



Enhanced Food Balance Sheets for Kenya

2014-2018 Results



Prepared by
Kenya National Bureau of Statistics

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AFRICAN DEVELOPMENT BANK GROUP



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Abbreviations & **Acronyms**

AfDB	African Development Bank
BMGF	Bill and Melinda Gates Foundation
CPC	Central Product Classification
DES	Dietary Energy Supply
DFID	United Kingdom's Department for International Development
DRI	Dietary Reference Intake
EU	European Union
FAO	Food and Agriculture Organisation
FAOSTAT	FAO Statistical Databases
FCL	FAO Commodity List
FBS	Food Balance Sheet
HS	Harmonised System
IDR	Import Dependency Ratio
KNBS	Kenya National Bureau of Statistics
KRA	Kenya Revenue Authority
MoALFI	Ministry of Agriculture, Livestock, Fisheries and Irrigation
NSDS	National Strategy for the Development of Statistics
PoU	Prevalence of Undernourishment
SDG	Sustainable Development Goal
SSR	Self-Sufficiency Ratio
SPARS	Strategic Plans for Agricultural and Rural Statistics
SUA	Supply Utilisation Account
TWG	Technical Working Group
UN	United Nations
UNPD	United Nations Population Division

Foreword

The need for proper planning and the achievement of set targets in keeping a country food secure has triggered the demand for reliable and timely data at various levels. The existing gaps in data need to be addressed in order to provide good quality information. Therefore, it is fundamentally important to have joint efforts to review and upgrade the existing Food Balance Sheet (FBS) system, and align it to the latest standard guidelines. This will result in an enhanced FBS with internationally comparable information, while at the same time providing a right picture of food availability in relation to food supply and utilisation requirements in the country.

The information on food situation as provided in this report is based on the following aspects: (i) domestic food supply of the food commodities in terms of production, imports, and stock changes; (ii) domestic food utilisation, which includes food, feed, seed, processing, export, and other uses; and (iii) per capita values for the supply of all food commodities (in kilograms per person per year) and the corresponding calories, protein, and fat contents.

The FBS basic information helps also to generate other useful indicators like food Import Dependency and Self-Sufficiency ratios. The food Import Dependency Ratio (IDR) shows the extent to which a country is dependent on food imports over its domestic supply. On the other hand, the food Self-Sufficiency Ratio (SSR) measures the extent to which a country can rely on the locally produced food.

This report is beneficial in many ways as it outlines the basic procedures used in compiling the Supply Utilisation Accounts (SUA) and the generation of FBS. It provides information which is useful to researchers, students of higher learning, government institutions, policy makers and the general public. The information in this report can be used to monitor targeted Sustainable Development Goals (SDGs) indicators such as Prevalence of Undernourishment (PoU) and the computation of total food loss index.

Mr. Peter Kiguta

Chairman, Board of Directors,
Kenya National Bureau of Statistics

Acknowledgement

This report presents results of the Food Balance Sheets (FBS) for Kenya during the period 2014 to 2018. It provides a comprehensive picture of the pattern of food supply and utilisation in the country.

The production of this document has been enabled by input from a number of officials from the Kenya National Bureau of Statistics (KNBS) and the Ministry of Agriculture.

The report would not have been realised without technical support from the African Development Bank (AfDB). The KNBS therefore greatly appreciates the AfDB experts involved. They include Mr. Vincent Ngendakumana, who supervised the entire work, and Mr. Salou Bande, who offered technical assistance to officers from the line ministries and KNBS in the compilation of SUA/FBS during the national training workshop. He also assisted in the production of this report.

Sincere gratitude is also extended to the teams from KNBS, the Ministry of Agriculture, Livestock, Fisheries and Irrigation, and other state agencies, who participated in the national training workshop, particularly those who provided the basic data that was used in compiling the SUA/FBS.

The KNBS also thanks the Global Strategy development partners: Bill and Melinda Gates Foundation (BMGF), United Kingdom's Department for International Development (DFID), and the European Union (EU). They have significantly contributed to the implementation of the Action Plan for Africa to Improve Statistics for Food Security, Sustainable Agriculture and Rural Statistics.

The Bureau also appreciates Mr. Charles L Lufumpa (Director of the Statistics Department, AfDB) and Mr. Ben Paul Mungyereza (Manager, Statistical Capacity Building Division, AfDB) for their valuable technical input.

Last but not least, I also thank the KNBS team that was behind the drafting and finalisation of this report. The team comprised of officials from Agriculture Statistics Division under the guidance of Mr. Robert Nderitu (Director, Production Statistics), Mr. Patrick Mwaniki (Senior Manager, Agriculture and Livestock Statistics), Mr. John Mburu (Manager, Agriculture Statistics), Mr. Rogers Mumo (Manager, Livestock Statistics) and Mr. Alphonse Orang'o (Statistician, Agriculture and Livestock Statistics).

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Director General

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Executive Summary

Definition of FBS and its importance

The FBS is a national accounting/statistical framework, presenting a comprehensive picture of the pattern of a country's food supply during a specified reference period. It is useful in tracking progress against some of the established development goals, such as the Sustainable Development Goals (SDGs). It also acts as a monitoring and evaluation tool for national agricultural policies. One of the main applications of FBS is to calculate derived indicators which can be used to analyse a wide range of concepts, including hunger, malnutrition, import dependence and food self-sufficiency. Among the major outputs of the FBS is the computation of Dietary Energy Supply (DES), which is an important indicator in determining the levels of undernourishment in a given country.

Justification of the need to upgrade Kenya FBS system

Kenya has had a great experience in the compilation of Supply and Utilisation Accounts (SUA) and in generating Food Balance Sheets (FBS). It was in 2005 when the Central Bureau of Statistics now Kenya National Bureau of Statistics (KNBS), established an FBS system using the international methods and standards.

However, since 2018, new guidelines on the approach to be used for compiling SUA/FBS were proposed to countries, including new features that aim at improving how imputation of missing SUA basic data is done, and how SUA/FBS identities for each commodity are balanced, etc. As a result, a new FBS compilation tool was developed and customised to Kenya.

In view of the foregoing, it was important for Kenya to review and upgrade its current FBS compilation system to the new standards. To that end, the country requested and obtained technical assistance from the African Development Bank (AfDB) in aligning its system to the new guidelines.

Methodology

The approach used in the compilation of Kenya's FBS was inclusive and participatory, such that all relevant stakeholders were involved. The methodology followed was based on the revised Food Balance Sheets system.

For the period 2014-2017, data used for SUA/FBS compilation included the estimated figures at SUA level. The data was extracted from the Old Tool and uploaded into the new FBS compilation tool. The main reason for using the existing estimated SUA data from the Old Tool was to enable comparisons in situations where differences in results between the two systems arose. Data for 2018 was compiled directly using the new tool.

The activities undertaken in compiling the FBS entailed the following:

Development of a roadmap:

National training workshop:

Data validation:

Elaboration of FBS report.

Data Sources

The basic data used to compile SUA/FBS were received from various sources, including KNBS, the Ministry of Agriculture, Livestock, Fisheries and Irrigation; Kenya Revenue Authority (KRA); County governments; other state agencies that deal with agricultural data; and private enterprises.

Setting up of FBS Technical Working Group

The roadmap recommended the establishment of a Technical Working Group (TWG) on FBS. The TWG would be responsible for the technical work on FBS compilation, ensuring coordination and sharing of information among the key relevant institutions. The TWG should be fully integrated in the National Strategy for the Development of Statistics (NSDS).

Key results

Table a:
Overall calories, proteins and fats supply

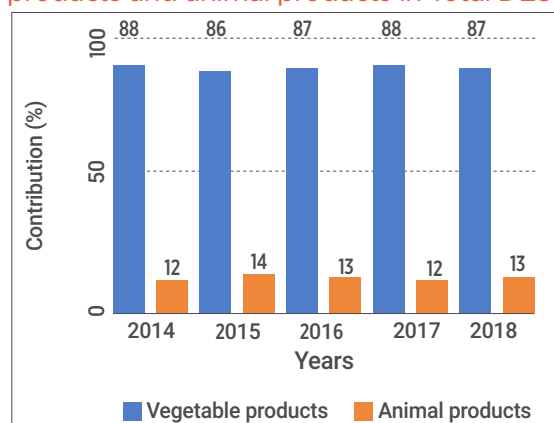
	2014	2015	2016	2017	2018
Calories (Kcal/cap/day)	2206	2300	2105	2130	2235
Proteins (g/cap/day)	66	71	65	67	69
Fats (g/cap/day)	48	52	52	47	48

During the period under study, the amount of daily per capita calories ranged from 2,100 to 2,300. The increase of daily per capita supply of calories from year 2014 to 2015 (of about 100 calories) is explained by the simultaneous increase in the Dietary Energy Supply (DES) from vegetable and animal products. Regarding the increase (of 100 calories) in 2018 compared to 2017, it was mainly due to the increase of DES from vegetable products.

Daily supply of proteins ranged between 65 and 71 grams for the period under review. In 2014, daily supply of proteins was 66 grams. This increased to 71.2 grams in 2015, and declined again in 2016 to 64.9 grams. It slightly remained under 70 grams a day until 2018. The increases in 2015 and 2018 were mainly driven by improved availability of milk and products due to favourable weather conditions, which had led to better production of vegetables.

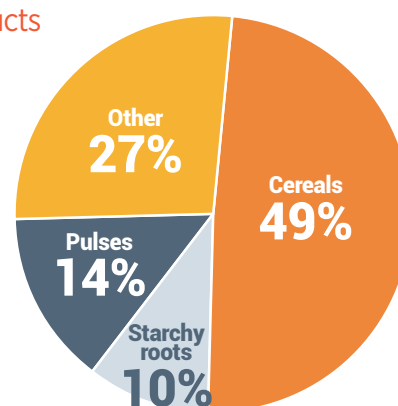
In 2014, the Per Caput Daily Supply of fats was 48.3 grams. This increased to 52.3 grams in 2015 due to a rise in fats supply from cereals, vegetable oils, meat and milk. There was a drop of 9.4% from 52.2 grams in 2016 to 47.3 grams in 2017. This drop was as a result of a decrease in fats supply from all food groups except for cereals, fish and meat.

Figure a: Contribution in DES of vegetable products and animal products in Total DES



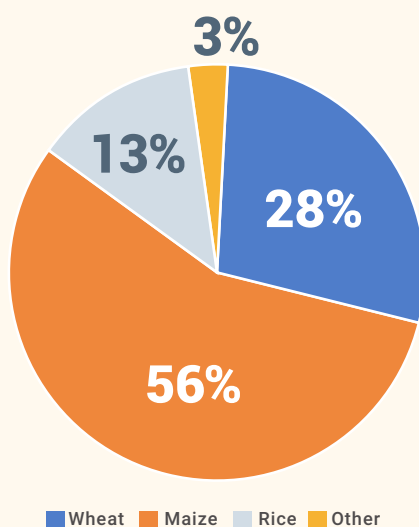
The most important part of daily per capita supply of calories came from vegetable products, which contributed between 86% and 88%. The contribution of animal products ranged from 12% to 14% during the period under study.

Figure b: Average Contribution in DES of vegetable commodity groups in vegetable products



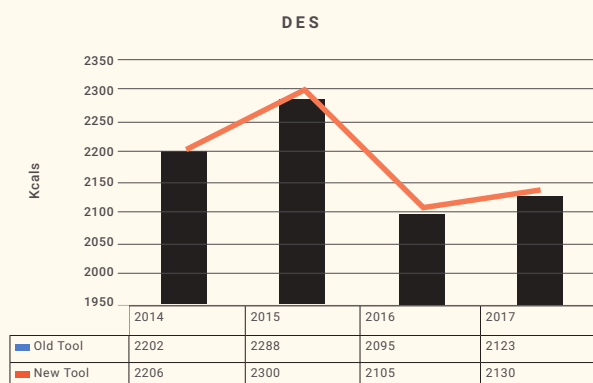
Under vegetable products cereals contributed an average of 49% to the daily and per capita Dietary Energy Supply (DES) during the period under review. The pulses and starchy roots contributed 14% and 10% respectively. Regarding the other commodities under vegetable products, their average contribution to the total daily per capita calories was 27%.

Figure c: Average contribution in DES of cereals commodities in cereals commodity group (%)



Among cereals, maize is by far the most important commodity. During the period under study, the average contribution of maize to the total Dietary Energy Supply per capita and per day was 56%. In terms of importance, this commodity was followed by wheat and rice with 28% and 13% as their respective average contributions over the period 2014–2018.

Figure d: Comparison of per capita calories daily supply with the Old Tool



The obtained results were close to those achieved using the previous tool. In fact, the difference between the results ranged from 0.2% to 0.5%.

The resultant total Dietary Energy Supply (DES) from the new tool is slightly higher than that obtained from the Old Tool. This was attributable to the improvement in the balancing methods employed in the New Tool.

Furthermore, given that the 2018 results are in the same range, it can be concluded that the New Tool is robust enough to sustain the FBS system over the time.

Comparison with FAOSTAT results

Table b: Comparison between 2014 results with 2013 FAOSTAT results

	2014 Results generated	2013 FAOSTAT results
Calories (Kcal/cap/day)	2206	2205
Proteins (g/cap/day)	66	62
Fats (g/cap/day)	48	48

The last year for FBS results to be published on FAOSTAT website was 2013. The FBS results generated using the New Tool for the year 2014 were close to those published on FAOSTAT website for 2013. This points further to the robustness of the results generated by the New Tool.

Constraints and limitations

The constraints are mainly related to the use of the New Tool. In fact, the New Tool doesn't include fishery products. These products have been compiled using the Old Tool to supplement the results generated with the New Tool. In compiling tourism data, the New Tool does not allow the compiler to add more countries to the system in order to record all available country data and accurately estimate tourist consumption.

At the beginning of the process of compiling FBS using the New Tool, it was not possible to run it from 2017 onward due to technical problems. This led to a delay in the FBS compilation in the country.

Lessons learnt

Upgrading the existing FBS system allowed the strengthening of capacities on the revised methodology. Kenya FBS team learnt more about the compilation of Supply and Utilisation Accounts (SUAs), better estimation of missing data, and the generation of FBS.

Way forward

The Kenya National Bureau of Statistics is committed to sustaining the production of FBS information on a regular basis. This will ensure timely availability for users.

Introduction

Background

The first attempts at preparing Food Balance Sheets date back to World War I. Food Balance Sheets (FBS) were the major source of data, especially in 1936, when the Mixed Committee of the League of Nations requested its Sub-Committee on Nutritional Statistics handling problems of nutrition to prepare a systematic international comparison of food consumption data.

During the Second World War, there was some considerable increase in the use of FBS. This prompted the Inter-Allied Committee on Post-War Requirements to use them in 1942/43 in their studies of post-war requirements in European countries. Germany constructed its own FBS as well as for its occupied territories. A detailed technique was developed and employed by a joint committee of experts from Canada, United States of America, and the United Kingdom in the report, *"Food consumption level in the United States of America, Canada and United Kingdom"*. FBS played an important role during food allocation and distribution in the period of worldwide food shortages after the war.

In 1948, during a Food and Agriculture Organisation (FAO) conference in Washington, FBS was given considerable importance owing to its usefulness in analysing the food situation at country level. It was recommended that FAO should develop, encourage and assist governments to develop and publish their FBS.

In Kenya, the system was introduced in 2005 through Technical Assistance provided by FAO. This assistance was channelled through the Kenya National Bureau of Statistics (KNBS). It involved participants from the Ministry of Agriculture, Kenya Revenue Authority (KRA) through the Trade Statistics section, and the Ministry of Health (Nutrition Department). Consequently, the first report on Food Balance Sheet covering the period 2000 to 2005 was then produced and published. Thereafter, other FBS reports have been produced regularly as part of the annual Economic Survey publication.

Recently, the Global Strategy revised guidelines on the compilation of Food Balance Sheets in order to accommodate new components. These guidelines seek to improve Agricultural and Rural Statistics (Global Strategy). It is important to note that these guidelines suggest imputation approaches and data sources for country level.

The methodologies and approaches described in these guidelines represent the latest innovations in both the imputation of missing data and the balancing of food commodity accounts. The goal of these guidelines is to provide countries with the methodological framework and tools to compile high-quality FBS for crop and livestock products.

After the revision, Kenya received technical assistance from the African Development Bank to migrate from the Old Tool to the New Tool. The principle used in the New Tool is similar to the one used in the Old Tool. However, the New Tool has additional variables which were not in the Old Tool, and are meant to enrich the FBS.

Food Balance Sheets present a comprehensive picture of the pattern of a country's food supply during a specified reference period. It simply tabulates the country's food supply and utilisation, covering all food commodities that are produced and consumed within a given country.

Justification of the need to upgrade Kenya FBS system

Kenya has great experience in the compilation of SUA/FBS since it has been publishing annual FBS data in its Economic Survey reports, which are issued by KNBS in April of each year. The last FBS produced by the country was for 2017. Notably, the Ministry of Agriculture, Livestock, Fisheries and Irrigation (MoALFI) compiles information on commodity balance sheets for the major staple commodities grown in the country, except livestock and fish products. These commodity balance sheets differ from FBS because they do not fully account for the consumption of processed commodities, and therefore fail to provide a complete picture of the food supply in a country. Indeed, energy and nutritional contents vary depending on whether they apply to primary commodities (e.g. maize grains) or to processed products (e.g. maize flour). The inclusion of all the food items, and not only of the primary commodities, is what makes the difference between a commodity balance sheet and an FBS.

However, since 2018, new guidelines on the approach to be used for compiling SUA/FBS were proposed to countries, including new features that aim at improving how imputation of missing SUA basic data is done, as well as how SUA/FBS identities for each commodity are balanced, etc. To this end, a new FBS Compilation Tool was developed and customised to Kenya's specificity. With this therefore, the KNBS requested the AfDB to assist the country in reviewing and upgrading its FBS Compilation System to the new standards.

Basic Identity and Approach

This section gives the basic identity and approach used in the construction of Food Balance Sheets. FBS are built on the basic principle that within a certain country in a particular year, the sum of all aspects of supply of a given food product must be equal to the sum of utilisations of that product. The concept is usually expressed in two different basic identities, which are the total domestic supply being equal to total domestic utilisation, or total supply being equal to total utilisation. This is as shown below:

Domestic Supply = Domestic Utilisation:

$$\text{Production} + \text{Imports} - \text{Exports} - \Delta\text{Stocks} = \text{Food} + \text{Feed} + \text{Seed} + \text{Tourist Food} + \text{Industrial Use} + \text{Loss} + \text{Residual Use}$$

Total Supply = Total Utilisation:

$$\text{Production} + \text{Imports} - \Delta\text{Stocks} = \text{Exports} + \text{Food} + \text{Feed} + \text{Seed} + \text{Tourist Food} + \text{Industrial Use} + \text{Loss} + \text{Residual Use}$$

The balancing of supply and utilisation of food consumption is known as Supply Utilisation Account (SUA).

i.e. Supply = Utilisation; over a given period of time

The two basic identities above capture the new variables that were introduced during the revision of the guidelines. These variables are tourist food and industrial use, and were captured under "other uses" in the old methodology. In the Old Tool, the loss aspect of the food commodities was captured as waste.

The Food Balance Sheets are compiled using data from various sources, namely official, semi-official, expert estimations and imputations.

Chapter 1

Definition of Concepts

This section gives summarised definitions of the concepts used in the compilation of the FBS, which are the variables that make up the Supply = Utilisation identity.

1.1 FBS Supply and Use Variables

PRODUCTION

This refers to all production quantities of a given commodity within a given country. The concept comprises production of primary as well as processed goods. It is noted that:

- The primary products are reported at the farm gate level;
- The quantity of processed products for a given commodity refers to the volumes of output obtained after the transformation of that commodity.



IMPORTS & EXPORTS

The general definition of *imports* and *exports* cover goods and services. However, in the framework of Food Balance Sheets, this coverage is restricted to goods.

An import refers to a product brought into a given country from an external source.

Exports can be understood as trans-boundary flow of goods from a given country of origin .

It is important to underline that re-export, which refers to goods that enter and exit a given country without any type of transformation, should be added to exports.



STOCKS

Stocks are defined as the aggregate total of products allocated to storage for later use. In the case of Food Balance Sheets, the stocks variation is considered and not the quantities of stocks themselves.

In our case, the stock variation is defined as closing stocks minus opening stocks.



FOOD AVAILABILITY

The concept of "*Food availability*" in respect of FBS represents the amount of food available for human consumption at the retail level. For this reason, any waste (and/or loss) that occurs at the retail or consumer levels is included in this quantity, since that food was technically available for human consumption.



FOOD PROCESSING

Food processing refers to quantities of a food product that are directed toward a manufacturing process, and are then transformed into a different edible commodity with a separate entry in the food balance sheet.



