



Food and Agriculture Organization
of the United Nations

ISSN 2709-006X [Print]
ISSN 2709-0078 [Online]



FAOSTAT ANALYTICAL BRIEF 22

Highlights from 2014–2018 food balances statistics

HIGHLIGHTS

- Global food availability went up 250 million tonnes, or 5.1 percent, between 2014 and 2018, to 5.1 billion tonnes.
- The global dietary energy supply reached 2 927 kcal/cap/day in 2018, up 1.2 percent compared with 2014.
- At the global level, cereals, together with roots, tubers and pulses, accounted for the highest share of total food supply in 2018, both in quantities available (34 percent) and dietary energy (52 percent).
- Cereals are the top contributor to dietary energy supply in all regions, representing 50 percent of the total in Africa and Asia, 30 percent in the Americas and Europe and 24 percent in Oceania.
- Dietary energy supply is the lowest in the Central African Republic (1 786 kcal/cap/day), followed by Zimbabwe (1 908 kcal/cap/day) and Madagascar (1 938 kcal/cap/day).

HIGHLIGHTS FROM 2010–2018 FOOD BALANCES STATISTICS

BACKGROUND

The Statistics Division of the Food and Agriculture Organization of the United Nations (FAO) compiles Food Balance Sheet (FBS) statistics for 181 countries. For the first time since 2011, the Supply And Utilization Account (SUA) data are also published on FAOSTAT. This analytical brief provides the main highlights from the data.

The application of a new FBS methodology for the 2014–2018 time period led to breaks in time series between 2013 and 2014 that need to be taken into account when analysing food security trends. To understand whether the changes in the longer data series are due to the different methodology or the underlying data, FAO is currently performing a revision of FBS time series from 2013 up to 2000, using a consistent methodology. As a result, this brief focuses on the 2014–2018 period only.

A country's Food Balance Sheet presents a comprehensive picture of the pattern of food supply during a specified reference period. The Food Balance Sheet shows for each food item – i.e. each primary commodity and a number of processed commodities potentially available for human consumption – the sources of supply and utilizations through three different components:

- Domestic food supply of the food commodities in terms of **production, imports, and stock changes**;
- Domestic food utilization which includes exports, feed, loss, seed, processed quantities, tourism consumption and industrial use; and

- Per capita **food supply**, representing per capita supply of all food commodities in terms of kilocalories, protein and fat content.

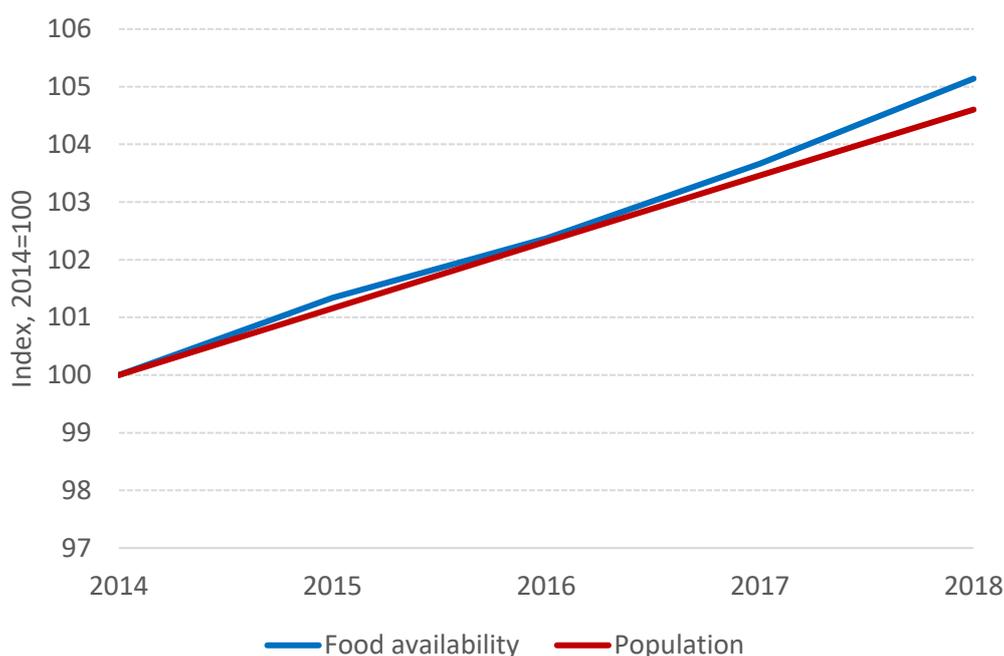
Data on per capita food supply are an important element for projecting food demand, together with other elements such as income elasticity coefficients, projections of private consumption expenditure and population.

