

STATISTICS BOTSWANA

INDEX OF THE PHYSICAL

VOLUME OF MINING PRODUCTION

Second Quarter 2019 STATS BRIEF

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1.0 Preface

This statistical release presents quarterly Indices of Mining Production (**IMP**) for the period first quarter of 2012 to the second quarter of 2019. Also carried in the report are the annual **IMP** for the period 2012 to 2018, derived as the average of the four quarters of the year. This report uses 2013 as a reference year. Data used in this publication are sourced from the Department of Mines under the Ministry of Mineral Resources, Green Technology and Energy Security.

The Index of Mining Production stood at **85.9** during the second quarter of 2019, showing a year-on-year reduction of 8.7 percent from 94.0 recorded during the second quarter of 2018. Comparison on a quarter-on-quarter basis shows a decrease of 4.1 percent, from the index of 89.6 realised during the first quarter of 2019 to 85.9 registered during the second quarter of 2019.

The release further shows the contribution of each mineral and mineral group to the Year-on-Year Percentage Change in the Volume of Mining Production, and hence provides a reflection of the trend in the local mining sector.

Statistics Botswana is mandated to compile data on industrial production in Botswana, hence index of mining production is only confined to minerals extracted across the country. This is intended to monitor the performance of the mining sector in Botswana.

For more information, contact the Directorate of Stakeholder Relations on (+267) 3671300. All Statistics Botswana outputs/publications are available on the website at www.statsbots.org.bw and at the Statistics Botswana Information Resource Centre.

I sincerely thank all stakeholders involved in the formulation of this brief, for their continued support, as we strive to better serve users of Statistics Botswana products and services.



Dr. Burton S. Mguni
Statistician General
October 2019

2.0 Summary of Findings

All figures in this report are not seasonally adjusted.

Table 1 presents a summary of findings for the Index of Mining Production (**IMP**) from the first quarter of 2012 to the second quarter of 2019. This table forms the basis for the discussions under Sub-Section 2.1. Reference, however, will be made to this table and other tables throughout the report.

2.1 Index of Mining Production

The Index of Mining Production stood at **85.9** during the second quarter of 2019, showing a year-on-year decrease of 8.7 percent from 94.0 during the second quarter of 2018. The main contributor to this reduction in the index were Diamonds, having contributed negative 8.1 percentage points as shown in **Table 2**.

The quarter-on-quarter analysis shows a decrease of 4.1 percent, from the index of 89.6 during the first quarter of 2019 to 85.9 observed during the reference period.

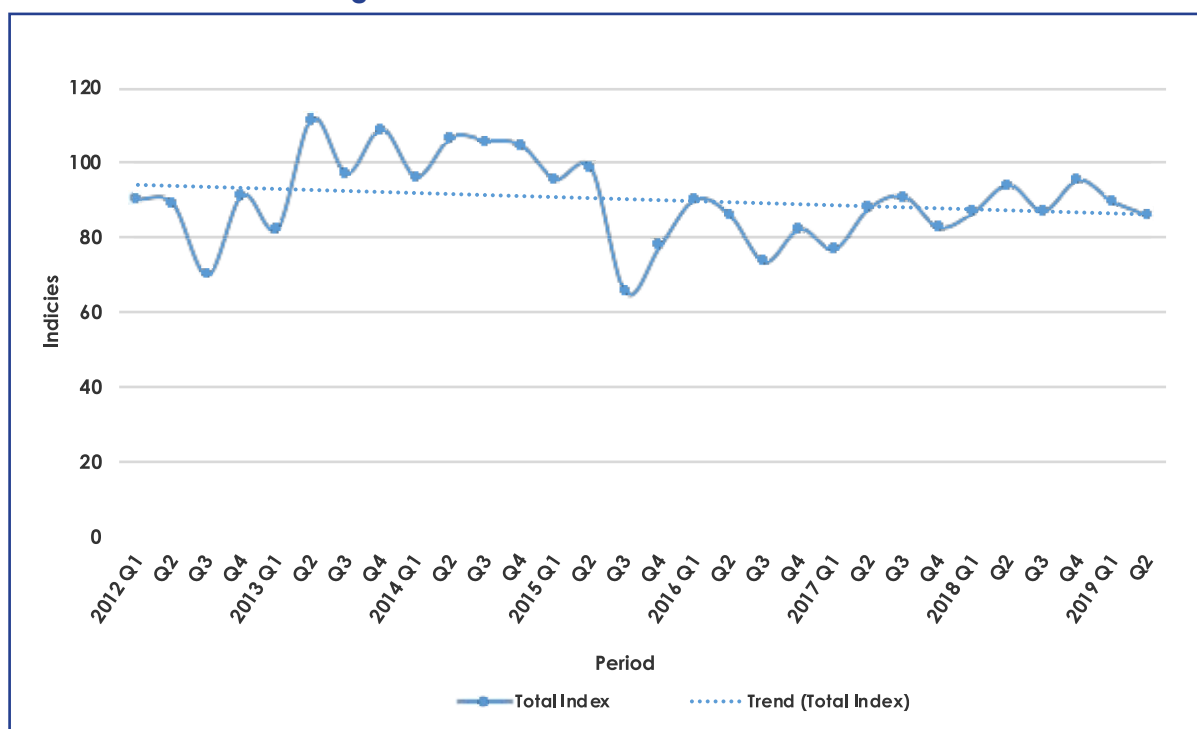
Table 1: Key Figures in the Volume of Mining Production

