

CHAPTER TWO

METHODOLOGY

2.1 Overview

Data collection for the GCA was guided by the Food and Agriculture Organisation (FAO) principles and recommendations as expressed in the *2020 Round of World Agriculture Censuses* (FAO, 2015). The GCA consequently adopted the modular approach and categorised the process into four implementing phases as follows:

Phase I - preparation of the project documents and the development of instruments;

Phase II - listing exercise and administration of the core and community modules, data analysis, report writing, and dissemination of reports;

Phase III - administration of supplementary and thematic modules on sample basis, data analysis, report writing, and dissemination of reports; and

Phase IV - preparation of the technical reports and dissemination of final results.

The results of Phase II activities is the focus of this report. Phase I activities form part of the administrative report; while Phases III and IV are yet to start.

2.2 Development of instruments

GSS and MoFA held broad stakeholder consultations with relevant agencies on the development of the census instruments (questionnaires and manuals). The participating agencies included selected ministries, departments and agencies (MDAs); Ghana Cocoa Board, the National Development Planning Commission (NDPC), the Ghana Irrigation Development Authority (GIDA), the universities, the Council for Scientific and Industrial Research (CSIR) and other research institutions, civil society organisations and development partners.

The design of the instruments for the census aimed at ensuring complete coverage while avoiding double counting. Four types of questionnaires were developed for the GCA: the Listing questionnaire; the Core Module Household questionnaire; Core Module Institutional questionnaire; and the Community Module questionnaire. A listing exercise was conducted prior to the enumeration of agricultural households to identify all households and institutions engaged in agriculture.

2.2.1 Listing questionnaire

The Listing questionnaire was designed to identify and list all structures, households and institutions in the country. Additionally, it collected data on the use of structures, the physical and the Global Positioning System (GPS) coordinates of structures, and type of agricultural activities undertaken by households and institutions. Further, data were collected on agriculture related activities of the households and institutions, including marketing and processing of agriculture produce.

2.2.2 Core Module Household questionnaire

The Core Module Household questionnaire focused on agricultural holders in households. This questionnaire was administered to all eligible households identified during the listing exercise and solicited detailed information on the agricultural activities of the holders. It included the following sections:

- a) Socio-economic characteristics of household members;
- b) Holder information;
- c) Types of arable crops produced;
- d) Types of tree crops produced;
- e) Livestock produced;
- f) Aquaculture produced;
- g) Forestry; and
- h) Capture fisheries.

2.2.3 Core Module Institutional questionnaire

The Core Module Institutional questionnaire was used to collect detailed information on all eligible institutions identified during the listing exercise as engaged in agricultural activities. The information collected was similar to those covered in the household questionnaire. The structure of the questionnaire was the same as that for the households except for the first section which dealt with the general characteristics of the institution.

2.2.4 Community Module questionnaire

The Community Module questionnaire obtained community level information on the main type of agriculture activity, marketing of agriculture produce, presence of irrigation facilities, the availability of electricity, the socio-economic conditions, the soil types, the environment, and the occurrence of natural disasters. It also gathered information on basic infrastructure, such as schools and training centres, health facilities, social facilities, roads and natural resources of the community, among others.

2.3 Data collection

Face-to-face interviews were used to administer the listing, household and institutional questionnaires. Focus group discussion using a structured pre-coded community questionnaire was used to collect the community level information. The GCA adopted the 37,657 Enumeration Areas (EAs) created by GSS for the 2010 Population and Housing Census. These EAs have well-defined identifiable boundaries on maps and can be canvassed by an enumerator during the data collection period of a population census with an average of 150 households. During the data collection for the 2017/18 GCA, Ghana was administratively divided into ten geographical regions and divided into 216 sub-regional administrative areas: 6 metropolitan, 57 municipal, and 153 district types⁴.

The survey approach was to assign a number of EAs to a team of five enumerators and one supervisor who identified and enumerated households and institutions. Following the listing

⁴ Ghana is currently divided into 16 geographical regions and the regions divided into 260 sub-regional administrative areas: 6 metropolitan, 109 municipal, and 145 district types which will be reflected in the analysis of volume 2.

exercise, households and institutions engaged in agriculture were interviewed using the core household and institutional questionnaires.

In the rural areas, the Community Module questionnaire was administered by the supervisors to focus groups comprising the following:

- a) The chief of the community and his elders;
- b) The Agriculture Extension Officer (where available);
- c) Unit Committee member;
- d) Assembly member;
- e) Local herdsman (where available);
- f) Headmaster/teacher;
- g) Leader of a women's group;
- h) The community best farmer (where available); and
- i) The community youth leader.

The Computer Assisted Personal Interview (CAPI) method was used to collect all the information for the Census through a telemetry device (Tablets). Data were captured using Census and Survey Processing (CSPRO) System software.

2.4 Pre-test and pilot census

All the four questionnaires were pre-tested and piloted in the course of their development to assess the suitability of the questions and instructions, the adequacy and completeness of the questions, the respondents' understanding of the questions, and the procedures and methods of the field work.

The pilot was conducted in areas with intense agricultural activities, including crop production, livestock rearing, fish farming, bee-keeping and tree planting in the various Agro-Ecological Zones (AEZs) — coastal savannah, forest, transitional and northern savannah.

