

# Methodology – CFSVA 2024

## 1. Sampling procedures

Rwanda is administratively divided into four provinces (Northern Province, Southern Province, Eastern Province and Western Province) plus Kigali City and a total of 30 districts. Districts are further divided in 416 sectors, 2148 cells and 14 837 Villages.

The 2024 Comprehensive Food Security and Vulnerability Assessment (CFSVA) employed a stratified two-stage sampling approach designed to ensure statistical representativeness at the district level. In the first stage, data from the 2022 Population and Housing Census and the Rwanda Demographic and Health Survey were used, with each district serving as a stratum and villages, or Enumeration Areas (EAs), as the primary sampling units (PSUs). The NISR's 2020 mapping operation identified 24,339 EAs, forming the basis for the 2022 Census, Post Enumeration Survey, and future inter-censal surveys. Depending on physical and demographic factors, an EA may comprise a whole village or parts of one or two villages. Villages were systematically selected using Probability Proportional to Size (PPS), giving larger villages a higher chance of inclusion. The total sample consists of 900 EAs across Rwanda's 30 districts, ensuring comprehensive geographical coverage.

At the second stage of sampling, households were randomly selected within each sampled village. From the official list provided by village authorities, 10 households were systematically selected using a random start and a calculated interval based on the total number of households in each village. An additional three reserve households were also identified to replace any non-responding households. The target sample size for each district was 300 households, leading to a total sample size of 9,000 households across Rwanda.

Weighting procedures were employed to account for variations in household sizes across villages and to correct for non-response. The basic weight for each household was calculated as the inverse of its probability of selection, ensuring that the results were representative of the overall population in each district. Additionally, adjustments were made for non-interviews and replacement households to maintain accuracy. The final dataset provides comprehensive and representative information on food security and nutrition at the national, provincial, and district levels.

Data collection was conducted across all 30 districts of Rwanda between April 26<sup>th</sup> and June 2<sup>nd</sup>, 2024. The survey employed three primary instruments: a community questionnaire administered to key informants to gather information on community infrastructure, agriculture, markets, and shocks; a household questionnaire, which covered demographics, livelihoods, assets, and food consumption, among other topics; and a mother and child questionnaire targeting women of reproductive age, with a focus on health, nutrition, and anthropometry. The questionnaires were first developed in English and later translated into Kinyarwanda.

## **2. Survey Instruments**

One single questionnaire that includes both household questions related to food security and individual questions related to nutrition for children under five years old and women of reproductive age were used for primary data collection at household level. Additionally, a community survey administered to key informants and local population. The instruments were first developed in English and subsequently translated into Kinyarwanda and back-translated to confirm validity. Tablets programmed with the questionnaires using the Open Data Kit (ODK) was then be used for the data collection.

### **Village questionnaire**

For each visited village, key informants and focus group discussions were carried out, around model questions. The participants normally were the village leaders, members of local government, teachers, health workers, farmers and local residents. In total, **900** village interviews were conducted. Topics covered included community infrastructure, market information, agricultural crop calendar, nutrition, shocks and received assistance. This information was helpful to contextualize the results from the household interviews.

### **Household, women and children's questionnaires**

The study gathered information through household questionnaire that included questions on demographics, housing and facilities, assets and access to credit, agriculture, livelihoods, income and expenditure, food consumption and sources, shocks, coping strategies and assistance. A total of 9,000 households were sampled. There was a specific questionnaire administered to women of reproductive age (15-49 years old) including questions regarding pregnancy, health, hygiene and food consumption. Questions regarding children under 5 years covered the topics of health and supplements. Anthropometric measurements were taken for children 6-59 months. The IYCF module was administered to caretakers of all children between 6 to 23 months

### **Anthropometric measurements**

The anthropometric measurements of height, weight, mid-upper arm circumference (MUAC) were taken for children between 6 and 59 months old and women between 15 and 49 years old. This information was used to calculate nutritional indices based on Z-scores.

## **3. Geographical coverage**

The assessment covered rural and urban areas of the country, following the classification provided by NISR. Indicators are representative at district level to allow district level use of data in planning.

**4. Survey preparation:** The survey protocol was cleared by the National Ethics Committee, and a visa approval was granted by the National Institute of Statistics (NISR) to conduct the survey.

**5. Data collection** was done using tablets with ODK by experienced and well trained enumerators to ensure the accuracy, reliability and validity of survey results.

The assessment combined secondary data review with qualitative and quantitative primary data collection. It included:

1. In depth studies combining field observations and secondary data covering selected topics/contextual aspects as identified with partners:
2. A statistically representative food security survey considered 9000 households for the interview.
3. Primary data collection was done in sampled households from April 26th and June 2nd, 2024

## **6. Survey quality assurance**

The quality of a survey is of prime importance for accurate, reliable and valid results. Therefore, Quality assurance measures were considered at all steps of the survey, from the selection of the enumerators, data collection, data cleaning and data analysis.

**7. Data cleaning and analysis:** Data was downloaded directly from the tablet to an access database and exported to SPSS and STATA for analysis. Taking into consideration the two-stage cluster sampling methodology described above, adjustment weights were computed to provide results representative at country level. The household probability of being selected in the sample is equal to the product of a household's probability of being selected in an Enumeration Area by the probability of the Enumeration Area of being sampled. The inverse of this probability is the design weight. The design weight was adjusted for the expected and actual number of households in the surveyed villages and was used in the complex sample calculations. The design weight was divided by the product of the total number of households in the population divided by the number of sampled households. The resulting weight was used in all non-complex sample analyses.

Z-scores for wasting, stunting, and underweight were computed using ENA software. Z-scores for wasting (WHZ), stunting (HAZ) and underweight (WAZ) were computed using ENA and were imported into SPSS for the analysis. Z-scores are based on the 2006 WHO Child Growth Standards. Plausibility checks were conducted on the data. Children whose age, height or weight were not properly recorded or flagged for invalid entries (who-flags) were excluded from the analysis.