

# Cambodia - Cambodia Agriculture Survey 2022

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

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## Identification

### SURVEY ID NUMBER

KHM\_2022\_CAS\_v01\_M\_v01\_A\_ESS

### TITLE

Cambodia Agriculture Survey 2022

### ABBREVIATION OR ACRONYM

CAS 2022

### COUNTRY

Name	Country code
Cambodia	KHM

### STUDY TYPE

Agriculture Integrated Survey [hh/nhh/agris]

### SERIES INFORMATION

The Cambodia Agriculture Survey (CAS) 2022, conducted between October and November 2022, was a comprehensive statistical undertaking for the collection and compilation of information on crop cultivation, livestock and poultry raising, aquaculture and capture fishing, agricultural economy and labour. The survey was conducted by two Royal Cambodian Government institutions: the National Institute of Statistics (NIS) of the Ministry of Planning and the Ministry of Agriculture, Forestry and Fisheries (MAFF), and with technical support from the Food and Agriculture Organization of the United Nations (FAO).

CAS 2022 was developed under the scope of "The 50x2030 Initiative to Close the Agricultural Data Gap", a multi-donor initiative implemented through a unique partnership between the World Bank, FAO and the International Fund for Agricultural Development (IFAD), with the aim of building national statistical capacity and establishing efficient and durable national agricultural data collection systems.

### ABSTRACT

CAS 2022 was a comprehensive statistical undertaking for the collection and compilation of information on crop cultivation, livestock and poultry raising, aquaculture and capture fishing, agricultural economy and labour. The National Institute of Statistics (NIS) of the Ministry of Planning (MOP), and the Ministry of Agriculture, Forestry and Fisheries (MAFF), were the responsible government ministries authorized to undertake the CAS 2022. While NIS had the census and survey mandate, the MAFF was the primary user of the data produced from the survey. Technical support was also provided by the Food and Agriculture Organization of the United Nations (FAO).

The main objective of the CAS was to provide data on the agricultural situation in the Kingdom of Cambodia, to be utilized by planners and policy-makers. Specifically, the survey data are useful in:

1. Providing an updated sampling frame in the conduct of agricultural surveys;
2. Providing data at the country and regional level, with some items available at the province level;
3. Providing data on the current structure of the country's agricultural holdings, including cropping, raising livestock and poultry, and aquaculture and capture fishing activities.

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 questionnaire collected data on several aspects of the agricultural holding, including demographic information about the holder and the household members, crop production, livestock and poultry raising, aquaculture, capture fishing, and labour used by the holding.

Data was collected from household agricultural holdings and juridical agricultural holdings. Only the household agricultural holdings are included in the released microdata.

Statistical Disclosure Control (SDC) methods were applied to the microdata, to protect the confidentiality of the individual data collected. Users must be aware that these methods modify the data, including suppression of some data points. This affects the aggregated values derived from the anonymized microdata, and may have other unwanted consequences, such as sampling error and bias. Additional details about SDC methods and data access are provided in the sections on 'data processing' and 'access conditions' below.

#### KIND OF DATA

Sample survey data [ssd]

#### UNIT OF ANALYSIS

Household agricultural holdings and juridical agricultural holdings.

Note: The juridical agricultural holdings are not included in the released microdata.

## Version

#### VERSION DESCRIPTION

v1.0: Edited, anonymous dataset for public distribution (Public Use File)

#### VERSION DATE

2024-12-16

## Scope

#### NOTES

The questionnaire collected data on several aspects of the agricultural holding, including demographic information about the holder, any co-holders and all household members, crop production activity, raising livestock, raising poultry, aquaculture activity, capture fishing activity, economy, labour used by the holding, and information on the household's dwelling and assets.

The CAS 2022 questionnaire included a rotating module with additional questions on production methods and the environment. This module included many questions related to irrigation, energy, expenditures of the holding, the impacts of using fertilizers and pesticides, waste management and soil cover. It covered environmental sub-indicators of SDG 2.4.1: the proportion of agricultural area under productive and sustainable agriculture.

