#### International Comparison Programme – Main results of 2011 round

## 1. Introduction

The 2011 International Comparison Program (ICP) is a global statistical program managed and coordinated by the World Bank. The program which covered 199 economies from seven geographic areas, namely Africa, Asia and the Pacific, Commonwealth of Independent States, Latin America, the Caribbean, Western Asia, and the Pacific Islands was overseen by regional coordinating agencies, including the African Development Bank for the African region. The participation of Mauritius in this statistical activity is the fourth after the 1985, 1993, and 2005 rounds.

The program aims to provide a reliable basis for comparing Gross Domestic Product (GDP) across countries using Purchasing Power Parity (PPP). It allows comparisons of the real value of production for each country, using a standardised benchmark free of price and exchange rate distortion.

Before PPP became widely available, the GDP of different countries were often converted to a common currency using market exchange rates. This resulted in misleading comparisons because although the GDP were all in the same currency, no account was taken of different price levels across different countries and this led to distortions. A true comparison of different countries' GDP relies on establishing PPPs and this is the core rationale behind ICP Program.

This short publication attempts to summarise the results of the ICP published by the World Bank and the African Development Bank, and provides some insight on the achievement of Mauritius with respect to other African economies. Summary results, including GDP for the 50 participating African countries are given in the Annex. The concepts and definitions, categorization of economies, as well a brief note on the methodology are also given in the Annex.

## 2. Major findings, world comparison

- The PPP-based world GDP amounted to \$90,647 billion, compared to \$70,294 billion measured by exchange rates.
- The twelve largest economies account for two-thirds of the world economy, and 59 percent of the world population.
- Six of the world's twelve largest economies are in the middle income category.
- Middle income economies' share of global GDP is 48 percent when using PPPs and 32 percent when using exchange rates.
- Low income economies, as a share of world GDP were more than two times larger based on PPPs than respective exchange rate shares in 2011. Yet, these economies accounted for only 1.5 percent of the global economy, but nearly 11 percent of the world population.
- The world average GDP per capita expenditures is \$13,460; around one quarter (28%) of the world's population lives in economies above that average and three quarters (72%) below.
- The approximate median yearly per capita expenditures for the world stood at \$10,057, that is half of the global population has per capita expenditures above that amount and half below.

# 3. Classification of countries in the world

# 3.1 Largest economies

The six largest middle income economies are China, India, Russia, Brazil, Indonesia and Mexico and they accounted for 32.3 percent of world GDP.

The six largest high income economies namely United States, Japan, Germany, France, United Kingdom, and Italy account for 32.9 percent of world GDP.

## 3.2 Most expensive and cheapest countries

The most expensive economies are Switzerland, Norway, Bermuda, Australia and Denmark while the cheapest are Egypt, Pakistan, Myanmar, Ethiopia and Lao People's Democratic Republic

## 3.3 Richest and poorest countries as measured by real per capita GDP

The five richest economies, that those with the highest GDP per capita are Qatar, Macao, Luxembourg, Kuwait, and Brunei. The first two economies have more than \$100,000 per capita.

The eight poorest economies are all in the African region: Malawi, Mozambique, Central African Republic, Niger, Burundi, Demographic Republic of Congo, Comoros and Liberia with a GDP per capita of less than \$1,000.

## 3.4 Household welfare

Material well-being of an economy's population is a better measure of household welfare than GDP per capita. A good measure of material well-being is provided by per capita Actual Individual Consumption (AIC), that is all expenditure in the economy that directly benefit individuals. AIC includes all goods and services consumed by households regardless of whether households make the purchases themselves or receive them free from Non-Profit Institutions Serving Households (NPISHs) or from government.

By this measure:

- The world average actual individual consumption per capita is approximately \$8,647.
- The five economies with highest actual individual consumption per capita are Bermuda, United States, Cayman Islands, Hong Kong and Luxembourg, respectively.

## 3.5 Investment expenditures

- China has the largest share (27%) of the world's expenditure for investment followed by United States at 13 percent.
- India, Japan and Indonesia follow with 7 percent, 4 percent, and 3 percent respectively.