FEED

Feed is defined as all quantities of commodities—both domestically produced and imported—that are available for feeding livestock or poultry.



SEED

Seed is defined as any quantity of a commodity set-aside for reproductive purposes. This can include seed for sowing, plants for transplanting, eggs for hatching, and fish used as bait.



LOSS

The quantities of a product that leave the supply chain and are not diverted to other uses are considered as loss. Loss results from an involuntary activity and can occur at any node of the supply chain after the harvest and up to (but excluding) the retail/consumption stage



TOURIST FOOD

Tourist food refers to food that is available for consumption by non-resident visitors in a given country during the course of their stay. This variable is expressed in net terms in the Food Balance Sheet (as food available for consumption by incoming visitors minus food that would have been consumed by residents who have travelled to other countries).



INDUSTRIAL USE

Industrial use is defined as any quantity of a given product used in some non-food transformation or manufacturing process, including products used in biofuels, cosmetics, detergents, or paints.



RESIDUAL & OTHER USES

Residual and other uses can, in most cases, be defined as the combined imbalance and accumulated error in the supply equals utilisation equation. As such, this category is computed ex-post as a balancing item and is not independently estimated. If all other utilisations within the equation are accounted for, and there is no measurement error, then the residual would be calculated as zero.

The three concepts (tourist food, industrial use and residual and other uses) are what were referred to as "Other uses" in the Old methodology. It means that in the revised methodology, the "Other uses" component has been split into three.

1.2 Additional Variables

The basic supply and usage components described above cover all aspects of basic identity. However, using the FBS tool, some additional variables are needed to estimate per capita nutrient availability. These include:

Population: This is defined according to the UN Population Division's (UNPD) definition as, "de facto population in a country, area or region as of 1 July of the year indicated." This definition includes not only citizens, but also all residents.

- **Activity and productivity variables:** These refer to data on other relevant variables that could be necessary for the imputation of missing values.
- *Activity variables for primary crops:* Area sown and area harvested.
- *Activity variables for livestock:* The number of milking animals, number of slaughtered animals, and number of laying poultry.
- *Productivity variables:* The yield of primary crops and carcass weight for animals.

Extraction rates: These are parameters that reflect the loss in weight in the conversion of a given primary product to the derived product.

Extraction rates are typically expressed as a percentage, and are calculated as the amount (by weight) of the derived product that is produced using a given amount of input product.

Nutrients estimates

Nutrients are substances that the body needs to function properly. One of the main motivations for establishing a Food Balance Sheet is to obtain estimates of the amount of calories, fat and protein that can be consumed by a country's population. These estimates are derived from the final "food" estimates on the balance sheet for each product by applying certain conversion factors to these quantities.

Processing Shares

In the context of the FBS, *processing shares* are percentages of the amount of a given commodity that are thought to be dedicated to a specific transformation process. They are often necessary for the composition of FBS because goods can be processed into an array of derived products, and the input used for the production of these derived goods is seldom known with certainty. As such, shares can be applied to the amount of a good sent for processing to calculate the amount of input into a given transformation process, and then an extraction rate can be applied to those inputted quantities to derive a production estimate.

1.3 Self-Sufficiency Ratio and Import Dependency Ratio

In the course of analysing the food situation of a country, an important aspect is to know how much of the available domestic food supply has been imported and how much comes from the country's domestic production. The Self-Sufficiency Ratio and the Import Dependency Ratio are the two (2) indicators helping to measure these aspects.

Self-Sufficiency Ratio: Expresses the magnitude of production in relation to domestic utilisation. It is defined as:

$$SSR = \frac{PRODUCTION}{PRODUCTION + IMPORT - EXPORTS - STOCKS VARIATION} * 100$$

Import-Dependency Ratio (IDR): Shows how much of the available domestic food supply has been imported and how much comes from the country's own production. It is defined as:

$$IDR = \frac{IMPORT}{PRODUCTION + IMPORT - EXPORTS - STOCKS VARIATION} * 100$$

Chapter 2

Methodology and Data Sources

2.1 Introduction

This chapter gives a detailed analysis of the methodology used in compiling Food Balance Sheets in Kenya. The methodology employed is based on the guidelines for the compilation of Food Balance Sheets developed under the Global Strategy to improve Agricultural and Rural Statistics. In Kenya, the compilation of Food Balance Sheets is done by the Kenya National Bureau of Statistics, and are captured in the Economic Survey, published annually. The chapter also outlines the different activities undertaken in the process of FBS compilation and the sources of data used in compiling SUA basic data and in generating FBS results.

2.2 Activities undertaken

This section outlines the activities undertaken to compile the FBS from the development of the road map guiding the process, to conducting the national training workshop and finally the actual compilation of the SUA basic data and generation of the FBS results.

2.2.1 Development of a Road Map

A roadmap on the compilation of FBS in Kenya was developed with a series of activities to build, improve and strengthen the collection, analysis, and use of information on SUA and FBS statistics. The objective of the roadmap was to assist Kenya in producing a full FBS using the latest Guidelines and Tools for the years 2014 to 2018. This was to be achieved through addressing the challenges faced by the existing system and upgrading it using the latest guidelines produced by FAO, as well as the related FBS Compilation Tool.

A list of activities was agreed upon by KNBS and other relevant key stakeholders on agricultural statistics in Kenya during the AfDB mission, which was conducted by Vincent Ngendakumana and Mr. Salou Bande from November 27-30, 2018. These activities included:

1. Enhancing the institutional framework/working arrangements through formal establishment of the FBS Technical Working Group (TWG)/governance structure, identifying Focal Points/responsible persons by Thematic Technical Working Groups (TTWG) and proposing the governance structure for FBS compilation.
2. Conducting a national training workshop on SUA/FBS compilation.
3. Compilation of SUA/FBS for 2014-2017 using the New Guidelines/Tool.
4. Validation, endorsement and reporting on new 2014-2017 FBS results.
5. Production and dissemination of new 2014-2018 FBS results.

2.2.2 Setting up of FBS Technical Working Group

As a preliminary step towards strengthening the institutional framework for FBS compilation, the roadmap recommended formation of a Technical Working Group on FBS. The team would be responsible for the technical work on FBS compilation, ensuring coordination and sharing of information among the different relevant institutions. All subsectors of agriculture as well as key producers and users (or potential users) of FBS statistics should be represented in the TWG.

The team should be fully integrated into the statistical legal framework as per the related provision in the Strategic Plan for Agriculture and Rural Statistics (SPARS), hence the National Strategy for the Development of Statistics.

The TWG's objective is therefore to ensure technical coordination of the collection and compilation of data and parameters for SUAs, as well as the preparation and analysis of FBS. It validates the main methodological approaches and obtained results. Specifically, it advises on the type of data to be collected and reviews the intermediate deliverables, such as SUA tables, technical parameters (e.g. technical conversion factors, nutritive factors, etc.), calculation methods and analyses of indicators.

The TWG ensures proper coordination of activities and sharing of information across the different participating institutions, and is responsible for distributing tasks, as well as setting timelines and deliverables.

2.2.3 National Training Workshop on the Compilation of FBS

In November 2018, the AfDB, together with Kenya National Bureau of Statistics, organised a national training workshop on the compilation of Food Balance Sheets. The workshop was attended by participants from the Ministry of Agriculture and its agencies, together with officers from KNBS. Its objective was to improve national systems in producing and disseminating FBS statistics, training participants on the use of the revised FBS Guidelines and the new FBS Compilation Tool, in addition to creating synergies and opportunities for collaboration among the institutions responsible for providing agricultural data. The workshop also sought to provide guidance and recommendations on the design and implementation of a statistical program to compile FBS of a requisite quality. This was to ensure that institutions with the responsibility of providing agricultural data were trained and sensitised on the importance of providing good quality data for the compilation of FBS, which is a critical tool used to monitor food security within a given country.

2.2.4 Data Validation

In Kenya, the data used is usually from multiple sources. These include household-based surveys, enterprise targeted surveys and administrative sources. Out of all these, the dominant approach is the administrative sources, where data is collected through use of front line officers (field agriculture extension officers). This data is subjected to validation at county level, where all the sub-county agriculture officers converge to critique their data in the presence of officers from the headquarters of the Ministry of Agriculture and the KNBS.

Once the data has been validated at the county level, the same is taken to another level, where it is subjected to expert review and then aggregated to give the national production figures for the particular period. The national figures are the ones that are then used for the FBS.

2.3 Methodology

The methodology for the elaboration of FBS in Kenya is based on the revised guidelines for Food Balance Sheets Compilation, developed under the Global Strategy to improve statistics for food security, sustainable agriculture and rural development.

The aim is not to repeat the theoretical methodology as described in the guidelines, but to highlight how the FBS team, under the control of the international consultant, with supervision of the Principal Agricultural Statistician of the AfDB, has compiled the Supply and Utilisation Accounts and generated 2014-2017 FBS results, focusing on the specific cases related to the country.

2.3.1 SUAs basic data compilation

For the period 2014-2017, data used for SUA/FBS compilation included the estimated ones at SUA level, extracted from the Old Tool and uploaded into the new FBS compilation tool. The main reason for continued use of the existing estimated SUA data from the Old Tool was to enable comparisons for any differences in results between the two systems. Data for 2018 were compiled directly using the new compilation tool.

Before the training workshop, the TWG gathered data from the Old Tool. It was then sent to the international consultant to check for exhaustivity and quality.

Since data was extracted from the Old Tool, this section will focus on the following specific cases:

- Trade data: which required the mapping of Harmonised System (HS) codes to Central Product Classification (CPC) codes before uploading in the new compilation tool.
- Tourist data: This is a new variable and the data was compiled and integrated in the New Tool.
- Mapping of FCL codes to CPC.

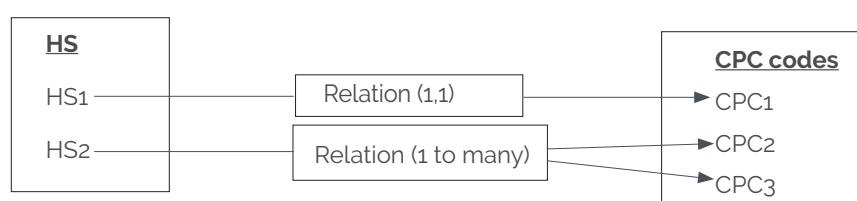
During the national training workshop, working groups were established and tasks defined for each group. These groups worked on the data compilation as follows:

- **Compilation of trade data**

Trade data is normally coded using the HS classification, while the New Tool requires CPC codes. One of the big challenges encountered in the compilation of trade data was mapping HS codes to CPC. We have six (6) versions of HS classification: HS 1992, HS 1996, HS 2002, HS 2007, HS 2012 and HS 2017. In the case of Kenya, HS 2012 was used for 2014-2017 trade data. The mapping was performed as follows:

Considering the two classifications, we have two types of relations:

- Relation one to one, where one HS code corresponds to only one CPC code.
- Relation one to many, where one HS code corresponds to more than one CPC code.



The mapping of HS codes to CPC with a relation of one-to-one was done automatically in Excel, using "VLOOKUP" function. The HS codes with a relation of one-to-many CPC codes Classification were subjected to careful attention. Indeed, it was necessary to look into the details of the description of the corresponding codes before mapping. It should be noted that trade data are only limited to official data recorded by the customs authorities, in this case Kenya Revenue Authority. Unrecorded trade data are not available in Kenya.

- *Compilation of tourist data*

Data on the number of incoming tourists, outgoing tourists, average nights stayed, were used to estimate the tourists' consumption. It is calculated in terms of net consumption: the amount of food available to incoming tourists minus the amount of food that would have been available to absent residents had they been present in the country.

- *Mapping FCL codes to CPC codes*

In the Old Tool, FAO commodity List (FCL) codes were used, while the new compilation tool requires CPC codes. For components like crops, livestock, stock variation, food consumption, loss, feed, and seed, the corresponding data was extracted from the Old Tool and the FCL codes for all the commodities were converted to CPC codes using the correspondence table FCL-CPC.

In order to avoid double counting, the Industrial Use component was not considered as a separate component because the "Other Use" component from the Old Tool already takes into account these aspects.

2.3.2 Compilation and correction of SUAs and FBS results

After filling all the components, the tool can automatically generate the SUAs tables for each year. Correction cannot be made directly to the SUAs table generated, but we have to go back to the basic data and do it in case of inconsistencies. The FBS results are automatically generated including standardisation and aggregation process. But after generating the results, it is necessary to check if there are any inconsistencies. For instance, for maize, the DES was overestimated due to the high value of extraction rate used in the tool. The extraction rate was, however, corrected, and this contributed to improving the quality of Food Balance Sheets.

2.3.3 Checking some constraints

After generating the Kenya FBS for 2014-2017 reference years, some universal constraints were then checked. The results were exported to Excel file and the formulas inserted.

The constraints checked were as follows:

- **Row constraint** to ensure that the quantity of export of each commodity doesn't exceed the supply of that commodity. The formula put in the Excel file was:

Production+ Import – Stock Variation – Export. For all commodities, the result is positive, to mean that the supply quantity exceeds the export quantity. These were the expected results.

- **Vertical standardisation constraint** to ensure that for each commodity, the quantity sent to the processing does not exceed the supply of the primary products. In other words, $\text{Production} + \text{Import} - \text{export} - \text{Stock Variation} - \text{quantity of processed food}$, should be positive. This constraint highlighted that none of the derived product accounts has negative discrepancies.

2.3.4 Deriving per capita estimates

The final step involves the conversion of national aggregate nutrient estimates into per capita equivalents. This is done by dividing the total national nutrient availability by the total population to obtain per capita estimates of nutrient availability. We also get the individual per year food by dividing the total quantities of food in the FBS by the total population.

The New Tool automatically computes some indicators, such as dietary energy supply per day, per capita daily supply of proteins and fats. Some other indicators have been computed in Excel file. These indicators are:

- Food supply per capita and per year (Kg);
- Self-Sufficiency Ratio (SSR); and
- Import Dependency Ratio (IDR).

2.3.5 Compilation of fishery commodities

Due to the fact that the New Tool does not include fisheries data, these commodities have been compiled in the Old Tool. The results provide a picture on daily per capita energy, proteins and fats supply, and have therefore been used to supplement the results obtained from the New Tool.

2.4 Data Sources

This section gives a highlight of the data sources. The KNBS is the custodian of official data. The Bureau, however, receives basic data from various sources, including the censuses and surveys it conducts, the Ministry of Agriculture, Livestock, Fisheries and Irrigation (MoALFI), county governments, other state agencies that deal with agricultural data, and private enterprises.

Crop Production Data: The kind of crop production data used in the FBS relates to quantities of the primary crop commodity of a certain crop item that has been harvested. For example, production data on maize relates to maize that has been harvested. This information is collected by the Ministry of Agriculture, Livestock, Fisheries and Irrigation (MoALFI), and the state agencies under it, together with KNBS through the data validation exercise which is conducted annually. During this exercise, the following data is collected: data on area planted, area harvested, quantity harvested, yield, etc.

Trade Data: This involves the quantities of a certain crop item, livestock item and fishery items that cross the domestic borders. The bulk of the trade data comes from the Kenya Revenue Authority (KRA) through the Bureau's Trade Statistics Section.

Livestock Data: Just like crop production data, data on livestock is received from the county governments through the National Data Validation exercise, which involves various stakeholders in the Ministry of Agriculture, Livestock, Fisheries and Irrigation, together with the KNBS.

Data on Stock Variation: Information on stock variation comes from the Ministry of Agriculture, which gives the quantity of stocks available. This variable has gaps, as not all food items have this information available.

Seed Data: Data on the amount of a certain food commodity used as seed is provided by the Ministry of Agriculture.

Feed Data: Most of the feed data comes from feed traders, expert estimations and imputations. However, it is also of necessity to have targeted or integrated surveys that will also help to collect such information, especially at household level.

Data on Loss: Data on loss is collected by KNBS through surveys and also the MoALFI. The ministry gives a percentage of a certain food item that is lost in the supply chain.

Data on Quantities Processed: This information comes from manufacturers through industrial surveys and household surveys conducted by KNBS, imputations and expert estimations.

Tourism Data: The Kenya National Bureau of Statistics compiles data on tourism, which it uses in the running of the FBS. There is a chapter in the Economic Survey that is devoted to tourism matters. This chapter provides the data that is used in compiling the FBS.

Chapter 3

Analysis and Discussion of FBS Results

This chapter analyses the Food Balance Sheet results as generated by the New and the Old tools for the period 2014 to 2018. It also compares and contrasts the various aspects of the two systems as regards the results of 2014 to 2017.

3.1 Results

This section discusses the Food Balance Sheet results obtained from the New Tool. It is worth noting that the New Tool results do not take into account the fishery products, whose results are obtained from the Old Tool. During compilation of the basic SUA data, the New Tool uses all data except the fish data. However, this is taken care of in the Old system, where the fish data is captured and the FBS generated. The results are then extracted and integrated with those from the new compilation tool to give a complete picture of the entire food situation in the country.

3.1.1 Annual Food Consumption per Person

One of the computations that the FBS does is to calculate the average amount of food an individual consumes in a year. This is given in terms of kilograms of a particular food item consumed by a person in a year. This information is highlighted in Table 1, which shows that in Kenya, an individual consumes, on average, over 35.6kg of wheat and products. For maize, the results indicate that individuals consume on average, 64.1kg in one year.

In 2016, maize recorded the lowest quantity consumed due to the low availability of the crop occasioned by unfavourable weather conditions. The annual per person wheat consumption increased from 32kg in 2016 to 41.3kg in 2018. This was mainly due to improved weather conditions in 2018, which led to increased crop harvest.

The other food commodities with higher quantities consumed by an individual in one year were milk and products at about 100kg, vegetables and products, and potatoes and products at about 30kg each. Bananas recorded consumption of above 30kg in 2014 and 2015, but this drastically dropped to 14.5kg and 15.1kg in 2016 and 2017, respectively. The decrease was mainly due to depressed production for the years 2016 and 2017. In 2018, the estimated individual consumption of bananas per year increased to 27.5kg due to improved weather conditions, leading to increased production.

Per caput annual milk consumption in 2015 was the highest in the five years due to favourable weather conditions that resulted in increased availability of cow milk. However, in 2017, consumption of milk per person went down to 89.4kg mainly due to decreased production occasioned by drought.

Table 1: Per Year and per capita Food

	Kg				
Food Commodity	2014	2015	2016	2017	2018
Wheat and products	31.3	34.3	32.0	39.1	41.3
Maize and products	68.2	60.0	58.6	64.2	69.5
Millet and products	0.7	0.5	0.5	1.2	1.0
Sorghum and products	2.1	2.3	1.4	2.2	1.9
Rice & Prod (Milled Equivalent)	19.9	18.1	19.6	22.7	20.6
Potatoes and products	31.0	37.6	23.4	26.4	29.9
Cassava and products	25.1	24.4	23.8	23.1	19.8
Sweet potatoes	24.1	23.4	22.8	22.2	18.0
Sugar & Prod. (raw equivalent)	14.2	13.8	13.7	13.5	16.3
Beans, Dry & Products	12.9	15.4	14.3	16.1	16.0
Tomatoes and products	10.4	10.1	6.5	6.0	8.5
Onions, Dry	0.9	0.9	0.9	0.9	0.8
Vegetables, Other & Prod.	39.8	38.1	25.3	23.6	32.6
Bananas	30.3	38.8	14.5	15.1	27.5
Plantains	13.1	12.7	12.4	12.1	11.9
Meat & Products, Bovine	8.8	11.2	11.6	12.6	14.0
Meat & Prod, Sheep & Goat	1.9	2.1	1.7	2.0	1.1
Meat & Products, Pig	0.4	0.6	0.2	0.3	0.4
Meat & Products, Poultry	0.5	0.7	1.4	2.3	2.6
Milk & Prod (Excluding Butter)	100.2	122.3	101.5	89.4	93.3
Eggs and products	1.3	1.8	1.5	1.5	1.6
Freshwater fish	3.7	3.4	2.8	3.1	3.1

3.1.2 Per Caput Daily Supply

Table 2 shows the Per Caput Daily Supply from calories, proteins and fats for the period 2014 to 2018. It shows the amount of calories, proteins and fats that were supplied daily to the Kenyan population during the reference period. For the five years, the amount of available daily calories supplied was above 2,000 calories. The number of calories a person requires on a daily basis depends on a number of factors: including gender, age, weight, height and the level of activity of an individual. The results show that daily caloric supply in Kenya for four years was below 2,250 calories. In 2015, daily caloric supply was 2,300.4 calories, which was as a result of improved production of food commodities, both vegetable and animal products.

