Cambodia - Cambodia Inter-Censal Agriculture Survey 2019

National Institute of Statistics (NIS), Ministry of Agriculture, Forestry and Fishery (MAFF)

Report generated on: April 15, 2021

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Overview

Identification

ID NUMBER
KHM_2019_CIAS_v01_EN_M_v01_A_OCS

Overview

ABSTRACT
The CIAS 2019 was a comprehensive statistical undertaking for the collection and compilation of information on crop cultivation, raising livestock and poultry, and aquaculture and capture fishing operations.

The main objective of the CIAS 2019 is to provide data on the current agricultural situation in the country that can be utilized by the planners and policy-makers. Specifically, the survey data is useful for:

1. Providing data at the national and province level throughout the country

2. Providing data on the current structure of the agricultural holdings growing crops and/or raising livestock and/or poultry and/or aquaculture and fishery activities in the country

3. Provide data that is comparable to the 2013 Agriculture Census data and allows for comparisons and change analysis.

The data collected and generated from this survey effort will help reflect progress towards the 2030 Sustainable Development goals for the agricultural sector, focusing on:

- Goal 1: End poverty in all forms everywhere

- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

- Goal 5: Achieve gender equality and empower all women and girls

- Goal 6: Ensure availability and sustainable management of water and sanitation for all.

The survey covers the following topics:

1. Basic characteristics of agricultural holdings

2. Crop Production during the last 12 months (crop production and purpose, area utilized, crop production modes during the next 12 months)

3. Livestock Production during the last 12 months (cattle, buffalo, horse, pigs, goats, poultry, insects, raising practices during the next 12 months)

4. Aquaculture and/or Fishing Production during the last 12 months (aquaculture, fishing activity)

5. Economy during the last 12 months (other activities of the holding, shocks)

6. Households of the Holders and Co-holders (socio-demographic characteristics)

7. Labour used by the Holding (work on the holding by the holder and household members, work by external or occasional workers)

8. Household Dwelling and Assets

The collected data is used to produce a set of tables and indicators for tracking and evaluating the impacts of government and development programs on agriculture and to compute SDG indicators related to the above Goals. For main findings from the CIAS 2019, see the Executive Summary of the CIAS 2019 Final Report.

Data was collected from household agricultural holdings and juridical agricultural holdings. Only the household agricultural

holdings are included in the released microdata.

KIND OF DATA
Sample survey data [ssd]

UNITS OF ANALYSIS
Household agricultural holdings and juridical agricultural holdings

NOTE: the juridical agricultural holdings are not included in the released microdata

Scope

NOTES
The CIAS collected data on agricultural activities taking place from 2018-07-01 through 2019-06-30. One data collection activity took place immediately following the end of the survey reference period, in July 2019. The survey has been implemented using two different questionnaires for different stages of analysis.

1) Screening questionnaire: This form was used by enumerators to screen for agricultural activity among individual, private households. The form enabled the differentiation of agricultural households from non-agricultural households.

2) Main survey questionnaire: This questionnaire form was used for both household agricultural holdings and for juridical, or commercial holdings. The form consisted of 9 sections, including:

a. Screening for different types of agricultural activity

b. Information on the holding and holders

c. Crop production activity

d. Livestock, poultry, and insect activity

e. Aquaculture and capture fishing activity

f. Economy during the last 12 months

g. Household of the holder and co-holders

h. Labour used by the holding

i. Household dwelling and assets

TOPICS

Topic	Vocabulary	URI
Agricultural Production	World Bank	
Economy	World Bank	
Labour	World Bank	
Production Methods and Environment	World Bank	

KEYWORDS
Agricultural production, Crops, Livestock, AGRISurvey, Agricultural practices, Agricultural households, Aquaculture, Capture fishing

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
National Institute of Statistics (NIS)	Ministry of Planning
Ministry of Agriculture, Forestry and Fishery (MAFF)	Royal Government of Cambodia

OTHER PRODUCER(S)

Name	Affiliation	Role
Food and Agriculture Organization of the United Nations	United Nations	Technical assistance in the design, implementation and dissemination of CIAS 2019
Ministry of Economy and Finance	Royal Government of Cambodia	Provided budgetary support
Ministry of Water Resources and Meteorology	Royal Government of Cambodia	Technical Committee member
Ministry of Industry, Science, Technology and Innovation	Royal Government of Cambodia	Technical Committee member
Ministry of Land Management, Urban Planning and Construction	Royal Government of Cambodia	Technical Committee member
Council of Ministers	Royal Government of Cambodia	Technical Committee member

FUNDING

Name	Abbreviation	Role
United States Agency of International Development	USAID	
Bill and Melinda Gates Foundation	BMGF	
Royal Government of Cambodia	RGC	
Food and Agriculture Organization of the United Nations	FAO	