The household and juridical surveys were conducted from October to November 2022. A total of 429 staff members (including 337 enumerators, 46 field supervisors and 46 data supervisors) completed data collection on a sample of 15,751 household holdings and 407 juridical holding interviews, across the 25 provinces of Cambodia.

#### TOPICS

Topic
Agricultural Production
Economy
Labour
Production Methods and Environment

#### KEYWORDS

Keyword
Agricultural production
Crops
Livestock
AGRISurvey
Agricultural practices

Agricultural households
Aquaculture
Capture fishing

## Coverage

### GEOGRAPHIC COVERAGE

The CAS 2022 provides national coverage.

The national territory is divided in four Regions or Zones (Coastal Region, Plains Region, Plateau and Mountain Region, and Tonle Sap Region) and 25 Provinces (Banteay Meanchey, Battambang, Kampong Cham, Kampong Chhnang, Kampong Speu, Kampong Thom, Kampot, Kandal, Kep, Koh Kong, Kratie, Mondul Kiri, Otdar Meanchey, Pailin, Phnom Penh, Preah Sihanouk, Preah Vihear, Prey Veng, Pursat, Ratanak Kiri, Siem Reap, Stung Treng, Svay Rieng, Takeo, and Tboung Khmum.).

### UNIVERSE

Agricultural households, i.e. holdings in the household sector that are involved in agricultural activities, including the growing of crops, raising of livestock or poultry, and aquaculture or capture fishing activities. It was not considered a minimum threshold to determine a household's engagement in the above-mentioned activities.

## Producers and sponsors

### PRIMARY INVESTIGATORS

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

### PRODUCERS

Name	Abbreviation	Affiliation	Role
Food and Agriculture Organization of the United Nations	FAO	United Nations	Technical assistance in the design, implementation and dissemination of CAS 2022
Ministry of Economy and Finance	MEF	Royal Government of Cambodia	Provided budgetary support
Ministry of Water Resources and Meteorology	MOWRAM	Royal Government of Cambodia	Technical Committee member
Ministry of Industry, Science, Technology and Innovation	MISTI	Royal Government of Cambodia	Technical Committee member
Ministry of Land Management, Urban Planning and Construction	MLMUPC	Royal Government of Cambodia	Technical Committee member
Council of Ministers		Royal Government of Cambodia	Technical Committee member

### FUNDING AGENCY/SPONSOR

Name	Abbreviation
Royal Government of Cambodia	RGC
Food and Agriculture Organization of the United Nations	FAO
The World Bank	WB
International Fund for Agricultural Development	IFAD

## Sampling

### SAMPLING PROCEDURE

The sampling approach for the CAS 2022 relied fully upon the sampling of CAS 2021 utilising a panel approach. The CAS 2021 had used statistical methods to select a representative sample of enumeration areas throughout Cambodia from the 2019 General Population Census of Cambodia Sampling Frame. Households within these EAs were screened for any agricultural activity. Using this basic information, the agricultural households were stratified and sampled for additional data collection. Juridical holdings, which are farm enterprises operated by corporations or government institutions, were also surveyed based on listings provided by MAFF and other governmental offices with knowledge of agricultural juridical holdings.

For the CAS 2021, and therefore CAS 2022 using its panel approach, the 2019 General Population Census Sampling Frame was utilized. This frame consisted of around 14,500 villages and 38,000 Enumeration Areas (EAs). For each village, the following information was available: province, district, commune, type (rural/urban), number of EAs and number of households. The target population comprised the households that were engaged in agriculture, fishery and/or aquaculture. 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 from the 2019 census, 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 for the CAS 2021 to identify the target population, i.e., the households engaged in agricultural activities.