# 4. Highlights for Africa

The 2011 round of the ICP was carried out in Africa by the African Development Bank (AfDB) and covered 50 African countries. For the African region, South Africa was chosen as the base country, and hence the value of aggregates such as GDP is either shown in Local Currency Units (LCU) or the South African Rand (ZAR).

## 4.1 Largest economies



Africa's economy, which represents about 4.5 % of world GDP, is dominated by four countries namely Egypt, South Africa, Nigeria and Algeria. As shown in Figure 1, together these four giants accounted for nearly 60% of African GDP in 2011.

## 4.2 Real and Nominal GDP by country

Figures 2 and 3 give real (or PPP) and nominal GDP in millions of ZAR for the 50 participating countries. The twelve largest economies account for over 80% of Africa's total real GDP, while the thirteen smallest accounts for only 1%. With a share of 0.5 % of African GDP, Mauritius is classified among the thirteen medium to small economies.



Fig 2: Size of African Economies in 2011: GDP in Real and Nominal Terms (ZAR mn) - 24 Largest Economies



4.3 Richest and poorest countries as measured by real per capita GDP

Based on the size of its GDP, the Mauritian economy is classified among "Medium to small" but in terms of real GDP per capita, which is the measure to classify whether a country is rich or poor, Mauritius is among the four small countries with the highest per capita GDP. Equatorial Guinea, Seychelles, and Gabon are the richest in front of Mauritius (Figure 4). The per capita GDP of these four countries is several times larger than that of Liberia, Comoros, the Democratic Republic of the Congo and Burundi which are all at the bottom of the ranking.



Fig 4: Real per capita Gross Domestic Product in 2011 (ZAR)

## 4.4 Most expensive and cheapest countries

The Price Level Index is the ratio of a PPP to a corresponding exchange rate. An index over 100 means that prices are higher on average than in Africa and one which is less than 100 means prices are relatively lower.

In 2011, the overall price levels in the most expensive countries namely Angola, Gabon, South Africa and Namibia were more than 40% above the African average, but in Ethiopia and Egypt, the cheapest countries, the overall price levels is less than 70% of the African average.

From Figure 5, it is observed that out of the 50 African participating countries, Mauritius is the tenth most expensive country with an overall price level of around 20% above the African average.



Fig 5: GDP Price Level Indices 2011: Africa = 100

#### 4.5 Household welfare.

Household welfare, as measured by material well-being, is given by per capita Actual Individual Consumption (AIC). Seychelles and Mauritius are at the top, with per capita AIC more than four times larger than the African average. From Figure 6, it is observed that at the bottom, the Democratic Republic of the Congo and Liberia have the lowest per capita AIC, about one-fifth of the African average.



Figure 6: Per capita Actual Individual Consumption, 2011: Africa = 100

## 4.6 Investing for the future.

Per capita Gross Fixed Capital Formation (GFCF) measures the amount of domestic investment per capita in a country. The ICP data reveals that GFCF is high in the richer countries (e.g. Seychelles and Botswana) and low in the poorer countries (e.g. Burundi, Comoros, and Liberia).

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#### ANNEX

#### **Definitions and Methodology**

#### Introduction

1. The International Comparison Program (commonly known as the "ICP") is a worldwide statistical initiative to collect comparative price data and estimate purchasing power parities (PPPs) of the world's economies. Using PPPs instead of market exchange rates to convert currencies makes it possible to compare the output of economies and the welfare of their inhabitants in real terms (that is, controlling for differences in price levels).

#### **ICP Regions and organisation**

2. The 2011 International Comparison Program (ICP) was managed and coordinated by the ICP global office within the World Bank during 2011–12. It estimates purchasing power parities (PPPs) for use as currency converters to compare the size and price levels of economies around the world. The programme covered 199 economies from seven geographic areas: (i) Africa, (ii) Asia and the Pacific, (iii) Commonwealth of Independent States(CIS), (iv) Latin America, (v) the Caribbean, (vi) Western Asia, and (vii) the Pacific Islands. Data collection was overseen by regional coordinating agencies, namely the African Development Bank, Asian Development Bank, Statistical Office of the Commonwealth of Independent States, United Nations Economic Commission for Latin America and the Caribbean, United Nations Economic and Social Commission for Western Asia and Australian Bureau of Statistics, which compiled the results and produced regional estimates of purchasing power parities (PPPs).

