

## ***0.a. Goal***

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

## ***0.b. Target***

Target 2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

## ***0.c. Indicator***

2.3.1: Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size

## ***0.e. Metadata update***

November 2020

## ***1.a. Organisation***

National Institute of Statistics (NIS), Ministry of Planning

## ***1.b. Contact person(s)***

Chan Sam Ath (Mr)

## ***1.c. Contact organisation unit***

Department of Sub-national Statistics, NIS

## ***1.d. Contact person function***

Director

## ***1.e. Contact phone***

+855 12 909 171

## ***1.f. Contact mail***

No. 386 Street 360, Sangkat Boeung Kengkang I, Khan Chamkarmon, Phnom Penh, Cambodia

## 1.g. Contact email

samarth@gmail.com

## 2.a. Definition and concepts

Volume of agricultural production of small-scale food producer in crop, livestock, fisheries, and forestry activities per number of days.

The indicator is computed as a *ratio of annual output to the number of working days in one year*.

FAO proposes to define small-scale food producers as producers who:

- operate an amount of land falling in the first two quintiles (the bottom 40 percent) of the cumulative distribution of land size at national level (measured in hectares); and
- operate a number of livestock falling in the first two quintiles (the bottom 40 percent) of the cumulative distribution of the number of livestock per production unit at national level (measured in Tropical Livestock Units – TLUs); and
- obtain an annual economic revenue from agricultural activities falling in the first two quintiles (the bottom 40 percent) of the cumulative distribution of economic revenues from agricultural activities per production unit at national level (measured in Purchasing Power Parity Dollars) not exceeding 34,387 Purchasing Power Parity Dollars.

### Concepts:

- The following concepts are adopted for the computation of indicators 2.3.1:
- Small-scale food producers are defined as those falling in the intersection of the bottom 40 percent of the cumulative distribution of land, livestock and revenues.
- Tropical Livestock Units are a conversion scale used for standardization and measurement of the number of livestock heads. One TLU is the metabolic weight equivalent of one cattle in North America. The complete list of conversion factors can be found in the Guidelines for the preparation of livestock sector Reviews

The concept of productivity is standardized by OECD's Manual for Measuring Productivity. This defines productivity as "a ratio of a volume measure of outputs to a volume measure of input use." More information on possible definitions can be found in "Productivity and Efficiency Measurement in Agriculture: Literature Review and Gaps Analysis".

## 2.b. Unit of measure

Ratio

## 3.a. Data sources

Cambodia Inter-Censal Agriculture Survey 2019 (CIAS)

## 3.b. Data collection method

Cambodia Inter-Censal Agriculture Survey (CIAS) was conducted by the NIS first time in 2019. The CIAS 2019 reveals that 75 percent of the total holdings of the country are small-scale. In fact, the labour productivity of the small holders is equal to 13,182 Riels or 9.02 PPP (constant 2011 international USD) per labour day, against 78,554 Riel or 53.8 PPP per labour-day of the non-small holders. This not surprising, since the CIAS includes the non-household sector holdings while the EAA covers only the farms operating in the household sector.

All the small-scale holders operate less than 3.2 hectares of land; they all have a Tropical Livestock Units (TLU) lower than 2.85 and their volume of production is smaller than 34,380 PPP.

### ***3.c. Data collection calendar***

The next round survey (annual ): December, 2020 and Quater4 of 2021

### ***3.d. Data release calendar***

One year after the reference period of the survey

### ***3.e. Data providers***

National Institute of Statistics

### ***3.f. Data compilers***

National Institute of Statistics

### ***3.g. Institutional mandate***

By virtue of the article 12 of Statistics Law, NIS in is responsible for:

- Collecting, processing, compiling, analyzing, publishing and disseminating basic data by conducting censuses and surveys, and utilizing administrative data sources;
- Compiling national accounts and price indexes, as well as economic, environment and socio-demographic indicators;
- Coordination with line ministries as data producers as mandated by the Statistics Law; and
- Functioning as the central repository of SDG indicators.

## ***4.a. Rationale***

The 2030 Sustainable Development Agenda has emphasized the importance of enhancing productivity of small-scale food producers, as these producers play an important role in the global production of food. The indicator monitors progress in this area, where the target is to double productivity by year 2030.

The enhancement of labour productivity in small-scale production units also has implications on poverty reduction, as small-scale food producers are often poor, and are frequently found to be close to subsistence conditions.

## 4.c. Method of computation

The SDG Indicator 2.3.1 measures the agricultural labour productivity, i.e. the agricultural volume of production per labour input.