For this survey, there was no minimum threshold set to determine a household's engagement in agricultural activities. This differs from the procedures used during the 2013 Agriculture Census (and that would be used in the 2023 Agriculture Census later), in which households were eligible for the survey if they grew crops on at least 0.03 hectares and/or had a minimum of 2 large livestock and/or 3 small livestock and/or 25 poultry. The procedure used in the CAS, which had no minimum land area or livestock or poultry inventory, allowed for smaller household agricultural holdings to have the potential to be selected for the survey. However, based on the sampling procedure indicated below, household agricultural holdings with larger land areas or more livestock or poultry were identified and associated with different sampling strata to ensure the selection of some of them.

The CAS 2021 and therefore CAS 2022 used a two-stage stratified sampling procedure, with EAs as primary units and households engaged in agriculture as secondary units. In the CAS 2021 and CAS 2022, 1,381 EAs and 12 agricultural households for each EA were selected, for a total planned sample size of 16,572 households. The 1,381 EAs were allocated to the provinces (statistical domains) proportionally to the number of rural households. To select the EAs within each province, the villages were ordered by district, commune, and then by type of village (Rural-Urban). Systematic sampling was then performed, with probability proportional to size (number of households). After attrition from the previous year, the total effective sample size of the survey was 15,751 agricultural households.

### WEIGHTING

The sample design and stratification procedures detailed above resulted in agricultural households having different probabilities of selection. With this under consideration, a sampling weight was calculated for each agricultural household in the sample and applied to that record's reported data. The CAS 2022 weights were then corrected for non-response and attrition, and calibrated using the number of agricultural households by province obtained through the Census of Agriculture Cambodia 2023.

## Data collection

### DATES OF DATA COLLECTION

Start	End	Cycle
2022-10-31	2022-11-17	Data collection for household holdings
2022-11-13	2022-11-26	Data collection for juridical holdings

## TIME PERIODS

Start date	End date
2021-07-01	2022-06-30

## DATA COLLECTION MODE

Computer Assisted Personal Interview [capi]

## SUPERVISION

All data in the CAS were collected by trained enumerators who were selected among existing National and Provincial staff of NIS and MAFF based on qualifying tests. Field operations included training of all supervisors and enumerators, data collection and supervision. Central and field staff from the NIS and MAFF were trained before they undertook the data collection and supervision process. There were two levels of training, conducted separately including (a) training of trainers, with NIS and MAFF central office staff serving as data supervisors, field supervisors, and enumerators for the juridical holdings' data collection; and (b) training of household data collection enumerators. All field officials including supervisors at all levels were trained extensively in concepts, definitions and procedures for data collection.

Data Supervisors were responsible for conducting data quality control checks. There were 46 data supervisors for the project, all were staff members from NIS. Field Supervisors were responsible for assisting with enumerator issues in the field, encouraging good relationships with village contacts and promoting cooperation from agricultural household respondents. There were 46 field supervisors for the project, with 24 hired from MAFF and 22 hired from NIS. Enumerator staff included 337 staff, among these were 197 from NIS and 140 from MAFF from province and district level staff. Including field and data supervisors, a total of 429 staff were involved in the data collection effort, although additional staff were trained and maintained as reserve staff for the project not included in these totals. Additionally, 11 NIS staff in Phnom Penh were trained in the Headquarters Tools of Survey Solutions, carrying out the final approval process for the submitted interviews.

The accuracy of the final output of the CAS depends on the quality of the data collection from the households and juridical holdings enumerated. There are several levels of supervision and channels of communication in the CAS, as well comprehensive guidelines, for monitoring progress and for early detection of any problem in data collection. The innovative use of CAPI (Computer-Assisted Personal Interviews) for data collection allowed for timely monitoring of the data flow and data quality.

## DATA COLLECTION NOTES

The 12-month period prior to 1 July 2022 (i.e., from 1 July 2021 to 30 June 2022) was used as the reference period for the data collection effort. However, the reference period for some of the items was different from the time period specified, and is thus indicated in the questionnaire. For example, for some livestock items, the number of animals on a holding is collected with the day of 1 July 2022 as the reference date.