3. The eighth region comprised the economies participating in the regular PPP program managed by the Organisation for Economic Co-operation and Development (OECD) and the Statistical Office of the European Communities (Eurostat)

#### Uses

4. PPPs are the preferred means of converting the value of the GDP and its components to a common currency. They enable cross-country comparisons of the sizes of economies and their levels of material well-being, consumption, investment, government expenditure, and overall productivity, or to generate price measures with which to compare price levels

5. One major use of PPPs is poverty assessment using the World Bank's international poverty threshold of \$1.25 per day per person. PPP results also enter in the estimation of the United Nations Millennium Development Goal and United Nations Human Development Index. It allows the international organisations and donors to assess inequality across economies, and provide the basis for the design of effective aid programs.

6. However, PPPs should not be used for all international comparisons; for example, market exchange rates should be used to measure international trade, capital flows, or the values of foreign debt.

# Definitions

# **Purchasing Power Parity**

7. A Purchasing Power Parity (PPP) between two countries, A and B, is the ratio of the number of units of country A's currency needed to purchase in country A the same quantity of a specific good or service as one unit of country B's currency will purchase in country B. PPPs can be expressed in the currency of either of the countries. In practice, they are usually computed among large numbers of countries and expressed in terms of a single currency. The common currency used for the global comparison is the U.S. dollar (\$) and for the African region, the South African Rand (ZAR) is the base currency.

8. A simple example would be the price of a hamburger. If it costs 50.00 rupees in Mauritius and \$4.00 in USA, then the PPP for hamburger between Mauritius and USA is 50.00/4.00, or 12.50. This means that for every dollar spent on hamburger in the USA, 12.5 rupees would have to be spent in Mauritius to obtain the same quantity and quality of hamburger. PPPs are not only calculated for individual commodities, but are also calculated for various groups of commodities.

## Price Level Indexes

9. A price level index (PLI) is the ratio of a PPP to a corresponding exchange rate. PLI is used to compare price levels between economies. It is expressed as an index on a base of 100. A PLI that is greater than 100 means that, when the national average prices are converted at exchange rates, the resulting prices tend to be higher, on average, than prices in the base country.

10. PLIs are generally low in the poorer economies. This reflects the common experience of travelers who find many (but not all) of the goods and services in the poorest economies relatively cheap compared with similar products in their home economy.

## Gross Domestic Product (GDP) and its components

11. *Gross domestic product*, expenditure-based, is the total final expenditure at purchasers' prices (household and government final consumption expenditure, and gross fixed capital formation), including the exports of goods and services, less imports of goods and services.

12. *Government final consumption expenditure* is disaggregated into *collective* and *individual* consumption expenditure.

- (i) *Collective expenditure by government* consists of the services which government provides to the community as a whole, for example, security and defence.
- (ii) *Individual expenditure by government* is made up of expenses incurred in providing services which are mostly beneficial to individuals, mainly in respect of health and education.

13. *Final consumption expenditure incurred by households* comprises the value of goods and services purchased by households including the value of imputed rent of owner occupied dwellings.

14. *Actual Individual Consumption* covers goods and services consumed by households regardless of whether households make the purchases themselves or receive them free from Non-Profit Institutions Serving Households (NPISHs) or from government.

15. *Gross fixed capital formation* is measured by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period, plus certain additions to the value of non-produced assets (such as subsoil assets or major improvements in the quantity, quality, or productivity of land).

## Nominal and real expenditures

16. *Nominal expenditures* are expenditures that are valued at national price levels. They can be expressed in national currencies or, when converted with exchange rates, in a common currency.

17. *Real expenditures* are expenditures that are valued at a common price level. Nominal expenditures are divided by the respective PPPs to obtain the real expenditures.

## Categorisation of countries

18. The categorisation of countries (as adopted by the World Bank) is based on the following cutoffs:

- (i) low-income countries: countries having per capita gross national incomes (measured using the World Bank Atlas method) below US\$ 1,035;
- (ii) lower middle-income: those with per capita gross national incomes in the range US\$1,036-4,085;
- (iii) upper middle-income: those with per capita gross national incomes in the range US4,086 12,615; and
- (iii) high-income countries: those with per capita gross national incomes above US\$12,615.