It is expressed by the following formula:



The screenshot shows a Microsoft Word document titled "Document2 - Microsoft Word (Product Activation Failed)". The formula for SDG Indicator 2.3.1 is displayed in the center of the page, enclosed in a dashed rectangular box. The formula is:

$$I_{3.2.1} = \frac{\sum_{i=1}^N \sum_{k=1}^K \text{Volume of production}_{ik}}{\sum_{i=1}^N \sum_{k=1}^K \text{Labour input}_{ik}}$$

The formula is centered and uses a serif font. The numerator is the sum of the volume of production for all agricultural activities (i) and all smallholders (k), and the denominator is the sum of the labour input for all agricultural activities (i) and all smallholders (k). The document interface includes the ribbon with tabs for File, Home, Insert, Page Layout, References, Mailings, Review, and View. The status bar at the bottom indicates "Page: 1 of 1", "Words: 5", and "English (U.S.)".

where indicates one of the agricultural activities (crop land farming, fishing capture, aquaculture, livestock farming, forestry activities etc.) conducted by the agricultural holding among the smallholders identified by the intersection between the producers in the bottom 40% of the distribution of farm physical size (in terms of land size and number of livestock raised) and the producers in the bottom 40% of the distribution of the production volume of the above mentioned agricultural activities.

## 4.d. Validation

The CIAS 2019 reveals that 75 percent of the total holdings of the country are small-scale. In fact, the labour productivity of the small holders is equal to 13,182 Riels or 9.02 PPP (constant 2011 international USD) per labour day, against 78,554 Riel or 53.8 PPP per labour-day of the non-small holders. This not surprising, since the CIAS includes the non-household sector holdings while the EAA covers only the farms operating in the household sector.

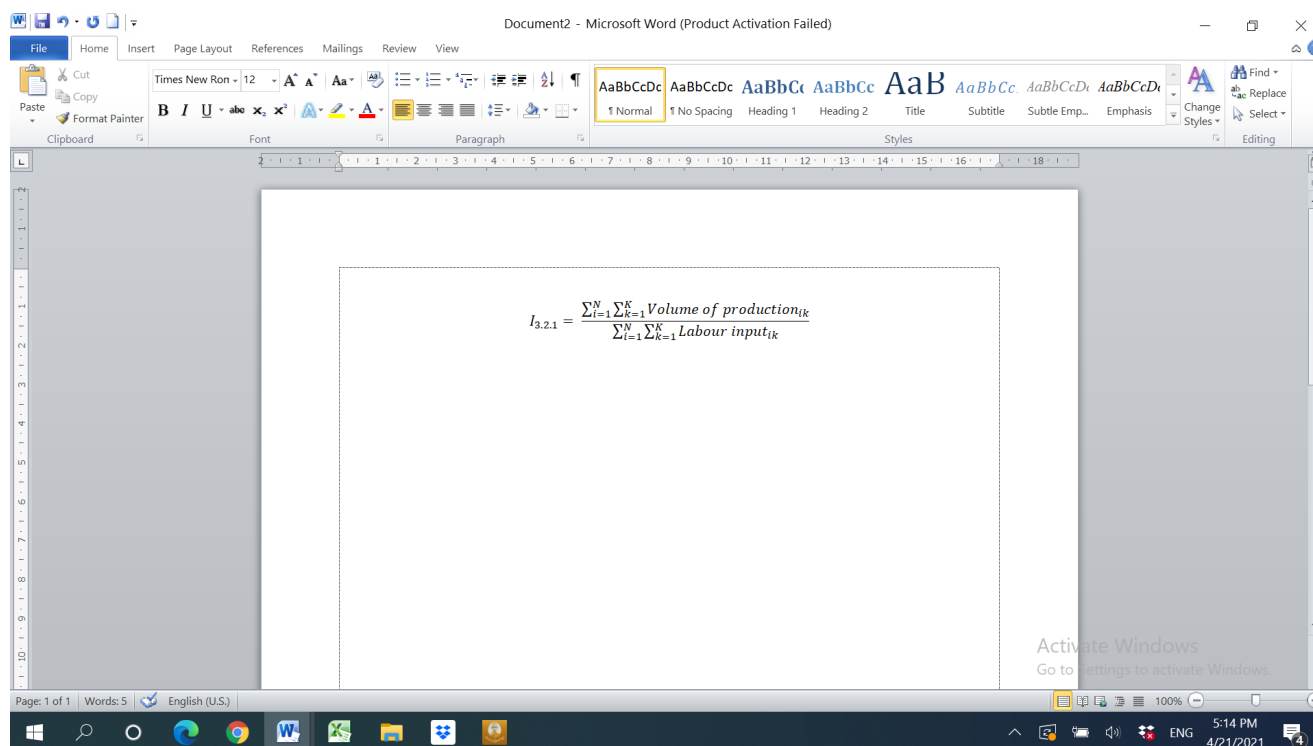
All the small-scale holders operate less than 3.2 hectares of land; they all have a Tropical Livestock Units (TLU) lower than 2.85 and their volume of production is smaller than 34,380 PPP.

## 4.h. Methods and guidance available to countries for the compilation of the data at the national level

### Methodology for the computation of Indicator 2.3.1

The SDG Indicator 2.3.1 measures the agricultural labour productivity, i.e. the agricultural volume of production per labour input.

