THE UNITED REPUBLIC OF TANZANIA – NATIONAL SAMPLE CENSUS OF AGRICULTURE 2019/2020 – METADATA REVIEW

1. Historical outline

The 2019/2020 National Sample Census of Agriculture (NSCA), to which the metadata review and data presented here refer, is the fifth agricultural census to be carried out in the United Republic of Tanzania since the country's independence. Before independence, the former Tanganyka[1] conducted a census of large commercial farming in 1960. Tanzania conducted its first agricultural census after independence in 1971/1972, the second in 1994/1995, the third in 2002/2003, and the fourth in 2007/2008.

2. Legal basis and organization

Legal framework

This NSCA 2019/2020 was conducted in accordance with the Statistics Act [Cap 351 R.E 2019] and Act No. 9 of 2007 which empowers respectively the National Bureau of Statistics (NBS), Mainland Tanzania, and the Office of Chief Government Statistician (OCGS), Zanzibar, to collect and publish specific statistics.

Institutional framework and international collaboration

The NSCA 2019/2020 was administered by the NBS and the OCGS, Zanzibar, in collaboration with Agriculture Sector Line Ministries (ASLM). A Steering Committee, a Committee of Directors, and a Technical Committee were formed. The committees members were from the President's Office; Regional Administration and Local Governments; Prime Ministers' Office; Ministry of Agriculture; Ministry of Livestock and Fisheries; Ministry of Industry and Trade; Ministry of Agriculture, Irrigation, Natural resources and Livestock, Zanzibar; the NBS and the OCGS, Zanzibar. The Steering Committee was responsible for making pertinent decisions regarding the implementation of the census, whereas the Committee of Directors provided advice to the Steering Committee. On the other hand, the Technical Committee was responsible for the overall planning and general execution of the project. The NSCA 2019/2020 was funded by the Government of Tanzania, with financial support from the European Union (EU) and the United States Agency for International Development (USAID), while technical assistance was provided by the United States Department of Agriculture (USDA) and FAO.

Census staff

The NSCA 2019/2020 involved 20 trainers, three cartographers, 11 IT staff (two from NBS, two from OCGS, and seven specialists from ASLMs), 20 data processing specialists, 20 subject matter specialists, and 323 enumerators involved during data collection.

3. Reference date and period

Reference day: 1 August 2020, for the number of animals, permanent and part-time employment.

Reference period: the 2019/2020 agricultural year (from 1 October 2019 to 30 September 2020), for land, crops, farm inputs, fish farming, etc.

4. Enumeration period

The NSCA 2019/2020 data collection started on 5 August 2020 and ended on 2 October 2020, following delays caused by Covid-19. The Training of Trainers (ToT) and Training of Enumerators (ToE) could not be undertaken in March 2020 as planned and was postponed to July due to the pandemic. Therefore, the start of data collection, which had been planned to take place in April 2020, was postponed to August.

5. Scope of the census and definition of the statistical unit

The *census scope* covered agricultural activities (crop and livestock production), as well as aquaculture activities.

The **statistical unit** was the agricultural holding, defined as an economic unit of agricultural production under single management, without regard to title, legal form or size. Management may be exercised by

an individual member of the household or by the entire household. Five types of agricultural holdings (farming) were identified during the interview: (i) crops only; (ii) livestock only; (iii) pastoralist; (iv) fish farming; and (v) crops and livestock. Regarding its size, the agricultural holdings were classified into small-scale and large-scale farms according to thresholds specified in section 6. The small-scale farms can be considered as the group of holdings in the household sector, which were completely covered. The non-household sector was comprised by the large-scale farms.

Community-level data

Community-level data were collected in the NSCA 2019/2020. The questionnaire was designed to collect village/*mtaa*[1] level data.

6. Census coverage

Geographic coverage

The NSCA 2019/2020 covered the entire country.

Cut-off threshold and other exclusions

For the purpose of NCSA 2019/2020, agriculture holdings were restricted to those that met one or more of the following conditions: operating at least 25 m^2 of arable land and owning or keeping at least one head of cattle, or five goats/sheep/pigs or 50 chicken/ducks/turkeys/rabbits during the agriculture year 2019/20.

The following criteria for large-scale farms were applied: cultivating at least 20 ha of land or keeping at least 50 cattle, or 100 goats/sheep/pigs, or 1 000 chickens/ducks/turkeys/rabbits. In addition to this, they should fulfil all the four listed conditions: (i) greater part of the produce should go to the market; (ii) operation of farm should be continuous; (iii) there should be an application of machinery/implements on the farm; and (iv) should have at least one permanent employee.

7. Methodology

Methodological modality for conducting the census

The NSCA 2019/2020 was conducted on sample basis using the classical approach.

Relation to other censuses

The sampling frame used for NSCA 2019/2020 was the Tanzania Population and Housing Census (PHC) 2012. The questionnaires were formulated based on the previous census of agriculture and PHC with respect to questions regarding demographics and poverty indicators formulated in order to develop relationships between censuses.

Frames

The National Master Sample, developed by the NBS and the OCGS to serve as a national framework for conducting household-based surveys in the country, was used to design the NSCA 2019/2020. It comprised the complete list of Enumeration Areas (EAs), urban and rural, covering the whole country. This frame was created for the PHC 2012, which was served as a counting unit for the census and was not updated since its development (it is generally updated every 10 years). In rural areas, an EA was defined as a natural village, a segment of large village, or a group of small villages; in urban areas, an EA was defined as a street or a city block. The cartographic material which defined geographic locations, boundaries, main accesses, and landmarks inside or outside the EA, which helps to identify the EAs, was part of the frame.