Daily supply of proteins ranged between 64.9 and 71.2 grams for the period under review. In 2014, daily supply of proteins was 66.3 grams. This increased to 71.2 grams the year that followed, declining in 2016 to 64.9 grams and finally increasing to 67.1 grams a day in 2017. The increase in 2015 was mainly driven by increased availability of milk and products, which was occasioned by better weather conditions, compared to 2014. The daily supply of proteins increased by 3.0% to 69.1kg in 2018, mainly due to favourable weather conditions that led to better production of food commodities, compared to 2017.

Table 2: Per Caput Daily Supply

Indicator	Unit of Measure	2014	2015	2016	2017	2018
Calories	Kcals	2,206.2	2,300.4	2,105.1	2,130.2	2,235.2
Proteins	Grams	66.3	71.2	64.9	67.1	69.1
Fats	Grams	48.3	52.3	52.2	47.3	48.3

In 2014, the Per Caput Daily Supply of fats was 48.3 grams. This increased to 52.3 grams in 2015 due to increases in fats supply from cereals, vegetable oils, meat and milk. There was a drop of 9.4% from 52.2 grams in 2016 to 47.3 grams in 2017. This drop was as a result of a decrease in fats supply from all food groups except cereals, fish and meat. Fats are very important macronutrients in the life of a person as they are a source of energy and essential fatty acids, and provide a way to insulate the body and protect organs.

3.1.2.1 Per Caput Daily Caloric Supply

The distribution of daily caloric supply from vegetable, animal and fishery products from 2014 to 2018 is shown in Table 3. Per Caput Daily Caloric Supply from vegetable products increased in the year 2015 by 2.1% from 1,942Kcals in 2014. This was mainly attributable to increased caloric supply from cereals, starchy roots and pulses. The results indicated that there was a decrease in the daily calories supplied by vegetable products from 1,983Kcals in 2015 to 1,826.1Kcals in 2016, representing a 7.9% decline. This was as a result of reduced calories supplied from all food groups except sugar crops.

In 2017, the daily supply of calories from vegetables products increased slightly to 1,863.9Kcals due to increased supply of calories from cereals and pulses despite the unfavourable weather conditions. Per Caput Daily Caloric Supply from vegetable products was 1,952.4Kcals in 2018, an increase of 4.7%. This was mainly occasioned by the increased calorie supply from sugar and sweeteners, and cereals, especially the increase in the Dietary Energy Supply from maize.

Table 3: Per Caput Daily Caloric Supply

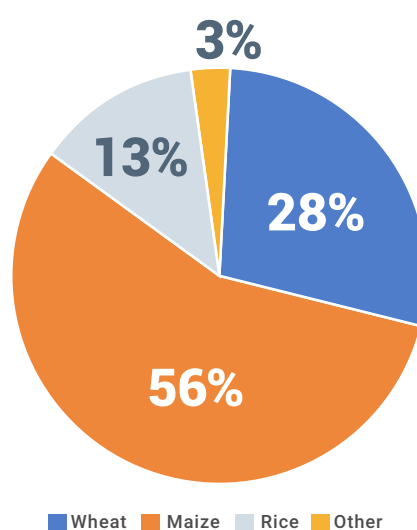
Indicator	Kcals				
	2014	2015	2016	2017	2018
Vegetable Products	1,942.0	1,983.0	1,826.1	1,863.9	1,952.4
Animal Products	256.0	310.0	272.9	259.1	275.7
Fishery Products	8.2	7.4	6.1	7.2	7.1

Per Caput Daily Caloric Supply from animal products was above 250 calories for the period 2014 to 2018. Livestock products are nutritious and are a culturally important food, as they form part of a balanced diet contributing valuable nutrients that are beneficial to health.

The year 2014 recorded the lowest Per Caput Daily Caloric Supply from animal products at 256Kcals. The following year, there was more availability of animal products as shown by the increased daily caloric supply. However, caloric supply from animal products for both 2016 and 2017 declined by 12.0% and 5.1% to 272.9Kcals and 259.1Kcals, respectively. This was due to the dry weather conditions experienced in the two years that led to decreased production of animal products. The daily caloric supply from animal products in 2018 was 275.7Kcals, an increase of 6.4% from 2017. This was attributed to increased intake of bovine meat and milk products. Fish and fish products recorded a slight decline of 1.4% of the daily calories supplied from 7.2Kcals in 2017 to 7.1Kcals in 2018 due to reduced fish production.

Table 4 shows Per Caput Daily Caloric Supply from various food groups in Kenya for the period 2014 to 2018. Cereals in the vegetable category form an important part in the supply of calories. The results show that the bulk of daily caloric supply comes from the cereals food group, averaging about 42.6% of the total calories supplied in a day. This is mainly attributable to cereals such as maize, rice and wheat, which are mostly and commonly consumed in the country. During the period under review, the daily caloric supply from cereals was above 850Kcals. The highest daily supply of calories recorded by the cereals food group was in 2018, while the least was supplied in 2016 at 1,014.2Kcals and 885.6Kcals, respectively.

Figure 1: Average Contribution in DES of cereals commodities in cereals commodity group (%)

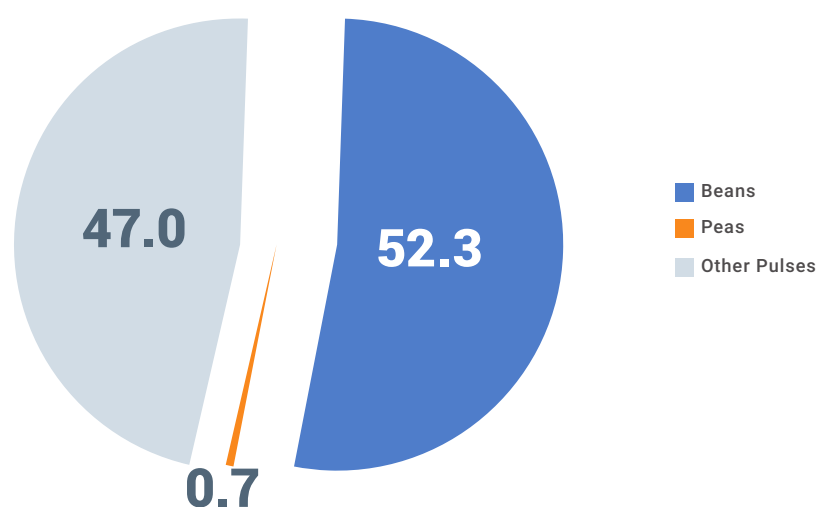


The average DES contribution of selected food commodities within the cereals category is shown in Figure 1. The figure shows that maize contributes the most to the DES within the cereals category, at 56%. This is followed by wheat and rice at 28% and 13% respectively.

The other category of food that has contributed the most to the total daily supply of calories in Kenya is pulses, at an average rate of 12.0%. This is mainly from the supply of beans, which, together with maize, form a major part of the food basket in the country. The total daily supply of calories from pulses in 2014 was 252.7Kcals. This increased to 272.3Kcals in the year that followed due to good weather conditions that led to increased production of pulses. In 2016, daily supply of calories from pulses decreased by 5.7% to 256.9Kcals. In 2018, calories supplied from pulses decreased due to a reduction in the production of beans despite improved rainfall. This contrasted with the results for 2017 when high production of beans was recorded against the dry weather experienced. This is mainly because beans do not perform well in excessive rains and tend to do well in dry conditions.

Figure 2 shows the average DES contribution of beans and peas in the pulses category. Beans formed the bulk of the calories supplied from the pulses category, with a contribution of 52.3%. Peas and other pulses contributed 0.7% and 47.0% respectively.

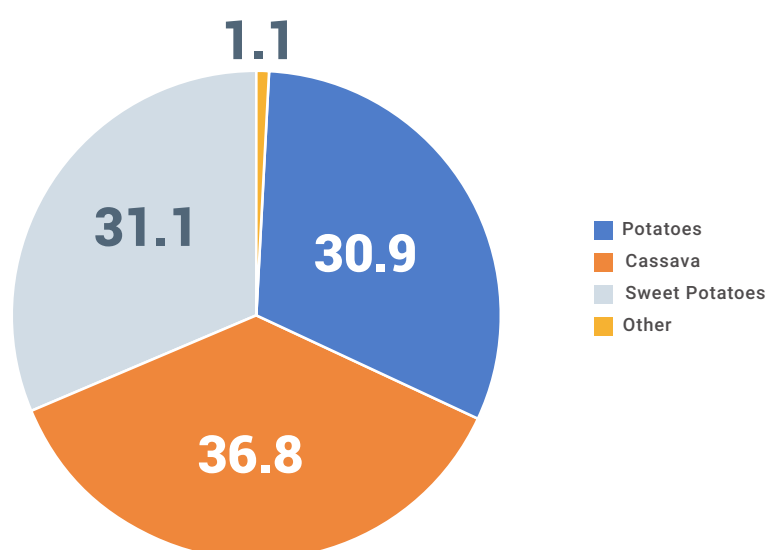
Figure 2: Average Contribution in DES of pulses commodities in pulses commodity group (%)



The results of the Food Balance Sheet also indicate that starchy roots have been another commodity group where a number of citizens draw their daily calories from. This group comprises food crops such as potatoes and products, cassava and products, and sweet potatoes and products. These commodities have become more common in the Kenyan food basket. In the Big Four Agenda, the government identified potatoes as a crop that would improve agricultural sustainability and help to achieve food security in the country. For the period under review, starchy roots supplied an average of 8.5% of the total daily calories across the years.

During the period under review, cassava contributed the most calories within the starchy roots category at 36.8%, followed by sweet potatoes at 31.1% as shown in Figure 3. Potatoes recorded an average of 30.9% of calories supplied within the starchy roots category.

Figure 3: Average Contribution in DES of starchy roots commodities in starchy roots commodity group (%)



Milk is a very important food commodity, and as shown in Table 4, it contributed, on average, 8.2% to the total daily caloric supply during the period. In 2017, there was a decrease in total calories supplied from milk due to reduced milk production, which was caused by the drought experienced during the year. The situation was reversed in 2018 due to increased milk production occasioned by good weather.

Table 4: Per Caput Daily Caloric Supply by Type of Commodity Group

Food Group	Calories (Kcals)					Average Per centage Contribution
	2014	2015	2016	2017	2018	
Cereals (excl. beer)	908.1	913.9	885.6	953.4	1,014.2	42.6
Starchy roots	198.8	209.2	176.9	180.1	165.6	8.5
Sugar crops	45.0	50.1	53.0	10.0	10.7	1.5
Sugar & Sweeteners	144.9	141.1	139.9	138.1	166.6	6.7
Pulses	252.7	272.3	256.9	271.1	262.0	12.0
Treenuts	9.0	9.0	8.0	6.0	7.7	0.4
Oilcrops	28.0	28.0	13.0	15.0	12.9	0.9
Vegetable oils	133.9	130.1	125.9	123.1	116.7	5.7
Vegetables	32.0	30.0	21.0	19.0	25.4	1.2
Fruits (Excluding Wine)	115.9	128.1	79.0	80.0	104.0	4.6
Stimulants	-	-	-	-	1.3	0.0
Spices	54.9	53.1	52.0	51.0	48.8	2.4
Alcoholic beverages	19.0	18.0	15.0	17.0	16.5	0.8
Meat	65.0	79.0	79.0	87.7	94.2	3.7
Offals	5.0	5.0	5.0	5.0	4.5	0.2
Animal fats	4.0	4.0	4.0	3.0	7.0	0.2
Milk - Excluding Butter	178.0	216.0	179.9	158.5	164.5	8.2
Eggs	4.0	6.0	5.0	5.0	5.5	0.2
Fish & sea food	8.2	7.4	6.1	7.2	7.1	0.3

3.1.2.2 Per Caput Daily Proteins Supply

Per Caput Daily Supply of proteins from the broad categories of food products is as shown in Table 5. In 2014, the daily supply of proteins from vegetable products was 50 grams. This increased to 52 grams in 2015, decreased to 47 grams in 2016, and then rose to 50 grams in 2017. The growth in 2015 was mainly caused by the increase in daily supply from pulses and cereals. The overall movement of the daily supply of proteins from vegetable products is dictated by the movement in the supply from the pulses sub-category. In 2017, production of pulses, especially beans, performed well despite the drought experienced.

The supply of proteins from animal products declined for two years in a row, from 18 grams per day in 2015 to 16 grams per day in 2017. This was mainly caused by the decline in protein supply from milk and milk products in the same period. A similar trend was witnessed with the fishery products from 2014 to 2016 before it increased slightly in 2017 to 1.1 grams per day. This was occasioned by decreases in fish production in the country. The supply of proteins from fishery products is mostly dictated by the general preference to consume locally produced fish.

In 2018, the supply of proteins from vegetable and animal products recorded increases of 2.0% and 6.3% to 51 grams and 17 grams, respectively. The change in the daily supply of proteins from animal products was mainly due to increased production of bovine meat. Overall, the results showed that during the review period, the bulk of the daily supply of proteins for the Kenyan population came from vegetable products.

Table 5: Per Caput Daily Proteins Supply

Indicator	Grams				
	2014	2015	2016	2017	2018
Vegetable Products	50.0	52.0	47.0	50.0	51.0
Animal Products	15.0	18.0	17.0	16.0	17.0
Fishery Products	1.3	1.2	1.0	1.1	1.1

Table 6 shows the various types of food groups and their average contribution to the total Per Caput Daily Proteins Supply for the Kenyan population from 2014 to 2018. This provides a detailed view of which commodities contribute the most to proteins supply in the country.

Across the years, cereals contributed on average 37.4% to the total daily proteins supply, followed by pulses at an average of 25.7%. The two food groups contribute over half of the proteins supplied on a daily basis. This is mainly due to the fact that these food groups are the most consumed within the country. Crops such as maize, rice, wheat and beans fall in these groups. Maize as a crop determines the food security situation in the country. The other food commodity groups that are important in the daily supply of proteins, according to the results, are milk and meat, which are both animal products. The contribution of milk to the supply of proteins is on average 13.3% as shown in Table 6, followed by meat at about 9.5%.

Table 6: Per Caput Daily Proteins Supply by Type of Commodity Group

Food Group	Proteins (Grams)					Average Percentage Contribution
	2014	2015	2016	2017	2018	
Cereals (excl. beer)	25.0	25.0	24.0	26.0	26.6	37.4
Starchy roots	3.1	4.2	2.1	2.1	2.1	4.0
Pulses	16.7	17.7	16.7	17.7	18.1	25.7
Oilcrops	1.0	1.0	-	-	-	0.6
Vegetables	1.0	1.0	1.0	1.0	1.1	1.5
Fruits (Excluding Wine)	1.0	1.0	1.0	1.0	1.1	1.5
Spices	2.1	2.1	2.1	2.1	2.1	3.1
Meat	5.6	5.7	6.4	7.0	7.4	9.5
Offals	0.9	0.9	1.1	1.0	1.1	1.5
Milk - Excluding Butter	8.4	10.4	9.6	8.0	8.5	13.3
Fish & sea food	1.3	1.2	1.0	1.1	1.1	1.7

3.1.2.3 Per Caput Daily Fats Supply

It is understood that fats are higher in energy than other nutrients, and as such, when eaten in lower quantities, they may lead to weight loss. It is important to regulate the amount of fats consumed as they have effects on cholesterol levels in the body. Table 7 shows the individual daily supply of fats in Kenya for the period 2014 to 2018. Fats supply from vegetable products was well over 30 grams per person per day. The contribution of animal products to the overall daily supply of fats was also high, at over 15 grams per person per day. Fishery products contributes the least at less than 0.5 grams per person per day. However, there was a 2.3% drop in the individual daily fats supplied by vegetable products to 30 grams in 2018. This was mainly due to a reduction in the Dietary Energy Supply from the vegetable oils. Daily supply of fats from animal products increased by 10.4% to 18 grams in 2018 due to increased demand for bovine meat and milk. Fishery products recorded almost constant fats daily supply of 0.3 grams from 2014 to 2018, except for 2016 when it recorded a daily supply of fats at 0.2 grams.

Table 7: Per Caput Daily Fats Supply

Indicator	Grams				
	2014	2015	2016	2017	2018
Vegetable Products	32.3	33.0	33.0	30.7	30.0
Animal Products	15.7	19.0	19.0	16.3	18.0
Fishery Products	0.3	0.3	0.2	0.3	0.3

Table 8 shows the contribution of various food commodity groups to the overall daily supply of fats in Kenya for the period 2014 to 2018. Vegetable oils and milk contribute more than half the individual daily fats supply. This implies that Kenyans draw most of their fats from milk and vegetable oils. The FBS result also indicated that cereals and meat form important sources of fat to the Kenyan population.

Table 8: Per Caput Daily Fats Supply by Type of Food Commodity Group

Food Group	Fats (Grams)					Average Percentage Contribution
	2014	2015	2016	2017	2018	
Cereals (excl. beer)	8.6	9.6	9.6	10.2	10.0	19.4
Pulses	2.2	1.1	1.1	1.0	2.0	3.0
Treenuts	1.1	1.1	1.1	1.0	1.0	2.1
Oilcrops	2.2	2.1	2.1	1.0	1.0	3.4
Vegetable oils	15.1	16.0	16.0	14.3	13.0	29.9
Fruits (Excluding Wine)	1.1	1.1	1.1	1.0	1.0	2.1
Spices	2.2	2.1	2.1	2.0	2.0	4.2
Meat	4.5	6.3	6.3	6.5	6.8	12.3
Milk - Excluding Butter	11.2	12.7	12.7	9.8	10.1	22.7
Fish & sea food	0.3	0.3	0.2	0.3	0.3	0.5

3.1.3 Import Dependency Ratio (IDR) and Self-Sufficiency Ratio (SSR)

One of the main applications of FBS is to calculate derived indicators using FBS data. These indicators can be used to analyse a wide range of concepts, including hunger, malnutrition, import dependency and food self-sufficiency. The Import Dependency Ratio (IDR) measures the magnitude to which a country is dependent on imports over what is available for domestic use, while the Self-Sufficiency Ratio (SSR) compares the magnitude of a country's agricultural production to its domestic utilisation. This section discusses the IDR and SSR from 2014-2018 results.

Note:**Self-Sufficiency Ratio (SSR) and Import Dependency Ratio (IDR)**

The minimum value for SSR and IDR is zero. It is not expected to have negative values for these two indicators for the simple reason that none of involved variables (production, import and domestic supply) can be negative. However, SSR and IDR can be more than 100%. When the Self-Sufficiency Ratio (SSR) is more than 100%, it means that the production is higher than the domestic use. In this case, the surplus represents the proportion of net exports and/or transfers to stocks.

In same logic, when the IDR of a given commodity is higher than 100%, it means that the quantity exported plus the quantity transferred to stocks is higher than the production of that commodity.

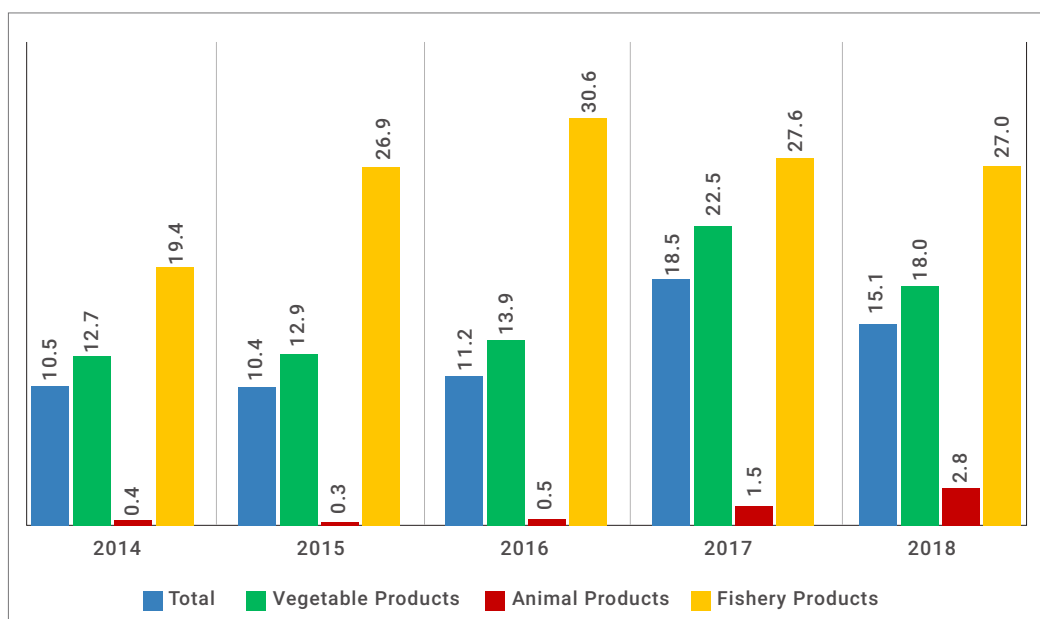
It is also important to note that, the SSR and IDR can be measured for a single or many commodities based on application of suitable conversion factors. To get SSR and IDR at national level, it is recommended to aggregate all commodities of the same nutritional values.

