

Concepts, definitions, data sources and methods for compiling annual GDP estimates

1. General

National accounting represents a system of accounts, which describes the functioning of the national economy in areas such as production, distribution, consumption and accumulation. It has been developed to facilitate the practical application of economic theory. National accounting therefore furnishes a unified system for studying the economic condition of a country and its changes over time.

1.1 The System of National Accounts (SNA)

A System of National Accounts (SNA) consists of a coherent, consistent and integrated set of macro-economic accounts based on internationally agreed concepts, definitions, classifications and accounting rules. The origins of the SNA trace back to a United Nations (UN) report in 1947 which became the foundation for further work. The UN Statistical Office in 1953 produced the first publication "A System of National Accounts (SNA)", which was revised in 1968. Since then, the SNA has undergone an extensive revision in the light of country experiences during the twenty-five years. As another step in the evolution of national accounting, the 1993 SNA version was updated in 2008 and countries have been encouraged to report their national accounts on the basis of the 2008 SNA as soon as possible. Whilst the basic structure has remained more or less the same, certain changes have been brought in, to take account of new developments and concerns.

1.1.1 Implementation of the 2008 System of National Accounts (2008 SNA)

Mauritius started the compilation of national accounts based on the 2008 SNA in 2016. As from June 2016, national accounts data are produced according to the new concepts and definitions. Historical series as from the year 2006 have been reworked according to the 2008 SNA and are readily available on the website.

In June 2016, national accounts estimates were rebased on the results of the 2013 Census of Economic Activities (CEA). In addition, improvements have been brought in some of the estimates by the adoption of improved concepts, methodology, new data sources and latest international recommendations. Some of the main changes that are relevant to Mauritius are given at paragraph 1.3.

1.2 National Accounts of Mauritius - historical background

The first estimates of national income and expenditure date back to the year 1948 when GDP stood at some R 300 million. The measures were then confined to 'value added' figures only and were published in the Year Book and later in the Digest of Statistics.

Estimates for 1948 to 1975 were based on the 1953 System of National Accounts. In 1983, following the availability of more detailed data which were collected through an Annual Census of Production, a new series was produced for the years 1976 onwards, based on the 1968 SNA. In April 2001, Statistics Mauritius (SM) adopted the 1993 SNA, following the availability of updated and more detailed data from the 1997 Census of Economic Activities (CEA). Data series worked according to the 1993 SNA are available for the years 1990 onwards. In June 2005, the series as from 1998, have been revised based on the results of the 2002 CEA. In December 2010, the series as from 2003 onwards, have been rebased on results of 2007 CEA. Moreover as from 1999, adjustment for Financial Intermediation Services Indirectly Measured (FISIM) has been allocated to users. In June 2016, SM adopted the recommendations of 2008 SNA and the series as from 2006 have been reviewed based on data available from the 2013 CEA.

As from 2005, Quarterly National Accounts (QNA) estimates starting from the first quarter of 1999 are compiled and published by the office. These quarterly figures provide information needed for monitoring short-term economic development and is also one of the data category published for the Special Data Dissemination Standard (SDDS) of the International Monetary Fund (IMF), to which the country adhered in February 2012.

The quarterly estimates are compiled according to guidelines provided in the IMF manual entitled "Quarterly National Accounts Manual – Concepts, Data Sources and Compilation", which is itself based on SNA and are therefore consistent with annual estimates of the National Accounts.

1.3 Main conceptual and methodological changes

(i) Ownership of dwellings (OOD)

The output of the sector has been reviewed based on the user cost approach which consists of estimating each of the cost components that the owner needs to take into account to arrive at a market value of the rent, in case the dwelling is rented to other people rather than for own use.

(ii) Financial Intermediation Services Indirectly Measured (FISIM)

FISIM which was previously measured as total interest received (excluding the value of any interest received from investment of own fund) minus total interest paid is now measured as the sum of:

- a. Service charges on loans = Interest received on loans – (Stock of loans x a reference rate)
- b. Service charges on deposits = (Stock of deposits x a reference rate) – Interest paid on deposits.

The distribution of imported FISIM has also been reviewed and allocated to appropriate sectors whereas in previously published national accounts, it was included in the intermediate consumption of banks.

(iii) Output of non-life insurance services

The output of non-life insurance activity is calculated using adjusted claims (i.e. claims due + changes in equalization provisions) as per 2008 SNA which takes into account ad-hoc catastrophic losses.

(iv) Global Business Companies (GBCs)

The value added or direct contribution of GBCs, not included in previous GDP estimates, has been estimated from the results of annual GBC1 surveys, conducted by the Financial Services Commission (FSC).

(v) Public administration

Government's contribution as employer to the Civil Service Family Protection Scheme has been imputed and included in compensation of employees and hence in the value added of public administration.

(vi) Sugar industry

The double deflation method (i.e. deflating gross output and intermediate consumption separately) has been adopted to work out the value added at constant prices for 'sugarcane' and 'manufacture of sugar'.

(vii) Non-sugar agricultural activities

The results of the Census of Agriculture (CA) carried out in 2014 have been used to review the gross output and value added of different agricultural subsectors, except sugarcane and tea.

1.4 Changes in classification by industry group

As from December 2012, industrial classifications used is according to the National Standard Industrial Classification (NSIC), Revision 2 based on the UN International Standard Industrial Classification (ISIC) of all economic activities, Rev. 4 of 2008, previous classifications used being NSIC Rev 1 based on ISIC, Rev. 3 of 1990.

The UN International Standard Industrial Classification (ISIC) of All Economic Activities is the international reference classification of productive activities. Its main purpose is to provide a set of activity categories that can be utilised for the collection and reporting of statistics according to such activities. The classifications are periodically reviewed to take into account changes in the economic structure of countries. The emergence of new technologies and new divisions of labour between organisations over the past years has created new types of activities and new forms of industries, posing a challenge for both providers and users of statistical data. In response to the above, ISIC Rev 3 was revised in 2008 to better reflect changed structures and analytical requirements.

This has resulted in some changes in value added estimates at industrial group level, but not in the overall Gross Domestic Product (GDP). New series on revised NSIC2 are available as from 2006. Value added figures at industry level are therefore not strictly comparable with figures prior to 2006 published on the office website.

The main changes at the level of sections are given in the figure below:

**Figure 1: National Standard Industrial Classification (NSIC) of All Economic Activities
Correspondences between NSIC Rev 1 and NSIC Rev 2**

NSIC Rev 1		NSIC Rev 2	
A	Agriculture, hunting and forestry	A	Agriculture, forestry and fishing
B	Fishing	B	Mining and quarrying
C	Mining and quarrying	C	Manufacturing
D	Manufacturing	D	Electricity, gas, steam and air conditioning supply
E	Electricity, gas and water supply	E	Water supply; sewerage, waste management and remediation activities
F	Construction	F	Construction
G	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal & household Goods	G	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Hotels and restaurants	H	Transportation and storage
I	Transport, storage and communication	I	Accommodation and food service activities
J	Financial intermediation	J	Information and communication
K	Real estate, renting and business activities	K	Financial and insurance activities
L	Public administration and defence; Compulsory social security	L	Real estate activities
M	Education	M	Professional, scientific and technical activities
N	Health and social work	N	Administrative and support service activities
O	Other community, social and personal services	O	Public administration and defence; compulsory social security
		P	Education
		Q	Human health and social work activities
		R	Arts, entertainment and recreation
		S	Other service activities

1.5 Data collection, compilation and publication

Benchmark data for the compilation of National Accounts statistics are collected through the Census of Economic Activities which is conducted at five year intervals. Annual data are collected through sample surveys of establishments. In addition, many organisations, both public and private, are regularly contacted for obtaining the latest available information on key sectors of the economy. Data are collected under the authority of the Statistics Act 2000 which also lays great emphasis on the confidentiality aspect.

The presentation of the tables broadly follows the recommendations of the United Nations 2008 System of National Accounts (SNA).

National Accounts data are disseminated via an annual report entitled "The National Accounts of Mauritius" and in "Economic and Social Indicators". All these publications are published by the Statistics Mauritius and are posted on the website of the office (<http://statsmauritius.govmu.org>).