The frame for large-scale farms was a list obtained from the Regional Statistical offices across the country and compiled by the Department of Agriculture Statistics of the NBS.

Complete or/and sample enumeration methods

Large-scale farms were fully covered, while small-scale farms were covered on a sample basis. The sample design for smallholders was designed to provide estimates disaggregated at regional and district levels for both Mainland Tanzania and Tanzania Zanzibar.

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[1] The villages and *mtaa* are the subdivisions of the wards corresponding to rural and urban area, respectively.

Sample design

The NSCA 2019/2020 adopted a two-stage sampling design with census EAs as Primary Sampling Units (PSUs) and households as second-stage units. For each region, a sample of PSUs was selected, using probability proportional to the number of households in the PSU, from the total number of PSUs in the region, classified into rural and urban PSUs, with more weight given to the rural PSUs because of its intensity in agriculture practices. A total of 2 820 PSUs were selected from the PHC 2012 frame, of which 2 670 PSUs were from Mainland Tanzania and 150 PSUs from Tanzania Zanzibar. Of the total number of PSUs selected, 2 560 PSUs were rural areas and 260 were urban. In the second stage, the number of households selected differed from one PSU to another, ranging from five to 30 households. A total of 33 808 households were selected (32 008 households from Mainland Tanzania and 1 800 from Tanzania Zanzibar). In each selected EAs, a listing exercise was carried out from 15 April to 30 June 2019, followed by a systematic random selection of households. Data were also collected from 1 093 large-scale farms. Adjustments of sampling weights in the rural domain of study were made to yield estimates of the population close to projected population values.

Data collection methods

The CAPI method (tablets) was used to collect census data.

Questionnaire(s) and items covered

Three different questionnaires were used to collect census data: (i) a small-scale farms questionnaire; (ii) a large-scale farms questionnaire; and (iii) a community-level questionnaire. The questionnaires covered 20 out of 23 core items recommended in the WCA 2020.[2] The community questionnaire was designed to collect village-level data such as access and use of common resources, community tree plantations and seasonal farmgate prices.

8. Use of technology

CAPI was used for data collection using tablets, installed with Census and Survey Processing System (CSPro) for android. Data from the field were timely transferred to the server at NBS headquarters. Census results were disseminated online via NBS and OCGS websites.

9. Data processing

The CAPI method enabled to receive data online directly into the headquarters servers. The CSPro software was used for data editing, including running consistency checks and tabulation of data. Telephone follow-up of respondents was used to validate and complete missing information. Imputation was done using sources from the Ministry of Agriculture and the Ministry of Livestock and Fisheries.

10. Quality assurance

A pilot test was carried out from 26 August to 15 September 2019 with the aim of testing the efficiency of the tools, logistics and measuring the workload of the entire census. To ensure the quality in procedures for frames, mapping, tabulation, questionnaires, manuals and data, collaborative work was carried out with the ASLM and other stakeholders during the preparation of manuals, questionnaires and tabulations. This helped in minimizing non-sampling errors. The ASLM were involved from the design stage of questionnaires to the implementation of the census, the supervision of data collection and the production of the report.

11. Data and metadata archiving

Metadata and microdata in STATA format were published in May 2022 and are available at the NBS data archive website at https://www.nbs.go.tz/tnada/index.php/catalog/31/study-description.

12. Data reconciliation

There was no reconciliation process of the NSCA 2019/2020 data.

13. Dissemination of census results and microdata

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[2] The following essential items were not covered: (i) 0501 Type of livestock system; (ii) 0901 Whether working on the holding is the main activity; and (iii) 0902 Working time on the holding.

A National Report for Crops, Livestock and Fish Farming was published in August 2021. This report provided detailed data at national and regional levels for smallholder farmers. In order to provide complete national estimates for key variables, information regarding large-scale farms was considered in the report. A Key Findings Report was published in August 2021 which provided a summary of key indicators of the NSCA 2019/2020. Data is available and accessible from Table Retrieval System (TRS) of the NBS website at http://data.nbs.go.tz:81/kilimo/index.php/ded/searchTable. The lowest geographical level for which data is available in the public domain is a district. Microdata in STATA format is available for all users at https://www.nbs.go.tz/tnada/index.php/catalog/31/get-microdata.

14. Data sources

National Bureau of Statistics (NBS). 2019. *Sample design for the 2019/20 National Sample Census of Agriculture*. Dodoma, Tanzania, October 2019.

National Bureau of Statistics (NBS). 2021. *2019/20 National Sample Census of Agriculture: Key Finding Report for Crops, Livestock and Fish Farming*. Dodoma, Tanzania, August 2021 (also https://www.nbs.go.tz/nbs/takwimu/Agriculture/2019-20_Agri_Census_Key_Findings.pdf)

National Bureau of Statistics (NBS). 2021. *2019/20 National Sample Census of Agriculture: National Report for Crops, Livestock and Fish Farming*. Dodoma, Tanzania, August 2021 (also https://www.nbs.go.tz/nbs/takwimu/Agriculture/2019-20_Agri_Census_Main_Report.pdf)

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