Base Period : 2013=100			
Period	Index of the physical volume of mining production	Year-on-year percentage change	Quarter-on-Quarter percentage change
Q1_2013	82.5	(8.7)	(9.7)
Q2_2013	111.6	25.2	35.3
Q3_2013	97.1	38.4	(12.9)
Q4_2013	108.8	19.1	12.0
Q1_2014	96.2	16.7	(11.5)
Q2_2014	106.6	(4.5)	10.8
Q3_2014	105.7	8.9	(0.8)
Q4_2014	104.5	(4.0)	(1.2)
Q1_2015	95.6	(0.7)	(8.6)
Q2_2015	98.7	(7.4)	3.3
Q3_2015	65.6	(37.9)	(33.5)
Q4_2015	77.9	(25.5)	18.7
Q1_2016	90.1	(5.7)	15.7
Q2_2016	86.0	(12.9)	(4.5)
Q3_2016	73.7	12.3	(14.3)
Q4_2016	82.4	5.8	11.8
Q1_2017	77.1	(14.4)	(6.4)
Q2_2017	87.9	2.1	13.9
Q3_2017	91.0	23.4	3.5
Q4_2017	82.8	0.5	(9.0)
Q1_2018	86.9	12.6	4.9
Q2_2018	94.0	7.0	8.3
Q3_2018	87.1	(4.2)	(7.4)
Q4_2018	95.3	15.1	9.4
Q1_2019	89.6	3.1	(6.0)
Q2_2019	85.9	(8.7)	(4.1)

Note: () denotes negative numbers

Figure 1 shows the graphical presentation of the Total Index from the first quarter of 2012 to the second quarter of 2019. The graph shows that despite the fluctuations realised over the period, on average, it can be observed that production has been on a slight but gradual decline between 2012 and 2019.

FIGURE 1: Total Index Of Mining Production for the First Quarter of 2012 to the Second Quarter of 2019



2.2 Mineral Production

Discussions on mineral production, which compare production during the second quarter of 2019 to the same quarter of 2018, are based on **Table 2** and **Table 6**. **Table 5** provides quarter-on-quarter analysis of the mineral production, for the quarter under review, giving comparison to the preceding quarter.

Diamond production decreased during the period under review, declining by 8.4 percent during the second quarter of 2019, as compared to an increase of 6.4 percent registered in the same quarter of the previous year. This can be attributable to weaker trading conditions as well as being cautious to macroeconomic uncertainty. The quarter-on-quarter analysis reflects that diamond production decreased by 4.2 percent during the second quarter of 2019 as compared to a decrease of 5.4 percent registered in the first quarter of 2019.

Gold production declined for the second consecutive year, decreasing by 14.0 percent during the second quarter of 2019 compared to the same quarter in 2018. The decrease was as a result of unstable commodity prices as well as the notable deteriorating lifespan of the mine. On the other hand, the quarter-on-quarter analysis shows an increase of 36.6 percent during the second quarter of 2019 compared to the first quarter of 2019.

Soda Ash production recorded positive growth for the sixth consecutive quarter, increasing by 0.1 percent during the second quarter of 2019, compared to the same quarter of the previous year. The continued improvement in production may be attributable to the plant's high efficiency following the plant refurbishment which occurred in 2017. On the other hand, the quarter-on-quarter analysis shows that production declined by 30.7 percent during the period under review.

Salt production recorded an increase of 41.7 percent during the second quarter of 2019 compared to the same quarter in 2018. The quarter-on-quarter comparison on the other hand, shows a decline of 25.0 percent during the second quarter of 2019 compared to a decline of 21.9 percent of the preceding quarter.

Coal production dropped for the third consecutive quarter, declining by 6.3 percent during the second quarter of 2019 compared to production registered during the same quarter of the previous year. Although production fell, it is important to note that there was no shortfall in supply of coal due to stockpiling. The quarter-on-quarter comparison on the other hand shows that coal production rose by 12.3 percent when compared to the preceding quarter.

Copper-Nickel-Cobalt Matte, Copper in Concentrates and Silver recorded zero production during the period under review. The instability and uncertainty of commodity prices affected the operations of the involved mines, which made it difficult to sustain themselves at the current prices, leading to the provisional liquidation.