3.1.3.1 Import Dependency Ratio

Figure 3 shows the overall Import Dependency Ratio (IDR)¹ on vegetable and animal products for the period 2014 to 2018. The FBS results indicate that the total IDR increased from 10.5% in 2014 to 18.5% in 2017. This was mainly due to the IDR on vegetable products, which increased from 12.7% to 22.5% in the same reference period. This implied that more vegetable products were imported so as to meet the rising demand in the country. The year 2017 recorded the highest IDR, mainly because more vegetable products, especially maize, were imported to bridge the gap that was created due to the drought that depressed agricultural production.

The IDR on animal products was less than 1% for the years 2014, 2015 and 2016, and only increased to 1.5% in 2017 and 2.8% in 2018. The country was less dependent on imported animal products for the first three years. However, the dependency slightly increased in 2017 and 2018 due to reduced local production of animal products. The figure also shows that dependency on imported fishery products had risen between 2014 and 2016, and went down slightly in 2017 and 2018. This implied that the country was more dependent on imports for fishery products due to depressed production of fish and the subsequent rise in demand for fishery products. The overall IDR for 2018 was 15.1%. This was a reduction from 18.5% in 2017, which was due to reduced imports and improved production of vegetable products owing to favourable weather conditions.

Figure 4: Import Dependency Ratio (IDR), %



The drivers of Import Dependency Ratio in Kenya are shown in Table 9. In 2014, maize and products recorded an IDR of 12.5%. The IDR for maize in 2015 increased to 12.9% due to the low production experienced in 2014, which affected the year 2015. In 2016, the IDR for maize decreased by 62.0% to stand at 4.9%, mainly because of improved production in 2015. However, in 2017, maize and products recorded the highest IDR of 33.4%. During the year, there was massive importation of maize, which was meant to cushion consumers from maize shortage that was occasioned by drought in the country.

¹ Overall SSR and IDR and those of Vegetable and Animal Groups are estimated based on corresponding food quantities.

Dependency on imported potatoes, which was identified as a food security crop, was minimal, since the IDR was either less than one or was zero. In 2014 and 2016, the country did not depend on imports for potatoes and products. There were, however, minimal importations of the crop and its products for the years 2015, 2017 and 2018.

Further, the FBS results also indicated that the country was less dependent on imports for almost all animal products as they recorded IDR of less than 2% across the years, except for pig meat and its products, and milk. These recorded IDRs of 5.1% and 3.3% respectively in 2018.

Fresh water fish recorded an average IDR of 15.8% during the period under review, increasing from 7.5% in 2014 to 19.0% in 2017. This underscores the fact that the country had earlier experienced reduced production of fish, therefore necessitating the need for imports in meeting the domestic demand for fish and products. The IDR for cattle meat and products was 0% across the five years, implying no dependency on imported cattle meat and products. Dependency on imported milk and products recorded an increasing trend as shown by the consistent increase in its IDR from 2015 to 2017, and almost doubled in 2018. This was mainly due to depressed production of milk in the country.

Table 9: IDR for Select Commodities

	Per cent				
	2014	2015	2016	2017	2018
Wheat and products	85.0	86.0	87.2	92.8	86.8
Maize and products	12.5	12.9	4.9	33.4	13.6
Millet and products	29.1	40.0	10.9	60.8	29.6
Sorghum and products	43.7	48.9	51.1	47.7	70.9
Rice & Prod (Milled Equivalent)	83.4	85.8	88.9	92.6	98.3
Potatoes and products	0.0	0.3	0.0	0.3	0.1
Cassava and products	0.0	0.0	0.0	0.0	0.9
Sweet potatoes	-	-	-	0.1	-
Sugar cane	0.0	0.0	0.0	0.0	-
Sugar & Prod. (raw equivalent)	25.0	25.0	49.3	48.6	38.0
Beans, Dry & Products	0.1	0.1	0.1	0.1	3.1
Tomatoes and products	0.5	0.4	0.5	7.3	2.3
Onions, Dry	0.0	0.0	0.0	0.0	37.4
Bananas	0.0	0.0	0.1	0.2	0.1
Meat & Products, Bovine	0.0	0.0	0.0	0.0	0.0
Meat & Prod, Sheep & Goat	-	-	-	-	-
Meat & Products, Pig	-	-	-	-	5.1
Meat & Products, Poultry	0.0	0.0	0.0	0.0	0.6
Milk & Prod (Excluding Butter)	0.5	0.4	0.6	1.7	3.3
Eggs and products	0.2	0.1	0.1	0.1	1.1
Freshwater fish	7.5	15.4	18.2	19.0	18.9

3.1.3.2 Self-Sufficiency Ratio

Figure 4 shows the Self-Sufficiency Ratio (SSR) on vegetable and animal products for the period 2014 to 2018. Overall, the result showed that the SSR was on average 90.7%, implying that the country was at most self-sufficient in terms of domestic food supply on a number of food items. In 2017, the total SSR reduced by 5.8% to 87.2%. This was mainly due to the reduction in the SSR on vegetable products, which was occasioned by reduced production.

From 2014 to 2016, the SSR on vegetable products was well over 90%, but dropped to 84.5% in 2017. This is because in 2015, there was better harvest of vegetable products occasioned by good weather. However, in 2017, there was drought, which necessitated importation of vegetable products, thus affecting the SSR. This implies that there was increased dependency on imported vegetable products in 2017 as shown in Figure 3.1. In 2014 and 2015, the SSR on animal products was 100%, while in 2016, 2017 and 2018, the SSR decreased slightly to 99.8, 98.7 and 97.7% respectively. This was mainly due to a reduction in the SSR for bovine meat and milk. The SSR for fishery products recorded a downward trend from 92.7% in 2014 to 77.4% in 2018. This was mainly due to the continued decline in the production of freshwater fish. The total SSR was 89% in 2018, an increase of 2.1% from 87.2% in 2017. This was as a result of improved weather conditions, which led to increased production of various food commodities in the country.

Figure 5: Self Sufficiency Ratio (SSR), Per cent

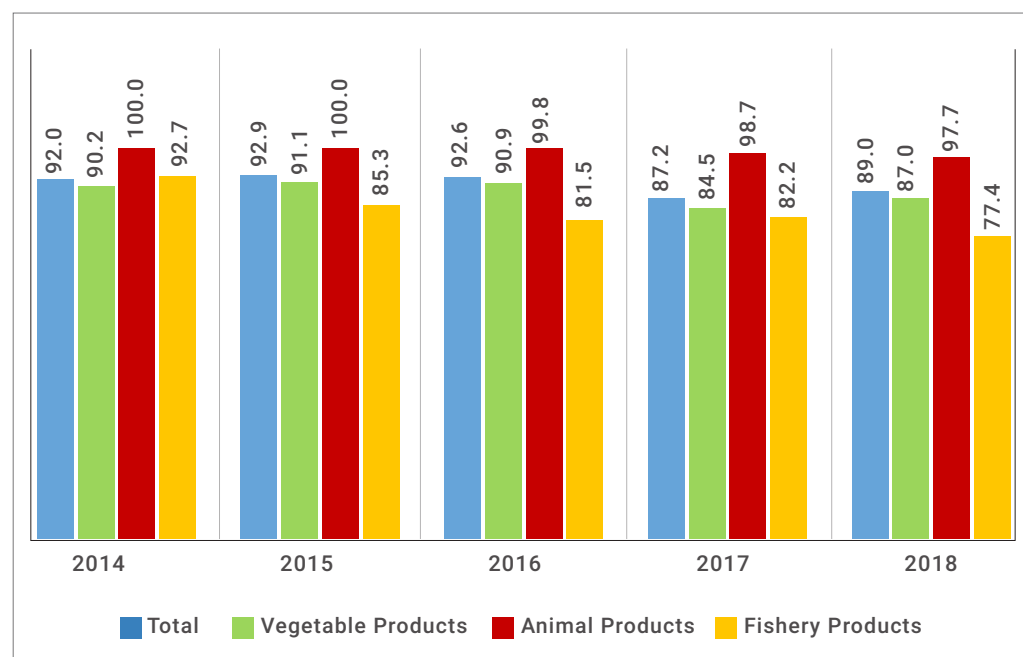


Table 10 shows the SSR for some selected food commodities for the period 2014 to 2018. Potatoes and products, cassava and products, sweet potatoes and sugar cane recorded SSRs of about 100% across the four years. For three years in a row, from 2014 to 2016, maize and products recorded an SSR of over 90%. But there was significant decline of the SSR on maize and products by 24.5% from 101.7% in 2016 to 76.8% in 2017 as a result of depressed production, brought about by drought in the year. There was consistent decline in SSR for rice and its products for the period 2014 to 2017 from 16.8% to 7.6%. However, in 2018, the trend was reversed as the SSR for rice increased by 46.1% to 11.1%. This was due to increased production of the crop in the review period. The country is a chief importer of rice since its production is low and its demand high.

Wheat and products also recorded a declining trend from 2014 to 2017 before reversing this in 2018. The table shows that the country is not self-sufficient with regard to rice and wheat as they recorded SSRs of below 20%. Overall, 2017 was not a good year in terms of dependency on locally produced vegetable products, since most of these recorded reduced production. However, in 2018, there was favourable weather conditions, which enhanced production of most vegetable products that led to improved SSR.

Most animal products recorded SSRs of 100% and over, except for milk and its products and freshwater fish, which recorded average SSRs of 99.4% and 88.3% respectively for the period 2014 to 2017. This implies that the country was more-less self-sufficient in terms of animal products. A lot of importation was not a necessity in meeting the rising demand of animal products. In 2018, there was, however, a reduction in SSR for most of the animal products, which was as a result of reduced local production. The SSR for freshwater fish declined from 97.2% in 2014 to 82.8% in 2017. This was due to reduced production of fish in the country, as well as the subsequent increase in imports.

Table 10: SSR for Select Commodities

	Per cent				
	2014	2015	2016	2017	2018
Wheat and products	15.4	14.3	14.2	8.2	15.9
Maize and products	92.9	100.5	101.7	76.8	96.8
Millet and products	70.9	60.0	89.1	39.2	70.4
Sorghum and products	80.0	85.3	84.0	53.5	93.9
Rice & Prod (Milled Equivalent)	16.8	14.2	11.2	7.6	11.1
Potatoes and products	100.3	99.8	100.2	100.9	100.0
Cassava and products	100.0	100.0	100.0	100.0	99.1
Sweet potatoes	100.0	100.0	100.0	99.9	100.0
Sugar cane	100.0	100.0	100.0	100.0	100.0
Sugar & Prod. (raw equivalent)	81.4	81.4	98.6	154.0	65.0
Beans, Dry & Products	94.5	95.5	95.3	95.9	92.6
Tomatoes and products	99.6	99.6	99.6	92.8	97.7
Onions, Dry	100.2	100.2	100.2	100.2	62.6
Bananas	100.0	100.0	99.9	99.8	99.9
Meat & Products, Bovine	101.1	101.0	100.9	100.1	100.2
Meat & Prod, Sheep & Goat	101.2	101.1	101.3	101.0	111.9
Meat & Products, Pig	100.0	100.0	100.0	100.0	99.2
Meat & Products, Poultry	100.0	100.0	100.0	100.0	99.5
Milk & Prod (Excluding Butter)	99.8	99.8	99.5	98.3	96.7
Eggs and products	100.4	100.3	100.3	100.3	99.0
Freshwater fish	97.2	88.9	84.1	82.8	82.8

3.2 Comparison of FBS Results from the New Tool and Old Tool

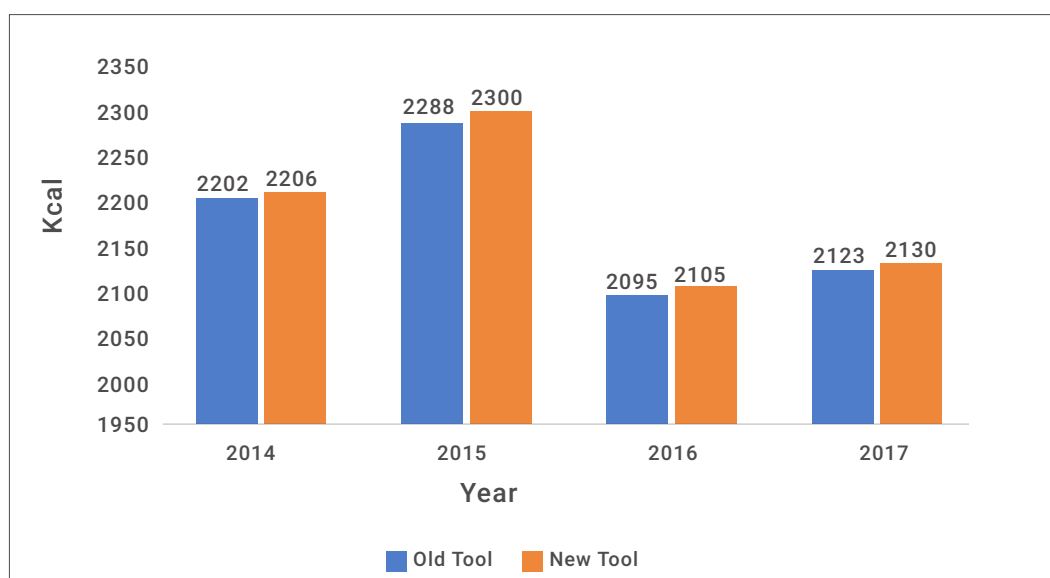
Kenya has been using a different system, Old Tool, since 2005, in producing the annual FBS, which is published in the Economic Survey. As was highlighted earlier, new guidelines on the approach to be used for compiling SUA/FBS has been proposed to countries, including new features, which aim at improving how imputation of missing SUA basic data is done, how SUA/FBS identities for each commodity are balanced, etc. At that end, a new FBS Compilation Tool has been developed and customised to Kenya's specificity.

This section therefore compares the results obtained from the two systems with a view to explaining the differences thereof, if any. In doing so, the same data that was used in generating the FBS in the Old Tool was also used in generating FBS using the New Tool. Comparison has only been done for the period 2014 to 2017, where the FBS results from both the Old and New tools are available. The 2018 FBS was generated using only the New Tool.

Per Caput Daily Supply

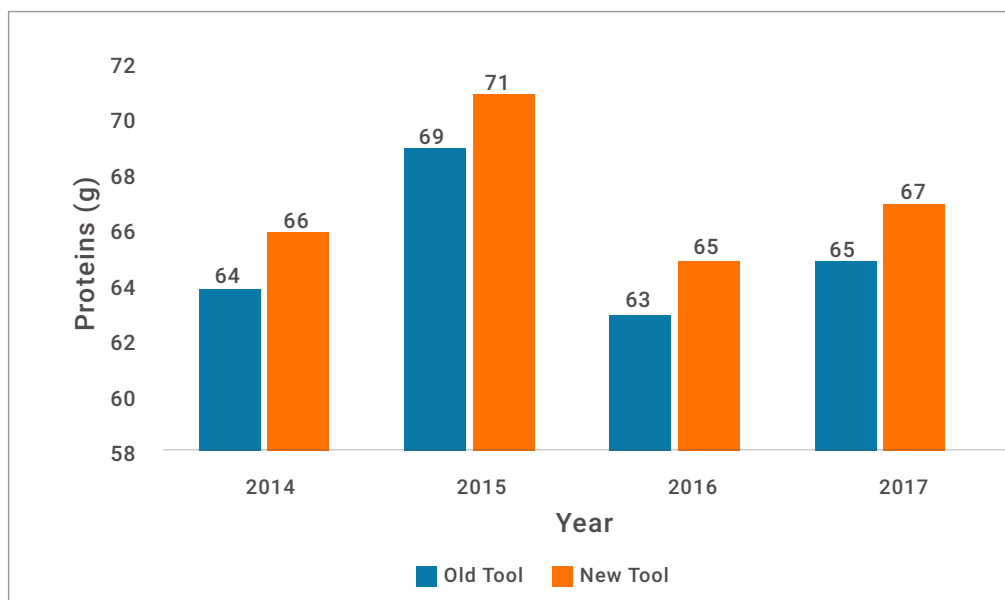
Figure 5 presents the comparison between the Old Tool and the New Tool for Per Caput Daily Caloric Supply from 2014 to 2017. Overall, Per Caput Daily Caloric Supply across the years from the New Tool was slightly higher than that obtained from using the Old Tool. The difference ranged from 0.2% to 0.5% for the period under review. In 2014, the daily caloric supply from the New Tool was higher by only 4 calories, while those of 2015, 2016 and 2017 were higher by 12, 10 and 7 calories respectively.

Figure 6: Per Caput Daily Caloric Supply from the Old Tool and New Tool, Calories



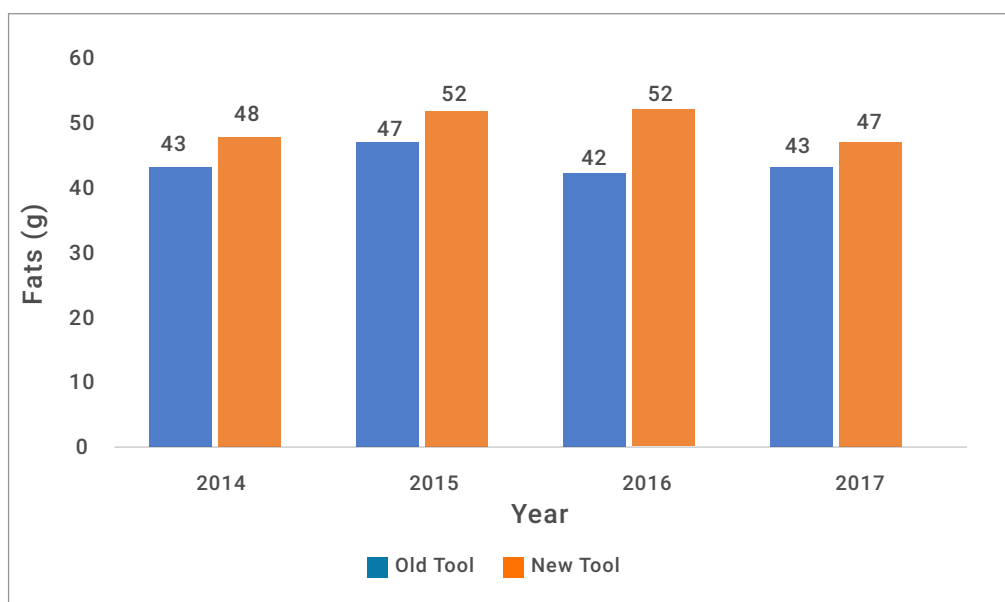
Individual daily supply of proteins from 2014 to 2017 is as shown in Figure 6. It gives a side by side comparison on the results of daily protein supply obtained from using the Old Tool and the New Tool in generating the Kenya FBS. It is observed that across the years, the results of daily protein supply from the New Tool are higher than those obtained using the Old Tool by 2 grams.

Figure 7: Per Caput Daily Protein Supply from the Old Tool and New Tool, grams



The results of Per Caput Daily Supply of Fat for Kenya using the Old and New tools in the compilation of the FBS for the period 2014 to 2017 are shown in Figure 8. Overall, the results obtained from using the New Tool are higher than those obtained using the Old Tool.

Figure 8: Per Caput Daily Fat Supply from the 'Old' Tool and New Tool, grams



Conclusion: It is clear that the results obtained (calories, proteins and fats supply) from the two systems (Old Tool and New Compilation Tool) are slightly different from each other. This is mainly explained by the improvement in the SUA/FBS balancing mechanism and better estimation of the "Other Uses" component in the New Tool.

3.3 Comparison with FAOSTAT results

The data used by FAO to compile FBS published on FAOSTAT come from the respective countries. However, there are a lot of estimations and imputations done by FAO to fill the missing values. The latest FBS for countries on the FAO website, FAOSTAT, is for 2013. However, comparing the results posted by FAO with the results obtained by the New Tool in this report, there is correlation.

The number of daily calories supplied is shown to be 2,205Kcals for the year 2013. When comparing this with the result obtained in this report, it indicates a marginal increase to 2,206Kcals in the year 2014. For proteins, the FAOSTAT indicates that in 2013, Kenyans consumed on average, about 62 grams of proteins daily. However, this report indicates that in 2014, the supply of proteins was about 66 grams. The two, i.e. FAOSTAT and this report, indicate that between the two years, there was no change in the daily consumption of fats. They were both at 48 grams per day per person.

Conclusion: It's fair to note that the results generated with the New Tool, in terms of calories, proteins and fats supply for 2014 reference year, are close to those published on the FAOSTAT website for 2013. This comparison highlights the robustness of the results generated by the New Compilation Tool.