Economic and Social Indicators on annual national accounts used to be published twice a year, in April and October. As from 2003, following requests for more frequent updates, they are published four times during the year namely in March, June, September and December. The issue published in March now provides a first forecast of National Accounts aggregates for the current year together with revised figures for earlier years. Subsequent issues in the course of the year provide for figures updated in the light of latest information available.

Economic and Social Indicators on quarterly national accounts are published within a quarter after the reference period. To meet this target, estimates for the current quarter are based on selected indicators that capture quarterly movements. Administrative data that are available on a monthly or quarterly basis, the most important one being data from the Value Added Tax (VAT) system, which have the advantage of being timely and of having a wide coverage are also extensively used. Some surveys requesting quarterly income and expenditure data are conducted among enterprises which are large contributors in specific sectors.

Estimates for a quarter are revised at subsequent quarters when new and more accurate information become available. It is to be noted that quarterly estimates are sometimes subject to important revisions because of the limitations in the source data.

For consistency, the estimates for the four quarters of a given calendar year are benchmarked with the latest annual estimates which are more accurate as they are mostly compiled from income and expenditure data of enterprises obtained through surveys. In incorporating the more accurate annual information into the quarterly estimates, the accuracy of the quarterly data is enhanced while the quarterly pattern inherent in the QNA is preserved.

1.7 Institutional Sector Accounts (ISA)

For the purpose of the analysis of production, the economy is split into industry groups but to analyse flows affecting income, capital and financial transactions, the different units involved in production, redistribution and consumption are grouped into 'institutional sectors' as follows:-

- Households including Non-Profit Institutions Serving Households (NPISHs)
- Non-financial corporate including quasi-corporate enterprises
- Financial enterprises
- General Government and
- Rest of the World.

The Integrated Economic Accounts of the country presents in a concise form (in the form of a T table), the goods and services account, the generation and allocation of Income, distribution and use of income and capital account of the institutional sectors of the economy.

ISA 2002 to 2005 based on CEA 2002, ISA 2007 to 2013 based on CEA 2007 and ISA 2013 to 2015 based on CEA 2013 results are readily available on the website of Statistics Mauritius (SM).

1.8 Financial Accounts and Balance Sheets

The next accounts in the sequence of ISA are the Financial Accounts and Balance Sheets.

The Financial Account records transactions that involve financial assets and liabilities while the Balance Sheet is a statement, drawn up in respect of a particular point in time, of the values of financial and non-financial assets owned and of the liabilities owed by an institutional unit or group of units. The balancing item of a balance sheet is net worth, the difference between assets and liabilities. The stock of financial assets and liabilities makes up the financial Balance sheet and the balancing item of a financial balance sheet is financial net worth.

Due to lack of data on flows relating to assets and liabilities, it has not been possible to compile Financial Accounts. Statistics Mauritius is planning to compile Financial Accounts in upcoming years when most of the required data would become available. Main data required to compile Financial Balance Sheets are available at Bank of Mauritius, Financial Services Commission, Stock Exchange of Mauritius and Accountant General's Department.

1.9 Supply and Use Table (SUT)

The SUT brings together the detailed goods and services accounts in the format of matrices with the product groups in the rows and the different categories and components of supply and use in the columns. In this matrix, commodity flow of goods and services are traced from different sources of supply to different categories of use. This table is an important analytical tool to study economic repercussions.

It has been possible, by making use of benchmark data available from the 2013 Census of Economic Activities and other sources, to construct a Supply and Use Table (SUT) for the year 2013, which is posted on SM website. SUT based on 2013 CEA results has been compiled using the ERETES software.

The supply and use tables for 2002 to 2005 which have been worked out using 2002 Census of Economic Activities data as benchmark and SUT for 2007 based on 2007 CEA are also published on the office website.

1.10 Input/Output Table (I/O)

The I/O Table gives the picture of input composition and output distribution of each product. On the assumption of stable or linear technical correlation between input and output, the table serves as an effective analytical tool for the study of economic repercussion. For instance, it illustrates the ultimate effect (direct and indirect) of a unit increase in domestic demand for a certain good on product output or value added.

An I/O Table for the year 2013 based on 2013 CEA is posted SM website.

2. Problems and limitations of published data

The main problems of the office in obtaining relevant data can be grouped as follows:

(i) *Response rate to enquiries*

The response rate to our annual enquiries is one of the major problems encountered by the office. It appears that the fear that Statistics Mauritius discloses information to other authorities still prevails among some suppliers of data. Data are collected under the authority of the Statistics Act 2000 which guarantees the absolute confidentiality of all information. No information relating to costs of production, capital employed or profits of an individual enterprise can be revealed to any authority or person.

(ii) *Non-uniformity of accounting years*

All firms do not have uniform accounting years. Data referring to the last "twelve-months" period may in fact spread over two or three consecutive years. In some cases, data have been adjusted before incorporation in the National Accounts as the time reference of the accounts is the calendar year.

The varying accounting years are also major obstacles to the preparation of the Capital, Financial and Balance Sheet Accounts.

3. Definition of main aggregates

Concepts and definitions used in this publication are those stated in the United Nations System of National Accounts (SNA) Manual - A System of National Accounts 2008.

(i) **Gross output**

Gross output of industries covers the value in the market of goods and services produced, including work in progress and products for own use. Valuation is usually at basic prices. The imputed rent of owner-occupied dwellings is also included.

The basic price is the amount receivable by the producer exclusive of taxes on products and inclusive of subsidies on products. The equivalent of imported products is the c.i.f. value at the border of the importing country.

Gross output for "general government" and for "non-profit institutions serving households" are computed as the sum of the cost of intermediate consumption expenditure, compensation of employees and consumption of fixed capital.

(ii) **Intermediate consumption**

"Intermediate consumption of industries" covers non-durable goods and services used up in production and includes repairs and maintenance of the capital stock. It is usually valued at purchasers' prices.

The purchasers' price is the amount payable by the purchaser exclusive of deductible taxes on products (e.g. deductible value added tax).

"Intermediate consumption of general government" is made up of acquisitions (purchases and transfers in kind) of new goods and services on current accounts.

(iii) **Value added**

Value added for a particular producer is equal to the gross output at basic prices less the value of intermediate consumption at purchasers' prices.

(iv) **Gross Value Added (GVA) at current basic prices**

GVA at current basic prices is the sum of value added of all domestic producers such as firms, government institutions and producing households in the country (i.e. $GVA = \sum \text{Value added}$).

(v) **Primary Sector**

The primary sector comprises "Agriculture, forestry and fishing" and "Mining and quarrying".

(vi) **Secondary Sector**

The secondary sector includes "Manufacturing", "Electricity, gas and air conditioning supply", "Water supply; sewerage, waste management and remediation activities" and "Construction".

(vii) **Tertiary Sector**

The tertiary sector includes "Wholesale and retail trade; repair of motor vehicles, motorcycles", "Transport and storage", "Accommodation and food service activities", "Information and communication", "Financial and insurance activities", "Real estate activities", "Professional, scientific and technical activities", "Administrative and support activities", "Public administration and defence; compulsory social security", "Education", "Human Health and social work activities", "Arts, entertainment and recreation" and "Other service activities".

(viii) **Taxes on production and imports**

Taxes on production and imports comprise all taxes that enterprises incur on goods and services produced, delivered and sold. They also include taxes and duties on imported goods. There are two categories of taxes, namely taxes on products and other taxes on production.

Taxes on products are payable on goods and services when they are produced, sold or used. Examples are excise duties, import duties and Value Added Taxes (VAT).

Other taxes on production are taxes payable out of the value added of producers. This category of taxes includes taxes levied on property, fixed assets and labour employed. Examples are municipal rates, motor vehicle licenses and business licenses.

(ix) Gross Domestic Product (GDP) at current market prices

GDP represents the aggregate money value of all goods and services produced within a country out of economic activity during a specified period usually a year, before provision for the consumption of fixed capital. It is a measure of the overall economic activity of a country.