Table 2: Index of Mining Production for the latest Quarter by Mineral Groups and Minerals

Base:2013=100					
Mineral	Weights (2013)	April-Jun 2018	April-Jun 2019	Year-on-Year Percentage Change	Contribution (% points) to the Percentage Change in the total Mining Production
Diamonds	82.5	110.0	100.8	(8.4)	(8.1)
Copper-Nickel-Cobalt Matte	8.6	n.a.	n.a.	n.a.	0.0
Copper in Concentrates	5.5	7.8	n.a.	(100.0)	(0.5)
Gold	1.4	104.1	89.5	(14.0)	(0.2)
Soda Ash	0.9	89.8	89.9	0.1	0.0
Salt	0.5	45.2	64.1	41.7	0.1
Silver	0.4	n.a.	n.a.	n.a.	0.0
Coal	0.3	177.7	166.5	(6.3)	(0.0)
Total	100	94.0	85.9	(8.7)	(8.7)

Note: 1. The contribution (percentage points) of a mineral to the percentage change in the total mining production is calculated by multiplying the difference in the index for the mineral by the weight of the mineral and then dividing by the previous period's total index.
 2. () denotes negative numbers
 3. n.a. signifies data not available/no production during the specified period.

Table 3: Physical Volume of Mineral Production

MINERALS											
Mineral/ Unit of measure	Diamonds	Copper-Nickel- Cobalt Matte	Copper	Nickel	Cobalt	Copper in Concentrates	Gold	Soda Ash	Salt	Sliver	Coal
	'000 carats	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	KG	(tonnes)	(tonnes)	kg	(tonnes)
Year											
2012	20,619	35,757	17,620	17,942	195	8,743	1,377	248,629	367,749	n.a.	1,454,404
2013	23,134	44,396	21,300	22,848	248	28,146	1,207	227,913	521,306	22,597	1,495,653
2014	24,658	29,782	14,628	14,958	196	32,093	958	268,529	515,311	22,288	1,711,555
2015	20,823	30,993	13,888	16,789	316	8,396	753	243,369	404,295	2,801	2,065,778
2016	20,892	30,279	13,120	16,878	281	n.a.	832	280,457	399,837	n.a.	1,870,939
2017	22,941	n.a.	n.a.	n.a.	n.a.	n.a.	921	226,667	369,613	n.a.	2,215,782
2018	24,496	n.a.	n.a.	n.a.	n.a.	n.a.	1,105	297,237	392,244	n.a.	2,482,313
2012 Q1	5,352	12,216	6,183	5,970	63	1,676	406	60,354	85,746	n.a.	234,213
Q2	5,346	11,054	5,462	5,532	60	1,609	361	56,541	101,983	n.a.	224,757
Q3	4,384	2,843	1,424	1,404	14	2,881	329	73,583	75,854	n.a.	444,360
Q4	5,537	9,645	4,551	5,036	58	2,577	281	58,151	104,166	n.a.	551,074
2013 Q1	4,658	9,766	4,501	5,203	62	6,612	231	70,049	126,420	5,777	401,939
Q2	6,462	12,471	6,047	6,358	66	8,127	297	50,710	152,223	6,670	278,947
Q3	5,541	11,961	5,894	6,000	67	6,555	309	64,311	154,529	6,099	425,630
Q4	6,473	10,198	4,858	5,287	53	6,852	370	42,843	88,134	4,051	389,137
2014 Q1	5,870	5,193	2,447	2,715	31	6,819	291	62,090	89,417	4,136	355,096
Q2	6,364	8,148	3,964	4,134	50	8,069	224	65,846	131,405	4,998	463,235
Q3	6,321	5,732	2,880	2,810	42	9,573	255	66,818	151,481	7,648	488,335
Q4	6,103	10,709	5,337	5,299	73	7,632	188	73,775	143,008	5,506	404,889
2015 Q1	5,734	9,724	4,423	5,169	132	5,230	156	41,836	80,244	2,801	474,619
Q2	6,022	11,675	5,127	6,439	109	2,135	150	55,199	79,655	n.a.	505,016
Q3	4,207	2,204	989	1,194	21	1,031	235	71,562	138,924	n.a.	578,979
Q4	4,860	7,390	3,349	3,987	54	n.a.	212	74,772	105,472	n.a.	507,164
2016 Q1	5,429	13,208	5,777	7,303	128	n.a.	181	67,204	87,696	n.a.	427,894
Q2	5,305	10,370	4,464	5,801	105	n.a.	244	47,850	73,695	n.a.	350,987
Q3	4,601	6,701	2,879	3,774	48	n.a.	194	79,397	113,305	n.a.	549,352
Q4	5,557	n.a.	n.a.	n.a.	n.a.	n.a.	213	86,006	125,141	n.a.	542,706
2017 Q1	5,280	n.a.	n.a.	n.a.	n.a.	n.a.	141	40,975	59,926	n.a.	490,650
Q2	5,976	n.a.	n.a.	n.a.	n.a.	n.a.	689	35,780	52,853	n.a.	575,250
Q3	6,117	n.a.	n.a.	n.a.	n.a.	n.a.	340	71,868	153,283	n.a.	583,719
Q4	5,568	n.a.	n.a.	n.a.	n.a.	n.a.	210	78,044	103,551	n.a.	566,163
2018 Q1	5,885	n.a.	n.a.	n.a.	n.a.	n.a.	135	64,510	85,987	n.a.	597,298
Q2	6,360	n.a.	n.a.	n.a.	n.a.	n.a.	547	51,189	58,972	n.a.	664,448
Q3	5,825	n.a.	n.a.	n.a.	n.a.	n.a.	625	96,136	104,507	n.a.	667,782
Q4	6,426	n.a.	n.a.	n.a.	n.a.	n.a.	155	85,402	142,778	n.a.	552,785
2019 Q1	6,081	n.a.	n.a.	n.a.	n.a.	n.a.	198	73,940	111,468	n.a.	554,636
Q2	5,828	n.a.	n.a.	n.a.	n.a.	n.a.	270	51,229	83,587	n.a.	622,620