Chapter 4

Constraints, limitations and lessons learnt

4.1 Constraints and limitations

During the compilation of the SUA basic data and the subsequent generation of the FBS results using the New Tool for the period 2014 to 2017, we largely used the same data as the one used in generating the FBS using the Old Tool. This information was readily available.

In compiling tourism data, the New Tool does not allow the compiler to add more countries to the system in order to better estimate the tourist consumption.

Another limitation lies with the new FBS Guidelines and related compilation tool, which only give provision of collating information on vegetable and animal products. The fishery products have to be compiled using the Old Tool and then the generated FBS results extracted and put in the New Tool FBS.

At the beginning of the process of compiling FBS using the New Tool, it was not possible to run the 2017 FBS due to some technical problems related to the tool. This led to a delay in the FBS compilation process in the country.

The standard Technical Conversion Factors are used to generate FBS. There is a need to get the most updated country specific conversion factors in order to improve the quality of the FBS generated.

4.2 Lessons Learnt

The process of elaboration of FBS allowed the strengthening of capacities on methodological aspects, the compilation of SUAs, estimation of missing data and the generation of FBS. In addition, the following lessons were learnt:

a) **Livestock Feed Demand**

The revised methodology is opposed to the previous one whereby livestock feed demand is estimated from energy and protein requirements of herd and total feed needs expressed in terms of Grain Consuming Animal Units (GCAU) and High Protein Consuming Animal Units (HPCAU). Secondly, the allocation of feedstuffs to match requirements and amounts allocated to different livestock, based on prior information of typical, country-specific feeding practices, is very elaborate in the new methodology.

b) Food (Human Consumption)

The old approach used sparse or missing basic data to estimate food available for human consumption and food utilisation, derived as residual in FBS balance. The new methodology models food availability in the current year based on availability levels in the previous year, but by making adjustments for changes in income, population and the overall trend in food availability. Food availability is estimated using some parameters such as elasticities of the commodities, GDP per capita, population and historical trend in food availability.

c) Data

Preparation of the Food Balance Sheets uses numerous types of data coming from different institutions. The FBS team noted that collaboration and commitment of all stakeholders is necessary towards succeeding and reaching the target of good quality data, thus improving the quality of FBS produced.

Conclusion

The Food Balance Sheets compilation exercise was very fruitful for Kenya and strongly contributed to strengthening the capacity of FBS team members. The New Compilation Tool based on the revised methodology, is better in generating the FBS, since it has improved the SUAs and FBS balancing mechanisms and the ways of doing estimations of missing data. This, therefore, improves the quality of the computed Dietary Energy Supply levels.

The comparison between the results from FAOSTAT and those obtained from the New Tool reveal similar outcomes in terms of nutrient factors such as calories supply, proteins supply and fats supply.

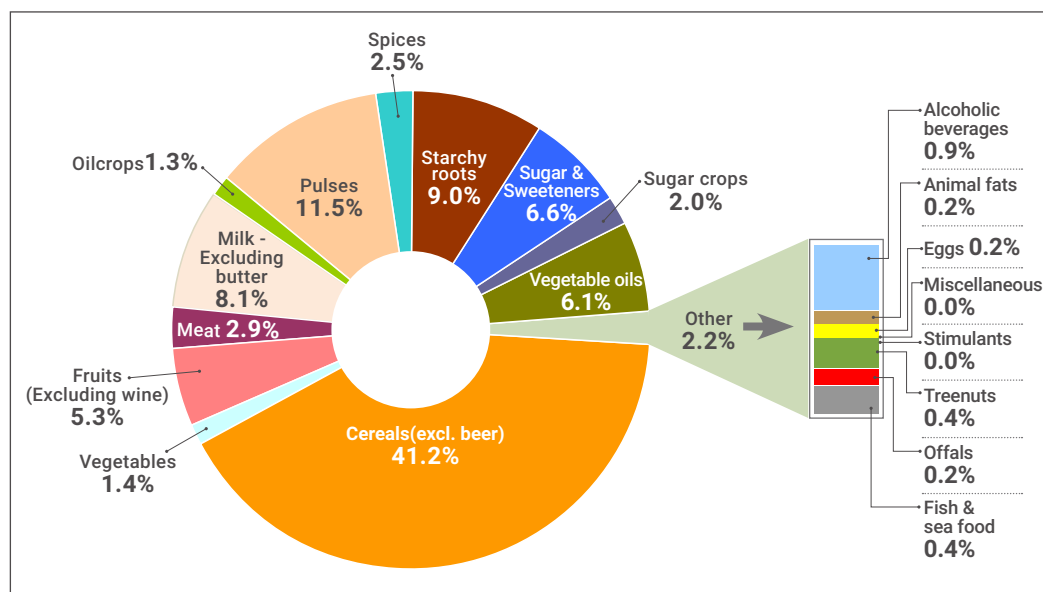
At the end of enhancing Food Balance Sheets compilation for Kenya, the national FBS team would like to make the following recommendations:

- In order to improve the quality and the way Food Balance Sheets are compiled, it is important to formally establish a Technical Working Group (TWG) and integrate it in the existing statistical legal framework.
- In order to achieve good and quality data, there is a need to step up data control procedures in the respective institutions handling agricultural data. This has to be done by the respective institutions with the help of KNBS, through the national TWG, Agriculture, Nutrition and Environment Statistics (ANES) committee.
- There is a need to properly and adequately train officers engaged in the business of collecting data. The Bureau has to try and build the capacities of the institutions and especially of the officers engaged in data collection. This should be done at both national and county levels.
- An advocacy, communication and dissemination strategy of the produced FBS should be in place so that the government, policy makers and other stakeholders recognise it as a reference point to back up the decisions they will be making on food availability and utilisation in the country.
- There is a need to get the current and most updated country specific conversion factors in order to improve the quality of the FBS generated.

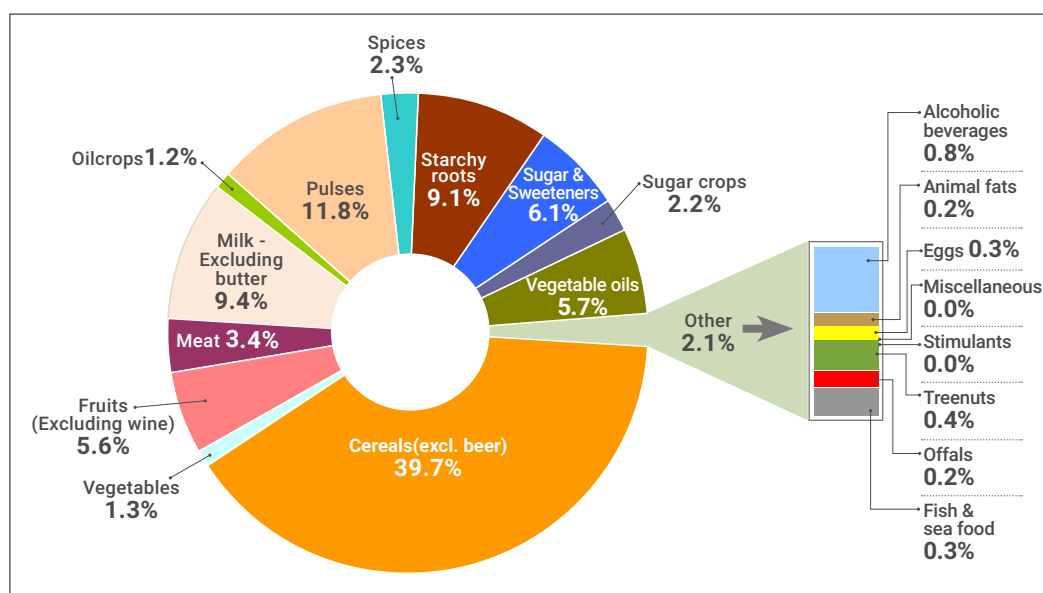
As way forward, Kenya National Bureau of Statistics is committed to sustaining the production of FBS information on a regular basis, ensuring timely availability for users.

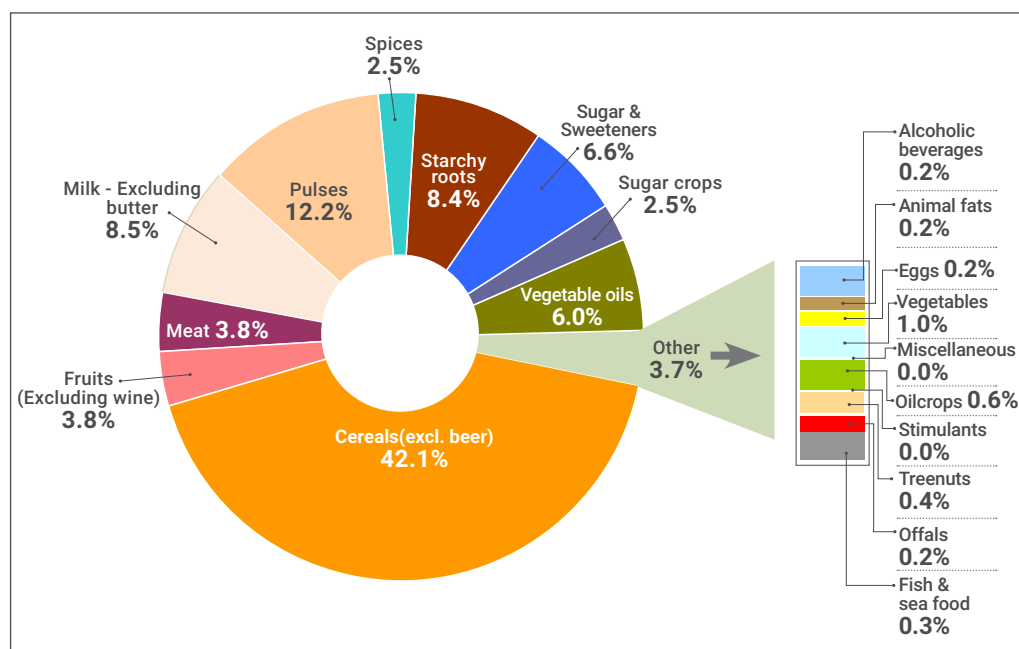
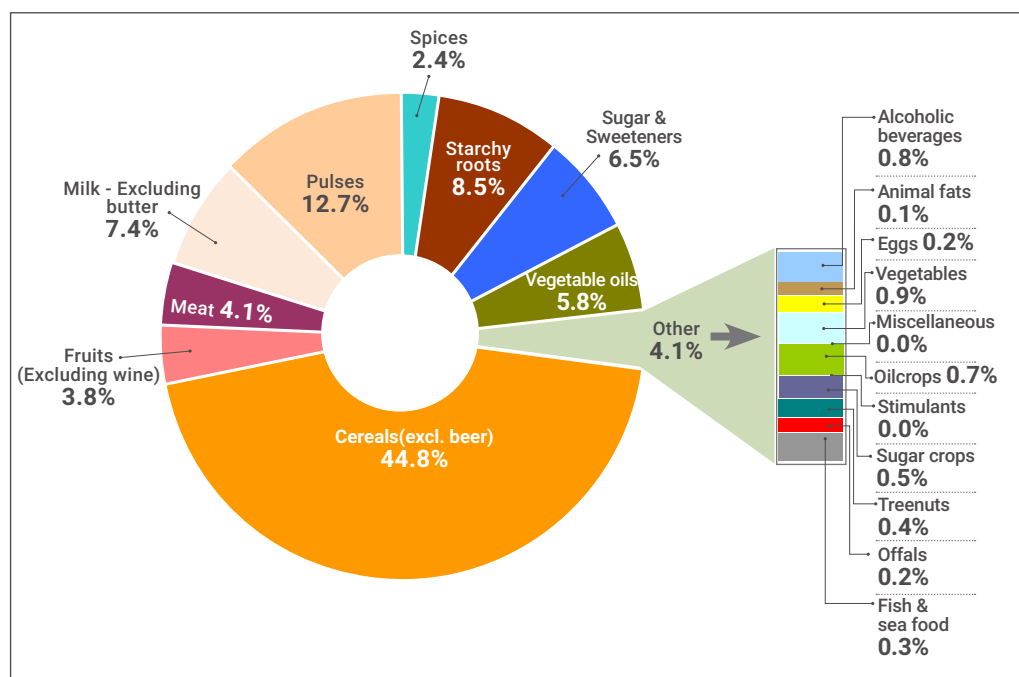
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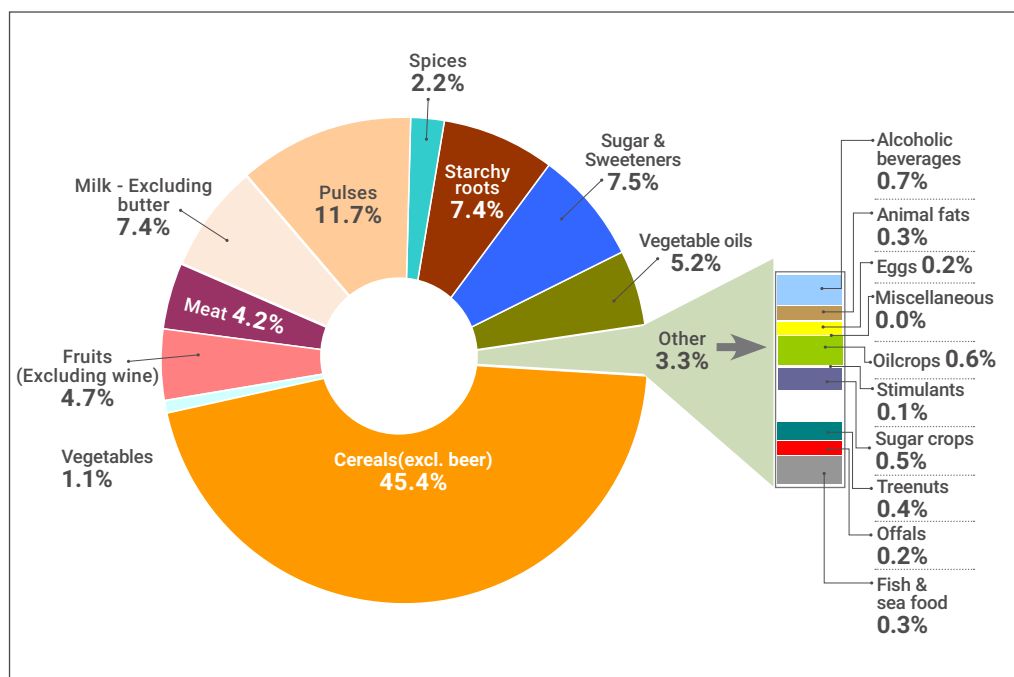
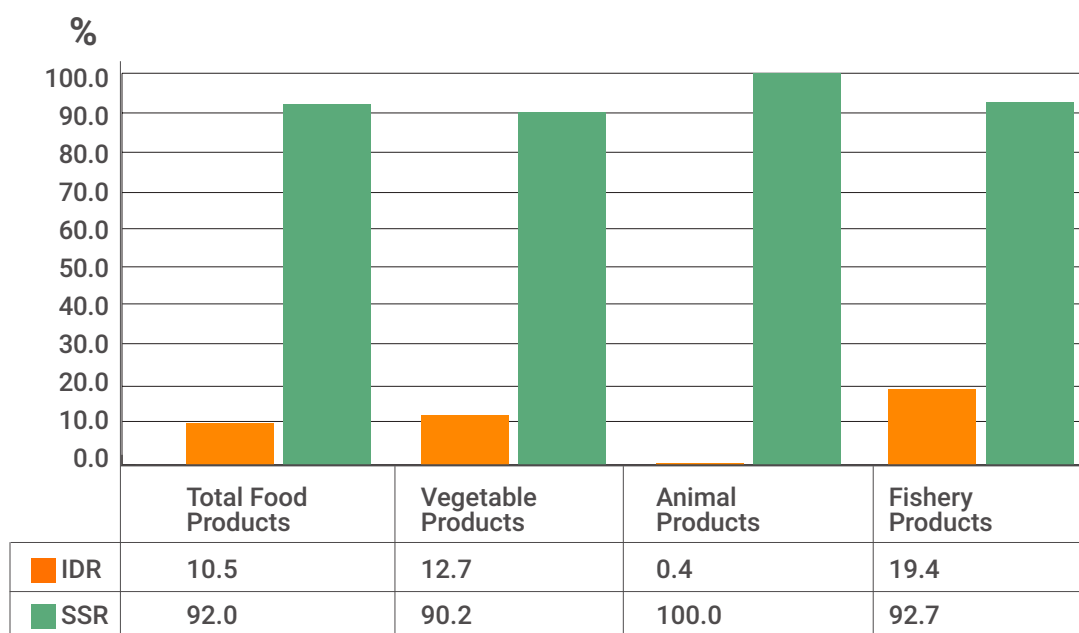
Annex 1a: Per Caput Daily Caloric Distribution by Food Group, 2014

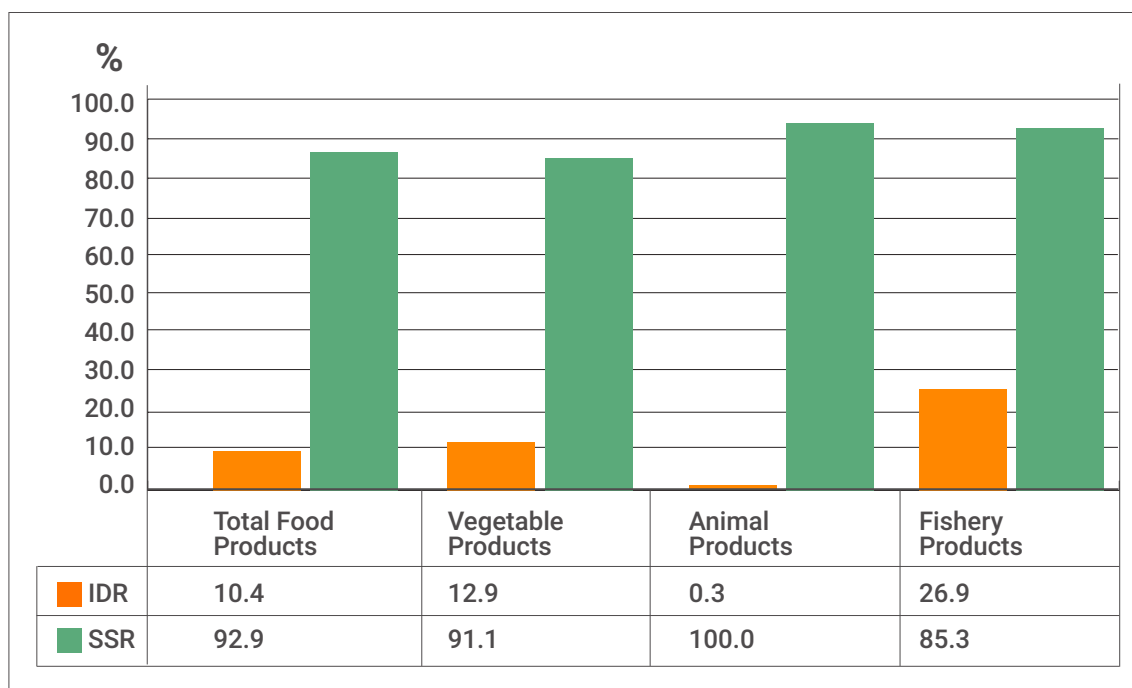
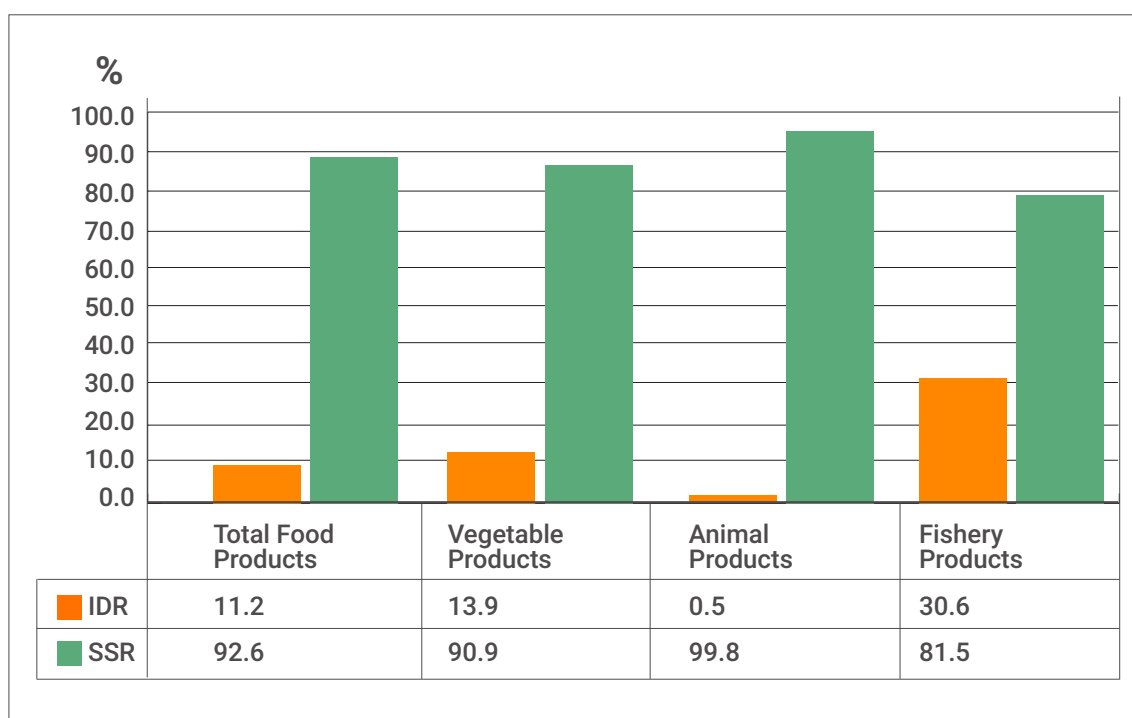