Over the last 20 years, a number of countries have taken steps to improve food security through the application of trade regulations, subsidies to agriculture, market interventions. Food Balance Sheets can be a good tool for policymakers to understand food supply patterns in a given country and how to influence these patterns.

GLOBAL HIGHLIGHTS

Global food availability went up 250 million tonnes, or 5.1 percent, between 2014 and 2018, to 5.1 billion tonnes. This is in line with the growth in population, which increased from 7.3 billion people in 2014 to 7.6 billion in 2018. A slight decoupling can be observed in 2018 as food availability grew faster than population (Figure 1).

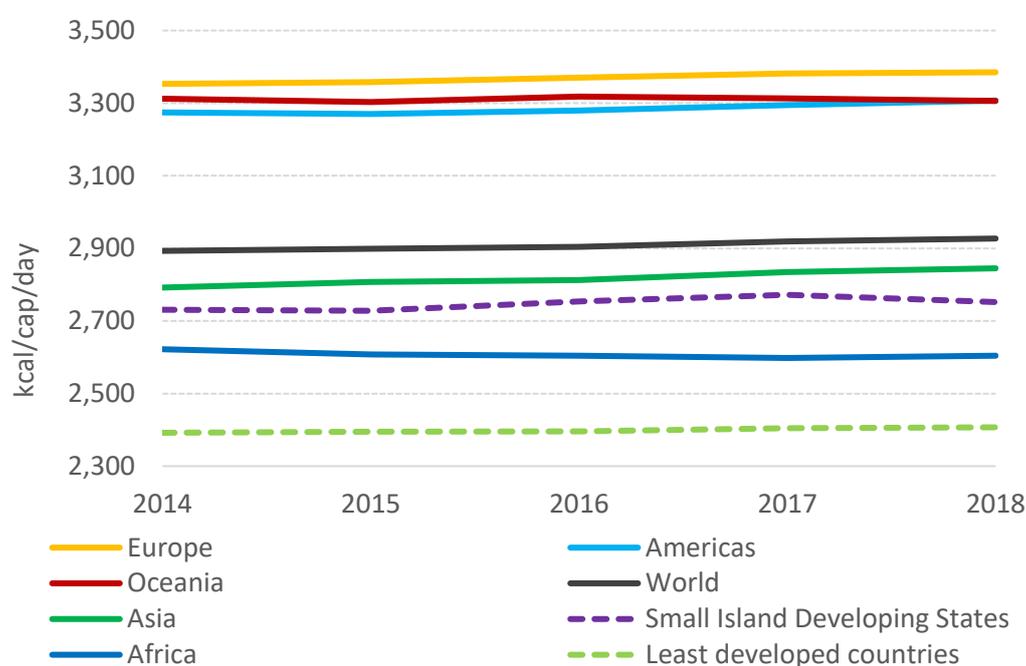
Figure 1. Global food availability and population growth, 2014–2018



Source: FAOSTAT, 2020.

While world food availability and population grew at roughly the same pace, the average nutritional content of this food, expressed in kilocalories per person per day, shows a slowly but steadily increasing trend (Figure 2). The global dietary energy supply (DES) reached 2 927 kcal/cap/day in 2018, up 1.2 percent compared with 2014. Europe, the Americas and Oceania each have an average DES above 3 300 kcal/cap/day. It grew the fastest in Asia (by 1.9 percent) between 2014 and 2018, while it declined in Africa over the same period by 0.7 percent. Looking at special regional groupings, the DES in Small Island Developing States (SIDS) went up 0.8 percent between 2014 and 2018 (slower than the world average) to 2 752 kcal/cap/day, while the DES in least developed countries (LDCs) increased even slower, by just 0.6 percent between 2014 and 2018, to 2 407 kcal/cap/day – a level that is 18 percent below the world average. Population growth and socio-economic development are the main driving factors of the rising demand for food and agricultural commodities.