Note: n.a. Signifies data not available/no production during the specified period.

Table 4: Index of the Volume of Mining Production by Mineral Group and Mineral

Base 2013 = 100									
Year \ Weights	Diamonds	Copper-Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total Index
	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
2012	89.1	80.5	31.1	114.1	109.1	70.5	n.a.	97.2	85.3
2013	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2014	106.6	67.1	114.0	79.4	117.8	98.9	98.6	114.4	103.3
2015	90.0	69.8	29.8	62.4	95.8	71.7	12.4	138.1	84.5
2016	90.3	68.2	n.a.	69.0	123.1	76.7	n.a.	125.1	83.1
2017	99.2	n.a.	4.4	76.3	99.5	70.9	n.a.	148.1	84.7
2018	105.9	n.a.	5.2	91.6	130.4	75.2	n.a.	166.0	90.8
2012 Q1	92.5	110.1	23.8	134.6	105.9	65.8	n.a.	62.6	90.4
Q2	92.4	99.6	22.9	119.8	99.2	78.3	n.a.	60.1	89.1
Q3	75.8	25.6	41.0	108.9	129.1	58.2	n.a.	118.8	70.2
Q4	95.7	86.9	36.6	93.1	102.1	79.9	n.a.	147.4	91.4
2013 Q1	80.5	88.0	94.0	76.6	122.9	97.0	102.3	107.5	82.5
Q2	111.7	112.4	115.5	98.5	89.0	116.8	118.1	74.6	111.6
Q3	95.8	107.8	93.2	102.4	112.9	118.6	108.0	113.8	97.1
Q4	111.9	91.9	97.4	122.5	75.2	67.6	71.7	104.1	108.8
2014 Q1	101.5	46.8	96.9	96.4	109.0	68.6	73.2	95.0	96.2
Q2	110.0	73.4	114.7	74.3	115.6	100.8	88.5	123.9	106.6
Q3	109.3	51.6	136.0	84.5	117.3	116.2	135.4	130.6	105.7
Q4	105.5	96.5	108.5	62.3	129.5	109.7	97.5	108.3	104.5
2015 Q1	99.1	87.6	74.3	51.7	73.4	61.6	49.6	126.9	95.6
Q2	104.1	105.2	30.3	49.7	96.9	61.1	n.a.	135.1	98.7
Q3	72.7	19.9	14.7	77.9	125.6	106.6	n.a.	154.8	65.6
Q4	84.0	66.6	n.a.	70.3	131.2	80.9	n.a.	135.6	77.9
2016 Q1	93.9	119.0	n.a.	60.0	117.9	67.3	n.a.	114.4	90.1
Q2	91.7	93.4	n.a.	80.9	84.0	56.5	n.a.	93.9	86.0
Q3	79.6	60.4	n.a.	64.3	139.3	86.9	n.a.	146.9	73.7
Q4	96.1	n.a.	n.a.	70.6	150.9	96.0	n.a.	145.1	82.4
2017 Q1	91.3	n.a.	n.a.	46.7	71.9	46.0	n.a.	131.2	77.1
Q2	103.3	n.a.	9.8	69.2	62.8	40.6	n.a.	153.8	87.9
Q3	105.8	n.a.	4.8	98.5	126.1	117.6	n.a.	156.1	91.0
Q4	96.3	n.a.	3.0	90.8	137.0	79.5	n.a.	151.4	82.8
2018 Q1	101.8	n.a.	1.9	78.9	113.2	66.0	n.a.	159.7	86.9
Q2	110.0	n.a.	7.8	104.1	89.8	45.2	n.a.	177.7	94.0
Q3	100.7	n.a.	8.9	87.8	168.7	80.2	n.a.	178.6	87.1
Q4	111.1	n.a.	2.2	95.5	149.9	109.6	n.a.	147.8	95.3
2019 Q1	105.1	n.a.	n.a.	65.6	129.8	85.5	n.a.	148.3	89.6
Q2	100.8	n.a.	n.a.	89.5	89.9	64.1	n.a.	166.5	85.9

Note: n.a. Signifies data not available/no production during the specified period.