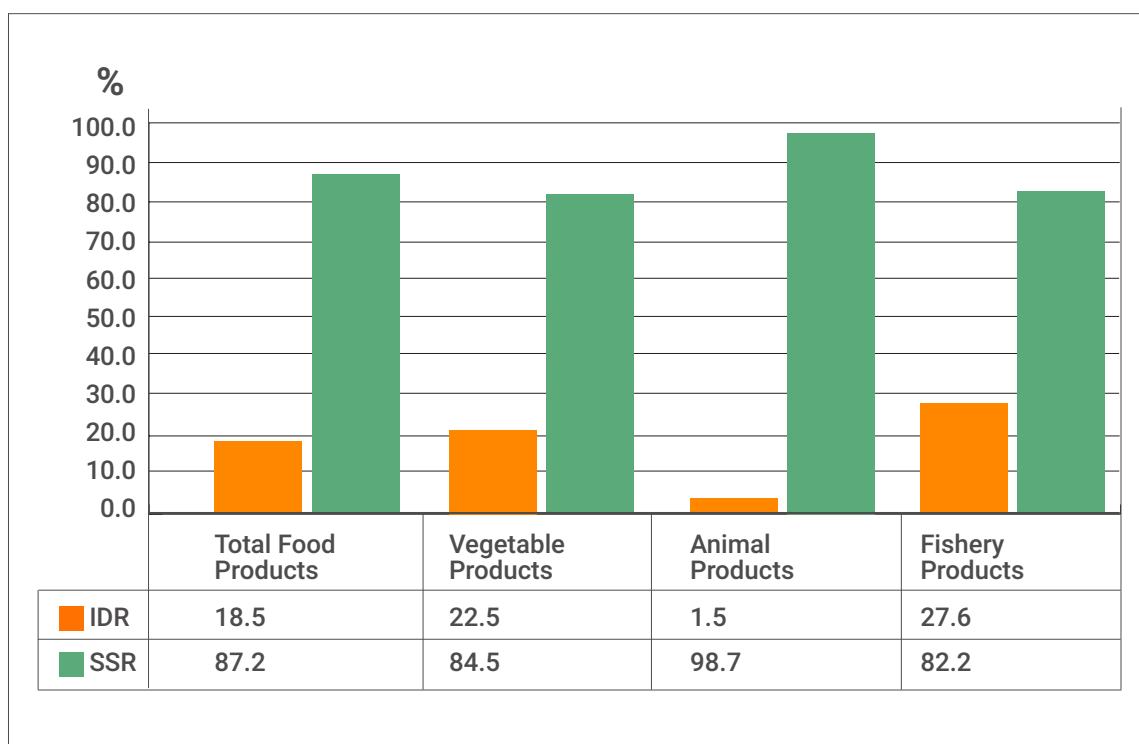
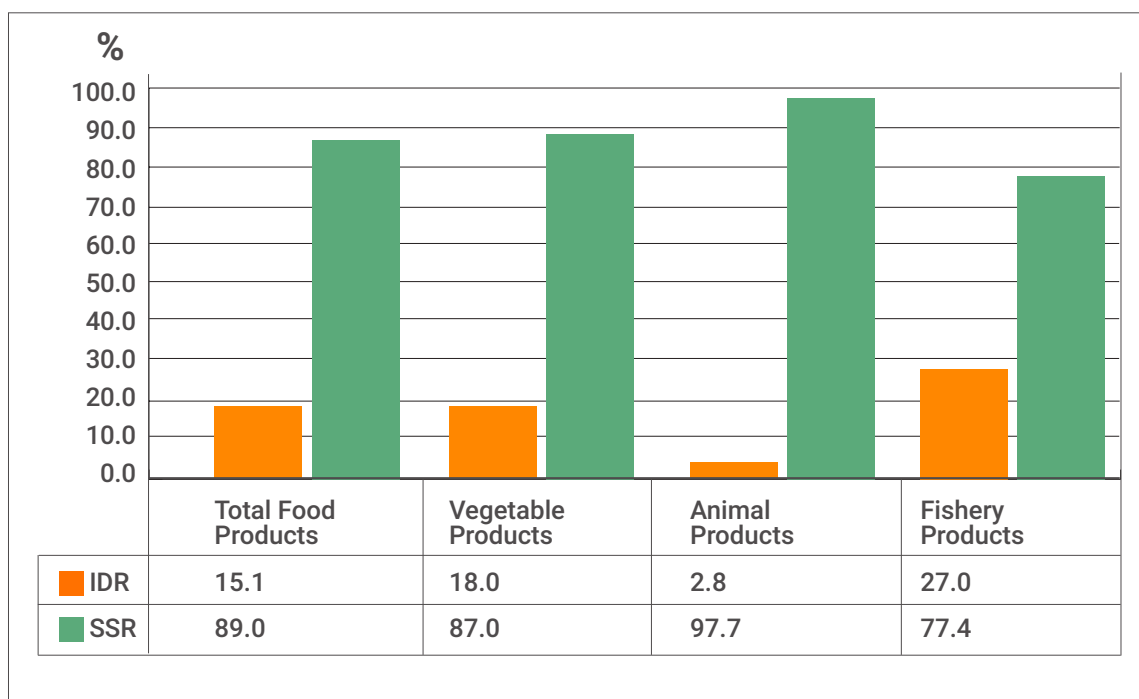
Annex 1b: Per Caput Daily Caloric Distribution by Food Group, 2015



Annex 1c: Per Caput Daily Caloric Distribution by Food Group, 2016**Annex 1d:** Per Caput Daily Caloric Distribution by Food Group, 2017

Annex 1e: Per Caput Daily Caloric Distribution by Food Group, 2018**Annex 2a: Self-Sufficiency Ratio & Import Dependency Ratio, 2014**

Annex 2b: Self-Sufficiency Ratio & Import Dependency Ratio, 2015**Annex 2c: Self-Sufficiency Ratio & Import Dependency Ratio, 2016**

Annex 2d: Self-Sufficiency Ratio & Import Dependency Ratio, 2017**Annex 2e: Self-Sufficiency Ratio & Import Dependency Ratio, 2018**

Annex 3:

Food Balance Sheets results

FOOD BALANCE SHEET 2014						Population('000):						42,961			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
												units	grams	grams	
Grand total												2206	66	48	
Vegetable prod.												1942	50	32	
Animal prod.												264	16	16	
Cereals (excl. beer)	4181	2551	87	191	6454	128	682	186	79	96	5282	123	908	25	9
Wheat and products	224	1234	6	0	1451	0	29	0	11	67	1345	31.3	227	7	2
Barley and products	78	1	14	0	65	32	1	0	1	0	31	0.7	6	0	0
Maize and products	3507	473	16	191	3774	25	606	150	62	0	2930	68.2	527	15	6
Rye and products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Oats and products	0	1	0	0	1	0	0	0	0	0	1	0.0	0	0	0
Millet and products	58	24	0	0	82	28	10	7	2	4	31	0.7	6	0	0
Sorghum and products	167	91	49	0	209	43	31	29	3	13	91	2.1	18	1	0
Cereals, Others & Products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Rice & Prod (Milled Equivalent)	147	727	2	0	872	0	6	0	1	12	853	19.9	125	2	0
Starchy roots	3892	0	5	0	3888	0	275	0	104	37	3472	80.8	199	3	0
Potatoes and products	1600	0	5	0	1596	0	160	0	104	2	1330	31.0	60	1	0
Cassava and products	1112	0	0	0	1113	0	0	0	0	34	1079	25.1	74	1	0
Sweet potatoes	1150	0	0	0	1150	0	115	0	0	0	1035	24.1	63	1	0
Roots & Tubers, Other & Prod.	19	0	0	0	19	0	0	0	0	1	18	0.4	1	0	0
Yams	10	0	0	0	10	0	1	0	0	0	10	0.2	1	0	0
Sugar crops	6478	0	0	0	6478	4122	0	0	0	28	2328	54.2	45	0	0
Sugar cane	6478	0	0	0	6478	4122	0	0	0	28	2328	54.2	45	0	0
Sugar Beets	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Sugar & Sweeteners	587	168	21	22	712	59	0	0	0	3	650	15.1	145	0	0
Sugar non-centrifugal	22	0	0	0	22	2	0	0	0	1	18	0.4	3	0	0
Sugar & Prod. (raw equivalent)	544	167	21	22	668	56	0	0	0	2	610	14.2	138	0	0
Sweeteners, other & prod.	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Honey	22	0	0	0	22	0	0	0	0	0	22	0.5	4	0	0
Pulses	881	5	2	-432	1316	0	127	0	8	4	1177	27.4	253	17	2
Beans, Dry & Products	616	1	0	-35	652	0	98	0	0	0	554	12.9	119	8	1
Peas, Dry & Products	4	4	1	0	8	0	0	0	0	0	7	0.2	2	0	0
Pulses, Other and products	261	0	2	-397	656	0	30	0	8	3	616	14.3	132	8	1
Treenuts	44	0	4	0	40	0	1	0	0	0	39	0.9	9.0	0.0	1.1
Nuts and products	44	0	4	0	40	0	1	0	0	0	39	0.9	9	0	1

FOOD BALANCE SHEET 2014											Population('000):		42,961		
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
Oilcrops	202	6	5	0	203	63	1	0	0	10	130	3.0	28	1	2
Soyabeans & Products	2	0	0	0	2	0	0	0	0	0	2	0.1	0	0	0
Groundnuts (Shelled Eq)	94	1	0	0	95	0	0	0	0	5	91	2.1	25	1	2
Sunflower seed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Rape and Mustardseed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Coconuts - Incl Copra	64	0	0	0	64	23	0	0	0	3	37	0.9	3	0	0
Sesame seed	0	5	5	0	0	0	0	0	0	0	0	0.0	0	0	0
Palmkernels	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Olives (including preserved)	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Oilcrops, Other	41	0	0	0	41	39	0	0	0	2	0	0.0	0	0	0
Vegetable oils	194	538	75	0	657	129	0	0	0	263	266	6.2	133.9	0.0	15.1
Soyabean Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Groundnut Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Sunflowerseed Oil	5	0	0	0	5	0	0	0	0	0	5	0.1	3	0	0
Rape and Mustard Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Cottonseed Oil	2	0	0	0	2	0	0	0	0	0	2	0.0	1	0	0
Palmkernel Oil	0	2	0	0	2	0	0	0	0	0	2	0.0	1	0	0
Palm Oil	0	522	68	0	454	128	0	0	0	259	67	1.6	37	0	4
Coconut Oil	6	12	0	0	18	0	0	0	0	1	17	0.4	10	0	1
Sesameseed Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Olive & Residue Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Maize Germ Oil	14	1	0	0	14	0	0	0	0	0	14	0.3	8	0	1
Oilcrops Oil, Other	168	2	7	0	163	0	0	0	0	3	160	3.7	74	0	9
Vegetables	2445	6	41	0	2409	0	165	0	0	48	2196	51.1	32	1	0
Tomatoes and products	494	2	0	0	496	0	49	0	0	0	448	10.4	6	0	0
Onions, Dry	67	0	0	0	67	0	23	0	0	3	40	0.9	1	0	0
Vegetables, Other & Prod.	1883	3	41	0	1845	0	93	0	0	44	1708	39.8	25	1	0
Fruits (Excluding Wine)	3562	54	254	0	3362	9	130	0	0	102	3122	72.7	116	1	1
Oranges, Tang-Mand & Prod.	86	9	1	0	94	0	5	0	0	0	89	2.1	2	0	0
Lemons, Limes and products	26	0	0	0	26	0	3	0	0	0	23	0.5	0	0	0
Grapefruit and products	13	0	0	0	13	0	1	0	0	0	12	0.3	0	0	0
Citrus Fruit nes & prod	135	0	0	0	135	0	13	0	0	0	121	2.8	2	0	0
Bananas	1371	1	0	0	1372	0	0	0	0	69	1303	30.3	50	1	0
Plantains	599	0	0	0	599	7	0	0	0	30	562	13.1	27	0	0
Apples and products	0	12	0	0	12	0	1	0	0	0	11	0.2	0	0	0
Pineapples and products	123	1	112	0	12	0	0	0	0	0	12	0.3	0	0	0
Dates	1	4	0	0	5	0	0	0	0	0	5	0.1	0	0	0
Grapes & products (excl wine)	2	3	0	0	5	2	0	0	0	0	3	0.1	0	0	0
Fruits, Other & Products	1206	24	140	0	1090	0	107	0	0	2	981	22.8	34	0	0

FOOD BALANCE SHEET 2014						Population('000):							42,961			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY				
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY			
													Calories	Proteins	Fats	
													Kg.	units	grams	grams
1000 Metric Tons																
Stimulants	497	8	549	-57	12	0	12	0	0	0	0	0.0	0	0	0	
Coffee and products	52	5	114	-57	0	0	0	0	0	0	0	0.0	0	0	0	
Cocoa Beans and products	0	1	1	0	0	0	0	0	0	0	0	0.0	0	0	0	
Tea (including mate)	445	2	435	0	12	0	12	0	0	0	0	0.0	0	0	0	
Spices	256	3	3	0	256	0	0	0	0	0	256	5.9	55	2	2	
Pepper	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Pimento	5	0	0	0	5	0	0	0	0	0	5	0.1	1	0	0	
Cloves	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Spices, other	250	3	3	0	251	0	0	0	0	0	251	5.8	54	2	2	
Alcoholic beverages	580	5	2	0	584	0	0	0	0	16	568	13.2	19	0	0	
Wine	3	4	1	0	6	0	0	0	0	0	6	0.1	0	0	0	
Barley Beer	211	0	0	0	211	0	0	0	0	0	211	4.9	6	0	0	
Beverages, fermented	324	0	0	0	324	0	0	0	0	0	324	7.5	8	0	0	
Beverages, alcoholic	26	2	1	0	26	0	0	0	0	0	26	0.6	5	0	0	
Alcohol, non food	16	0	0	0	16	0	0	0	0	16	0	0.0	0	0	0	
Meat	586	0	5	0	581	0	0	0	0	11	570	13.3	65	6	4	
Meat & Products, Bovine	380	0	4	0	376	0	0	0	0	0	376	8.8	45	4	3	
Meat & Prod, Sheep & Goat	86	0	1	0	85	0	0	0	0	2	83	1.9	8	1	1	
Meat & Products, Pig	17	0	0	0	17	0	0	0	0	1	16	0.4	4	0	0	
Meat & Products, Poultry	22	0	0	0	22	0	0	0	0	0	22	0.5	2	0	0	
Meat & Products, Other Anim.	82	0	0	0	82	0	0	0	0	8	74	1.7	6	1	0	
Offals	74	0	0	0	74	0	0	0	0	0	74	2	5	1	0	
Offals, Edible	74	0	0	0	74	0	0	0	0	0	74	1.7	5	1	0	
Animal fats	24	1	6	-1	20	11	0	0	0	3	5	0.1	4	0	0	
Fats, Animals, Raw	24	1	6	-1	20	11	0	0	0	3	5	0.1	4	0	0	
Butter, Ghee	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Cream	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Fish, body oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Fish, liver oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Milk - Excluding Butter	4891	22	10	0	4903	33	354	18	0	193	4307	100	178	8	11	
Milk & Prod (Excluding Butter)	4891	22	10	0	4903	33	354	18	0	193	4307	100.2	178	8	11	
Eggs	71	0	0	0	71	0	11	0	5	0	56	1.3	4.0	0.0	0.0	
Eggs and products	71	0	0	0	71	0	11	0	5	0	56	1.3	4	0	0	

FOOD BALANCE SHEET 2014											Population('000):		42,961		
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
													units	grams	grams
Fish & sea food	175	37	23	0	189	0	0	0	0	0	192	4.5	8	1	0
Freshwater fish	159	12	8	0	163	0	0	0	0	0	161	3.7	7	1	0
Demersal fish	4	0	10	0	-5	0	0	0	0	0	0	0.0	0	0	0
Pelagic fish	3	22	3	0	22	0	0	0	0	0	21	0.5	1	0	0
Marine fish, other	8	2	1	0	9	0	0	0	0	0	9	0.2	0	0	0
Crustaceans	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Molluscs other	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Cephalopods	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic products, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic mammals meat	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic animals, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic plants	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Miscellaneous	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Infant food	0	0	1	0	0	0	0	0	0	0	0	0.0	0	0	0
Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Infant food	0	0	1	0	0	0	0	0	0	0	0	0.0	0	0	0
Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0

FOOD BALANCE SHEET 2015						Population ('000):						44,156			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
													units	grams	grams
Grand total													2300	71	52
Vegetable prod.													1983	52	33
Animal prod.													317	19	19
Cereals (excl. beer)	4483	2756	112	494	6633	126	764	192	83	347	5121	116	914	25	10
Wheat and products	239	1430	6	0	1663	0	33	0	11	105	1514	34.3	247	7	3
Barley and products	78	1	15	0	64	32	1	0	1	0	30	0.7	5	0	0
Maize and products	3824	489	15	494	3805	27	688	157	66	216	2651	60.0	524	15	6
Rye and products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Oats and products	0	1	0	0	1	0	0	0	0	0	1	0.0	0	0	0
Millet and products	37	25	0	0	62	23	7	5	2	3	23	0.5	4	0	0
Sorghum and products	189	108	76	0	222	45	32	30	3	10	102	2.3	20	1	0
Cereals, Others & Products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Rice & Prod (Milled Equivalent)	116	702	1	0	818	0	4	0	1	13	800	18.1	114	2	0
Starchy roots	4252	5	2	0	4256	0	345	0	104	3	3803	86.1	209	4	0
Potatoes and products	1960	5	2	0	1963	0	196	0	104	2	1661	37.6	73	2	0
Cassava and products	1112	0	0	0	1113	0	33	0	0	0	1079	24.4	72	1	0
Sweet potatoes	1150	0	0	0	1150	0	115	0	0	0	1035	23.4	62	1	0
Roots & Tubers, Other & Prod.	19	0	0	0	19	0	0	0	0	1	18	0.4	1	0	0
Yams	10	0	0	0	10	0	1	0	0	0	10	0.2	1	0	0
Sugar crops	6849	0	0	0	6849	4122	0	0	0	28	2699	61.1	50	0	0
Sugar cane	6849	0	0	0	6849	4122	0	0	0	28	2699	61.1	50	0	0
Sugar Beets	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Sugar & Sweeteners	587	167	21	22	712	59	0	0	0	3	650	14.7	141	0	0
Sugar non-centrifugal	22	0	0	0	22	2	0	0	0	1	18	0.4	3	0	0
Sugar & Prod. (raw equivalent)	544	167	21	22	668	56	0	0	0	2	610	13.8	134	0	0
Sweeteners, other & prod.	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Honey	22	0	0	0	22	0	0	0	0	0	22	0.5	4	0	0
Pulses	1028	9	5	-432	1464	0	150	0	7	4	1303	29.5	272	18	1
Beans, Dry & Products	765	1	0	-35	801	0	120	0	0	-0	681	15.4	142	9	1
Peas, Dry & Products	4	4	1	0	8	0	0	0	0	0	7	0.2	2	0	0
Pulses, Other and products	259	4	5	-397	655	0	30	0	7	3	615	13.9	128	8	1
Treenuts	45	0	4	0	41	0	1	0	0	0	40	0.9	9.0	0.0	1.1
Nuts and products	45	0	4	0	41	0	1	0	0	0	40	0.9	9	0	1