It is expressed by the following formula:



The screenshot shows a Microsoft Word document titled "Document2 - Microsoft Word (Product Activation Failed)". The formula for SDG Indicator 2.3.1 is displayed in the center of the page, enclosed in a dashed rectangular box. The formula is:

$$I_{3.2.1} = \frac{\sum_{i=1}^N \sum_{k=1}^K \text{Volume of production}_{ik}}{\sum_{i=1}^N \sum_{k=1}^K \text{Labour input}_{ik}}$$

The document interface includes the ribbon (File, Home, Insert, Page Layout, References, Mailings, Review, View), the Font section (Times New Roman, size 12), the Paragraph section, and the Styles section (Normal, No Spacing, Heading 1, Heading 2, Title, Subtitle, Subtle Emphasis, Emphasis). The status bar at the bottom indicates "Page: 1 of 1", "Words: 5", "English (U.S.)", and the date "4/21/2021".

where indicates one of the agricultural activities (crop land farming, fishing capture, aquaculture, livestock farming, forestry activities etc.) conducted by the agricultural holding among the smallholders identified by the intersection between the producers in the bottom 40% of the distribution of farm physical size (in terms of land size and number of livestock raised) and the producers in the bottom 40% of the distribution of the production volume of the above mentioned agricultural activities.

### Variables considered for Cambodia

In order to compute the indicator for Cambodia, data collected for the Cambodia Inter-censal Agricultural Survey (CIAS) 2019 have been used. This survey considers a sample of 15,984 household agricultural holdings and a census of 189 large commercial farms.

The agricultural activities considered to calculate the volume of production are:

- crops cultivation
- livestock and poultry farming
- aquaculture
- fishing capture

Forestry activities have been excluded because the selling price of forestry products have not been collected during the survey.

As labour input it was chosen a 8-hours working day conducted by all the type of workers, i.e. household members, external workers, occasional workers.

### Volume of production

#### Crops cultivation

The volume of production generated by crops cultivation was calculated multiplying the quantity produced in Kg of the main 20 crops by the selling price in PPP (purchasing power parity), without distinction between production for consumption and production for sale. If the selling price was not available because the holding used the production only for consumption, it was imputed using the average selling price between the prices of the same crop product cultivated and sold by the holdings within the same province. CIAS collected production data only on the main 20 crops: aromatic, non-aromatic and sticky paddy, cassava, maize, cashew, black pepper, banana, mango, pineapple, coconut, orange, lime/lemon, cucumber, custard apple, soybean, sugarcane, sesame, rubber, mungbean. Hence, the volume of production for the indicator includes the production generated by these 20 crops only.

### Livestock and poultry farming

In order to calculate the volume of production generated by livestock and poultry, the selling price of the animal in PPP has been multiplied by the following quantity:

Number of animals sold + number of animals donated as gift + number of animals slaughtered

The volume of eggs production was summed up to this quantity.

If the selling price of the animal or of the eggs was not available it was imputed using the average of the selling prices used by the other holdings within the province when possible, or within the country.

For poultry only the selling price per kilo was collected. In order to find the selling price per animal it was assumed that a chicken/natural chicken weighs 1.4 kg, a duck/natural duck weighs 2.7 kg, a geese weighs 3.5 kg, a swallow weighs 0.02 kg, a quail weighs 0.12 kg and a turkey weighs 10kg.

### Fishing capture and aquaculture

The volume of production for aquaculture and fishing capture was calculated multiplying the selling price per kg of the species in PPP by the catch of the species in kg. If the selling price of the species was not available it was imputed using the average of the selling prices used by the other holdings within the province when possible, or within the country.

The final volume of production for each holding was computed summing up the volumes of production generated respectively by crops cultivation activity, livestock and poultry farming, fishing capture and aquaculture. The numerator of the indicator was obtained summing up the volumes of production over all the small holders that were identified as following:

1. Producers that were in the bottom 40% of the distribution of farm physical size in terms of hectares (crops area planted + area addressed to aquaculture) and tropical livestock units (TLU) according to which a cow in Cambodia corresponds to 0.65 TLU, a buffalo to 0.7 TLU, a horse to 0.65 TLU, a pig to 0.25 TLU, a goat to 0.10 TLU and a chicken to 0.01 TLU.

AND

2. Producers in the bottom 40% of the distribution of the production volume calculated as described above, considering the volume of production generated by crops cultivation activity, livestock and poultry farming, fishing capture and aquaculture.

Given these criteria as per methodology of Indicator 2.3.1, the small-holders producers have been calculated to be 69% of the total producer with a total volume of production equal to 4,053,743 PPP and total working days equal to 429,928,520.

Therefore the Indicator 2.3.1 is equal to 9.42 PPP per labour day.

The large holders are instead calculated to be 31%, with the assumption that all the large commercial farms fall in this group. The total volume of production in this case is 20,847,749,238 PPP and the

total labour days are equal to 357,522,030. Therefore the Indicator for large holders is equal to 58.31 PPP per labour day.

## ***5. Data availability and disaggregation***

CIAS 2019 is the first time survey in Cambodia. Data available only in 2019 and the next round survey will be started in 2020 onwards, which the annual survey basis.

The indicator has been disaggregated by sex, type of enterprise and by community of reference.

## ***7. References and Documentation***

Cambodia Inter-Censual Agriculture Survey Reports: <https://www.nis.gov.kh/index.php/km/14-cses/12-cambodia-socio-economic-survey-reports>