2.5 Recruitment and training of field personnel

A total of 95,050 persons applied online for the field work, out of which 5,475 were selected and trained for the exercise. The training was organised at three levels:

- Eight-day National Training of Trainers (ToT);
- Eight-day Regional ToT; and
- Ten-day district level training of field personnel (supervisors and enumerators).

The objective of these training sessions was to engender a clear understanding of the content of the questionnaires and competence in the administration of the questionnaires and procedures, as well as the use of the CAPI for collecting data. After the district level training, 4,914 field officers were selected. The field officers were constituted into 819 field teams and deployed to the field (Table 2.1).

Table 2.1: Regional distribution of shortlisted and deployed field officers

Region	Number shortlisted for interview	Number of participants for training	Number recruited for field work	Number of teams formed	Number of additional officers trained^a
Total	14,028	5,475	4,914	819	390
Western	1,304	547	492	82	16
Central	1,296	498	450	75	32
Greater Accra	1,780	458	420	70	200
Volta	1,584	588	522	87	15
Eastern	1,727	736	660	110	34
Ashanti	1,878	887	798	133	22
Brong-Ahafo	1,566	618	552	92	17
Northern	1,488	660	588	98	0
Upper East	775	311	276	46	42
Upper West	630	172	156	26	12

*The additional officers were engaged for a short period to complete the listing exercise

2.6 Enumeration Areas (EAs)

All the existing 37,657 EAs were covered with Ashanti Region having the highest number (7,060), more than six times the number for Upper West Region (1,126) which was the lowest (Table 2.2).

Table 2.2: Regional distribution of Enumeration Areas

Region	Number of EAs	Percent of total
Total	37,657	100.0
Western	3,539	9.4
Central	3,234	8.6
Greater Accra	5,405	14.4
Volta	3,616	9.6
Eastern	4,413	11.7
Ashanti	7,060	18.6
Brong-Ahafo	3,672	9.8
Northern	3,869	10.3
Upper East	1,723	4.6
Upper West	1,126	3.0

2.7 Data quality assurance

In order to ensure that high quality data were collected, the Secretariat constituted five groups of field monitors. These were the Steering Committee, the Technical Committee, the Data Processing/Information Technology (DP/IT) team, the Regional Management Committees, and Independent monitors. The monitoring was accomplished through the use of well-structured monitoring guidelines developed by the Secretariat. Each monitoring group visited areas assigned to them to ensure that:

- a) All EAs were covered;
- b) The publicity campaign was effective;
- c) Field logistics were adequate;
- d) Tablets were functioning;
- e) Data collection applications were updated regularly; and
- f) Supervisors were on the field with their enumerators and performing their assigned roles.

2.8 Publicity and education

For successful execution of a large-scale statistical inquiry that requires collaboration of individuals, households and institutions, there was the need to ensure effective sensitisation and awareness of the census. In this regard, a consultant was hired by FAO to develop a strategy

for publicity, education and advocacy before and during the GCA. Based on the findings and recommendations of the consultant and with advice from the Steering Committee; publicity materials including posters, banners, stickers, brochures, flyers, as well as branded T-shirts and caps, were procured and distributed to households and institutions.

The Information Services Department (ISD) of the Ministry of Information, the mass media channels and Community Information Centres were used in the sensitisation programme. The services of the district assemblies and community leaders, including assembly members, unit committee members, traditional and religious leaders were also engaged.

The official launch by His Excellency, the President of the Republic of Ghana, Nana Addo Dankwa Akufo-Addo, deepened the publicity and education on the census.

2.9 Challenges

The listing phase of the GCA had challenges that slowed down the pace of work, notably:

Large number of eligible respondents allocated to teams: as a result of the fast development of settlements especially in the peri-urban areas, some EAs were found to be larger than planned, in some cases by a factor of two or more. Consequently, it took enumerators much longer time than anticipated to complete the enumeration. In certain places, larger EAs necessitated the creation of additional teams.

Coincidence of the administration of the core module questionnaire with the major rainy season: as a result of the over-sized EAs, the scheduled time for the listing phase extended into the major rainy season when some roads and areas became inaccessible due to rivers overflowing their banks and roads becoming unmotorable. This prolonged the listing exercise with its attendant problems.

Increased budget: the prolonged phase of the listing exercise meant additional financing and variation in the payment schedule to enumerators.

Difficulty in handling large numbers and different brands of tablets: The deployment and the overall management of the use of three different brands of tablets with different specifications on such large-scale, posed some difficulties that prolonged the time for the listing to be completed.

Lack of experience in the use of electronic means of data collection on a large-scale: this being the first time GSS experienced the use of CAPI for data collection on such a large-scale (more than 4,000 Tablets) across the country, there was not enough trained staff to support this scale of operations. Moreover, the time for the preparation of the CAPI before the start of fieldwork was inadequate leading to unanticipated delays in resolving issues related to CAPI application.

Unanticipated extension of the fieldwork: data collection on the agricultural households extended beyond expectation due to challenges discussed above, creating difficulties in meeting the eligible respondents.