Table 5: Quarter on Quarter Percentage Change in the Volume of Mining Production by Mineral Group and Mineral

Base 2013 = 100									
Year \ Weights	Diamonds	Copper-Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total Index
	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
2012 Q1	15.2	10.8	3.0	(16.0)	(12.7)	(30.6)	n.a.	142.7	13.1
Q2	(0.1)	(9.5)	(4.0)	(11.0)	(6.3)	18.9	n.a.	(4.0)	(1.4)
Q3	(18.0)	(74.3)	79.1	(9.1)	30.1	(25.6)	n.a.	97.7	(21.2)
Q4	26.3	239.3	(10.6)	(14.5)	(21.0)	37.3	n.a.	24.0	30.2
2013 Q1	(15.9)	1.3	156.6	(17.7)	20.5	21.4	...	(27.1)	(9.7)
Q2	38.7	27.7	22.9	28.6	(27.6)	20.4	15.5	(30.6)	35.3
Q3	(14.3)	(4.1)	(19.3)	4.0	26.8	1.5	(8.6)	52.6	(12.9)
Q4	16.8	(14.7)	4.5	19.6	(33.4)	(43.0)	(33.6)	(8.6)	12.0
2014 Q1	(9.3)	(49.1)	(0.5)	(21.4)	44.9	1.5	2.1	(8.7)	(11.5)
Q2	8.4	56.9	18.3	(22.9)	6.0	47.0	20.8	30.5	10.8
Q3	(0.7)	(29.7)	18.6	13.8	1.5	15.3	53.0	5.4	(0.8)
Q4	(3.4)	86.8	(20.3)	(26.3)	10.4	(5.6)	(28.0)	(17.1)	(1.2)
2015 Q1	(6.0)	(9.2)	(31.5)	(17.0)	(43.3)	(43.9)	(49.1)	17.2	(8.6)
Q2	5.0	20.1	(59.2)	(3.8)	31.9	(0.7)	(100.0)	6.4	3.3
Q3	(30.1)	(81.1)	(51.7)	56.7	29.6	74.4	n.a.	14.6	(33.5)
Q4	15.5	235.3	(100.0)	(9.7)	4.5	(24.1)	n.a.	(12.4)	18.7
2016 Q1	11.7	78.7	n.a.	(14.7)	(10.1)	(16.9)	n.a.	(15.6)	15.7
Q2	(2.3)	(21.5)	n.a.	34.8	(28.8)	(16.0)	n.a.	(18.0)	(4.5)
Q3	(13.3)	(35.4)	n.a.	(20.5)	65.9	53.7	n.a.	56.5	(14.3)
Q4	20.8	(100.0)	n.a.	9.8	8.3	10.4	n.a.	(1.2)	11.8
2017 Q1	(5.0)	n.a.	n.a.	(33.8)	(52.4)	(52.1)	n.a.	(9.6)	(6.4)
Q2	13.2	n.a.	n.a.	48.2	(12.7)	(11.8)	n.a.	17.2	13.9
Q3	2.4	n.a.	(50.7)	41.9	100.9	190.0	n.a.	1.5	3.5
Q4	(9.0)	n.a.	(38.2)	(7.6)	8.6	(32.4)	n.a.	(3.0)	(9.0)
2018 Q1	5.7	n.a.	(35.7)	(13.2)	(17.3)	(17.0)	n.a.	5.5	4.9
Q2	8.1	n.a.	305.2	32.0	(20.6)	(31.4)	n.a.	11.2	8.3
Q3	(8.4)	n.a.	14.3	(15.6)	87.8	77.2	n.a.	0.5	(7.4)
Q4	10.3	n.a.	(75.2)	8.7	(11.2)	36.6	n.a.	(17.2)	9.4
2019 Q1	(5.4)	n.a.	(100.0)	(31.3)	(13.4)	(21.9)	n.a.	0.3	(6.0)
Q2	(4.2)	n.a.	n.a.	36.6	(30.7)	(25.0)	n.a.	12.3	(4.1)

Note: 1. () Denote negative numbers
 2. n.a. Signifies data not available/no production during the specified period
 3. ... Data is not zero, but the figure is not significant enough to be measured

Table 6: Year-on-Year Percentage Change in the Volume of Mining Production by Mineral Group and Mineral

