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

Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round

Indicator 2.1.1: Prevalence of undernourishment

# Institutional information

## Organization(s):

Food and Agriculture Organization of the United Nations (FAO)

# Concepts and definitions

## Definition:

The prevalence of undernourishment (PoU) (French: pourcentage de sous-alimentation; Spanish: porcentaje de sub-alimentación; Italian: prevalenza di sotto-alimentazione) is an estimate of the proportion of the population whose habitual food consumption is insufficient to provide the dietary energy levels that are required to maintain a normal active and healthy life. It is expressed as a percentage.

## Concepts:

Undernourishment is defined as the condition by which a person has access, on a regular basis, to amounts of food that are insufficient to provide the energy required for conducting a normal, healthy and active life, given his or her own dietary energy requirements.

Though strictly related, “undernourishment” as defined here is different from the physical conditions of “malnutrition” and “undernutrition” as it refers to the condition of insufficient intake of food, rather than to the outcome in terms of nutritional status. In French, Spanish and Italian the difference is marked by the use of the terms alimentation, alimentación, or alimentazione, instead of nutrition, nutrición or nutrizione, in the name of the indicator. A more appropriate expression in English that would render the precise meaning of the indicator might have been “prevalence of under-feeding” but by now the term “undernourishment” has long been associated with the indicator.

While the undernourishment condition applies to individuals, due to conceptual and data-related considerations, the indicator can only be referred to a population, or group of individuals. The prevalence of undernourishment is thus an estimate of the percentage of individuals in a group that are in that condition, but it does not allow for the identification of which individuals in the group are, in fact, undernourished.

## Rationale:

The indicator has been used by FAO to monitor the World Food Summit Target and the MDG Target 1C, at national, regional and global level, since 1999. It allows monitoring trends in the extent of

dietary energy inadequacy in a population over time, generated as a result of the combination of changes in the overall availability of food, in the households' ability to access it, and in the socio-demographic characteristics of the population, as well as differences across countries and regions in any given moment in time.

The parametric approach adopted by FAO allows obtaining reliable estimated for relatively large population groups. As it reflects a severe condition of lack of food, it is fully consistent with the spirit of a Goal that aims at reducing hunger.

# Comments and limitations:

Over the years, the parametric approach informing the computation of the PoU has been criticized, based on the presumptions that undernourishment should be assessed necessarily starting at the individual level, by comparing individual energy requirements with individual energy intakes. According to such view, the prevalence of undernourishment could be simply computed by counting the number of individuals in a representative sample of the population that is classified as undernourished, based on a comparison of individual habitual food consumption and requirements. Unfortunately, such approach is not feasible for two reasons: first, due to the cost of individual dietary intake surveys, individual food consumption is measured only in a few countries, every several years, on relatively small samples; moreover, individual energy requirements are practically unobservable with standard data collection methods (to the point that observed habitual energy consumption of individuals in a healthy status is still the preferred way to infer individual energy requirements). This means that even if it were possible to obtain accurate observations of the individual dietary energy consumption, this would be insufficient to infer on the undernourishment condition at individual level, unless integrated by the observation on the physical status (body mass index) and of its dynamic over time, of the same individual.

The model based approach to estimate the PoU developed by FAO integrates information that is available with sufficient regularity from different sources for most countries in the world, in a theoretically consistent way, thus providing what is still one of the most reliable tools to monitor progress towards reducing global hunger.

***Further specific consideration:***

*Feasibility*

Estimation of PoU at national level has been feasible for most countries in the world since 1999. In the worst case scenario, when no data on food consumption was available from a recent household survey, the model-based estimate of the PoU is informed by an estimate of mean level of dietary energy consumption (DEC) from Food Balance Sheets (FBS), an indirect estimate of the coefficient of variation (CV) based on information on the country's GDP, Gini coefficient of Income, an index of the relative price of food, or other indicators of development such as country's Under 5 Mortality Rate, and an estimate of the Minimum Dietary Energy Requirement (MDER) based on the UN Population Division's World Population Prospects data.

*Reliability*

Reliability mostly depends on the quality of the data used to inform the estimation of the model's parameters.

DEC could be estimated either from survey data or from food balances. Neither source is devoid of problems. When comparing estimates of national DEC from FBS and from surveys, differences are frequently noted.