## DATA COLLECTORS

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

## Data Processing

## DATA EDITING

Once the enumerators collected the survey data for an agricultural household, they submitted the completed questionnaire via Survey Solutions to their data supervisors who, in turn, carried out quality checks. If there errors or suspicious data were detected, the data supervisor would return the record to the enumerator to address the issues with the respondent if needed, and the corrected record would be re-submitted to the data supervisor. Once the records were validated by the data supervisors, they would approve them for final review by headquarters staff.

At the survey headquarters, the completed questionnaires were received after being approved by the data supervisors. If

any issues or suspicious data were discovered during the headquarters review, the records could be returned to the enumerator for verification or correction if needed. Documentation on how to review questionnaire data for suspicious items or outliers was provided to both data supervisors and headquarters staff.

The data review and calculation of the survey estimates was undertaken using the RStudio software tool. Validation of the data began even when the questionnaires were being designed in the CAPI tool, as Survey Solutions allows for consistency checks to be built into the data collection tool. As soon as completed records were returned during the data collection stage, additional consistency checks were completed, evaluating the ranges for certain items, and verifying any outlier records with the enumerator and/or respondent. Moreover, when the data was cleaned, another step was conducted to impute the missing values derived from item non-response.

#### \*\*STATISTICAL DISCLOSURE CONTROL (SDC):\*\*

Microdata are disseminated as Public Use Files under the terms and conditions indicated at the NIS Microdata Catalog (<<https://microdata.nis.gov.kh/>>), as indicated in the section 'access conditions'.

In addition, anonymization methods have been applied to the microdata files before their dissemination, to protect the confidentiality of the statistical units (e.g. individuals) from which the data were collected. These methods include: i) removal of some variables contained in the survey (e.g. name, address, etc.), ii) grouping values of some variables into categories (e.g. age categories), iii) limiting geographical information to the province level, iv) removal of some records or specific data points, v) censoring the highest values in continuous variables (top-coding) by groups, replacing them with less extreme values from other respondents, or vi) rounding numerical values.

Users must therefore be aware that data protection with SDC methods involves perturbations in the microdata, including suppression of some data points. This implies a certain degree of information loss, and affects the aggregated values derived from the anonymized microdata. It may also have other unwanted consequences, such as sampling error and bias, affecting any estimates derived from these microdata and their parameters. In general, the smaller the subpopulation, the higher the potential impact derived from the anonymization process.

## Access policy

### CONTACTS

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### CONFIDENTIALITY

Article 22 of the Statistics Law of the Kingdom of Cambodia stipulates that staff and employees working in the National Institute of Statistics of the Ministry of Planning and statistical units in ministries and other institutions of the Royal Government, as well as the designated statistical officers of these organizations shall ensure confidentiality of all individual information obtained from respondents, except under special circumstances with the consent of the Minister of Planning. The information collected under this Law is to be used only for statistical purposes. All information collected in the CAS 2022 survey must be treated as confidential and used for statistical purposes only. The microdata are released under terms and conditions (as indicated in the section 'access conditions'), which require that the data are not redistributed or sold, are used only for statistical purposes and reporting aggregated information, and that there is no attempt to identify statistical units (e.g. respondents). In addition, as indicated in the section 'Other processing' above, Statistical Disclosure Control (SDC) methods have been applied to anonymize the microdata and protect the confidentiality of individual data.

### ACCESS CONDITIONS

The anonymized microdata of the CAS 2022 are released as Public Use Files, accessible to all according to the following terms and conditions:

1. Statistical Law. The National Institute of Statistics (NIS) shall ensure confidentiality of all individual information obtained from respondents, except under special circumstances with the consent of the Minister of Planning. The information collected under the Statistics Law of Cambodia is to be used only for statistical purposes. (Statistics Law of the Kingdom of

Cambodia, Article 22)

2. Data redistribution and safe storage. The data and other materials retrieved from the NIS Microdata Catalog will not be redistributed or sold to other individuals, institutions, or organizations without the written agreement of the NIS Microdata Catalog. The applicant will ensure, through the safe storage of the micro data retrieved from the NIS Microdata Catalog, that no other person can access the micro data files.