Base 2013 = 100									
Year \ Weights	Diamonds	Copper-Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total Index
	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
2012	(10.0)	12.0	40.6	(11.8)	(3.6)	(17.6)	n.a.	84.7	(7.7)
2013	12.2	24.2	221.9	(12.4)	(8.3)	41.8	...	2.8	17.3
2014	6.6	(32.9)	14.0	(20.6)	17.8	(1.1)	(1.4)	14.4	3.3
2015	(15.6)	4.1	(71.5)	(21.4)	(9.4)	(21.5)	(87.4)	20.7	(18.2)
2016	0.3	(2.3)	(100.0)	10.5	15.2	(1.1)	(100.0)	(9.4)	(1.6)
2017	9.8	(100.0)	...	10.7	(19.2)	(7.6)	n.a.	18.4	2.0
2018	6.8	n.a.	18.0	20.0	31.1	6.1	n.a.	12.0	7.3
2012 Q1	(0.8)	15.6	51.4	21.1	7.3	(8.4)	n.a.	12.7	1.6
Q2	(9.8)	15.9	(3.9)	7.2	(2.3)	12.6	n.a.	(17.0)	(7.3)
Q3	(36.7)	255.4	59.1	(18.9)	(1.3)	(45.4)	n.a.	109.0	(32.9)
Q4	19.2	(12.5)	58.4	(42.0)	(15.9)	(15.6)	n.a.	471.1	14.4
2013 Q1	(13.0)	(20.1)	294.5	(43.1)	16.1	47.4	...	71.6	(8.7)
Q2	20.9	12.8	405.1	(17.8)	(10.3)	49.3	...	24.1	25.2
Q3	26.4	320.7	127.4	(5.9)	(12.6)	103.7	...	(4.2)	38.4
Q4	16.9	5.7	165.9	31.6	(26.3)	(15.4)	...	(29.4)	19.1
2014 Q1	26.0	(46.8)	3.1	25.8	(11.4)	(29.3)	(28.4)	(11.7)	16.7
Q2	(1.5)	(34.7)	(0.7)	(24.6)	29.8	(13.7)	(25.1)	66.1	(4.5)
Q3	14.1	(52.1)	46.0	(17.5)	3.9	(2.0)	25.4	14.7	8.9
Q4	(5.7)	0.4	0.6	(0.8)	0.4	0.2	0.1	0.0	(4.0)
2015 Q1	(2.3)	87.3	(23.3)	(46.3)	(32.6)	(10.3)	(32.3)	33.7	(0.7)
Q2	(5.4)	43.3	(73.5)	(33.0)	(16.2)	(39.4)	(100.0)	9.0	(7.4)
Q3	(33.4)	(61.5)	(89.2)	(7.8)	7.1	(8.3)	(100.0)	18.6	(37.9)
Q4	(20.4)	(31.0)	(100.0)	12.9	1.4	(26.2)	(100.0)	25.3	(25.5)
2016 Q1	(5.3)	35.8	(100.0)	16.0	60.6	9.3	(100.0)	(9.8)	(5.7)
Q2	(11.9)	(11.2)	(100.0)	62.7	(13.3)	(7.5)	n.a.	(30.5)	(12.9)
Q3	9.4	204.0	(100.0)	(17.4)	10.9	(18.4)	n.a.	(5.1)	12.3
Q4	14.3	(100.0)	n.a.	0.4	15.0	18.6	n.a.	7.0	5.8
2017 Q1	(2.7)	(100.0)	n.a.	(22.1)	(39.0)	(31.7)	n.a.	14.7	(14.4)
Q2	12.6	(100.0)	n.a.	(14.5)	(25.2)	(28.3)	n.a.	63.9	2.1
Q3	32.9	(100.0)	n.a.	53.1	(9.5)	35.3	n.a.	6.3	23.4
Q4	0.2	n.a.	...	28.6	(9.3)	(17.3)	n.a.	4.3	0.5
2018 Q1	11.5	n.a.	...	68.7	57.4	43.5	n.a.	21.7	12.6
Q2	6.4	n.a.	(20.6)	50.2	43.1	11.6	n.a.	15.5	7.0
Q3	(4.8)	n.a.	83.8	(10.6)	33.8	(31.8)	n.a.	14.4	(4.2)
Q4	15.4	n.a.	(26.2)	5.1	9.4	37.9	n.a.	(2.4)	15.1
2019 Q1	3.3	n.a.	(100.0)	(16.9)	14.6	29.6	n.a.	(7.1)	3.1
Q2	(8.4)	n.a.	(100.0)	(14.0)	0.1	41.7	n.a.	(6.3)	(8.7)

Note: 1. () Denote negative numbers
 2.... Data is not zero, but the figure is not significant enough to be measured
 3. "n.a." Signifies data not available/no production during the specified period

Table 7: Contribution of Each Mineral Group and Mineral to the Year-on-Year Percentage Change in the Volume of Mining Production