GDP at current market prices is equal to GVA at current basic prices plus taxes (net of subsidies) on products [i.e. $GDP = \sum \text{Value added} + (\text{Taxes} - \text{Subsidies}) \text{ on products}$].

(x) Per capita GDP at current market prices

Per capita GDP is the ratio of GDP at current market prices to population. It measures the level of economic development in comparison to other countries.

(xi) Gross National Income (GNI)

GDP plus net primary income from the rest of the world gives Gross National Income (GNI).

(xii) Gross National Disposable Income (GNDI)

GNI plus net transfers from the rest of the world gives Gross National Disposable Income (GNDI).

(xiii) Gross Fixed Capital Formation (GFCF)

GFCF consists of the net additions to assets of producers of tangible reproducible goods which have an expected lifetime of use of more than one year. These assets are buildings, plants, machinery and transport equipment. The additions are valued at purchasers' prices. Non-reproducible tangible assets such as land and mineral deposits are not included in gross capital formation. However, outlays on improvement of land and development of mining sites are considered as gross fixed capital formation. Durable goods purchased by households, with the exception of dwellings, are not classified as capital formation but are treated as consumption expenditure.

(xiv) Investment rate

Investment rate is the ratio of GFCF to GDP at current market prices.

(xv) Change in inventories

Change in inventories includes the value of the physical change in inventories of raw materials, work in progress and finished goods held by producers.

(xvi) Final Consumption expenditure

Consumption expenditure is made up of final consumption expenditure of households and that of government.

Government final consumption expenditure comprises the value of services produced and value of goods and services purchased from private producers for free distribution to households, and the output of Central Bank. It is further disaggregated into collective and individual consumption expenditure. *Collective* expenditure consists of the services which government provides to the community as a whole, for example, security and defence whereas *individual* expenditure is made up of expenses incurred in providing services which are mostly beneficial to individuals, mainly in respect of health and education.

(xvii) Gross Domestic Saving (GDS)

GDP at current market prices less total final consumption expenditure gives Gross Domestic Saving.

(xviii) Gross National Saving (GNS)

GNDI less total final consumption expenditure gives Gross National Saving.

(xix) Exports and Imports of goods and services

Both exports and imports are measured on an f.o.b. basis. Exports and imports of goods are compiled according to the General Trade System, using the national boundary as the statistical frontier. All goods entering the country are recorded in imports and goods leaving the country, in exports.

(xx) Compensation of employees

Compensation of employees comprises all payments of wages and salaries by producers to their employees. Payments in kind and contributions to social security and to private pension fund, casualty insurance and similar schemes are also included.

Wages and salaries in cash comprise all payments which employees receive in respect of their work, before deductions of employees' contributions to social security schemes. Payments such as refund of traveling of work, commissions, overtime, bonuses, and cost of living allowances are also included.

Payments in kind include goods and services provided to employees free of charge or at markedly reduced costs which are clearly of direct benefit to the employees as consumers.

(xxi) Gross operating surplus

Gross operating surplus is defined as the excess of value added over the cost of employees' compensation and other taxes on production.

(xxii) Financial intermediation services indirectly measured (FISIM)

In addition to charging customers directly for financial services, banks and similar institutions also generate service income by charging higher rates of interest to lenders than they pay to depositors. The margin earned by these financial institutions is treated as payment for FISIM. It is calculated separately for loans and deposits using a reference interest rate. In more details, it is measured as the sum of FISIM on loans = [Interest received on loans – (Stock of loans x reference rate)] and FISIM on deposits = [(Stock of deposits x reference rate) – Interest paid on deposits]. As recommended by the SNA, it is allocated to users as follows: intermediate consumption of businesses, final consumption of households and government, and a component of exports of services.

4. Production Account of Economic Activity Group**4.1 Agriculture, forestry and fishing**

The activities in this sector are presented in the following sub-groups:

- Industrial crops (sugar cane and tea)
- Food crops, fruits and flowers
- Plant propagation
- Livestock, poultry and related products
- Forestry and hunting
- Fishing
- Government services

(i) Data sources

Census of Agriculture (CA)
 Ministry of Agro Industry & Food security
 Mauritius Cane Industry Authority
 Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Island
 Mauritius Chamber of Agriculture
 Mauritius Sugar Syndicate (MSS)
 Food and Agricultural Research and Extension Institute (FAREI)
 Mauritius Meat Authority (MMA)
 Annual Survey of Employment and Earnings
 Household Budget Surveys
 Agricultural Cost of Production Survey (ACOPS)
 Housing Census (HC)
 Special enquiries from food crop planters, quarterly survey of livestock and poultry breeders and providers of agricultural services falling under the non-household sector

(ii) Methodology

The benchmark data used in compilation of production accounts for food crops, fruits, flowers, and livestock, poultry and related products is from the 2014 Census of Agriculture (CA2014) conducted by Statistics Mauritius. The CA2014 defines a farm (or agricultural holding) as one producing mainly for sale. In addition, all agricultural production units producing for own consumption with at least 5 perches of land and/ or with a minimum number of fruit trees in the backyard of private households, are considered as farms. However, estimate for agricultural production falling below the threshold of 5 perches were estimated from the survey of households, which was included in the CA2014.

Based on CA2014, farms are classified in two sectors namely:

- (a) household sector; and
- (b) non-household sector (consisting mainly of private agricultural enterprises and government farms)

Separate production accounts are prepared for each of the sub-groups mentioned above in Section 4.1. Apart from sugar and tea, agricultural activities are performed mainly by small farmers and fishermen who do not keep proper records of their transactions. Because of the lack of proper accounts, a variety of methods, based essentially on the commodity flow approach is used to estimate gross output, intermediate consumption and value added.

(a) Industrial crops

Sugar cane: Details on the sugar industry are given separately in Section 4.2.

Tea: Quantities and prices of tea and tobacco leaves are available from the Tea and Tobacco Board respectively. Intermediate inputs per hectare are computed based on benchmark ratios from the Agricultural Cost of Production Survey (ACOPS 2005). Total intermediate consumption is then obtained by applying the appropriate rates of inputs to the total area under cultivation.

(b) Food crops, fruits and flowers

Food crops: Since July 1997, monthly data on food crops production and area harvested are obtained from FAREI which accounts for about 82% of total production. Estimates of production not covered by FAREI are made on the basis of CA2014 results and also consumption data collected through the Household Budget Surveys. Wholesale prices of some 35 food crops, collected by the Prices unit, are used to obtain basic prices in order to calculate their gross output. Regarding food crops for which wholesale prices are not collected or are not available, retail prices, collected by the same unit, are used to evaluate their gross output at basic price by deducting transport costs and retail margin from its retail price value.

Intermediate consumption expenditure is estimated by applying ratios of inputs from ACOPS 2005. Some of the inputs, for example fertilizers, pesticides, seeds are cross-checked with imports and local production figures.

Fruits: Monthly production of banana and pineapple and area harvested are obtained from FAREI. The latter covers around 85% of production of banana and for the remaining 15% estimates are based on CA2014. With regards to other fruits, the number of fruit trees in bearing age in the household sector is estimated based on the CA2014 and the 2011 Housing Census. Production is estimated in quantity using an average yield per tree based on CA2014, taking into account the climatic factor. This production is valued at basic prices from either wholesale or retail prices collected by the Prices unit.

Flowers: The main source of data for estimating production of flowers is exports data from the Foreign Trade unit and benchmark data from CA2014. Regarding flowers sold on the local market, a separate estimate is worked out based on the number of weddings, deaths, religious ceremonies, etc. and also CA2014 results.

(c) *Livestock, poultry and related products*

The Mauritius Meat Authority (MMA) forwards a monthly return on the number of heads and carcass weight of local/imported cattle, sheep, goats and pigs slaughtered at the Abattoir. To these, are added the production from off-abattoir slaughters estimated from CA2014 results and also permits issued by the Ministry of Agro Industry and Food Security. The total quantity multiplied by a weighted average retail price gives the gross output at basic prices after deducting retail margins and transport costs. Estimates of intermediate expenditure on cattle feeds, salt and water etc. are made and deducted from the gross output to obtain value added.