Figure 2. Average dietary energy supply by region, 2014–2018



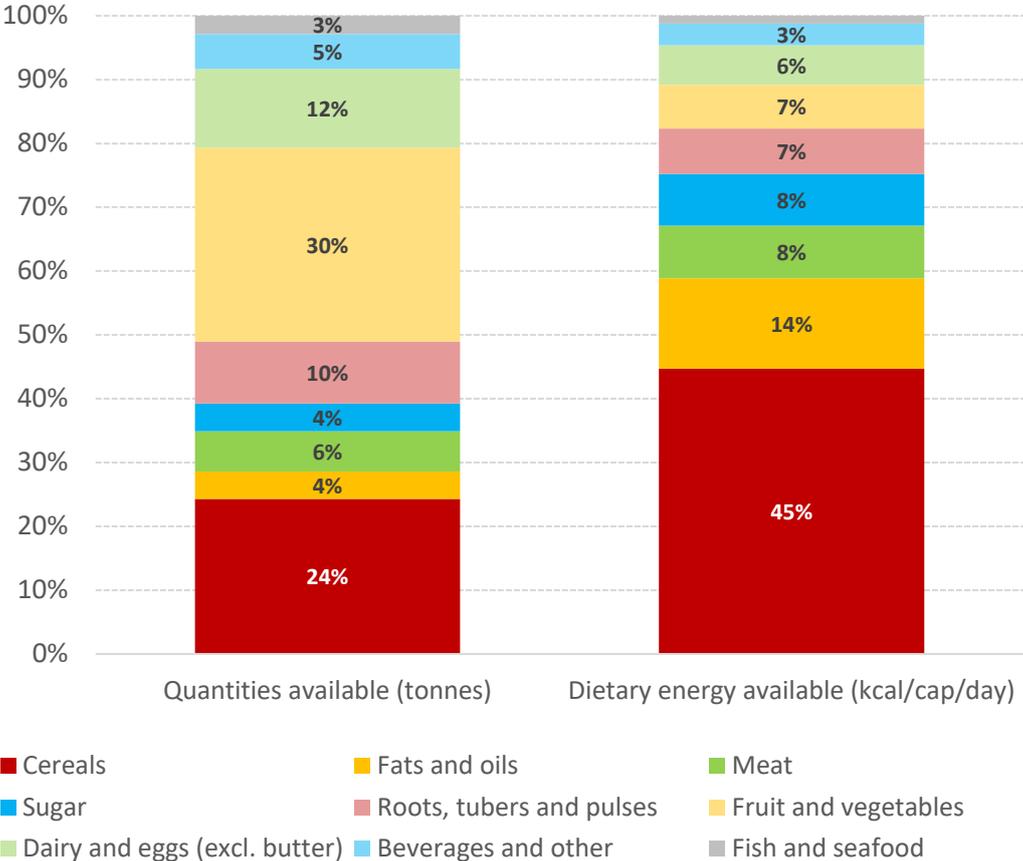
Source: FAOSTAT, 2020.

The average DES is the basis for the calculation of the Prevalence of Undernourishment (PoU), an indicator providing the share of undernourished people in total population. However, increased food availability does not automatically translate into reduced hunger. While the average global DES increased slightly since 2014, the PoU increased from 8.6 percent in 2014 to 8.9 percent in 2018, and the global number of undernourished people reached an estimated 678 million in 2018, up from 629 million in 2014 (FAO, IFAD, UNICEF, WFP & WHO, 2020). This is because the calculation of the average DES does not consider different geographical distributions in terms of population, income inequalities, and social indicators.

At the global level, cereals, together with roots, tubers and pulses, account for the highest share of total food supply, both in quantities available (34 percent) and dietary energy (52 percent). The contribution of fruit and vegetables represent 30 percent of the total quantities available, but only 7 percent of the

total DES due to their low caloric content. On the other hand, sugar, and fats and oils each represent 4 percent of the quantities available but 8 and 14 percent respectively of the DES (Figure 3).

Figure 3. Global food supply by commodity group, 2018



Source: FAOSTAT, 2020.

Food Balance Sheets also provide insights on the use of commodities to feed livestock and poultry. In the new methodology, a feed model generates feed requirements based on the actual animal numbers, species and typology of livestock farming (intensive vs pasture grazing). The total feed requirements are then allocated to a ranked list of feed commodities in each country, according to their availability.