Base 2013 = 100									
Year \ Weights	Diamonds	Copper-Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total Index
	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
2012	(8.8)	0.8	0.5	(0.2)	(0.0)	(0.1)	0.0	0.1	(7.7)
2013	10.5	2.0	4.4	(0.2)	(0.1)	0.2	0.5	0.0	17.3
2014	5.4	(2.8)	0.8	(0.3)	0.2	(0.0)	(0.0)	0.0	3.3
2015	(13.2)	0.2	(4.5)	(0.2)	(0.1)	(0.1)	(0.4)	0.1	(18.2)
2016	0.3	(0.2)	(1.9)	0.1	0.2	(0.0)	(0.1)	(0.0)	(1.6)
2017	8.8	(7.0)	0.3	0.1	(0.3)	(0.0)	0.0	0.1	2.0
2018	6.5	0.0	0.1	0.3	0.3	0.0	0.0	0.1	7.3
2012 Q1	(0.7)	1.4	0.5	0.4	0.1	(0.0)	0.0	0.0	1.6
Q2	(8.6)	1.2	(0.1)	0.1	(0.0)	0.0	0.0	(0.0)	(7.3)
Q3	(34.7)	1.5	0.8	(0.3)	(0.0)	(0.2)	0.0	0.1	(32.9)
Q4	15.9	(1.3)	0.9	(1.2)	(0.2)	(0.1)	0.0	0.4	14.4
2013 Q1	(11.0)	(2.1)	4.3	(0.9)	0.2	0.2	0.5	0.1	(8.7)
Q2	17.9	1.2	5.7	(0.3)	(0.1)	0.2	0.6	0.0	25.2
Q3	23.5	10.0	4.1	(0.1)	(0.2)	0.4	0.8	(0.0)	38.4
Q4	14.6	0.5	3.6	0.5	(0.3)	(0.1)	0.4	(0.1)	19.1
2014 Q1	21.0	(4.3)	0.2	0.3	(0.2)	(0.2)	(0.2)	(0.0)	16.7
Q2	(1.3)	(3.0)	(0.0)	(0.3)	0.2	(0.1)	(0.1)	0.1	(4.5)
Q3	11.4	(5.0)	2.4	(0.3)	0.0	(0.0)	0.1	0.0	8.9
Q4	(4.8)	0.4	0.6	(0.8)	0.4	0.2	0.1	0.0	(4.0)
2015 Q1	(2.0)	3.6	(1.3)	(0.6)	(0.3)	(0.0)	(0.1)	0.1	(0.7)
Q2	(4.6)	2.6	(4.3)	(0.3)	(0.2)	(0.2)	(0.4)	0.0	(7.4)
Q3	(28.5)	(2.6)	(6.3)	(0.1)	0.1	(0.0)	(0.6)	0.1	(37.9)
Q4	(17.0)	(2.5)	(5.7)	0.1	0.0	(0.1)	(0.4)	0.1	(25.5)
2016 Q1	(4.6)	2.8	(4.3)	0.1	0.4	0.0	(0.2)	(0.0)	(5.7)
Q2	(10.4)	(1.0)	(1.7)	0.4	(0.1)	(0.0)	0.0	(0.1)	(12.9)
Q3	8.6	5.3	(1.2)	(0.3)	0.2	(0.2)	0.0	(0.0)	12.3
Q4	12.8	(7.3)	0.0	0.0	0.2	0.1	0.0	0.0	5.8
2017 Q1	(2.4)	(11.3)	0.0	(0.2)	(0.5)	(0.1)	0.0	0.0	(14.4)
Q2	11.1	(9.3)	0.6	(0.2)	(0.2)	(0.1)	0.0	0.2	2.1
Q3	29.3	(7.0)	0.4	0.6	(0.2)	0.2	0.0	0.0	23.4
Q4	0.2	0.0	0.2	0.3	(0.2)	(0.1)	0.0	0.0	0.5
2018 Q1	11.2	0.0	0.1	0.6	0.5	0.1	0.0	0.1	12.6
Q2	6.2	0.0	(0.1)	0.6	0.3	0.0	0.0	0.1	7.0
Q3	(4.6)	0.0	0.2	(0.2)	0.4	(0.2)	0.0	0.1	(4.2)
Q4	14.8	0.0	(0.1)	0.1	0.1	0.2	0.0	(0.0)	15.1
2019 Q1	3.2	0.0	(0.1)	(0.2)	0.2	0.1	0.0	(0.0)	3.1
Q2	(8.1)	0.0	(0.5)	(0.2)	0.0	0.1	0.0	(0.0)	(8.7)

Note: 1. () Denote negative numbers.