Poultry and egg production is calculated from data obtained through the questionnaires sent to all producers of the non-household sector. These data are supplemented with estimates made for breeders of the household sector based on CA2014 results and also on the number of broilers sold by the non-household farms and on the quantity of feed sold.

Hunting, mainly deer hunting, is undertaken during a specific period of the year. The benchmark data for production is from CA2014 and the associations of hunters provide data on the production of venison. This is valued at basic prices as for other livestock. Intermediate costs for hunting is negligible, therefore the gross output is composed essentially of value added.

Estimates of milk production are obtained from the Animal Production Division of the Ministry of Agro Industry and Food Security and the benchmark data is from CA2014.

(d) *Government Services*

Details are provided at Section 4.16.

(e) *Forestry and logging*

Estimates of forestry production namely, wood processed by sawmills and, to a lesser extent, firewood are made on the basis of information obtained from the Forestry Department. Intermediate costs for forestry is negligible, therefore the gross output is composed essentially of value added.

(f) *Fishing*

Data on the quantity of fish caught are provided by the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Island. Separate figures are given in respect of lagoon and bank fishing. These are then valued at market prices available from the Prices unit. The transport and retail margins are estimated and deducted from the market price value to give gross output at basic prices. Intermediate inputs for lagoon fishing is very low as the fishermen who are engaged in fishing in coastal waters, use artisanal methods and the catch is usually sold fresh. Bank fishing involves higher costs as the fish are caught in high seas in larger vessels. Also, these fish are sold frozen.

4.2 The Sugar Industry

There are three categories of growers in the sugar industry, namely “miller”, “metayer” and “owner-planters”. Millers are owners of sugar factories and large plots of land around these factories. In 2014, they numbered 4 and cultivated sugarcane on an area of 26,422 hectares. Metayers are normally employees of the millers who are allowed to grow sugarcane on their employers’ lands and cultivated some 623 hectares. There were 15,260 owner-planters who cultivated 23,648 hectares of land.

Value added generated by the sugar industry is attributed, for national accounting purposes, to the following industrial activity groups:

Agriculture: the final product is sugarcane.

Manufacturing: the final product is sugar and its by-products, molasses, scums and electricity for own consumption. Only millers are engaged in this activity.

Transport: includes only the millers’ own account transport of sugarcane, sugar and other inputs

Distribution: includes activities of brokers, shippers and the Mauritius Sugar Syndicate.

(i) **Methodology**

The period from the growing stage up to the marketing of all sugar produced covers eighteen months. Production is valued on an accrual basis, so that output relating to crop year, say 2014/2015 is treated as production for calendar year 2014. The sugar cane crop of a given year normally extends from July to June of the following year.

Sugar is marketed solely through the Mauritius Sugar Syndicate. This agency provides data on price of sugar, both local sales and exports’ proceeds. All the expenses incurred in respect of marketing are also given.

Production accounts are compiled using information from survey of sugar factories and other data made available by stake holders.

(ii) **Production Account of Sugar Cane**

Separate accounts are prepared in respect of millers and planters.

The gross proceeds from the sales of sugar and its by-products are obtained from the Mauritius Sugar Syndicate. The gross output of agriculture comprises 78% of the gross proceeds as the remaining 22% accrue to millers to cover the milling cost.

Agriculture: Intermediate expenses in respect of sugarcane cultivation are compiled from survey of selected sugar factories.

Manufacturing: The end product is sugar and only millers are engaged in its production. The gross output is worked out from the gross proceeds of sugar. The main item under goods consumed is sugarcane; other inputs include milling cost which are obtained from the Mauritius Sugar Syndicate and the survey of sugar factories.

Transport: The sugar estates and millers have their own means of transport. Most of their canes, sugar and other inputs are transported by their own lorries. The ‘Transport’ activity is valued at cost. The expenditure incurred in respect of purchases of materials and services, compensation of employees and consumption of fixed capital are obtained from surveys. The total of these aggregates gives the gross output. Transport cost is then imputed, on a pro-rata basis, to the intermediate consumption expenditure of the agriculture and manufacturing sectors.

Distribution: The gross output is computed from the related expenditure items as given in the Mauritius Sugar Syndicate report. The cost component consists mainly of elements of value added.

4.3 Mining and quarrying

The activity of mining and quarrying covers salt production, stone crushers and sand quarries. Estimates of gross output and value added are based on information collected through special enquiries and data from the VAT system from the MRA.

4.4 Manufacturing

The manufacturing sector is the largest sector in the Mauritian economy.

(i) Sources

- Annual Survey of Receipts and Expenditure
- Annual Survey of Employment and Earnings
- Trade Statistics
- Household Budget Survey
- Census of Economic Activities
- Employment Survey data
- Vat data
- Excisable goods from the MRA

(ii) Methodology

The manufacturing sector is more conveniently analysed under the following three broad groups

- Sugar Milling
- EOE
- 'Other' manufacturing enterprises

Sugar: Production account in respect of sugar milling is prepared from annual reports of the Chamber of Agriculture, financial statements of the Mauritius Sugar Syndicate and survey of sugar factories as explained in section 4.2.

Other Manufacturing establishments are surveyed once a year through the Annual Survey of Large Establishments.

A questionnaire is sent to a representative sample of large establishments to collect information on employment, labour costs, inputs, sales and inventories. Production accounts are worked out for each of the NSIC groups. Technical ratios such as labour costs/gross output, value added/gross output and labour costs/value added are also calculated. These are used to make estimates for the non-respondents and also help in forecasting exercises.

4.5 Electricity, gas, steam and air conditioning supply

This sector covers the activities of one public enterprise, namely the Central Electricity Board (CEB) as well as the Independent Power Producers (IPPs) which provide electricity to the national grid.

The generation of electricity throughout the Republic of Mauritius is undertaken by the CEB and IPPs while its distribution rests solely with the CEB. The generation of electricity from Small Scale Distributed Generation (SSDG) Scheme is currently not accounted for since it represents a very small proportion of the total electricity produced.

(i) Sources

Annual Survey of Receipts & Expenditure
 Census of Economic Activities
 Annual reports of CEB

(ii) Methodology

The enterprises are required to fill in an annual questionnaire on income and expenditure accounts of the current year, requesting detailed data on receipts, employment, labour costs, purchase of goods and services. In addition, CEB regularly publishes its income and expenditure accounts, which are used extensively for the preparation of production accounts.

4.6 Water supply; sewerage, waste management and remediation activities

The activities in this sector are classified in the following main components:

Water collection, treatment and supply
 Sewerage
 Waste collection, treatment and disposal activities; materials recovery
 Remediation activities and other waste management services

(i) Sources

Annual Survey of Receipts & Expenditure
 Annual Survey of Employment and Earnings
 Census of Economic Activities
 VAT data

(ii) Methodology

Data are collected through mail questionnaires for large establishments. Among these are the Central Water Authority and the Wastewater Management Authority. For these enterprises, the production approach is used to measure output. Benchmark ratios obtained from the 2013 Census of Economic Activities and data from the VAT department are used for non-respondents.

4.7 Construction

The construction industry consists of the following activities:

General builders and civil engineering contractors
 Small contractors and special trade contractors
 Public authorities engaged in capital works - Ministry of Public Infrastructure, National Development Unit, Land Transport and Shipping and local authorities
 Own-account construction carried out by individuals

(i) Sources

Building permits statistics
 Public Sector Investment Programme (PSIP)
 Trade Statistics
 Housing and Population Census

Household Budget Surveys
 Census of Economic Activities
 Capital Expenditure Surveys
 Board of Investment

(ii) Methodology

The gross output of the construction industry is the value of investment on residential and non-residential buildings, roads, electricity and communications networks, land improvement and reclamation, maintenance and repair services, etc. The methodology adopted varies with the type of construction and the source of statistical information.

The main source of data is the records of building permits kept by the local authorities. The total volume (floor area) of building construction, whether performed by contractors or individuals, is compiled at the office from these records.