## Methodology

19. The ICP was the most extensive effort ever to measure PPPs across economies. PPPs cannot be computed in isolation by a single country. However, each country is responsible for the computation of official estimates of GDP and its components, and collection of prices of identified products. Surveys were conducted by each economy during 2011 - 2012 to collect prices for more than 1,000 goods and services. Initial calculations of PPPs were conducted at the regional level first.

## Data requirements

20. There are two basic data requirements for participation in the ICP: Gross Domestic Product (GDP) broken down into its components (155 basic headings) and national annual average prices for a set of well defined goods and services representative of these basic headings.

## National Accounts Data

21. For the ICP, GDP is compiled using the expenditure approach, with its components further broken down into 155 basic headings. These are the lowest level of disaggregation for which PPPs are computed. To assist countries to estimate expenditures on the basic headings, the Global Office developed an Excel spreadsheet, Model Report on Expenditure Estimates (MORES). GDP expenditures for each basic heading are used to weigh the basic-heading PPPs to higher levels of aggregation and to GDP.

# Price Data - Household Consumption Expenditure

22. Purchasing power parities (PPPs) are derived from inter-country comparisons of the national annual average prices for a representative selection of goods and services. The Global Office developed a list of global core products that would be priced by all economies. These prices would be used to compute between-region PPPs for each basic heading. Each region developed its own list of products for its comparison and incorporated as many of the global core list products as possible.

23. The products to be priced by each economy were to meet two criteria: they should be representative of the economy and comparable between economies. Products to be priced were developed after a series of consultations with countries. Structured product descriptions (SPD) defining the characteristics (type, variety, seasonal availability, quantity, packaging, and pricing basis) of the products on the price list were then worked out to ensure comparability of priced items across all economies within regions.

24. Countries were requested to classify all goods and services for household consumption as either important or less important. If the expenditure share is thought to be large, the product is classified as important; if it is thought to be small, it is classified as less important. In the calculation of PPP, the weights used were 3:1 for important versus less important products.

25. Prices were collected every month for the first six months of the year (January to June 2011) and thereafter in Aug 2011, Nov 2011, Feb 2012 and April 2012. The prices include all non-deductible taxes and tips where significant.

## Price data - Government Final Consumption Expenditure

26. Compensation of employees in health, education, and other general government departments has been used to calculate government PPPs. The compensation of employees recorded for PPP purposes included basic salary and allowances before income taxes, in-kind payments, actual and imputed social security contributions paid by the employer on behalf of employees.

## Price data - Gross Fixed Capital Formation (GFCF)

27. GFCF includes construction, and machinery and equipment. For construction, It involved pricing a range of inputs that are used in construction within each of the broad categories of labor, materials, and equipment hire, The initial proposal included adjustments to the input prices for mark-ups (overheads, profits, etc.) and professional fees. For machinery and equipment, the global office determined the products list as well as their SPDs. Prices recorded includes the costs of delivering equipment or materials to the site where they were to be used and all installation charges.

# Calculating PPP

28. PPPs are first computed at the individual product level within each basic heading for each pair of economies being compared. The estimation of PPPs begins by breaking down GDP into 155 basic headings. Basic headings, the lowest level at which expenditure estimates are required, are the product groups into which individual goods or services are placed for pricing purposes.

29. Within-region basic heading PPPs were based on regional product prices and global core product prices. Product PPPs were averaged to the basic heading using the country product dummy-weighted (CPD-W) method, with weights of 3:1 for important versus less important products. The Jevons–Gini-Èltetö-Köves-Szulc (Jevons-GEKS) method was used in the Eurostat-OECD and CIS

regions to compute basic heading PPPs. The Jevons-GEKS\* method used the representative classification by giving a weight of 1 to the prices of representative products and a weight of 0 to unrepresentative products. All regions used the Gini-Èltetö-Köves-Szulc (GEKS) to average basic heading PPPs to higher-level aggregates.

30. More details are given in the World Bank and AfDB reports entitled "**Purchasing Power Parities and Real Expenditures of World Economies:** Summary of Results and Findings of the 2011 International Comparison Program" and " **Comparing the real size of the African Economies**" available on their websites (www.worldbank.org and www.afdb.org).