DEC estimates from survey data can be affected by systematic measurement errors due to under-reporting of food consumption, or to incomplete recording of all food consumption sources. Recent

research shows that a negative bias of up to more than 850 kcal can be induced on the estimated daily per capita caloric consumption can be induced by the type of food consumption module chosen to capture the data at the household level. (See De Weerdt et al., 2015, Table 2, https://feb.kuleuven.be/drc/licos/publications/dp/DP%20365%20Complete.pdf ). A detailed analysis of a recent Household Budget Survey in Brazil revealed how food provided for free through the school meals program and consumed by children while at school, had not been accounted among the sources of household food consumption, accounting for a downward bias of the average per capita daily dietary energy consumption of 674 kcal. (See Borlizzi, Cafiero & Del Grossi, forthcoming.)

DEC estimates from Food Balance Sheets can also be affected by errors, though it is difficult to establish the direction of induced bias. As average food availability is a residual in the FBS method, any errors in reported production, trade, and stocks might affect the estimates of national food availability. Moreover, errors might be induced by the difficulty in properly accounting for all forms of food commodity utilization. To the extent that all these errors are uncorrelated, though, the impact on the estimated average food consumption will be lower than each of the errors, considered separately, might imply. Nevertheless, considering how problematic it is to precisely account for variations in national reserves of food commodities, for which official data may be unreliable, it is recognized that the estimated annual stock variation is prone to considerable uncertainty that would be transferred to the estimated DEC in each given year.

To limit the impact of such errors, FAO has traditionally presented estimates of PoU at national level as three-year averages, on the presumption that errors induced by imprecise recording of stocks variations in each single year might be highly reduced when considering an average over three consecutive years.

Survey data are the only source to estimate the CV and Skewness. As described in the section of metadata on the method of computation, unless obtained from high quality individual dietary intake surveys, data needs to be treated to reduce the likely upward bias in the estimates of the CV that would be induced by the spurious variability due to errors in measuring individual habitual dietary energy intake.

*Comparability*

If the same method of computation is used, comparability across time and space is relatively high, with the only potential cause of inhomogeneity found in the different quality of the background data.

*Limitations*

Due to the probabilistic nature of the inference and the margins of uncertainty associated with estimates of each of the parameters in the model, the precision of the PoU estimates is generally low. Even though it is not possible to compute theoretical Margins of Error (MoE) for PoU estimates, these would very likely exceed plus or minus 2.5% in most cases. For this reason, FAO publishes national level PoU estimates only when they are larger than 2.5%. This also suggests that 2.5% is the lowest feasible target that can be set for the PoU indicator, a value that is unsatisfactorily large when the ambition is to fully eradicate the scourge of hunger.

If no survey is available that collects food consumption data and that is representative at subnational level, the indicator can only be computed at national level.

# Methodology

## Computation method:

The indicator is computed at the population level. To this aim, the population is represented by an "average" individual for which a probability distribution of the habitual daily dietary energy intake levels is modelled through a parametric probability density function (pdf).

Once the pdf is characterized, the indicator is obtained as the cumulative probability that daily habitual dietary energy intakes (x) are below the lower bound of the range of normal dietary energy requirements for that representative, or average individual (MDER), as in the formula below:

PoU= ∫_(x<MDER) f(x | DEC; CV; Skew) dx

where DEC, CV and Skew are the mean, coefficient of variation and skewness that characterize the distribution of habitual dietary energy consumption levels in the population.

Until 2012, the probability distribution f(x) was modelled as a Log-normal pdf, informed by only two parameters: mean and coefficient of variation. In its most recent formulation, it is modelled as a three-parameter pdf, able to represent different degrees of skewness, ranging from that of a symmetric Normal distribution to that of the positively skewed Log-normal distribution. The flexibility in capturing different degrees of skewness is needed to take into account the fact that human energy consumption levels are naturally bounded by physiological limits. It is thus conceivable that, as mean consumption levels increases, the skewness of the distribution decreases, gradually moving from (positively skewed) Log-normal distributions, typical of populations where average food consumption is relatively low, towards (symmetric) Normal distributions. The skew-normal and skew-lognormal families of distribution allow for the characterization of all possible intermediate degrees of positive skewness. (See http://www.fao.org/3/a-i4046e.pdf for a detailed description)

A custom R function is available from the Statistics Division at FAO to compute the PoU, given the four parameters DEC, CV, Skew and MDER.

Different data sources can be used to estimate the different parameters of the model.

***DEC***

The mean of the distribution of dietary energy consumption levels for the average individual in a population (DEC) corresponds, by definition, to the average, daily per capita food consumption level in the population.