The price charged per square metre for the construction of dwellings and its breakdown into labour costs and materials consumed are obtained from Quantity Surveyor works. These prices vary with the size and location of the building. In addition, 'large' builders and contractors are contacted to obtain value of projects completed. Supplemented with investment statistics, collected for the computation of the fixed capital formation, an estimate of gross output in the private sector is derived.

Data on construction works (value and expenses) carried out by the Ministry of Public Infrastructure, National Development Unit, Land Transport and Shipping and local authorities are obtained from their respective accounts as well as from the Financial Report of the Accountant's General Department. These are used to evaluate gross output of construction in the public sector.

Another element of the construction industry is the repair and maintenance of buildings, both residential and non-residential, performed by various contractors and public authorities. Estimates are made from benchmark data from:

- (a) stock of buildings updated from the 2011 Housing Census
- (b) repairs and maintenance expenses by households from Household Budget Surveys

Some items of intermediate consumption, e.g. aggregates, paints, cement, iron bars are cross-checked with production and imports statistics.

4.8 Wholesale and retail trade, repair of motor vehicles and motorcycles

(i) Sources

Register of licence holders
 Trade Statistics
 Agricultural Statistics
 Special enquiries from docks and stevedoring and large distributive enterprises
 Census of Economic Activities
 VAT data
 Annual Survey of Receipts and Expenditure
 Road transport statistics
 Mauritius Sugar Syndicate (MSS)

(ii) Methodology*Wholesale and retail trade:*

The gross output for wholesale and retail trade is estimated as the gross margins obtained between sale and purchase values of goods sold. These goods can be categorised into two groups: imported goods and locally manufactured goods.

Imported goods: The basic data used for the computation of wholesale and retail margins on imported goods are obtained from the annual tabulations on imports. Imports are classified item-wise according to the Standard International Trade Classification (S.I.T.C., Revision 3) and for each item the quantity, C.I.F. value, customs and excise duties are available.

These data are first grouped into broad economic categories namely intermediate, final consumption and capital goods. Margins are estimated as the difference between the 'landed cost' and the retail price for each item. Wholesale margins are estimated using available information from 2013 Census of Economic Activities (2013 CEA) and additional data collected through annual special enquiries from "large" enterprises engaged in landing, storage, clearing and forwarding activities. Retail margins are estimated from information available from the 2013 CEA.

Locally manufactured goods: Data on local production and exports available from VAT Department are classified by NSIC. Local sales are then computed and coded in SITC. The wholesale/retail rates of margin are determined based on the 2013 CEA and these rates are applied for each SITC section.

The agricultural products used to compile the wholesale and retail margin are: fresh vegetables, fresh fruits, fish, eggs and flowers. Data are collected by the Prices Unit (Producer prices) and the Consumer Prices Unit (Retail prices) of this office. The wholesale and the retail margin for fresh vegetables and fresh fruits (banana and pineapple) is the difference between the retail prices and the producer prices. Margins for "other fruits", fish, eggs and flowers are estimated using a percentage of the gross output valued at basic prices.

Other activities:

Estimates are also made in respect of margins as follows:

- Mauritius Sugar Syndicate for the marketing of sugar from data supplied by MSS.
- Lottery and pool organisers based on information obtained from the VAT Department.
- Ship chandling activities using value of ships' stores supplied.
- Goods re-exported by the Freeport supplied by the Trade Unit
- Other activities such as auctioneers and scrap metal dealers are estimated using data collected at the Census of Economic Activities as base.

Intermediate consumption incurred by the distributive trades are estimated on the basis of benchmark data collected for CEA 2013 and is used to derive the value added.

The production account is then worked out from the aggregated data on gross output and intermediate consumption expenditure.

Repair of motor vehicles and motorcycles:

For establishments engaged in the repair of vehicles, the production account is worked out using data from the 2013 CEA, the age distribution of vehicles registered, the number of motor vehicles involved in accidents and import figures of spare parts, lubricants, and other materials used in repair works, supplemented by VAT data.

4.9 Transport and storage

This group covers a wide range of activities grouped under the following:

- Land transport
- Water transport
- Services allied to transport, namely cargo handling, ports and airport services, storage and warehousing
- Air transport
- Postal services

(i) Sources of data

- National Transport Authority
- Annual Survey of Receipts and Expenditure
- Mauritius Chamber of Agriculture
- Annual Survey of Employment and Earnings
- Household Expenditure Surveys
- VAT data
- Mauritius Port Authority (MPA)
- Cargo Handling Corporation (CHC)
- Census of Economic Activities

(ii) Methodology

Land transport: The enterprises in this activity group consist of operators of buses, lorries, vans, contract cars and taxis.

Statistics on number of buses, lorries, taxis and contract cars operating (fleet statistics), obtained from the National Transport Authority, provide leading indicators.

The 'large' establishments, namely buses and lorry companies are surveyed and the operation ratios derived from the survey results are applied to fleet statistics to estimate gross output, intermediate consumption and labour cost in this sub sector. For individual operators of lorries, vans and taxis, a similar method is used to estimate the gross output and value added where applicable prices and number of vehicles (fleet statistics) are used as indicators. The estimates of gross output for buses and taxis are cross-checked with data on consumption obtained from Household Expenditure Surveys.

The production account for lorries engaged in the transport of sugarcane and sugar is worked out separately, as explained in section 4.2.

Water transport: As very scarce information is obtained from the annual survey of receipt and expenditure, indirect methods are used to estimate output. Indicators such as volume of goods loaded and unloaded and statistics on movement of ships are used.

Services allied to transport: Most of the enterprises engaged in these activities employ more than 10 persons. This sector covers mainly activities carried by the Mauritius Ports Authority (MPA), the Cargo Handling Corporation (CHC), ports and airport services, and storage and warehousing. Information required for the estimation of gross output, intermediate consumption, value added etc, are obtained through surveys.

4.10 Accommodation and food service activities

(i) Sources of data

Bank of Mauritius: The main source of data for calculation of output of the sector is the Bank of Mauritius which provides estimates of Tourism earnings.

Census of Economic Activities: The Census of Economic Activities collects benchmark data for the hotels and restaurants sector every five years.

The Survey of Inbound Tourism (SIT): The Survey of Inbound Tourism (SIT) conducted by Statistics Mauritius and supplements data on expenditure by tourists.

The Household Budget Survey (HBS): Results of The Household Budget Survey are used to cross check Mauritian expenditure in hotels, bars and restaurants.

The Passport and Immigration Office: The number of tourist arrivals is obtained from passenger traffic statistics.

Tourism Authority: The register of license holders compiled by the Tourism Authority provides the total number of hotels and restaurants in operation.

(ii) Computation of output in census years (CEA)

Benchmark data are collected from all hotels and restaurants through the Census of Economic Activities every five years. Gross output of the hotels and restaurants sector is made up of the following:

A tourist component comprising expenditure of tourists in accommodation and food service and accounting for 77% of the output of the sector.

A local component comprising expenditure of Mauritians in hotels, restaurants, small bars, canteens and on catering and accounting for 22% of the total output.

Catering services that is food and beverages to be consumed in local and foreign aircrafts and accounting for remaining 1% of the total output.

Estimates for the tourist component in 2013 were worked out based on tourism earnings. Those estimates were checked for consistency with expenditure data obtained through the 2013 Survey of Inbound Tourism (SIT 2013). The figures for the local component obtained from the latest CEA 2013 were compared and adjusted with Mauritian expenditure in hotels, bars and restaurants from the results of the Household Expenditure Survey (HBS) 2012.

(iii) Computation of annual estimates for intercensal years

An estimate of output is worked out for the local component based on annual growth in number of households and the CPI component measuring prices of meals in bars and restaurants.

Given that estimates of tourism receipts are regularly provided by the Bank of Mauritius, a percentage of tourist earnings is adopted for the output of hotels and restaurants from tourists.

An estimate of output for catering services on aircrafts is worked out based on annual growth in passenger departures by air.

The production account of this sector is based on technical ratios calculated from benchmark data collected through the Census of Economic Activities.