3. Intended use of the data. The data will be used for statistical purposes only and in accordance to the above application form only. The data will be used solely for reporting of aggregated information, and not for investigation of specific individuals or organizations. No attempt will be made to link datasets provided by the NIS Microdata Catalog, or to link with other datasets that could lead to the identification of statistical units (e.g. individuals or organizations).

4. No disclosure of information on statistical units. The applicant will ensure that no other person will have access to results where information on any statistical unit can be disclosed. The applicant will ensure that the identity of any person or establishment, who have provided data to the NIS will not be disclosed during the analysis and/or when releasing results.

5. Reporting breaches of confidentiality. No attempt will be made to re-identify statistical units, and no use will be made of the identity of any person or establishment discovered inadvertently. Any such discovery would immediately be reported to the NIS (nis.nada@yahoo.com and lundysaint@yahoo.com).

6. Citation requirement. Any books, articles, conference papers, theses, dissertations, reports, or other publications that employ data obtained from the NIS Microdata Catalog need to cite the source of data in accordance with the Citation Requirement provided with each dataset.

7. Reporting on results. An electronic copy of all reports and publications based on the requested data must be sent to the NIS Microdata Catalog (nis.nada@yahoo.com and lundysaint@yahoo.com).

8. Responsibility disclaimer. The original collector of the data (the NIS) and the relevant funding agencies bear no responsibility for use of the data or for interpretations or inferences based upon such uses.

To access the microdata, the user must agree to comply with the above-stated terms and conditions and assure that the use of statistical data obtained from the NIS Microdata Catalog will conform to widely-accepted standards of practice and legal restrictions that are intended to protect the confidentiality of respondents.

#### CITATION REQUIREMENTS

National Institute of Statistics of the Kingdom of Cambodia, Cambodia Agricultural Survey 2022 (CAS 2022), public use dataset (December 2024), retrieved from the NIS Microdata Catalogue (<https://microdata.nis.gov.kh/>).

#### ACCESS AUTHORITY

Name	Affiliation	Email	URL
Director General	National Institute of Statistics	info@nis.gov.kh	www.nis.gov.kh

## Disclaimer and copyrights

#### DISCLAIMER

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#### COPYRIGHT

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## Metadata production

#### DDI DOCUMENT ID

DDI\_KHM\_2022\_CAS\_v01\_M\_v01\_A\_ESS\_FAO

#### PRODUCERS

<b>Name</b>	<b>Abbreviation</b>	<b>Affiliation</b>	<b>Role</b>
National Institute of Statistics	NIS	Ministry of Planning, Cambodia	Documentation of the study
Food and Agriculture Organization of the United Nations	FAO	United Nations	Technical assistance for CAS2022
Statistics Division	ESS	Food and Agriculture Organization of the United Nations	Metadata adapted for FAM

## Data Dictionary

Data file	Cases	Variables
CAS2022_FINAL	0	295
LANDUSE2	0	5
ROSTER_BY_PRODUCT	0	13
S4_LANDUSE_PARCEL	0	6
S4_PARCEL	0	37
S5A_CROP	0	47
S5A_HARVESTED	0	13
S5A_PROCESSED	0	13
S6_CROPSEED	0	56
S6_INPUTS	0	16
S7A_LIVESTOCK	0	49
S7B_POULTRY	0	50
S8_MANURE	0	30
S9_AQUACULTURE	0	19
S9_CAPTUREFISHING	0	18
S10_FOREST	0	13
S10_OTHER	0	6
S11_SHOCKS	0	24
S12_INFO	0	6
S12_PROVIDER	0	6
S14_HHROSTER	0	16
S15_OCC_ACTIVITY	0	9