DEC can be estimated from data on food consumption obtained through surveys that are representative of the population of interest. Depending on the survey design, they can be used to estimate DEC at national and at sub national levels, either by geographic areas or by socio-economic population groups. Unfortunately, though the situation is rapidly improving, representative surveys that collect food consumption data are still not available for every country and every year.

For the national population only, DEC can be estimated also from accounts of the total supply and utilization of all food commodities in a country, where the contribution of each commodity to the availability of food for human consumption is expressed in their dietary energy content, and their total is divided by the size of the population. The major source of data on national food balances are the Food Balance Sheets (FBS) maintained by FAO for most countries in the world (see http://www.fao.org/economic/ess/fbs/en/), informed by official data reported by member countries, and disseminated through FAOSTAT (http://faostat3.fao.org/download/FB/*/E)

***CV***

Surveys that contain information on food consumption at individual or household level are the only available source to directly estimate the CV of habitual food consumption for the representative individual in the population. Unfortunately, survey data on food consumption are fraught by many problems that complicate the reliable estimation of CV.

In principle, repeated observations of daily consumption for each individual in a sample would be needed to estimate levels of habitual consumption and to control for measurement errors. Moreover, data should be collected in different periods of the year on the same individuals or households to account for possible seasonal variation in levels of dietary energy consumption. Due to their cost, nationally representative individual dietary intake surveys with such characteristics are very rare, and virtually inexistent for most developing countries. As a consequence, the most common sources of data to estimate CV are multipurpose household surveys, such as Living Standard Measurement Surveys, Household Incomes and Expenditure Surveys (or Household Budgets Survey), that collect also information on food consumption. When using data collected at household level however, careful attention should be taken in distinguishing levels of food purchases or acquisitions from levels of actual utilization (consumption and wastage) during the identified reference period and in properly recording the number of individuals who participate in consumption; moreover, household level data will mask the variability due to intra-household allocation of food.

For all these reasons, the coefficient of variation calculated on the series of average per capita daily dietary energy consumption levels recorded for each household included in a survey is never a reliable estimate of CV, which should reflect variability in the levels of habitual (and not occasional) daily dietary energy consumption level, at the individual (and not household) level. Empirical estimates of CV from household survey data are upward biased due to the spurious variability induced by measurement error, differences between occasional and habitual consumption, differences between acquisition and actual consumption and seasonality; moreover, they do not reflect the variability in dietary energy consumption in the population associated with individual characteristics of the household members (such as sex, age, body mass and physical activity levels).

When using data collected through household surveys, CV is thus best estimated indirectly, controlling for spurious variability, and adjusted to reflect inter-individuals (in addition to inter-households) variability. The simplest way to proceed is to classify households into homogeneous groups and to calculate the coefficient of variation of the average per capita dietary energy consumption across household groups. This yields an estimate of the inter-households component of CV, labelled CV_H. An estimate of the inter-individuals component of the CV, labelled CV_I, is obtained, for each population, from its structure by sex, age and body masses, and the two components are combined to obtain the needed estimate as:

CV^ = v[(CV_H)^2+(CV_I)^2 )].

For countries and years when no data from household survey are available, an indirect estimate of the CV, CV_IND, is obtained via a regression that projects the values of per capita GDP, Gini coefficient of income, and an index of the relative price of food (FPI) on the CV, while controlling for a regional shifter (REG).

CV^_IND=ß_0+ß_1 GDP+ ß_2 GINI+ ß_3 FPI+ß_4 REG.

Coefficients of the regression are estimated from the set of data and years for which data on CV, GDP, GINI and FPI are available.

***Skew***

As skewness is not strongly affected by the presence of spurious variability, Skew is estimated directly from household level data on the average daily dietary consumption, with the only exception of eliminating rare extremely high or extremely low values. If the empirically estimated skewness exceeds the value that would correspond to the skewness of Log-normal distribution with given mean and coefficient of variation, the parameter is neglected and a two parameter lognormal distribution is used for f(x). (See http://www.fao.org/3/a-i4046e.pdf for additional details).

***MDER***

Human energy requirements are computed by multiplying normative requirements for basic metabolic rate (BMR, expressed per kg of body mass) by the ideal weight of a healthy person of given height, and then multiplied by a coefficient of physical activity level (PAL). Ranges of normal energy requirements are thus computed for each sex and age group of the population, observing that there exist a whole range of Body Mass Index (BMI) values – from 18.5 to 25 – that are compatible with health. This implies that any given attained height might correspond to a whole range of healthy body weights, and therefore to a range of values for energy requirement for BMR.