4.11 Information and communication

This group consists of the activities of the following sectors:

Publishing activities

Motion picture, video and television programme production, sound recording and music publishing activities

Programming and broadcasting activities

Telecommunications

Computer programming, consultancy and related activities

Information service activities

(i) Sources of data

Annual Survey of Receipts and Expenditure

Annual Survey of Employment and Earnings

VAT data

Census of Economic Activities

(ii) Methodology

Data for the large establishments are obtained through annual surveys and is used to compute output and value added. For non-respondents to the survey, estimates are calculated using benchmark data collected through the 2013 Census of Economic Activities and data from the VAT systems.

4.12 Financial and insurance activities

The financial and insurance activities account for a large part in the GVA of Mauritius. The activities in this group can be categorised into four sub groups: (i) insurance, reinsurance and pension funding (ii) monetary intermediation (iii) financial leasing and other credit granting and (iv) other financial intermediaries (including global business companies).

(i) Sources of data

Bank of Mauritius

Financial Services Commission

Corporate and Business Registration Department

Stock Exchange of Mauritius

International Financial Statistics

VAT data

Census of Economic Activities

Annual Survey of Receipts and Expenditure

Annual Report of Establishments (such as State Bank of Mauritius, SICOM)

(ii) Methodology

The financial services sector in Mauritius is mainly composed of the banking and insurance sector which account for more than 80% of the sector's total value added.

(a) Insurance, reinsurance and pension funding

The activity of insurance is intended to provide customers with protection against certain risks. It is also a form of financial intermediation where funds are collected from policyholders and invested in assets that are held as technical reserves to meet future claims.

In assuming the risk against unfortunate or undesirable events, the insurer agrees to pay a certain amount of money (claim) if the event arises. In return, the policyholder pays an amount of money (premium). It is a form of risk management primarily used to transfer of the risk of a loss, from one entity to another in exchange for payment. Insurance enterprises do not charge a separate fee for the service they provide. However, any explicit fees charged are treated as payment for services and included in the output of the enterprise. The value of those services for which there is no explicit charge must be estimated indirectly from total receivables and payables of enterprises, including the income accruing from investment of their reserves.

Data for production accounts of insurance companies are collected via quarterly and annual surveys, supplemented by administrative data from FSC and VAT.

The gross output of insurance enterprises is calculated as:

- + Total premiums earned
- + Total premiums supplements (interest, dividend and rent)
- Claims due
- Changes in actuarial reserves
- + Commission fees explicitly charged

As per SNA 2008, the gross output of non-life insurance activity is calculated using adjusted claims (i.e. claims due plus changes in equalization provisions and, if necessary, changes to own funds). This new method takes into account ad-hoc catastrophic losses where the output of the insurance activity could be extremely volatile (even negative).

The intermediate consumption consists of purchase of goods and services, commission and net reinsurance paid. The value added is the difference between gross output and intermediate consumption.

The service charged for general insurance which is an intermediate consumption of industries is allocated to users in the same proportion as premiums paid by each industry and is calculated as follows:

- + Premium
- Claims
- + Supplements
- = Insurance service charged

As the adequacy of the life fund of most of insurance enterprises is determined triennially by actuarial valuation, a yearly estimate based on a percentage of end-of-year life funds is made to account for changes in actuarial reserves.

The Sugar Insurance Fund Board is considered to be an equalising fund. Its output is measured as the sum of production costs that is the intermediate consumption and the compensation of employees. The value added is therefore equal to compensation of employees.

The output of pension funds is measured as the sum of costs (i.e. intermediate consumption, compensation of employees and other taxes on production). The intermediate consumption consists mainly of the service charge (i.e. management fees) paid by the fund to the insurance or management company.

(b) Monetary intermediation

- **Banks and similar institutions**

Data on the activities of this sub-group, comprising mainly banks and similar institutions such as Mauritius Housing Company Ltd, are obtained through surveys. The gross output of these establishments, as defined by the SNA 2008, is estimated as the sum of Financial Intermediation Services Indirectly Measured (FISIM) and their actual service charges (income from dealings in foreign exchange, commissions, ledger fees, etc). The total value of FISIM is imputed in respect of all loans and deposits using a reference interest rate irrespective of the source of funds.

In more details, total FISIM is measured as the sum of

- (i) FISIM on loans = [Interest received on loans – (Stock of loans x reference rate)] and
- (ii) FISIM on deposits = [(Stock of deposits x reference rate) – Interest paid on deposits].

The SNA recommends that the consumption of these services be allocated among users as follows: intermediate consumption of businesses, final consumption of households and government, and a component of exports of services. FISIM allocated by sector is based on data available on deposits, loans and prevailing rate of interest.

- **Central Bank**

The Central Bank is not considered to produce FISIM. Its output is measured as the sum of production costs including a return to fixed capital.

(c) *Financial leasing and other credit granting*

This sector covers mainly activities carried by Non-Bank Deposit-Taking Institutions licensed by the Bank of Mauritius and FSC. Establishments in this activity group consist of leasing companies and credit granting institutions like the Mauritius Civil Service Mutual Aid Association Ltd, Development Bank of Mauritius Ltd, etc. This group also includes other financial service activities primarily concerned with distributing funds other than by making loans such as factoring activities. Their output is measured almost same as for commercial banks. This is based on the fact that these financial intermediaries provide services for which they charge implicitly (FISIM) and also charge a direct fee or commission. Information required for the estimation of gross output, intermediate consumption, value added, etc. is obtained through surveys.

(d) *Other financial intermediaries*

This sub-group includes financial institutions that are engaged in activities auxiliary to financial service and insurance activities such as administrators of financial markets (e.g. FSC and Stock Exchange of Mauritius), moneychangers, stockbrokers, investment holding companies, fund managers, actuaries, custodians and insurance agents/brokers. They provide services, which are usually priced explicitly, based on a fee or commission. Their output is valued on basis of the fees or commission received, much in the same way as for other non-financial services.

This sub-group also includes **Global Business Companies (GBCs)**. The output of GBCs is estimated as the sum of costs incurred by these entities (i.e. intermediate consumption, compensation of employees, other taxes on production and consumption of fixed capital). The latter is assumed to be negligible as GBCs hold very little physical assets.

The Gross Output of GBCs, according to cost method of national accounts, is measured as follows:

- + Licence fees and rates paid by GBCs to resident authorities
- + Wages and salaries paid out by GBCs to resident employees
- = Value Added of GBCs
- + Intermediate Consumption (i.e. recurrent expenses on goods and services paid to local companies)

The indirect contribution of GBCs to the economy is measured in terms of services purchased by GBCs from local enterprises, the main ones being management, accountancy, auditing and legal services.

4.13 Real estate activities

This group which comprises the rent of owner occupied dwellings as well as activities of agencies involved in the sale of property.

- **Ownership of dwellings (OOD)**

(i) **Sources of data**

- Household budget surveys
- Housing Census 2011
- Stock of residential buildings
- Interest rate on housing loans
- Building permits from local authorities

(ii) Methodology

The gross output is calculated annually according to the User Cost Method, as recommended in the World Bank's International Comparison Programme (ICP). It consists of estimating each of the cost that owners of dwellings would need to take into account in fixing a market rent if they decided to rent their dwellings to other people instead of occupying them. These costs are: intermediate consumption, other taxes on production, consumption of fixed capital and operating surplus.

The value added is compiled by summing the following items:

- The operating surplus, which is calculated using stock of residential building and interest rate on housing loans.
- The taxes paid on dwellings.
- Consumption of fixed capital (depreciation of building).

The intermediate cost consists of expenditure on maintenance and repair of residential buildings, and the insurance premium paid on owner-occupied dwellings. The expenditure on maintenance and repair of residential buildings is calculated based on the average expenditure per household estimated from Household and Budget Surveys and the number of housing units based on Census 2011 and updated using number of building permits.

The gross output is then obtained by adding the value added and intermediate cost.

- **Activities of Real Estate Agencies**

(i) Sources of data

Census of Economic Activities
Board of Investment
Annual Survey of Receipts and Expenditures
VAT data

(ii) Methodology

Data on activities of agencies involved in the sale of property are collected mainly through the Census of Economic Activities, supplemented by VAT data.