FOOD BALANCE SHEET 2015						Population ('000):						44,156			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
Oilcrops	202	6	5	0	204	50	0	0	0	7	146	3.3	28	1	2
Soyabeans & Products	3	0	0	0	3	0	0	0	0	0	2	0.1	0	0	0
Groundnuts (Shelled Eq)	94	1	0	0	95	0	0	0	0	5	91	2.1	23	1	2
Sunflower seed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Rape and Mustardseed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Coconuts - Incl Copra	64	0	0	0	64	11	0	0	0	0	53	1.2	5	0	0
Sesame seed	0	5	5	0	0	0	0	0	0	0	0	0.0	0	0	0
Palmkernels	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Olives (including preserved)	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Oilcrops, Other	41	0	0	0	41	39	0	0	0	2	0	0.0	0	0	0
Vegetable oils	194	538	75	0	658	129	0	0	0	263	266	6.0	130.1	0.0	16.0
Soyabean Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Groundnut Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Sunflowerseed Oil	5	0	0	0	5	0	0	0	0	0	5	0.1	3	0	0
Rape and Mustard Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Cottonseed Oil	2	0	0	0	2	0	0	0	0	0	2	0.0	1	0	0
Palmkernel Oil	0	2	0	0	2	0	0	0	0	0	2	0.0	1	0	0
Palm Oil	0	522	68	0	454	128	0	0	0	259	67	1.5	36	0	5
Coconut Oil	6	12	0	0	18	0	0	0	0	1	17	0.4	10	0	1
Sesameseed Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Olive & Residue Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Maize Germ Oil	14	1	0	0	14	0	0	0	0	0	14	0.3	8	0	1
Oilcrops Oil, Other	168	2	7	0	163	0	0	0	0	3	160	3.6	72	0	9
Vegetables	2418	6	40	0	2383	0	166	0	0	47	2169	49.1	30	1	0
Tomatoes and products	494	2	0	0	496	0	49	0	0	0	447	10.1	5	0	0
Onions, Dry	67	0	0	0	67	0	23	0	0	3	40	0.9	1	0	0
Vegetables, Other & Prod.	1856	4	40	0	1820	0	94	0	0	44	1682	38.1	24	1	0
Fruits (Excluding Wine)	4042	62	274	0	3829	9	119	0	0	121	3581	81.1	128	1	1
Oranges, Tang-Mand & Prod.	89	13	0	0	102	0	4	0	0	0	98	2.2	2	0	0
Lemons, Limes and products	26	1	0	0	27	0	3	0	0	0	24	0.5	0	0	0
Grapefruit and products	13	0	0	0	13	0	1	0	0	0	12	0.3	0	0	0
Citrus Fruit nes & prod	135	0	0	0	135	0	14	0	0	0	121	2.8	2	0	0
Bananas	1805	1	0	0	1805	0	0	0	0	90	1715	38.8	64	1	0
Plantains	599	0	0	0	599	7	0	0	0	30	562	12.7	26	0	0
Apples and products	0	14	0	0	14	0	1	0	0	0	13	0.3	0	0	0
Pineapples and products	161	1	126	0	37	0	0	0	0	0	37	0.8	1	0	0
Dates	1	4	0	0	5	0	0	0	0	0	5	0.1	1	0	0
Grapes & products (excl wine)	2	3	0	0	5	2	0	0	0	0	3	0.1	0	0	0
Fruits, Other & Products	1210	24	148	0	1087	0	96	0	0	0	991	22.4	32	0	1

FOOD BALANCE SHEET 2015						Population ('000):						44,156			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
Stimulants	443	45	536	-55	7	0	7	0	0	0	0	0.0	0	0	0
Coffee and products	43	31	129	-55	0	0	0	0	0	0	0	0.0	0	0	0
Cocoa Beans and products	0	1	1	0	0	0	0	0	0	0	0	0.0	0	0	0
Tea (including mate)	400	13	406	0	7	0	7	0	0	0	0	0.0	0	0	0
Spices	256	3	3	0	256	0	0	0	0	0	256	5.8	53	2	2
Pepper	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Pimento	5	0	0	0	5	0	0	0	0	0	5	0.1	1	0	0
Cloves	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Spices, other	250	3	2	0	251	0	0	0	0	0	251	5.7	52	2	2
Alcoholic beverages	594	5	2	0	598	0	0	0	0	16	581	13.2	18	0	0
Wine	3	4	1	0	6	0	0	0	0	0	6	0.1	0	0	0
Barley Beer	211	0	0	0	211	0	0	0	0	0	211	4.8	6	0	0
Beverages, fermented	338	0	0	0	338	0	0	0	0	0	338	7.7	8	0	0
Beverages, alcoholic	26	2	1	0	26	0	0	0	0	0	26	0.6	5	0	0
Alcohol, non food	16	0	0	0	16	0	0	0	0	16	0	0.0	0	0	0
Meat	704	0	6	0	698	0	0	0	0	3	695	15.7	79	6	6
Meat & Products, Bovine	501	0	5	0	497	0	0	0	0	0	497	11.2	58	5	4
Meat & Prod, Sheep & Goat	96	0	1	0	95	0	0	0	0	3	92	2.1	9	1	1
Meat & Products, Pig	26	0	0	0	26	0	0	0	0	1	25	0.6	6	0	1
Meat & Products, Poultry	33	0	0	0	33	0	0	0	0	0	33	0.7	2	0	0
Meat & Products, Other Anim.	48	0	0	0	48	0	0	0	0	0	48	1.1	4	0	0
Offals	80	0	0	0	80	0	0	0	0	0	80	2	5	1	0
Offals, Edible	80	0	0	0	80	0	0	0	0	0	80	1.8	5	1	0
Animal fats	25	1	6	-1	21	11	0	0	0	3	6	0.1	4	0	0
Fats, Animals, Raw	24	1	6	-1	20	11	0	0	0	3	5	0.1	3	0	0
Butter, Ghee	0	0	0	0	0	0	0	0	0	0	0	0.0	1	0	0
Cream	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Fish, body oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Fish, liver oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Milk - Excluding Butter	6103	22	10	0	6115	43	402	17	0	252	5401	122.3	216	10	13
Milk & Prod (Excluding Butter)	6103	22	10	0	6115	43	402	17	0	252	5401	122.3	216	10	13
Eggs	98	0	0	0	98	0	15	0	5	0	79	1.8	6	1	0
Eggs and products	98	0	0	0	98	0	15	0	5	0	79	1.8	6	1	0

FOOD BALANCE SHEET 2015					Population ('000):		44,156									
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY				
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY			
	1000 Metric Tons											Kg.	Calories	Proteins	Fats	
													units	grams	grams	
Fish & sea food	152	48	22	0	178	0	0	0	0	0	181	4.1	7	1	0	
Freshwater fish	135	23	6	0	152	0	0	0	0	0	150	3.4	6	1	0	
Demersal fish	4	0	10	0	-5	0	0	0	0	0	0	0.0	0	0	0	
Pelagic fish	3	22	3	0	22	0	0	0	0	0	21	0.5	1	0	0	
Marine fish, other	7	2	1	0	8	0	0	0	0	0	8	0.2	0	0	0	
Crustaceans	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Molluscs other	1	0	1	0	0	0	0	0	0	0	0	0.0	0	0	0	
Cephalopods	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Aquatic products, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Aquatic mammals meat	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Aquatic animals, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Aquatic plants	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Miscellaneous	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Infant food	0	0	1	0	0	0	0	0	0	0	0	0.0	0	0	0	
Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	

FOOD BALANCE SHEET 2016						Population('000):						45,367			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
													units	grams	grams
Grand total													2105	65	52
Vegetable prod.													1826	47	33
Animal prod.													279	18	19
Cereals (excl. beer)	3979	2418	101	205	6090	94	471	249	63	94	5118	113	886	24	10
Wheat and products	222	1370	21	0	1572	0	32	0	11	77	1452	32.0	231	8	3
Barley and products	78	1	15	0	64	31	1	0	1	0	32	0.7	6	0	0
Maize and products	3406	164	15	205	3349	18	404	224	46	0	2657	58.6	510	14	6
Rye and products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Oats and products	0	1	0	0	1	0	0	0	0	0	1	0.0	0	0	0
Millet and products	54	7	0	0	61	16	9	6	2	3	24	0.5	4	0	0
Sorghum and products	117	71	49	0	139	28	20	19	3	5	65	1.4	12	0	0
Cereals, Others & Products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Rice & Prod (Milled Equivalent)	102	803	1	0	903	0	6	0	1	9	888	19.6	123	2	0
Starchy roots	3592	1	3	0	3590	0	279	0	104	0	3204	70.6	177	2	0
Potatoes and products	1300	1	3	0	1298	0	130	0	104	1	1063	23.4	46	1	0
Cassava and products	1112	0	0	0	1113	0	33	0	0	1	1078	23.8	70	1	0
Sweet potatoes	1150	0	0	0	1150	0	115	0	0	0	1035	22.8	60	1	0
Roots & Tubers, Other & Prod.	19	0	0	0	19	0	0	0	0	1	18	0.4	1	0	0
Yams	10	0	0	0	10	0	1	0	0	0	10	0.2	1	0	0
Sugar crops	7156	1	0	0	7157	4252	0	0	0	0	2905	64.0	53	0	0
Sugar cane	7156	1	0	0	7157	4252	0	0	0	0	2905	64.0	53	0	0
Sugar Beets	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Sugar & Sweeteners	713	335	21	305	723	58	0	0	0	0	662	14.6	140	0	0
Sugar non-centrifugal	22	0	0	0	22	2	0	0	0	1	19	0.4	3	0	0
Sugar & Prod. (raw equivalent)	670	335	21	305	679	57	0	0	0	2	621	13.7	133	0	0
Sweeteners, other & prod.	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Honey	22	0	0	0	22	0	0	0	0	0	22	0.5	4	0	0
Pulses	991	10	14	-432	1420	0	145	0	7	0	1264	27.9	257	17	1
Beans, Dry & Products	729	1	0	-35	765	0	115	0	0	0	650	14.3	132	9	1
Peas, Dry & Products	4	4	1	0	8	0	0	0	0	0	7	0.2	2	0	0
Pulses, Other and products	258	5	13	-397	647	0	30	0	7	3	607	13.4	123	8	1
Treenuts	34	0	4	0	30	0	0	0	0	0	30	0.7	8.0	0.0	1.1
Nuts and products	34	0	4	0	30	0	0	0	0	0	30	0.7	8	0	1

FOOD BALANCE SHEET 2016						Population('000):						45,367			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories units	Proteins grams	Fats grams
Oilcrops	171	6	5	0	172	39	0	0	0		130	2.9	13	0	2
Soyabeans & Products	2	0	0	0	2	0	0	0	0	0	2	0.0	0	0	0
Groundnuts (Shelled Eq)	11	1	0	0	12	0	0	0	0	1	11	0.3	3	0	2
Sunflower seed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Rape and Mustardseed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Coconuts - Incl Copra	117	0	0	0	117	0	0	0	0	0	117	2.6	10	0	0
Sesame seed	0	5	5	0	0	0	0	0	0	0	0	0.0	0	0	0
Palmkernels	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Olives (including preserved)	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Oilcrops, Other	41	0	0	0	41	39	0	0	0	2	0	0.0	0	0	0
Vegetable oils	193	538	75	0	656	129	0	0	0		265	5.8	125.9	0.0	16.0
Soyabean Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Groundnut Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Sunflowerseed Oil	4	0	0	0	4	0	0	0	0	0	4	0.1	2	0	0
Rape and Mustard Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Cottonseed Oil	2	0	0	0	2	0	0	0	0	0	2	0.0	1	0	0
Palmkernel Oil	0	2	0	0	2	0	0	0	0	0	2	0.0	1	0	0
Palm Oil	0	522	68	0	454	128	0	0	0	259	67	1.5	35	0	5
Coconut Oil	6	12	0	0	18	0	0	0	0	1	17	0.4	9	0	1
Sesameseed Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Olive & Residue Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Maize Germ Oil	14	1	0	0	14	0	0	0	0	0	14	0.3	7	0	1
Oilcrops Oil, Other	168	2	7	0	163	0	0	0	0	3	160	3.5	71	0	9
Vegetables	1637	5	40	0	1602	0	79	0	0		1485	32.7	21	1	0
Tomatoes and products	324	1	0	0	326	0	29	0	0	0	297	6.5	3	0	0
Onions, Dry	67	0	0	0	67	0	23	0	0	3	40	0.9	1	0	0
Vegetables, Other & Prod.	1245	4	40	0	1209	0	27	0	0	35	1148	25.3	17	1	0
Fruits (Excluding Wine)	2865	95	295	0	2666	9	115	0	0		2469	54.4	79	1	1
Oranges, Tang-Mand & Prod.	90	46	0	0	136	0	17	0	0	7	112	2.5	2	0	0
Lemons, Limes and products	13	1	0	0	13	0	1	0	0	0	12	0.3	0	0	0
Grapefruit and products	2	0	0	0	2	0	0	0	0	0	2	0.0	0	0	0
Citrus Fruit nes & prod	135	0	0	0	135	0	13	0	0	0	121	2.7	2	0	0
Bananas	690	1	0	0	690	0	0	0	0	35	656	14.5	25	0	0
Plantains	599	0	0	0	599	7	0	0	0	30	562	12.4	26	0	0
Apples and products	2	15	0	0	17	0	2	0	0	0	15	0.3	0	0	0
Pineapples and products	391	1	140	0	252	0	0	0	0	0	252	5.6	3	0	0
Dates	1	4	0	0	5	0	0	0	0	0	5	0.1	0	0	0
Grapes & products (excl wine)	2	3	0	0	5	2	0	0	0	0	3	0.1	0	0	0
Fruits, Other & Products	940	25	154	0	811	0	81	0	0	0	729	16.1	22	1	1

FOOD BALANCE SHEET 2016						Population('000):						45,367			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
													units	grams	grams
Stimulants	522	31	598	-56	11	0	11	0	0	0	0	0.0	0	0	0
Coffee and products	48	21	126	-56	0	0	0	0	0	0	0	0.0	0	0	0
Cocoa Beans and products	0	1	1	0	0	0	0	0	0	0	0	0.0	0	0	0
Tea (including mate)	474	9	472	0	11	0	11	0	0	0	0	0.0	0	0	0
Spices	256	3	3	0	256	0	0	0	0	0	256	5.6	52	2	2
Pepper	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Pimento	5	0	0	0	5	0	0	0	0	0	5	0.1	1	0	0
Cloves	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Spices, other	250	3	2	0	251	0	0	0	0	0	251	5.5	51	2	2
Alcoholic beverages	461	5	2	0	465	0	0	0	0	0	448	9.9	15	0	0
Wine	3	4	1	0	6	0	0	0	0	0	6	0.1	0	0	0
Barley Beer	211	0	0	0	211	0	0	0	0	0	211	4.7	5	0	0
Beverages, fermented	205	0	0	0	205	0	0	0	0	0	205	4.5	5	0	0
Beverages, alcoholic	26	2	1	0	26	0	0	0	0	0	26	0.6	5	0	0
Alcohol, non food	16	0	0	0	16	0	0	0	0	16	0	0.0	0	0	0
Meat	742	0	6	0	736	0	0	0	0	0	733	16.2	79	6	6
Meat & Products, Bovine	529	0	5	0	524	0	0	0	0	0	524	11.6	60	5	4
Meat & Prod, Sheep & Goat	79	0	1	0	78	0	0	0	0	3	75	1.7	7	1	1
Meat & Products, Pig	11	0	0	0	11	0	0	0	0	0	11	0.2	2	0	1
Meat & Products, Poultry	64	0	0	0	64	0	0	0	0	0	64	1.4	5	0	0
Meat & Products, Other Anim.	59	0	0	0	59	0	0	0	0	1	59	1.3	5	1	0
Offals	80	0	0	0	80	0	0	0	0	0	80	2	5	1	0
Offals, Edible	80	0	0	0	80	0	0	0	0	0	80	1.8	5	1	0
Animal fats	25	1	6	-1	21	12	0	0	0	3	6	0.1	4	0	0
Fats, Animals, Raw	24	1	6	-1	20	12	0	0	0	3	6	0.1	3	0	0
Butter, Ghee	0	0	0	0	0	0	0	0	0	0	0	0.0	1	0	0
Cream	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Fish, body oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Fish, liver oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Milk - Excluding Butter	5223	29	4	0	5248	49	369	18	0	0	4603	101	180	10	13
Milk & Prod (Excluding Butter)	5223	29	4	0	5248	49	369	18	0	210	4603	101.5	180	10	13
Eggs	84	0	0	0	84	0	13	0	5	0	67	1.5	5.0	0.0	0.0
Eggs and products	84	0	0	0	84	0	13	0	5	0	67	1.5	5	0	0

FOOD BALANCE SHEET 2016											Population('000):		45,367			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY				
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY			
	1000 Metric Tons											Kg.	Calories	Proteins	Fats	
													units	grams	grams	
Fish & sea food	125	47	19	0	153	0	0	0	0	0	157	3.5	6	1	0	
Freshwater fish	108	23	3	0	129	0	0	0	0	0	127	2.8	5	1	0	
Demersal fish	4	0	10	0	-5	0	0	0	0	0	0	0.0	0	0	0	
Pelagic fish	3	21	3	0	21	0	0	0	0	0	21	0.5	1	0	0	
Marine fish, other	8	2	1	0	9	0	0	0	0	0	9	0.2	0	0	0	
Crustaceans	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Molluscs other	1	0	1	0	1	0	0	0	0	0	1	0.0	0	0	0	
Cephalopods	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Aquatic products, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Aquatic mammals meat	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Aquatic animals, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Aquatic plants	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Miscellaneous	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Infant food	0	0	1	0	0	0	0	0	0	0	0	0.0	0	0	0	
Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	

FOOD BALANCE SHEET 2017						Population('000):						46,595			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
													units	grams	grams
Grand total													2130	67	47
Vegetable prod.													1864	50	31
Animal prod.													266	17	17
Cereals (excl. beer)	3708	4450	65	405	7688	144	714	453	82	233	6061	130	953	26	10
Wheat and products	165	1861	20	0	2006	0	41	0	11	131	1822	39.1	280	8	5
Barley and products	78	1	22	0	57	29	1	0	1	0	27	0.6	5	0	0
Maize and products	3186	1385	18	405	4148	25	600	395	63	73	2992	64.2	497	14	6
Rye and products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Oats and products	0	0	0	0	1	0	0	0	0	0	1	0.0	0	0	0
Millet and products	54	84	0	0	137	29	23	17	3	7	58	1.2	11	0	0
Sorghum and products	144	128	3	0	269	61	44	41	4	14	104	2.2	19	1	0
Cereals, Others & Products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Rice & Prod (Milled Equivalent)	81	991	2	0	1070	0	5	0	1	7	1058	22.7	142	3	0
Starchy roots	3792	5	17	0	3780	0	299	0	104	4	3373	72.4	180	2	0
Potatoes and products	1500	4	17	0	1487	0	150	0	104	2	1231	26.4	51	1	0
Cassava and products	1112	0	0	0	1113	0	33	0	0	1	1079	23.1	68	1	0
Sweet potatoes	1150	1	0	0	1151	0	115	0	0	0	1036	22.2	58	1	0
Roots & Tubers, Other & Prod.	19	0	0	0	19	0	0	0	0	1	18	0.4	1	0	0
Yams	10	0	0	0	10	0	1	0	0	0	10	0.2	1	0	0
Sugar crops	4761	0	0	0	4761	4216	0	0	0	0	544	11.7	10	0	0
Sugar cane	4761	0	0	0	4761	4216	0	0	0	0	544	11.7	10	0	0
Sugar Beets	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Sugar & Sweeteners	1105	335	21	687	733	58	0	0	0	3	672	14.4	138	0	0
Sugar non-centrifugal	22	0	0	0	22	1	0	0	0	1	20	0.4	3	0	0
Sugar & Prod. (raw equivalent)	1062	335	21	687	690	57	0	0	0	2	631	13.5	131	0	0
Sweeteners, other & prod.	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Honey	22	0	0	0	22	0	0	0	0	0	22	0.5	4	0	0
Pulses	1110	5	2	-432	1546	0	162	0	8	4	1373	29.5	271	18	1
Beans, Dry & Products	846	1	0	-35	882	0	132	0	0	0	750	16.1	148	10	1
Peas, Dry & Products	4	4	1	0	8	0	0	0	0	0	7	0.2	1	0	0
Pulses, Other and products	260	1	1	-397	656	0	30	0	8	3	616	13.2	122	8	1
Treenuts	43	0	4	0	39	0	1	0	0	0	38	0.8	6.0	0.0	1.0
Nuts and products	43	0	4	0	39	0	1	0	0	0	38	0.8	6	0	1