Summary	of	Maın	Results	for	Africa	:	ICP	2011
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	Nominal GDP	ominal GDP PPP Real GDP		I GDP	Population	Population Real GDP per capita		exchange rate Price lev		el indices	Nominal GDP		Rankings			
Country	(ICu mn)	Zar=1	Zar (mn)	shares (africa=100)	(in million)	Zar	index (africa=100%)	(ICu per Zar)	Zar=1	africa=100	Zar (mn)	shares (africa=100)	Nominal GDP	real GDP	real per capita GDP	Price level index
Algeria	14,481,008	6.24	2,319,976	11.83	35.98	64,479	334.65	10.04	0.62	89.65	1,441,616	10.61	4	4	5	39
Angola	9,767,611	14.28	684,143	3.49	19.62	34,872	180.99	12.91	1.11	159.55	756,598	5.57	5	7	11	1
benin	3,439,771	44.88	76,637	0.39	9.10	8,422	43.71	64.99	0.69	99.65	52,932	0.39	32	31	29	34
botswana	102,492	0.79	130,050	0.66	2.03	64,041	332.38	0.94	0.84	120.73	108,830	0.80	20	21	6	12
burkina Faso	4,868,468	44.82	108,634	0.55	16.97	6,402	33.23	64.99	0.69	99.50	74,917	0.55	28	26	38	35
burundi	2,599,941	88.92	29,240	0.15	8.58	3,410	17.70	173.67	0.51	73.86	14,970	0.11	42	40	47	45
Cameroon	12,545,651	47.49	264,151	1.35	20.03	13,188	68.44	64.99	0.73	105.44	193,054	1.42	12	13	22	27
Cabo Verde	149,004	10.21	14,590	0.07	0.50	29,145	151.27	10.86	0.94	135.63	13,715	0.10	43	43	14	6
Central Afr. Rep.	1,029,724	53.64	19,197	0.10	4.49	4,279	22.21	64.99	0.83	119.09	15,845	0.12	41	42	45	13
Chad	5,725,350	52.46	109,135	0.56	11.53	9,469	49.15	64.99	0.81	116.47	88,102	0.65	25	25	28	17
Comoros	95,438	43.52	2,193	0.01	0.75	2,909	15.10	48.74	0.89	128.82	1,958	0.01	49	50	49	8
Congo	6,982,507	60.68	115,076	0.59	4.14	27,798	144.27	64.99	0.93	134.71	107,448	0.79	21	23	15	7
Congo, DRC	23,146,149	109.20	211,957	1.08	67.76	3,128	16.24	126.63	0.86	124.42	182,783	1.35	14	16	48	9
Côte d'Ivoire	12,275,478	47.87	256,441	1.31	20.15	12,725	66.04	64.99	0.74	106.27	188,896	1.39	13	15	23	24
Djibouti	205,314	19.70	10,419	0.05	0.91	11,506	59.72	24.48	0.81	116.15	8,389	0.06	44	46	24	18
Egypt	1,371,078	0.35	3,952,422	20.16	79.62	49,643	257.65	0.82	0.42	61.25	1,678,049	12.35	3	1	8	50
Equatorial Guinea	8,367,319	61.78	135,447	0.69	0.72	188,066	976.08	64.99	0.95	137.15	128,757	0.95	18	20	1	5
Ethiopia	506,096	1.03	490,517	2.50	84.73	5,789	30.04	2.33	0.44	63.96	217,455	1.60	11	9	42	49
Gabon	8,046,080	66.69	120,640	0.62	1.53	78,631	408.10	64.99	1.03	148.07	123,814	0.91	19	22	3	2
Gambia, The	26,596	2.08	12,763	0.07	1.78	7,186	37.30	4.06	0.51	74.10	6,555	0.05	48	44	33	44
Ghana	59,816	0.15	407,906	2.08	24.97	16,339	84.80	0.21	0.70	101.61	287,286	2.11	9	11	17	31
Guinea	33,128,317	526.72	62,895	0.32	10.22	6,153	31.93	911.82	0.58	83.34	36,332	0.27	35	35	41	42
Guinea bissau	464,653	46.15	10,068	0.05	1.55	6,508	33.78	64.99	0.71	102.46	7,150	0.05	47	47	37	29