Given information on the median height and the consideration that the group might contain individuals engaged in different levels of physical activity, the minimum, average and maximum dietary energy requirement can be computed for every sex and age class by taking into consideration special allowances for growth in individuals aged 0-21 and for pregnancy and lactation.

(See ftp://ftp.fao.org/docrep/fao/007/y5686e/y5686e00.pdf for further details).

The MDER for a given population group, including for the national population, is obtained as the weighted average of the minimums of the energy requirements ranges of each sex and age class, using the population size in each class as weights.

In computing the prevalence of dietary energy inadequacy in a population there has often been confusion between the concept of MDER and that of the Recommended Dietary Energy Intake, and regarding the appropriate threshold to be used to compute the probability of inadequacy. The reason why the probability of dietary energy inadequacy should be computed with reference to the MDER, and not the ADER (which, instead, can be used as an estimate of the average recommended dietary intake level for the whole population) is simply to recognize the fact that in any population there exists a certain range of normal variability in requirements; using the ADER as a threshold would greatly overestimate undernourishment as it would count also the proportion of the healthy population that consumes less than average, simply because of having less than average requirements. When needed, the ADER, or the average Recommended Dietary Energy Intake level in a population must be used instead to compute the dietary energy gap.

# Treatment of missing values:

- At country level:

When no data on food consumption is available from a recent household survey, the model-based estimate of the PoU is informed by an estimate of DEC from Food Balance Sheets, an indirect estimate of CV based on information on the country's GDP, Gini coefficient of Income, an index of the relative price of food, or other indicators of development such as country's Under 5 Mortality Rate, and an estimate of the MDER based on the UN Population Division's World Population Prospects data.

See the section on method of computation for details.

- At regional and global levels:

Missing values for individual countries are implicitly imputed to be equal to the population weighted average of the estimated values of the countries present in the same region.

# Regional aggregates:

Regional and global aggregates of the PoU are computed as:

PoU_REG = (_i PoU_i × N_i) / (_i N_i)

where PoU_i are the values of PoU estimated for all countries in the regions for which available data allow to compute a reliable estimate, and N_i the corresponding population size.

# Sources of discrepancies:

Many countries have produced and reported on estimates of the Prevalence of Undernourishment, including in their national MDG Reports, but almost invariably using a different methodology than the one developed by FAO, which makes national figures not comparable to those reported by FAO for global monitoring.

The most common approach used in preparing national reports has been to calculate the percentage of households for which the average per capita daily dietary energy consumption is found to be below thresholds based on daily Recommended Dietary Intake, usually set at 2,100.00 kcal, based on household survey data. In some cases, also lower thresholds of around 1,400.00 kcal have been used, probably as a reaction to the fact that percentages of households reporting average daily consumption of less than 2,100.00 kcal per capita were implausibly high estimates of the prevalence of undernourishment.

Almost without exception, no consideration related to the presence of excess variability in the dietary energy consumption data is made, and the reports reveal limited or no progress in the reduction of PoU over time.

As discussed in the section on the method of computation, the results obtained through these alternative methods are highly unreliable and almost certainly biased toward overestimation. It is therefore advisable that a concerted effort is made to advocate for use of the FAO methods also in preparation of national reports. FAO stands ready to provide all necessary technical support.

# Methods and guidance available to countries for the compilation of the data at the national level:

The main three sources of data at national level are:

1. Official reports on the production, trade and utilization of the major food crop and livestock productions.
2. Household survey data on food consumption
3. Demographic characteristics of the national population

Data sources for agricultural production are usually national surveys that are conducted by the Ministry of Agricultural/Livestock and/or the National Statistical Office. The surveys are usually annual, and in the absence of direct measurements, use information on areas/animal numbers and crop yields/carcass weights to calculate crop or livestock product quantities. Agricultural censuses, which FAO recommends conducting every ten years, may complement these surveys by providing more updated measured data on crops and livestock, and thus enable more precise projections/revisions.

The data source for agricultural and food trade is almost exclusively the national customs office (with few exceptions where data may be obtained from the Central Bank). Countries often prepare these trade reports following international standard formats (commodity/country classifications, units of measurement, trading partner detail). While such trade data may be considered quite reliable, being the result of direct measurement/reporting by/to the customs office, issues of unreported border trade (and animal movement), misclassification of commodities, confidentiality, time-lag, to name a few, may necessitate some data analysis and validation (often by referring to ‘ mirror’ trade statistics to cross-check quantities and values).

Data on the utilization of primary and processed crops and livestock may be obtained through specialized surveys (supplemented by research) through the national agri-food industry system.