FOOD BALANCE SHEET 2017						Population('000):						46,595					
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY					
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY				
	1000 Metric Tons											Kg.	Calories	Proteins	Fats		
													units	grams	grams		
Oilcrops	189	6	5	0	191	39	0	0	0	3	148	3.2	15	0			
Soyabeans & Products	2	0	0	0	2	0	0	0	0	0	2	0.0	0	0	0		
Groundnuts (Shelled Eq)	19	1	0	0	21	0	0	0	0	1	20	0.4	5	0	0		
Sunflower seed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Rape and Mustardseed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Coconuts - Incl Copra	126	0	0	0	126	0	0	0	0	0	126	2.7	10	0	1		
Sesame seed	0	5	5	0	0	0	0	0	0	0	0	0.0	0	0	0		
Palmkernels	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Olives (including preserved)	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Oilcrops, Other	41	0	0	0	41	39	0	0	0	2	0	0.0	0	0	0		
Vegetable oils	193	538	75	0	656	129	0	0	0	263	265	5.7	123.1	0.0	14.3		
Soyabean Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Groundnut Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Sunflowerseed Oil	4	0	0	0	4	0	0	0	0	0	4	0.1	2	0	0		
Rape and Mustard Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Cottonseed Oil	2	0	0	0	2	0	0	0	0	0	2	0.0	1	0	0		
Palmkernel Oil	0	2	0	0	2	0	0	0	0	0	2	0.0	1	0	0		
Palm Oil	0	522	68	0	454	128	0	0	0	259	67	1.4	34	0	4		
Coconut Oil	6	12	0	0	18	0	0	0	0	1	17	0.4	9	0	1		
Sesameseed Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Olive & Residue Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0		
Maize Germ Oil	14	1	0	0	14	0	0	0	0	0	14	0.3	7	0	1		
Oilcrops Oil, Other	168	2	7	0	163	0	0	0	0	3	160	3.4	69	0	8		
Vegetables	1555	29	45	0	1539	0	79	0	0	39	1421	30.5	19	1	0		
Tomatoes and products	284	22	0	0	306	0	25	0	0	0	281	6.0	3	0	0		
Onions, Dry	67	0	0	0	67	0	23	0	0	3	40	0.9	1	0	0		
Vegetables, Other & Prod.	1204	7	44	0	1166	0	31	0	0	36	1100	23.6	15	1	0		
Fruits (Excluding Wine)	3023	113	306	0	2830	9	137	0	0	79	2604	55.9	80	1	1		
Oranges, Tang-Mand & Prod.	93	42	0	0	135	0	15	0	0	7	113	2.4	2	0	0		
Lemons, Limes and products	98	4	2	0	100	0	10	0	0	0	90	1.9	1	0	0		
Grapefruit and products	4	0	0	0	4	0	0	0	0	0	3	0.1	0	0	0		
Citrus Fruit nes & prod	135	0	0	0	135	0	13	0	0	0	121	2.6	2	0	0		
Bananas	740	1	0	0	741	0	0	0	0	37	704	15.1	25	0	0		
Plantains	599	0	0	0	599	7	0	0	0	30	562	12.1	25	0	0		
Apples and products	0	15	0	0	15	0	2	0	0	0	14	0.3	0	0	0		
Pineapples and products	366	3	140	0	229	0	0	0	0	0	229	4.9	3	0	0		
Dates	1	5	0	0	5	0	0	0	0	0	5	0.1	0	0	0		
Grapes & products (excl wine)	2	3	0	0	5	2	0	0	0	0	3	0.1	0	0	0		
Fruits, Other & Products	985	39	163	0	861	0	97	0	0	5	759	16.3	21	1			

FOOD BALANCE SHEET 2017						Population('000):						46,595			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
													units	grams	grams
Stimulants	481	33	566	-56	5	0	5	0	0	0	0	0.0	0	0	0
Coffee and products	42	23	122	-56	0	0	0	0	0	0	0	0.0	0	0	0
Cocoa Beans and products	0	1	1	0	0	0	0	0	0	0	0	0.0	0	0	0
Tea (including mate)	439	9	443	0	5	0	5	0	0	0	0	0.0	0	0	0
Spices	256	3	3	0	256	0	0	0	0	0	256	5.5	51	2	2
Pepper	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Pimento	5	0	0	0	5	0	0	0	0	0	5	0.1	1	0	0
Cloves	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Spices, other	250	3	2	0	251	0	0	0	0	0	251	5.4	50	2	2
Alcoholic beverages	559	5	2	0	562	0	0	0	0	16	546	11.7	17	0	0
Wine	3	4	1	0	6	0	0	0	0	0	6	0.1	0	0	0
Barley Beer	211	0	0	0	211	0	0	0	0	0	211	4.5	5	0	0
Beverages, fermented	304	0	0	0	304	0	0	0	0	0	304	6.5	7	0	0
Beverages, alcoholic	25	2	1	0	25	0	0	0	0	0	25	0.5	4	0	0
Alcohol, non food	16	0	0	0	16	0	0	0	0	16	0	0.0	0	0	0
Meat	839	0	2	0	838	0	0	0	0	4	833	17.9	88	7	7
Meat & Products, Bovine	589	0	1	0	588	0	0	0	0	0	588	12.6	66	5	5
Meat & Prod, Sheep & Goat	97	0	1	0	96	0	0	0	0	3	93	2.0	8	1	1
Meat & Products, Pig	13	0	0	0	13	0	0	0	0	1	12	0.3	3	0	0
Meat & Products, Poultry	106	0	0	0	106	0	0	0	0	0	106	2.3	8	1	0
Meat & Products, Other Anim.	34	0	0	0	34	0	0	0	0	0	34	0.7	3	0	0
Offals	74	0	0	0	74	0	0	0	0	0	74	2	5	1	0
Offals, Edible	74	0	0	0	74	0	0	0	0	0	74	1.6	5	1	0
Animal fats	24	1	6	-1	20	11	0	0	0	3	5	0.1	3	0	0
Fats, Animals, Raw	23	1	6	-1	19	11	0	0	0	3	5	0.1	3	0	0
Butter, Ghee	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Cream	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Fish, body oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Fish, liver oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Milk - Excluding Butter	4668	82	4	0	4747	33	345	18	0	185	4166	89	158	8	10
Milk & Prod (Excluding Butter)	4668	82	4	0	4747	33	345	18	0	185	4166	89.4	158	8	10
Eggs	84	0	0	0	84	0	2	0	6	4	71	1.5	5.0	0.0	0.0
Eggs and products	84	0	0	0	84	0	2	0	6	4	71	1.5	5	0	0

FOOD BALANCE SHEET 2017						Population('000):						46,595			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
													units	grams	grams
Fish & sea food	152	51	18	0	185	0	0	0	0	0	189	4.1	7	1	0
Freshwater fish	120	28	3	0	145	0	0	0	0	0	144	3.1	5	1	0
Demersal fish	4	0	10	0	-5	0	0	0	0	0	0	0.0	0	0	0
Pelagic fish	3	21	3	0	21	0	0	0	0	0	21	0.4	1	0	0
Marine fish, other	22	2	1	0	23	0	0	0	0	0	23	0.5	1	0	0
Crustaceans	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Molluscs other	2	0	1	0	1	0	0	0	0	0	1	0.0	0	0	0
Cephalopods	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic products, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic mammals meat	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic animals, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic plants	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Miscellaneous	0	0	1	0	0	0	0	0	0	0	0	0.0	0	0	0
Infant food	0	0	1	0	0	0	0	0	0	0	0	0.0	0	0	0
Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0

FOOD BALANCE SHEET 2018						Population('000):						47,849			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other	Food Uses	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
													units	grams	grams
Grand total													2235	69	48
Vegetable prod.													1952	51	30
Animal prod.													283	18	18
Cereals (excl. beer)	4800	3560	167	555	7638	127	179	483	87	299	6463	135	1014	27	10
Wheat and products	337	1841	6	50	2121	0	42	0	11	93	1976	41.3	307	10	4
Barley and products	78	2	11	9	61	37	1	0	1	0	23	0.5	4	0	0
Maize and products	4014	564	8	423	4146	39	86	447	66	182	3326	69.5	547	15	6
Rye and products	0	3	3	0	0	0	0	0	0	0	0	0.0	0	0	0
Oats and products	0	2	0	0	2	0	0	0	0	0	2	0.0	0	0	0
Millet and products	72	30	0	0	102	20	15	10	3	5	48	1.0	9	0	0
Sorghum and products	189	143	130	0	201	31	34	26	5	17	89	1.9	16	0	0
Cereals, Others & Products	0	1	2	-14	13	0	0	0	0	0	13	0.3	2	0	0
Rice & Prod (Milled Equivalent)	110	975	7	87	992	0	2	0	1	2	987	20.6	129	2	0
Starchy roots	3749	10	2	0	3757	0	262	0	131	99	3266	68.2	166	2	0
Potatoes and products	1898	2	2	0	1898	0	239	0	131	98	1430	29.9	58	1	0
Cassava and products	948	8	0	0	956	0	8	0	0	0	948	19.8	59	0	0
Sweet potatoes	874	0	0	0	874	0	13	0	0	0	861	18.0	47	1	0
Roots & Tubers, Other & Prod.	19	0	0	0	19	0	2	0	0	0	17	0.4	1	0	0
Yams	10	0	0	0	10	0	0	0	0	0	10	0.2	1	0	0
Sugar crops	5262	0	0	0	5262	4377	0	0	0	263	621	13.0	11	0	0
Sugar cane	5262	0	0	0	5262	4377	0	0	0	263	621	13.0	11	0	0
Sugar Beets	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Sugar & Sweeteners	576	312	2	23	863	32	0	0	0	8	823	17.2	167	0	0
Sugar non-centrifugal	23	0	0	0	23	0	0	0	0	1	22	0.5	4	0	0
Sugar & Prod. (raw equivalent)	534	312	2	23	821	31	0	0	0	8	782	16.3	159	0	0
Sweeteners, other & prod.	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Honey	19	0	0	0	19	0	0	0	0	0	19	0.4	3	0	0
Pulses	1181	55	19	-321	1539	0	166	0	4	8	1360	28.4	262	18	2
Beans, Dry & Products	837	28	0	-39	904	0	137	0	0	0	766	16.0	147	11	1
Peas, Dry & Products	0	26	14	0	11	0	0	0	0	2	9	0.2	2	0	0
Pulses, Other and products	344	2	4	-282	624	0	29	0	4	6	585	12.2	113	7	1
Treenuts	85	0	0	0	85	0	0	0	0	3	81	1.7	7.7	0.0	1.0
Nuts and products	85	0	0	0	85	0	0	0	0	3	81	1.7	8	0	1

FOOD BALANCE SHEET 2018														Population('000):											47,849			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)							PER CAPUT SUPPLY															
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY															
													Calories	Proteins	Fats													
	1000 Metric Tons											Kg.	units	grams	grams													
Oilcrops	170	1	0	0	171	39	1	0	3	2	126	2.6	13	0	1													
Soyabeans & Products	2	0	0	0	3	0	0	0	2	0	1	0.0	0	0	0													
Groundnuts (Shelled Eq)	19	0	0	0	19	0	1	0	1	0	17	0.4	4	0	0													
Sunflower seed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Rape and Mustardseed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Coconuts - Incl Copra	107	1	0	0	108	0	0	0	0	0	108	2.3	9	0	1													
Sesame seed	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Palmkernels	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Olives (including preserved)	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Oilcrops, Other	41	0	0	0	41	39	0	0	0	2	0	0.0	0	0	0													
Vegetable oils	192	790	40	183	759	128	0	0	0	370	260	5.4	116.7	0.0	13.0													
Soyabean Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Groundnut Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Sunflowerseed Oil	5	0	0	0	5	0	0	0	0	0	5	0.1	2	0	0													
Rape and Mustard Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Cottonseed Oil	2	0	0	0	2	0	0	0	0	0	2	0.0	1	0	0													
Palmkernel Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Palm Oil	0	764	40	183	541	128	0	0	0	345	68	1.4	34	0	4													
Coconut Oil	6	26	0	0	32	0	0	0	0	26	6	0.1	3	0	0													
Sesameseed Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Olive & Residue Oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0													
Maize Germ Oil	14	0	0	0	14	0	0	0	0	0	13	0.3	7	0	1													
Oilcrops Oil, Other	166	0	0	0	166	0	0	0	0	0	166	3.5	70	0	8													
Vegetables	2592	41	72	28	2532	0	395	0	0	136	2001	41.8	25	1	0													
Tomatoes and products	595	14	0	0	609	0	173	0	0	31	406	8.5	4	0	0													
Onions, Dry	35	21	0	0	55	0	15	0	0	3	37	0.8	1	0	0													
Vegetables, Other & Prod.	1962	6	72	28	1868	0	207	0	0	102	1559	32.6	20	1	0													
Fruits (Excluding Wine)	3702	91	98	-30	3724	1	193	0	0	157	3374	70.5	104	1	1													
Oranges, Tang-Mand & Prod.	0	43	0	0	43	0	0	0	0	0	43	0.9	1	0	0													
Lemons, Limes and products	21	6	1	0	26	0	0	0	0	0	26	0.5	0	0	0													
Grapefruit and products	8	0	0	0	8	0	1	0	0	0	6	0.1	0	0	0													
Citrus Fruit nes & prod	135	0	0	0	135	0	14	0	0	1	121	2.5	2	0	0													
Bananas	1385	1	0	0	1387	0	0	0	0	72	1315	27.5	45	1	0													
Plantains	600	0	0	0	600	0	0	0	0	30	569	11.9	24	0	0													
Apples and products	0	16	0	0	16	0	2	0	0	0	14	0.3	0	0	0													
Pineapples and products	350	8	1	-30	387	0	20	0	0	0	367	7.7	5	0	0													
Dates	1	5	0	0	6	0	0	0	0	0	6	0.1	1	0	0													
Grapes & products (excl wine)	0	3	0	0	3	0	0	0	0	0	3	0.1	0	0	0													
Fruits, Other & Products	1202	8	96	0	1114	0	156	0	0	53	904	18.9	25	0	1													

FOOD BALANCE SHEET 2018													Population('000): 47,849			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY				
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses ²	Food	PER YEAR FOOD	PER DAY			
	1000 Metric Tons											Kg.	Calories	Proteins	Fats	
													units	grams	grams	
Stimulants	535	14	536	-67	79	0	0	0	0	25	55	1.1	1	0	0	
Coffee and products	42	2	28	-11	27	0	0	0	0	-1	28	0.6	1	0	0	
Cocoa Beans and products	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Tea (including mate)	493	12	508	-56	52	0	0	0	0	25	27	0.6	1	0	0	
Spices	251	2	1	0	253	0	0	0	0	1	253	5.3	49	2	2	
Pepper	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Pimento	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Cloves	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Spices, other	250	2	0	0	253	0	0	0	0	1	252	5.3	49	2	2	
Alcoholic beverages	598	15	43	0	569	0	0	0	0	16	553	11.6	17	0	0	
Wine	0	1	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Barley Beer	327	10	34	0	303	0	0	0	0	0	303	6.3	7	0	0	
Beverages, fermented	222	4	0	0	225	0	0	0	0	0	225	4.7	5	0	0	
Beverages, alcoholic	34	0	8	0	26	0	0	0	0	0	26	0.5	4	0	0	
Alcohol, non food	16	0	0	0	16	0	0	0	0	16	0	0.0	0	0	0	
Meat	961	2	9	0	954	0	0	0	0	46	908	19.0	94	7	7	
Meat & Products, Bovine	707	0	2	0	705	0	0	0	0	36	669	14.0	73	6	6	
Meat & Prod, Sheep & Goat	60	0	6	0	53	0	0	0	0	0	53	1.1	5	0	0	
Meat & Products, Pig	18	1	1	0	18	0	0	0	0	1	17	0.4	4	0	0	
Meat & Products, Poultry	131	1	0	0	132	0	0	0	0	7	125	2.6	9	1	1	
Meat & Products, Other Anim.	45	0	0	0	45	0	0	0	0	2	43	0.9	4	0	0	
Offals	74	0	0	0	74	0	0	0	0	0	74	2	5	1	0	
Offals, Edible	74	0	0	0	74	0	0	0	0	0	74	1.5	5	1	0	
Animal fats	43	0	0	19	24	12	0	0	0	0	12	0.2	7	0	1	
Fats, Animals, Raw	43	0	0	19	23	12	0	0	0	0	11	0.2	6	0	1	
Butter, Ghee	0	0	0	0	0	0	0	0	0	0	0	0.0	1	0	0	
Cream	0	0	0	0	0	0	0	0	0	0	0	0.0	1	0	0	
Fish, body oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Fish, liver oil	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	
Milk - Excluding Butter	4885	169	1	0	5053	37	335	20	0	199	4462	93	165	9	10	
Milk & Prod (Excluding Butter)	4885	169	1	0	5053	37	335	20	0	199	4462	93.3	165	9	10	
Eggs	91	1	0	0	92	0	0	0	8	5	79	1.6	5.5	0.0	0.0	
Eggs and products	91	1	0	0	92	0	0	0	8	5	79	1.6	6	0	0	

FOOD BALANCE SHEET 2018												Population('000): 47,849			
PRODUCTS	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
	Prod.	Imports	Exports	Stock changes	Total D.S.	Processed	Loss	Feed	Seed	Other Uses	Food	PER YEAR FOOD	PER DAY		
	1000 Metric Tons											Kg.	Calories	Proteins	Fats
Fish & sea food	148	52	0	8	192	0	0	0	0	0	192	4.0	7	1	0
Freshwater fish	124	28	0	3	150	0	0	0	0	0	150	3.1	5	1	0
Demersal fish	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Pelagic fish	0	21	0	3	18	0	0	0	0	0	18	0.4	1	0	0
Marine fish, other	21	2	0	1	22	0	0	0	0	0	22	0.5	1	0	0
Crustaceans	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Molluscs other	2	0	0	1	1	0	0	0	0	0	1	0.0	0	0	0
Cephalopods	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic products, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic mammals meat	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic animals, other	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Aquatic plants	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infant food	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0

² The component "other uses" in tables of Annex 4 is the sum of the three following components: "Tourist net consumption", "Industrial uses" and "Residual and other uses". It has been explained in the methodology that the tourist consumption is estimated as net consumption (the amount of food available to incoming tourists minus the amount of food that would have been available to absent residents had they been present in the country). So, when the value in "other uses" is negative, it means that the amount of food that would have been available to absent residents had they been present in the country exceeds the quantity available for incoming tourists+ industrial use+ other uses.

Annex 4:

References

- GSARS, *Guidelines for the compilation of Food Balance Sheets*, October 2017
<http://gsars.org/en/guidelines-for-the-compilation-of-food-balance-sheets/>
- FAO, *Technical conversion factors for agricultural commodities* <http://www.fao.org/fileadmin/templates/ess/documents/methodology/tcf.pdf>
- Central Bureau of Statistics, *National Food Balance Sheets 2000-2005*, August 2006.

Annex 5:

List of TWG Members

SN	NAME	INSTITUTION
1	Robert Nderitu	Kenya National Bureau of Statistics (KNBS)
2	Patrick Mwaniki	Kenya National Bureau of Statistics (KNBS)
3	Tom Dienya	Ministry of Agriculture, Livestock, Fisheries & Irrigation
4	John Mburu	Kenya National Bureau of Statistics (KNBS)
5	James Kamau Paul	Agriculture and Food Authority (AFA)
6	Jane Kioko	Ministry of Agriculture, Livestock, Fisheries & Irrigation
7	Judith Muricho	Ministry of Agriculture, Livestock, Fisheries & Irrigation
8	Gideon Mwagi	Ministry of Agriculture, Livestock, Fisheries & Irrigation
9	Tabitha Weru	Kenya National Bureau of Statistics (KNBS)
10	Raphael Khaemba	Ministry of Agriculture, Livestock, Fisheries & Irrigation
11	Kenaly Orenge	Ministry of Agriculture, Livestock, Fisheries & Irrigation
12	Rodgers Mumo	Kenya National Bureau of Statistics (KNBS)
13	Alphonse Orang'o	Kenya National Bureau of Statistics (KNBS)
14	Pauline Kamau	Kenya National Bureau of Statistics (KNBS)
15	Benjamin Kibor	Ministry of Agriculture, Livestock, Fisheries & Irrigation
16	Stephen Ndegwa	Ministry of Agriculture, Livestock, Fisheries & Irrigation
17	Joseph Thaiya	Agriculture and Food Authority (AFA)
18	David Kendagor	Agriculture and Food Authority (AFA)
19	Jason Mugo	Agriculture and Food Authority (AFA)
20	Dr. Patrick Mwanyumba	Ministry of Agriculture, Livestock, Fisheries & Irrigation
21	Dr. Stephen Mavuti	Ministry of Agriculture, Livestock, Fisheries & Irrigation