3.0 Technical Notes

3.1 Background

Mining activity in Botswana started in the 19th century with the production of Gold by Europeans from the Tati Reefs, which is now the modern Francistown area. However, much of this activity could not be accounted for, despite its significant contribution to the economy at that time. Modern mining in Botswana started with the mining of Diamonds at Orapa in 1971 followed by Copper-Nickel production in 1973 at Selebi Phikwe. Since the early 1980s, the mining industry has been the largest contributor to real Gross Domestic Product (GDP), contributing between 20 and 50 percent.

These mineral contributions enabled the Government to undertake investments in both human and physical infrastructure development over time. Even though the mining sector's contribution to GDP has been below 25 percent since the 2009 recession, available data indicates that the sector still leads in terms of value added contribution to GDP, according to the quarterly GDP reports produced by Statistics Botswana. Despite its great contribution to Botswana's GDP, the mining industry is capital intensive and accounts for less than 5 percent of employment in the private sector.

With such a significant contribution to the GDP, and the national economy, the need for a measure of the change in the production of minerals in Botswana cannot be over emphasised. The index of the physical volume of mining production is such a measure that provides a relative change over time in mining production. The IMP can also be used as a deflator to calculate the GDP at constant prices.

3.2 Data collection

A mining production survey is carried out by the Department of Mines at the Ministry of Minerals, Energy and Water Resources, covering all mining establishments operating in the country. After the completion of data collection, the Department of Mines provides the data to Statistics Botswana. Following international standards and guidelines, Statistics Botswana cleans the data, produces statistical tables and produces reports which are then packaged and disseminated to users. The results of the survey are used to calculate the volume of mining production indices on a quarterly basis and subsequently to estimate GDP, also on a quarterly basis.

3.3 Scope of the survey

The survey covers all mining establishments conducting activities relating to the extraction of minerals such as Diamonds, Copper-Nickel-Cobalt Matte, Copper in Concentrates, Gold, Soda Ash, Salt, Silver, Coal, Semi-precious stones and the quarrying of building materials. The activities are classified according to the International Standard of Industrial Classification of all Economic Activities, ISIC Rev 4, and the Central Product Classification (CPC) Version 2.

4.0 Concepts, definitions and methods

4.1 Index of the volume of mining productions

The index of the volume of mining production is a ratio that indicates the increase or decrease of a magnitude. The index form is used not only for intertemporal comparisons, but for comparisons between countries.

The IMP is an important macro-economic indicator which monitors progress and fluctuation of the mineral sector production in the economy. The Index is also known to be an effective tool that measures current production, which indicates relative changes over time in the physical volume of mining production.

4.2 Base Period

The base period, usually a year, is the period against which other periods are compared and whose values provide the weights for an index. The base period used in this brief, is 2013 and it is set at 100.

4.3 Index weighting

The weight of the mineral group is the ratio of the estimated value of production of a mineral group to the total estimated value of production of the mining industry. The weight of a mineral group reflects the importance of the mineral group in the total mining industry. The relative importance of various mineral groups is different and these differentials need to be reflected while measuring the performance of the entire mining sector.

4.4 Seasonal Adjustment

Seasonal adjustment is a means of removing the estimated effects of normal seasonal fluctuations and typical calendar effects from the series so that the effects of other influences on the series can be more clearly recognised. Seasonal adjustment does not aim to remove irregular or non-seasonal influences which may be present in any particular period.

The data produced are not seasonally adjusted. However, there is a further scope of producing and disseminating an additional seasonally adjusted series only when there is a clear statistical evidence and economic interpretation of the seasonal/calendar effects.

4.5 Year-on-Year Percentage Change

Year-on-Year percentage change in a variable for any given period is the rate of change expressed over the same period.

4.6 Quarter-on-Quarter percentage change

Quarter-on-Quarter percentage change in a variable for any given period is the rate of change expressed over the previous quarter.

4.7 Index Contribution (percentage points)

The contribution (percentage points) of a mineral group or mineral to the percentage change in the total mining production for a given period is calculated by multiplying the difference in the index for each mineral group or mineral by the weight of the mineral group or mineral and then dividing by the previous period's total index. It indicates the extent to which each mineral group affects the overall growth of mining production.

4.8 Calculation of the Index of Mining Production

To calculate the evolution of physical volume of mining production on a quarterly basis, a Laspeyres indicator, base year 2013=100, was used. The index is calculated as the weighted arithmetic mean of the production relatives in respect of selected items. The weighted average is done to measure the importance of various mineral groups in the mining sector when calculating the comprehensive growth rate of the sector.

$$I = \frac{\sum R_i * W_i}{\sum W_i}$$

Where; I is the index, R_i is the production relative of item i and W_i is the weight allocated to item i

The production relative (R_i) of the i^{th} item for the quarter has been calculated by using the formula:

$$R_i = \frac{P_{ic}}{P_{i0}} * 100$$

Where P_{ic} is the production of the i^{th} item in the current quarter and P_{i0} is the production of the i^{th} item in the base year.



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