Utilizations of interest here are those quantities destined for, among others, animal feed, for industrial uses (e.g. biofuel production), for national/enterprise/farm stocks, for seed (sowing for the successive agricultural cycle) – to enable as accurate an assessment as possible of the quantities destined/available for potential human consumption.

These datasets (production, trade and utilizations), once cross-checked and validated, form the basis for the compilation of the Food Balance Sheets (FBS). The FBS are an accounting framework whereby supply (production + imports + stock withdrawals) should equal utilization (export + food processing + feed + seed + industrial use, etc.). It should be noted that, within the FBS framework, post-harvest/slaughter losses (up to the retail level) are considered as utilization, and thus a component in the balancing of the FBS. The FBS framework provides a snapshot of the agricultural supply situation at the national level, and allows for a cross-referenced structure whereby data, official or estimated/imputed, may be further analyzed and validated (e.g. animal numbers may result as being under-reported/estimated). The main result of the compilation of the FBS is the calculation of the Dietary Energy Supply (DES) in kilocalories per person (based on population figures) in a given year (quantities resulting as available for human consumption are converted into their caloric equivalents by using appropriate nutritive conversion factors by commodity). The DES, in the absence of direct consumption data from household surveys, is one of the key components in the calculation of the Prevalence of Undernourishment (PoU). FAO is presently embarking on a more focused program of providing FBS capacity to countries, including an updated compilation tool.

FAO obtains crop/livestock primary/processed production data, and principal utilization thereof, through country-tailored questionnaires that are dispatched to all countries annually. Official country trade statistics are obtained annually through bulk downloads of the United Nations trade database (countries are expected to report to UNSD annually). In some cases, when available, national FBS data are also used. These datasets are then validated and form inputs in the country FBS which FAO compiles. It should be noted that when data are not officially reported/available (as is frequently the case with commodity utilization data), and hence it is necessary to resort to imputations to fill the data gaps.

The new FBS Guidelines for national compilation (completed recently in collaboration with the Global Strategy) and new compilation tool (R-based ‘shiny’ application).

***Detail on FBS methodology:*** http://www.fao.org/economic/ess/fbs/ess-fbs02/en/.

The FBS Handbook shown here should not be confused with the recently completed FBS Guidelines. The Handbook is of a more technical nature and explains the methodology followed by FAO in compiling country FBS. The Guidelines on the other hand, while based on the Handbook, provide countries with a more revised and practical guidance and recommendations for compilation at the national level.

***Some FBS background text also available on FAOSTAT:*** http://www.fao.org/faostat/en/#data/FBS.

## Quality assurance:

FBS capacity development programme in cooperation with the Global Strategy (more details may be provided if required); capacity development in cooperation with the ESS Food Security team as a PoU/FBS package (financed by projects); and direct FBS capacity development based on specific direct country requests.

# Data sources

## Description:

The ideal source of data to estimate the PoU would be a carefully designed and skillfully conducted individual dietary intake survey, in which actual daily food consumption, together with heights and weights for each surveyed individual, are repeatedly measured on a sample that is representative of the target population. Due to their cost, however, such surveys are rare.

In principle, a well-designed household survey that collects information on food acquisitions might be sufficient to inform a reliable estimate of the Prevalence of Undernourishment in a population, at a reasonable cost and with the necessary periodicity to inform the SDG monitoring process, provided that:

1. All sources of food consumption for all members of the households are properly accounted for, including, in particular, food that is consumed away from home;
2. Sufficient information is available to convert the data on food consumption or on food expenditures into their contribution to dietary energy intake;
3. The proper methods to compute the PoU are used, to control for excess variability in the estimated levels of habitual food consumption across households, allowing for the presence on normal variability in the distribution of food consumption across individuals, induced by the differences in energy requirements of the members of the population.

Examples of surveys that could be considered for this purpose include surveys conducted to compute economic statistics and conduct poverty assessments, such as Household Income and Expenditure Surveys, Household Budget Surveys and Living Standard Measurement Surveys.

In practice, however, it is often impossible, and not advisable, to rely only on data collected through a household survey, as the information needed to estimate the four parameters of the PoU model is either missing or imprecise.

Household Survey food consumption data often must be integrated by

1. Data on the demographic structure of the population of interest by sex and age;
2. Data or information on the median height of individuals in each sex and age class;
3. Data on the distribution of physical activity levels in the population;
4. Alternative data on the total amounts of food available for human consumption, to correct for biases in the estimate of the national average daily dietary energy consumption in the population.

