricultural holdings.

13. Contact

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