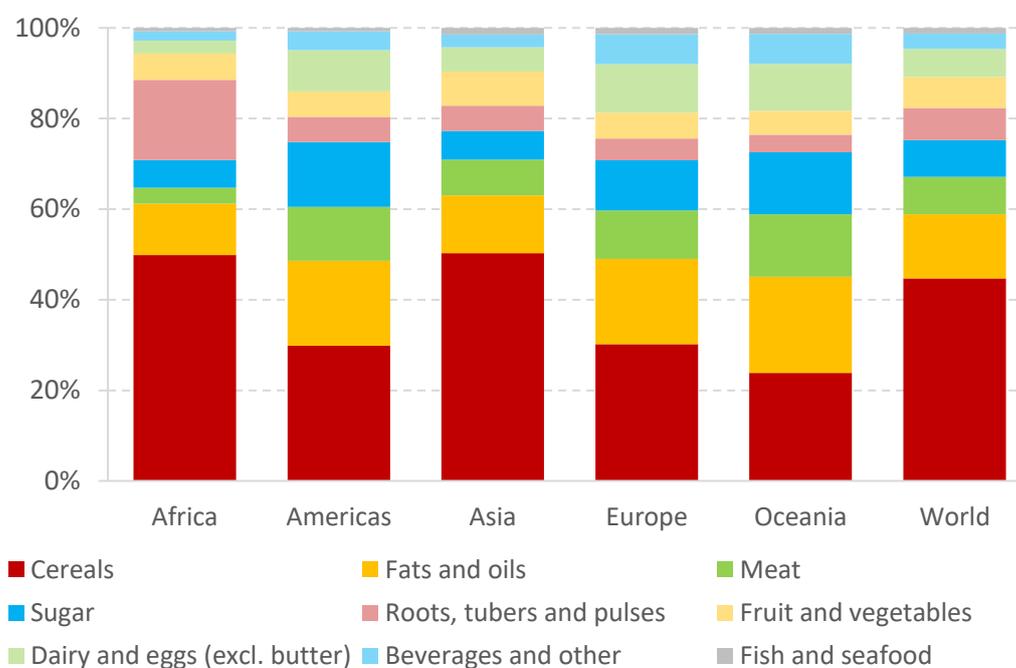
REGIONAL AND COUNTRY-LEVEL HIGHLIGHTS

The composition of the DES varies significantly between regions, just as the level of food supply shown on Figure 2. Cereals have the largest contribution in all regions, representing 50 percent of the total in Africa and Asia, 30 percent in the Americas and Europe and 24 percent in Oceania. Fats and oils are the second food group in all regions but Africa. Developed countries usually have a lower share of cereals and a higher share of meat in DES compared to developing countries. Notable features include the high percentage of roots and tubers in Africa (18 percent) combined with a low share of meat and dairy and eggs compared to the rest of the world; the high share of sugar and fats and oils in the

Americas and Oceania; the high share of dairy and eggs in Europe and the high percentage of fruit in Asia (Figure 4). In the case of Africa, the high share of starchy roots (such as potatoes, sweet potatoes and cassava) depends primarily on domestic supply and access to food. As for the Americas, the high share of sugar is linked to the importance of the region in sugar crops production – Brazil being the top sugar cane producer and the United States of America the fourth largest producer of sugar beet in 2019 – as well as food consumption patterns (with six out of the top ten countries for per capita sugar intake located in Central America and the Caribbean subregion: Barbados, Cuba, Trinidad and Tobago, Guatemala, Jamaica and Costa Rica).

When few categories of staple food commodities account for a significant share of DES, a decrease in the availability of these commodities can affect food security, especially in countries with low DES. Food Balance Sheets can be an important instrument to assess such dependence on some products, and how economic shocks such as price fluctuations may affect countries relying on primary commodity exports or imports.