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Office of Chief Statistician	OCS	Food and Agriculture Organization	Metadata adapted for FAM
National Institute of Statistics	NIS	Ministry of Planning	Documentation of the study
Food and Agriculture Organization	FAO	United Nations	Technical assistance for CIAS 2019

DDI DOCUMENT VERSION
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Sampling

Sampling Procedure

The sampling frame used for CIAS 2019 listed around 14,000 villages, split in 2 or 3 Enumeration Areas (EAs) each, for a total of 35,000 EAs. For each village, the following information was available: province, district, commune, type (rural/urban), number of EAs and number of households. Given their low number of rural villages, the following districts were excluded from the frame: Province Preah Sihanouk, District Krong Preah Sihanouk, Province Siemreap, District Krong Siem Reab, Province Phnom Penh, District Chamkar Mon, Province Phnom Penh, District Doun Penh, Province Phnom Penh, District Prampir Meakkakra, Province Phnom Penh, District Tuol Kouk, Province Phnom Penh, District Ruessei Kaev, Province Phnom Penh, District Chhbar Ampov

Since the number of rural households per EA was not known, in order to calculate the number of rural households in each province the sum of the households in the villages that were classified as rural was computed. The listing operation in each sampled EA was conducted with the aim of identifying the target population, i.e. the households engaged in agricultural activities.

The adopted sampling design was a two-stage stratified sampling, with EAs as primary units and households engaged in agriculture as secondary units. It was decided to select 1,350 EAs and 12 agricultural households for each EA, for a total planned sample size of 16,000 households. The 1,350 EAs were allocated to the provinces (sampling domains) proportionally to the number of rural households. Since there are no rural villages in Phnom Penh, 50 EAs (that correspond to 60,000 rural households) were allocated to Phnom Penh Province by default and 1,300 EAs were allocated to the other provinces. In order to select the EAs within each province, the villages were ordered by district, then by commune, then by type of village (Rural-Urban) and a systematic sampling was performed, with probability proportional to size (number of households).

The screening procedure conducted in each of the 1,350 selected EAs allowed not only to identify the agricultural holdings, but also to make a partition in strata of the agricultural households in each province and apply a stratified sampling scheme for the secondary units. Details of these strata by province can be found in Annex 3 of the general CIAS 2019 report. Each province could have a different composition and definition of the strata. The units in some strata could all be selected, particularly if they were rare, while in most strata, households were sampled. In general, within provinces, the allocations in each stratum were computed proportionally to the size of the stratum in the population of the selected EAs in the province. Once the stratum allocations in each province were computed, the allocations within the province to the EAs were calculated proportionally to the size of the stratum in the selected EA with respect to the stratum size in the province, under the constraint that the total sampled households for each EA be 12. The total effective sample size of the survey was 15,994 agricultural households. The employed sampling procedure led to the production of representative estimates at the national, regional, provincial level.

Response Rate

The number of unit-non responses was low (6 out of 16,000) because a list of additional sampled households was given to the enumerators in case some households did not want to collaborate. The household used for substitution had to be in the same stratum of the household that needed to be substituted and it had to be selected with the same sampling procedure, at the same time.

Weighting

The sample design and stratification procedures implemented for CIAS 2019 resulted in agricultural households having different probabilities of selection. With this under consideration, a weight was calculated for each agricultural household in the sample as the inverse of its probability of selection. Details on the calculation of the weights are given in Annex 4 of the CIAS 2019 report. The weights were adjusted for non-response, although the latter was very low.

Questionnaires

Overview

The CIAS 2019 represents the first large scale survey effort conducted using Computer Assisted Personal Interview (CAPI) devices. The CIAS has been implemented using two different questionnaires for different stages of analysis.

1) Screening questionnaire: This form was used by enumerators to screen for agricultural activity among individual, private households. The form enabled the differentiation of agricultural households from non-agricultural households.

The main objective of this questionnaire was to determine which households were involved in agriculture and at what level. The information captured from the screening form was used to stratify household agricultural holdings for sample selection.