Kenya	3,048,867	7.20	423,484	2.16	41.61	10,178	52.82	12.23	0.59	84.92	249,274	1.83	10	10	26	41
Lesotho	18,331	0.82	22,280	0.11	2.19	10,156	52.71	1.00	0.82	118.70	18,331	0.13	40	41	27	14
Liberia	1,147	0.11	10,560	0.05	4.13	2,558	13.27	0.14	0.79	113.82	8,331	0.06	45	45	50	19
Madagascar	20,276,384	141.28	143,514	0.73	21.32	6,733	34.94	278.90	0.51	73.09	72,702	0.53	29	18	34	47
Malawi	1,140,843	15.95	/1,525	0.36	15.38	4,650	24.14	21.45	0.74	107.27	53,178	0.39	31	32	43	23
Mail	5,024,473	44.09	113,970	0.58	15.84	7,195	37.34	04.99	0.08	97.88	77,317	0.57	27	24	32	30
Mauritania	1,309,304	24.29	53,903	0.27	3.04	74.000	78.99	39.31	0.02	89.14	33,300	0.25	30	30	18	40
Maunuus	322,939	0.77	90,900	0.49	1.31	74,229	360.20	3.90	0.60	121.52	700.005	0.00	20	20	4	10
Matambique	264 727	0.11	1,040,290	0.51	32.27	32,234	107.30	4.00	0.09	101.00	01 110	0.50	0	07	12	32
namihia	00,602	0.00	02.642	0.55	23.83	4,020	20.50	4.00	0.04	1/1.52	91,112	0.07	23	21	44	4
ninor	2 025 525	46.40	65 210	0.47	16.07	4 059	200.30	64.00	0.30	102.01	46.557	0.07	24	2.0	46	7
nigeria	20.016.071	15.60	2 427 744	12.42	162.47	4,000	21.00	21.20	0.71	106.15	40,007	12.20	22	34	40	20
Rwanda	3 814 410	54.73	69 694	0.36	10.94	6 360	33.06	82.88	0.66	95.27	48.021	0.34	34	33	20	37
São Tomé & Príncipe	4 375 542	1 786 76	2 4 4 9	0.00	0.17	14 531	75.42	2 427 03	0.00	106.21	1.803	0.04	50	49	21	26
Senegal	6,766,801	49.52	136 659	0.70	12 77	10 704	55.55	64.99	0.76	109.93	104 128	0.77	22	19	25	20
Sevchelles	13 119	1.39	9 4 1 1	0.05	0.09	108.319	562 19	1.71	0.82	117.95	7 694	0.06	46	48	2	16
Sierra Leone	12 754 889	325.63	39 170	0.20	6.00	6.531	33.90	597 17	0.55	78.67	21,359	0.16	39	37	- 36	43
South Africa	2,917,539	1.00	2,917,539	14.88	50.46	57.819	300.09	1.00	1.00	144.28	2,917,539	21.47	1	2	7	3
Sudan	186.556	0.26	718.809	3.67	42.25	17.015	88.31	0.37	0.71	101.96	507.983	3.74	7	6	16	30
Swaziland	29,700	0.82	36.312	0.19	1.20	30,176	156.62	1.00	0.82	118.00	29,700	0.22	37	39	13	15
Tanzania	37,532.961	109.78	341.900	1.74	46.22	7,397	38.39	216.51	0.51	73.15	173.353	1.28	15	12	31	46
Τοgo	1,739,222	45.10	38,566	0.20	6.15	6,266	32.52	64.99	0.69	100.12	26,763	0.20	38	38	40	33
Tunisia	64,730	0.12	521,364	2.66	10.59	49,213	255.42	0.19	0.64	92.39	333,870	2.46	8	8	9	38
uganda	45,944,057	174.47	263,337	1.34	34.51	7,631	39.61	347.43	0.50	72.45	132,239	0.97	17	14	30	48
Zambia	101,104,814	498.87	202,666	1.03	13.47	15,040	78.06	669.41	0.75	107.52	151,036	1.11	16	17	19	22
Zimbabwe	8,865	0.11	83,767	0.43	12.75	6,568	34.09	0.14	0.77	110.87	64,373	0.47	30	30	35	21
Africa	na	na	19,606,607	100	1,017.60	19,267	100	na		100	13,589,732	100	na	na	na	na