Data for a), b) and c) could be available through the same multipurpose survey that provides food consumption data, but are more likely available from other sources, such as National Demographic and Health Surveys (for a) and b) ) and Time Use Surveys (for c) ).

Correcting for bias in the estimated average daily dietary energy consumption might need to be based on alternative sources on food consumption, such as aggregate food supply and utilization accounts and food balance sheets.

To inform its estimate of PoU at national, regional and global level, in addition to all household surveys for which it is possible to obtain micro data on food consumption, FAO relies on:

1. UN Population Division’s World Population Prospects (https://esa.un.org/unpd/wpp/Download/Standard/Population/), which provide updated estimates of the structures of the national population by sex and age every two years for most countries in the world;
2. FAO Food Balance Sheets (http://faostat3.fao.org/download/FB/*/E), which provides updated estimates of the national availability of food every year for most countries in the world.

Micro data from household surveys that collect food consumption data are sourced by FAO directly through the National Statistical Agencies’ websites, or through specific bilateral agreements.

## Collection process:

Official information on food commodity production, trade and utilization used by FAO to compile Food Balance Sheets is provided mainly by Statistical Units of the Ministry of Agriculture. FAO sends out a data collection questionnaire every year to an identified focal point.

Microdata of household surveys are generally owned and provided by National Statistical Agencies. When available, data is sourced by FAO directly through the NSA' website. In several cases, when microdata is not available in the public domain, bilateral agreements have been signed, usually in the contexts of technical assistance and capacity development programs.

Data on the population size and structure for all monitored countries is obtained from the UN Population Division's World Population Prospects.

# Data Availability

## Description:

Since 2017 FAO has reported separate estimates of PoU for 170 countries, distributed as follows:

World 170

Africa 45

Northern Africa 5

Sub-Saharan Africa 40

Eastern Africa 12

Middle Africa 7

Southern Africa 5

Western Africa 16

Asia 42

Central Asia 5

Eastern Asia 5

Southern Asia 8

South-Eastern Asia 10

Western Asia 14

Latin America and the Caribbean 32

Caribbean 12

Latin America 20

Central America 8

South America 12

Oceania 9

Australia and New Zealand 2

Oceania excluding Australia and New Zealand 7

Northern America and Europe 42

Northern America 3

Europe 39

Eastern Europe 10

Northern Europe 10

Southern Europe 12

Western Europe 7

While country-level estimates are presented as three-year averages, regional and global estimates are yearly estimates.

## Time series:

2000 - current

## Disaggregation:

Due to reliance on national Food Balance Sheets data to estimate mean caloric consumption levels in the population, the global monitoring of MDG Target 1C and of the WFS target has been based on estimates of the PoU at national level only.

In principle, the indicator can be computed for any specific population group, provided sufficient accurate information exists to characterize the model's parameters for that specific group, that is, if data on the group's food consumption levels, age/gender structure and – possibly – physical activity levels, exist.

The scope for disaggregation thus crucially depends on the availability of surveys designed to be representative at the level of sub national population groups. Given prevailing practice in the design of national household surveys, sufficient reliable information is seldom available for disaggregation beyond the level of macro area of residence (urban-rural) and of the main Provinces/Divisions in a country. To the extent that most of the used surveys are designed to accurately capture the distribution of income, inference can be drawn on the PoU in different income classes of the population. Gender disaggregation is limited by the possibility to identify and group households by gender-related information (such as sex of the head of the household, or male/female ratio).

# Calendar

## Data collection:

Continuing

### Data release:

September 2019

# Data providers

Given the various data sources, national data providers vary. Official information on food commodity production, trade and utilization used by FAO to compile Food Balance Sheets is provided mainly by Statistical Units of the Ministry of Agriculture. Microdata of household surveys are generally owned and provided by National Statistical Agencies.

# Data compilers

Food and Agriculture Organization of the United Nations, Statistics Division, Food Security and Nutrition Statistics Team

# References

### URL:

http://www.fao.org/economic/ess/ess-fs/en/

**References:**

http://www.fao.org/docrep/012/w0931e/w0931e16.pdf

http://www.fao.org/docrep/005/Y4249E/y4249e06.htm#bm06

http://www.fao.org/3/a-i4060e.pdf

http://www.fao.org/3/a-i4046e.pdf

# Related indicators as of February 2020

2.2, 2.2.1

### Comments:

Links with Target 2.2, to the extent that hunger is the extreme form of malnutrition, and Target 2.2 cannot be considered achieved unless Target 2.1 is achieved too.