2) Main survey questionnaire: This questionnaire form was used for both household agricultural holdings and for juridical, or commercial holdings. The form consisted of 9 sections, including:
a. Screening for different types of agricultural activity
b. Information on the holding and holders
c. Crop production activity (including crop areas planted and harvested, quantity produced, share of production sold or for home use, use of fertilizer, irrigation, pesticide, uncertified or improved seed use, etc.)
d. Livestock, poultry, and insect activity (including number of holdings raising animals during the last 12 months, the number of animals present on the holding, slaughter activity, etc.)
e. Aquaculture and capture fishing activity (including the number of holdings involved in these activities, aquaculture species raised, catch from capture fishing activities, etc.)
f. Economy during the last 12 months (including additional income activities, shocks experienced by the holdings, etc)
g. Household of the holder and co-holders (including household member demographic data, education level, etc)
h. Labour used by the holding (including household and external labour and occasional workers, breakouts by gender, etc.)
i. Household dwelling and assets (including types of dwelling materials, presence of bank account, etc)

The main objective of this questionnaire was to collect data across all major specialties of the agricultural sector, including crops, livestock, aquaculture and capture fishing. Additionally, the economic data, household member demographic data, agricultural labour data collect help to provide an accurate overview of the household agricultural sector.

Questionnaires were drafted based on the standard AGRISurvey Core Questionnaire with customizations made for the Cambodia agricultural environment. Questionnaires were tested and reviewed by the Technical Committee for the CIAS, with feedback leading to improvements to the questionnaire design.

Questionnaires are available in English, as an annex to the CIAS 2019 Final Report.

Data Collection

Data Collection Dates

Start	End	Cycle
2019-06	2019-07	Data collection for household holdings
2019-10	2019-11	Data collection for juridical holings

Data Collection Mode

Computer Assisted Personal Interview [capi]

Data Collection Notes

Two rounds of pre-testing for the survey took place in March and April of 2019, including 8 interviewers who would later become Data Supervisors for the CIAS 2019. All enumerators and supervisors were existing staff of NIS and MAFF, either from the headquarters staff in Phnom Penh, or province and district level staff, who were hired for the additional task of data collection for the CIAS. Data collection was conducted by a total of 419 staff, including 335 Enumerators (201 from NIS and 134 from MAFF), 44 Field Supervisors (20 from NIS and 24 from MAFF), and 40 Data Supervisors (40 from NIS).

Field and Data Supervisors attended a Training of Trainers event in May 2019 and subsequently led the Enumerator training schools at the province level in June 2019. While the TOT was delivered in a mixture of Khmer and English, enumerator trainings were conducted in Khmer, with interviews taking place in Khmer.

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Supervision

Both Data and Field Supervisors assisted Enumerators in their work. There were approximately 7 enumerators assigned to each Data and Field Supervisor. Field Supervisors were responsible for assisting with enumerator issues in the field, including encouraging good relationships with village contacts, promoting cooperation from the agricultural household respondents, assisting with travel plans and organizing survey assignments and timelines. Data Supervisors were responsible for conducting data quality control checks, assisting with tablet technical issues and distributing survey assignments to the enumerators. A Headquarter Supervisor team was created to perform the final data quality checks, with this group reviewing the work of all enumerators and communicating issues to the Data Supervisors as needed throughout the survey process.

Data Processing

Data Editing

Data editing for CIAS 2019 took place throughout all the survey implementation, particularly during the following stages:
- data entry thanks to consistency checks included in the CAPI tool that made use of Survey Solutions software;
- data approval by Data Supervisors who checked the interviews sent by enumerators through the Survey Solutions software and, in case of errors or suspicious data detected, returned the record to the enumerator to address the issues with the respondent if needed;
- data approval by Headquarter Supervisors who double checked the inconsistencies in the questionnaires and returned them back to the enumerators in case of issues. Documentation on how to detect suspicious values and outliers was provided both to Data Supervisors and Head Quarter staff;
- data-cleaning phase, where approved data was cleaned in Rstudio through automatic detection of outliers and suspicious records, using validation rules that also took into account validity ranges and comparison with similar data from other sources. In this phase, some respondents were also recontacted to fix possibly wrong responses;
- data-imputation phase, where some values coming from item-non response or systematic errors were imputed using hot-deck imputation technique, conditional mean imputation and regression imputation in Rstudio. Please refer to the variable documentation for more information on impute variables.

Other Processing

Data was summarized in Rstudio, using the Horwitz Thompson estimator computed by the function horvitzThompson of the R package mase. Many items were estimated at national, regional and provincial level (cf. CIAS 2019 report shows).

Data Appraisal

Estimates of Sampling Error

Like any other sampling survey, CIAS 2019 generates estimates affected by sampling error and non-sampling error. The latter has been controlled through on-field and off-field procedures as training of the enumerators, field supervision by the headquarter team, a well-developed CAPI program, data-cleaning activities that included also the recontact of the respondents. The sampling error in terms of coefficient of variation (CV) was calculated for all the estimates published in the final report, using the function horvitzThompson of the R package mase that supported the complexity of the sampling design. The CV values were not published in the final report, but they were produced and evaluated in order to decide whether the relative estimates could be released, together with the number of units among which each estimate was computed.

Estimates of Sampling Error