4.14 Professional, scientific and technical activities**(i) Sources of data**

Census of Economic Activities
Annual Survey of Receipts and Expenditure
VAT data
Financial Services Commission

(ii) Methodology

The activities of this sector are classified into 3 main components:

- (a) activities of business enterprises, such as consultancy, accounting & auditing firms, advertising agencies, architectural & engineering firms and other services such as technical testing & analysis, photographic activities, fashion design, etc.
- (b) activities of own-account professional workers such as lawyers, accountants, notaries, surveyors, etc.
- (c) business activities carried out in Offshore Management Companies (OMCs).

For the first category, the large contributors to output are surveyed annually and for small firms benchmark data collected through the 2013 Census of Economic Activities are used.

For the second category, the income approach is used to estimate value added which consists of compensation of employees and operating surplus. The estimates are based on working ratios obtained from the latest Census of Economic Activities and leading indicators on employment and registration of those professionals from their respective associations.

The third category of the sector comprises activities of Offshore Management Companies (OMCs). The FSC is responsible for surveying these companies and provides SM with aggregated data. The survey results published in the annual bulletin of FSC are used by SM to compile production account of these companies.

4.15 Administrative and support service activities

(i) Sources of data

Census of Economic Activities
Annual Survey of Receipts and Expenditure
VAT data

(ii) Methodology

This sector comprises rental & leasing of motor vehicles, other machinery and equipment, travel agency & tour operator activities, activities of call centres, photocopying activities, packaging activities, security systems service activities, cleaning services, landscaping activities, secretarial support services and other business support activities.

Production accounts of the large establishments are obtained from annual surveys and estimates are made for small firms using benchmark data collected through the latest Census of Economic Activities. These are cross checked with figures from the turnover from VAT.

4.16 General Government

The general government sector, subdivided into central government, social security funds, regional government and local government, consists of all government units and all non-market Non Profit Institutions that are controlled and mainly financed by government units.

The central government is generally composed of ministries/departments and units (Extra Budgetary Units) operating under the authority of the central government with a separate legal identity and enough authority to form additional government units

The National Pension Fund is responsible for the payments of social security benefits of the government and also runs a defined benefit pension scheme for the employees of the private sector.

The regional government consists of the administration of Rodrigues.

The local government consists of municipalities and district councils, mainly financed by the central government.

The main functions of government are to assume responsibility for the provision of services to the community as a whole (collective services) as well as certain individual services (e.g. education and health). Government units are normally engaged in the production of non-market goods and services.

Total output, valued as the sum of production costs is estimated as follows:

Gross output = Intermediate Consumption
+ Compensation of employees
+ Consumption of fixed capital

(i) Data Sources

Data for Ministries and Departments (Central Government) are available from the Accountant General's Department through an online reporting system.

Data for Extra Budgetary Units and Local Government are obtained from final accounts.

Data for the Rodrigues Island is obtained from the Rodrigues Regional Assembly's finance department.

Expenditure items for the different levels of the General Government are scrutinized and categorized as compensation of employees, intermediate consumption, capital expenditure, transfers, etc.

(ii) Methodology

The government accounts are prepared by the Accountant General's Department. The expenditure items in the government accounts are carefully scrutinised and classified in categories such as compensation of employees, intermediate consumption, capital expenditure, transfers, etc. For other units, data are extracted from their final accounts.

All units forming part of general government are classified according to NSIC groups. The main NSIC group is '**Public Administration and Defence, Compulsory Social Security**' which consists of the executive and legislative administration directly dependent on head of state and Parliament together with all other central regional and local government bodies, the regulation of the activities of agencies that provide health care, education, cultural services and the provision of services to the community as a whole (foreign affairs, defence, public order and compulsory social security activities).

Activities other than administration are classified in their appropriate NSIC groups e.g. education activities are classified under Education, human health activities are classified under Health, agricultural activities under Agriculture.

4.17 Education

(i) Data Sources

- Financial Report of the Accountant General's Department
- Education statistics from the statistics division of the Ministry of Education
- Private Secondary School Authority
- Tertiary Education Commission
- Register of licence holders
- Annual Survey of Employment and Earnings
- Household Budget Surveys
- Census of Economic Activities
- Annual survey of Receipts and Expenditure

(ii) Methodology

Education services are provided both by public and private sectors.

Expenditures related to education (preprimary, primary, secondary and tertiary sectors) incurred by the different levels of the General Government are used to estimate value added, intermediate consumption and gross output of education in the public sector.

Activities provided by the private sector comprise private aided and unaided schools, private tuition, technical and vocational institutions, professional institutions (such as private universities and private post-secondary non-tertiary institutions) and other institutions providing other education such as adult education and driving schools.

Output for the private secondary institutions is estimated on the basis of returns available for the Private Secondary School Authority on grants and expenses of aided schools. Benchmark ratios worked out from the 2013 Census of Economic Activities, supplemented with data on enrolment (from the Ministry of Education and TEC) and the CPI sub-index for education are used to estimate output in the private preprimary, primary and other private educational institutions.

Output for private tuition is estimated from fees charged for private tuition enrolment by grade and an estimated percentage taking private tuition cross checked with data from HBS and CMPHS.

4.18 Human health and social work activities

(i) *Data Sources*

Financial Report of the Accountant General's Department
 Health statistics from the Ministry of Health & Quality of Life
 Register of licence holders
 Annual Survey of Employment and Earnings
 Household Budget Surveys
 Housing and Population Census
 Census of Economic Activities
 Annual survey of Receipts and Expenditure

(ii) *Methodology*

Like education services, public health services are provided both by public and private sectors.

Output of public health services is measured at cost from data on expenditure incurred by the different levels of the General Government on Human health and social work.

For private health services, a number of sources are tapped to obtain relevant data and leading indicators (register of license holders, associations of dentists and doctors, employment data from the Survey of Employment and earnings, etc.). Benchmark data from the Household Budget Survey and the 2013 Census of Economic Activities are also extensively used.

Annual estimates for private doctors and dentists are calculated using the number of professionals offering private medical services and the average price charged per patient.

Health services provided by private clinics, private laboratories, physiotherapy, veterinary and welfare institutions are obtained through surveys.

4.19 Arts, entertainment and recreation

(i) *Data Sources*

Register of licence holders
 Annual Survey of Employment and Earnings
 Household Budget Survey
 Housing and Population Census
 Census of Economic Activities
 VAT data
 Annual survey of Receipts and Expenditures

(ii) *Methodology*

The main services in this section include gambling and betting activities (e.g. casinos, bookmakers, tote organisers, sale of lottery tickets, etc.) and amusement and recreation activities (e.g. activities of amusement parks, sports activities, coin-operated games, operation of recreational transport facilities such as pleasure craft, fitness centres, etc.).

Income and expenditure data from the VAT systems is used to measure output for entertainment activities provided by casinos and clubs, pools and lottery and bookmakers which account for the major part of this subgroup. This is supplemented by data on government revenue from gambling and betting taxes.

Data are collected annually through surveys of establishments which keep proper records and where the information can be readily obtained. For these enterprises, the production approach is used to measure the output.

4.20 Other service activities

(i) Data Sources

Register of licence holders
 Annual Survey of Employment and Earnings
 Household Budget Survey
 Housing and Population Census
 Census of Economic Activities
 VAT data
 Annual survey of Receipts and Expenditure

(ii) Methodology

This section, consisting of services not covered by the activity groups above, deals mainly with community, social and personal services. The main services included are:

- Activities of professional membership & religious organisations, trade unions, etc.
- Repair of personal and household goods such as repair of cellular phones, footwear and leather goods, furniture and home furnishings, bicycles, watches and clocks, etc.
- Activities of households as employers of domestic personnel
- Other service activities such as washing and dry cleaning, hairdressing, beauty parlour, funeral and related activities, etc.

For the other enterprises which are mostly 'small', output is measured indirectly either by the income approach or the production approach. The estimation is based on indicators such as licenses issued by local authorities, employment figures from the Survey of Employment and Earnings and from benchmark data from latest censuses and surveys such as the Housing and Population Census and the Census of Economic Activities. VAT data are also extensively used.