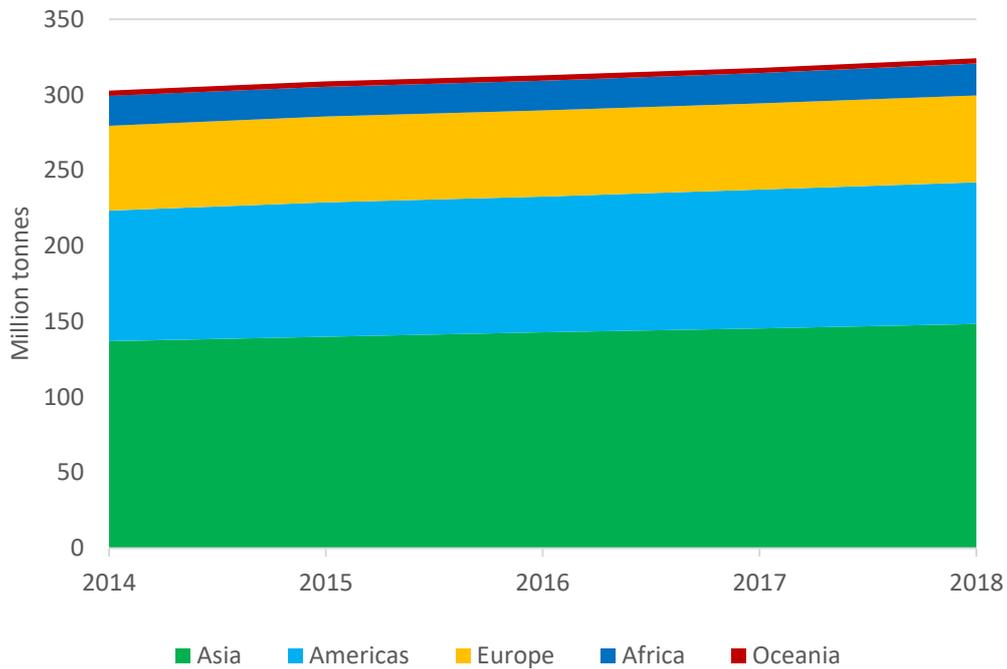
Figure 4. Dietary energy supply by commodity group and region, 2018



Source: FAOSTAT, 2020.

The domestic supply of meat, for which food availability variable is a good proxy, increased substantially at the global level, going up 7 percent from 303 million tonnes in 2014 to 323 million tonnes in 2018. The global increase was principally driven by Asia and the Americas, where meat supply increased by 8 percent; the main contributors are China, the United States of America, and Brazil, which recorded the largest increases in absolute terms of 6.5, 3.7 and 1.2 million tonnes respectively.

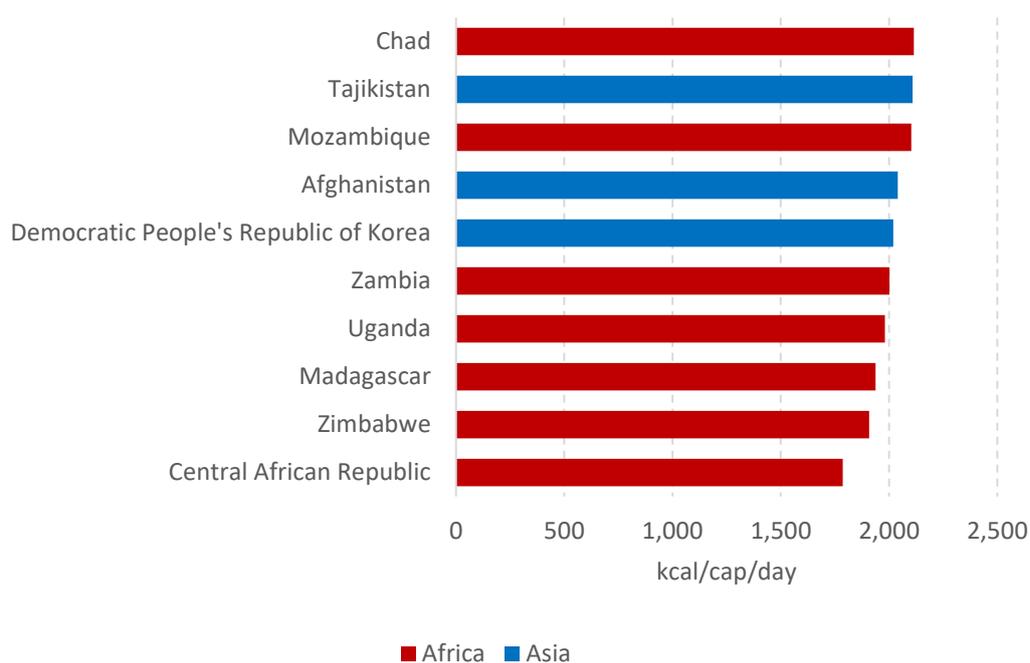
Figure 5. Meat supply by region



Source: FAOSTAT, 2020.

In line with the findings of Figure 2, the countries with the lowest food availability are located in Africa and Asia. These countries also have high levels of food insecurity and malnutrition. The DES is the lowest in the Central African Republic (1 786 kcal/cap/day), followed by Zimbabwe (1 908 kcal/cap/day) and Madagascar (1 938 kcal/cap/day). The first Asian country is the Democratic People's Republic of Korea (6th lowest), with 2 019 kcal/cap/day. The first countries in regions not represented on Figure 6 are the Bolivarian Republic of Venezuela (11th lowest, with 2 129 kcal/cap/day) for the Americas, the Republic of Moldova (26th lowest, with 2 383 kcal/cap/day) for Europe, and the Solomon Islands (31st lowest, with 2 415 kcal/cap/day) for Oceania.

Figure 6. Average dietary energy supply, bottom countries (2018)



Source: FAOSTAT, 2020.

EXPLANATORY NOTES

The FAOSTAT Food Balance Sheets data domain disseminates statistics compiled using the new FAO methodology from 2014 to 2018 for 175 countries. Data using the old FBS methodology are available for 1961–2013.

Breaks in time series between 2013 and 2014 are mainly due to the change in the methodology used, which can be summarised as follows:

- Food: a new model estimates food in year t as a function of food in year $t-1$, changes in real GDP and changes in population. Commodity demand elasticities are used as parameters.
- Stocks: stocks are now imputed using a new module that monitors stock levels vis-a-vis the supply of that commodity – thus averting unrealistically high stock levels. Furthermore, an updated reference file has been created for potentially stockable commodities (e.g. fresh meats can be expensively stocked only in certain rich countries). Lastly, much wider use is now made of USDA stock data, and from other specialized commodity institutions (such as OilWorld).
- Feed: a new feed module now generates feed requirements based on the actual animal numbers and species, and also on the typology of livestock farming, such as intensive farming using concentrated feeds, or pasture grazing using grasses and forage. More use is being made of feed and forage imports in assessing the availability of commodity specific amounts to be destined for animal feed. Feed only commodities (e.g. cereal cakes) are exhausted first to meet

the calculated requirements before deducting further quantities from mixed food and feed commodities (e.g. maize).

- Loss: a new loss module imputes for losses across the whole value chain up to and excluding the retail level. The module uses a hierarchical linear model, where the hierarchy is based upon commodity and country groups. In addition, increased use is made of web scraping, text mining and academic/research articles and publications. Thus, the historical loss percentages in the food balances are consistently revised based on the new findings.
- Balancing mechanism: in the past, one of the components of the FBS was used as balancer. With the new methodology, the imputations for the FBS components are generated by dedicated modules. A balancing mechanism will then proportionally spread the imbalances out among all the components. The proportional balancing mechanism is based on a 3-year moving average of the share of each variable in the total utilizations. A maximum of 10 iterations is performed, and the upper and lower boundaries for the different utilizations (based on the max/min over the time series of the share) are established, which may result in an unsolved residual.
- Residual variable: the quantity of unsolved imbalance is allocated to the 'residual' component and will indicate the amounts that could not be allocated within the established criteria.

Given this, the residuals in SUA and FBS are due to four main reasons:

1. Mismatch of official data declared by countries;
2. Incompatibility between official and unofficial data;
3. Over/under estimation of utilization variables by modules; and
4. Transparency approach: the new methodology reaffirms the necessity of transparency in treating data. For this reason, the residuals represent the extent to which data can be reliable, and the statistical discrepancy among different estimation methods and sources.

REFERENCES

FAO. 2020. FAOSTAT: New Food Balances. In *fao.org*. <http://www.fao.org/faostat/en/#data/FBS>

FAO, IFAD, UNICEF, WFP & WHO. 2020. *The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets.* Rome, FAO. <http://www.fao.org/3/ca9692en/ca9692en.pdf>

This analytical brief was prepared by Giulia Piva and Salar Tayyib, with input from Olivier Lavagne d'Ortigie.

Required citation: FAO. 2021. *Key highlights from 2010–2018 food balances statistics.* FAOSTAT Analytical Brief Series No. 22. Rome.

Cover photo: ©FAO/Isak Amin

CONTACTS

Statistics Division - Economic and Social Development

E-mail: statistics@fao.org

Website: <http://www.fao.org/food-agriculture-statistics/en/>

Food and Agriculture Organization of the United Nations

Rome, Italy