5. Gross National Income and its appropriation

Value added at market prices comprises compensation of employees, operating surplus, the consumption of fixed capital and the excess of taxes on production and imports over subsidies. Operating surplus is termed 'gross' because it includes the element of consumption of fixed capital.

Compensation of employees comprises all payments made by producers as wages and salaries, including payments in kind and contribution to Pension Funds and insurance schemes.

(i) Data Sources

Annual survey of Receipts and Expenditure
 Administrative data for public enterprises and Government
 Annual Employment and Earnings Survey
 Census of Economic Activities

(ii) Methodology

Compensation of employees is calculated together with value added. This is done at industry level and depends on data available for that industry.

6. Gross Fixed Capital Formation

Gross Capital Formation (GFCF) is one of the main aggregates of expenditure on the Gross Domestic Product. It consists of the value of durable goods (except for military purposes) acquired by resident producer units and meant to be used for a period of more than one year.

Capital formation of industries corresponds to the net additions to their fixed assets, whereas for households only expenditure on construction of dwellings is included. Household expenditure on durable goods such as cars, refrigerators, washing machines, etc., is treated as final consumption although the acquisition of similar goods by industries or government is considered as capital goods.

(i) Methodology

Different methods are used for the valuation of capital formation, based essentially on the commodity approach. Information on investment are collected and compiled on a calendar year basis. These data are classified by type of capital goods such as residential buildings, transport equipment, machinery and equipment, and by industrial use.

Data used in the computation of estimates on GFCF are obtained from many sources. In order to avoid double counting, the data have to be thoroughly scrutinised at the compilation stage.

Buildings

The main data source used to compile investment in buildings is the local authorities which provide to this office data on building permits issued for new buildings, additions and reconstructions. These permits are classified according to type of buildings (residential and non-residential), size of buildings (in terms of floor area) and region. The value of building construction works is thereafter estimated by using estimates of floor areas and construction cost per square meter obtained from Quantity Surveyor works. These costs vary according to type, size and location of buildings.

In the public sector, investment on buildings is obtained from the Public Sector Investment Programme. Furthermore, estimates of construction projects are supplemented by annual survey data.

Other construction works

All other construction works not included above are grouped under "Other construction works". These include outlays on road constructions, dams, reservoirs, pipe laying, electricity distribution networks, land improvement and reclamation and all other civil engineering works. Information on such construction works is obtained from Public Sector Investment Programme, Board of Investment and annual survey data.

Machinery and Equipment

Machinery and equipment accounted for 37.2% of the GFCF in 2017. As most of the machines are imported, external trade statistics is the main source of data. A list of imported machinery and equipment, identified as capital goods, is prepared. These imported goods are obtained at c.i.f. value and are brought to purchasers' prices by the addition of taxes on imports, landing cost, transportation cost, wholesale and retail margins and in some cases, installation cost. They are then classified by industrial use. Machinery and equipment produced locally are estimated from VAT data.

7. Estimates of growth rates

(i) Double-deflation method

The value added of an industry is a residual obtained after subtracting its intermediate consumption from its gross output. Therefore, to obtain the value added at previous year's prices, both gross output and intermediate consumption should be revalued at previous year's prices. This method, the ideal one, is known as the "double-deflation" method. However, this method requires extensive data on both inputs and outputs which, in practice are very difficult to obtain. Therefore, 'proxy indicators' are used as indicator of volume changes. The proxy indicators most often used are:

- Physical quantities of goods produced (for output)
- Physical quantities of materials used (Intermediate consumption)
- Employment

As most industries produce a large number of heterogeneous products it is not possible to obtain separate physical output or input series. The monetary values are most often deflated by an appropriate price index to obtain the growth rates (volume changes). The indices normally used are:

Producer Price Index (PPI)
 Consumer Price Index (CPI)
 Construction Price Index (CoPI)
 Wage/Salary Index
 Import and Export Price Indices

A brief description of the methodology used to work out growth rates of value added is given below:

<u>Industry Group</u>	<u>Method used</u>
Agriculture, forestry and fishing:	
<i>Sugar</i>	<i>Double deflation using PPI-A for output and relevant CPI component and other sources for input</i>
<i>Food crops, flowers, tea and tobacco</i>	<i>Double deflation using PPI-A for output and relevant CPI component and other sources for input</i>
<i>Other</i>	<i>Deflation using producers' price based on retail prices</i>
Manufacturing:	
<i>Sugar</i>	<i>Double deflation using PPI-A for output and relevant CPI component and other sources for input</i>
<i>E.O.E</i>	<i>Volume index from Quarterly Index of Industrial Production</i>
<i>Other</i>	<i>Volume index from Quarterly Index of Industrial Production</i>
Electricity, gas, steam and air conditioning supply	Volume indicator: Units of electricity sold
Water supply; sewerage, waste management and remediation activities	Water supply: Units of water sold used as volume indicator Other activities: Deflation by consumer price index
Construction	Deflation using construction price index
Wholesale and retail trade; repair of motor vehicles and motorcycles	
<i>Wholesale and retail trade</i>	<i>Change in volume of imports derived by deflating imports by sector by relevant IPI components.</i>
<i>Repair of motor vehicles and motorcycles</i>	<i>Deflation by overall CPI</i>

Transport and storage	(i) Land transport: Double deflation using price index of bus fares and taxi fares for output and CPI component for input (ii) Services allied to transport: Tonnage handled and passenger traffic used as volume indicator (iii) Air transport: Deflation by change in the price of air ticket
Accommodation and food activities:	
<i>Accommodation</i>	<i>Volume based on number of tourist arrivals</i>
<i>Food service activities</i>	<i>Food service activities deflated by CPI component measuring price of meals in bars and restaurants</i>
Information and communication	Telecommunication services: Deflation by changes in the price of telephone calls Other activities: Deflation by consumer price index
Financial and insurance activities	(i) Central Bank: Deflation using a wage rate index (ii) Banks and similar institutions: Deflation using changes in "FISIM rate" and inflation rate (ii) Insurance: Volume based on changes in the number of life and non-life insurance policies processed during the year (iii) Financial leasing and other credit granting: Price indicator in line with deflator of commercial banks (iv) Other financial: Deflation using changes in exchange rates and local inflation rate
Real estate activities	
<i>Owner Occupied Dwellings</i>	<i>Volume based on net stock of residential buildings</i>
<i>Other</i>	<i>Deflation by Consumer Price Index</i>
Professional, scientific and technical activities	Deflation by consumer price index
Administrative and support service activities	Deflation by consumer price index
Public administration and defence	Compensation of Employees is deflated using the annual wage rate index based on salary compensation Consumption of Fixed Capital is deflated using the Construction Price Index (for Construction items), Vehicle Price Index (for vehicles) and a combination of PPI and IPI (for machinery and equipment excluding vehicles)
Arts, entertainment and recreation activities	Deflation by consumer price index
Education and health	
<i>Public :</i>	<i>Deflation by a weighted salary index</i>
<i>Private:</i>	<i>Deflation by relevant CPI component</i>
Other services	Deflation by consumer price index

Expenditure approach

The methods used for the estimation of growth rates for GDP by type of expenditure are as follows:

<u>Type of expenditure</u>	<u>Method used</u>
Private consumption expenditure	Deflation by relevant CPI component
Government consumption expenditure	Compensation of Employees is deflated using the salary index Consumption of Fixed Capital is deflated using the Construction Price Index (for Construction items), Vehicle Price Index (for vehicles) and a combination of PPI and IPI (for machinery and equipment excluding vehicles) Goods and services are deflated using CPI
Capital formation:	
(a) Buildings, construction	Building permits statistics and Construction Price Index
(b) Machinery and other equipment	Deflation by the price index of imported capital goods
Exports and imports of goods and services	Deflation by the export and import price indices
Taxes on production and imports:	
(a) Excise duty on local products	Volume indicator based on quantity produced
(b) Import duties and excise duty on imported goods	Deflation by import price index
(c) Value Added Tax	Volume indicator based on GDP (basic prices) growth