



# INDICES OF THE PHYSICAL VOLUME OF MINING PRODUCTION

FIRST QUARTER 2014

## STATISTICS BOTSWANA

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## 1.0 Introduction

This statistical release is the first to be published by Statistics Botswana and is a product of Industry Statistics Section. It is intended to shed light on Mining Production by presenting Quarterly Indices of Mining Production by Mineral Groups, Year-on-Year Percentage Change in the Volume of Mineral Production by Mineral Group as well as Contribution of each Mineral Group to the Year-on-Year Percentage Change in the Volume of Mineral Production. This report uses 2013 as a reference year. Data used in this publication is sourced from the Department of Mines at Ministry of Minerals, Energy and Water Resources.

The current release presents quarterly Indices of Mineral Production (IMP) for the period 2005 to 2014 first quarter. Also carried in the report are annual indices of mining production for the period 2005 to 2013 (derived as the average of four quarters of the year).

## 2.0 Summary of Findings

**Table 1: Key growth in the Volume of Mining Production**

	First Quarter 2013	Second Quarter 2013	Third Quarter 2013	Fourth Quarter 2013	First Quarter 2014
Index of the physical volume of mining production	82.5	111.6	97.1	108.8	96.2
Year-on-year percentage change, seasonal unadjusted	(8.8)	25.1	38.2	19.0	16.7
Quarter-on-Quarter percentage change, seasonal unadjusted	(9.8)	35.3	(13.0)	12.0	(11.5)

( ) denotes negative numbers

The Index of Mining Production in the first quarter of 2014 stood at 96.2 showing a year-on-year growth of 16.7 percent (Table 1). **Tables 2** and **Table 5** show that the main contributors to this growth were diamonds contributing 21.0 percentage points while Gold and Copper contributed 0.3 and 0.2 percentage points respectively. Minerals which registered negative contributions to the growth of mining production were Copper-nickel-cobalt matte with a decline of 4.3 percentage points, Soda ash, Salt and Silver, each contributing a decline of 0.2 of a percentage point.

**Table 3** presents Indices of the volume of mining production by mineral group and minerals for the period 2003 to 2014 first quarter. **Table 4** provides Year-on-Year percentage in the volume of mining production by mineral group and minerals for period 2004 to 2014 first quarter.

Diamond production grew by 26.0 percent in the first quarter of 2014 as compare to 2013 first quarter. The increase in production was largely due to plant maintenance which was done at Orapa during 2013 first quarter. Production as a result, increased following plant maintenance.

Copper-nickel-cobalt matte production shows a decline of 46.8 percent in the first quarter of 2014, when compared to 2013 first quarter. This was primarily due to a drop in both the metal content and ore tonnage (see Table 2 and 5). Copper production recorded increase of 3.1 percent between the first quarter of 2013 and 2014 first quarter. The increase in production was brought about by improved operational stability.

Gold production increased by 25.8 percent from 2013 first quarter to 2014 first quarter. Soda Ash production shows a decline of 11.4 percent in the first quarter of 2014 as compared to 2013 first quarter. The decrease in production was primarily due to plant breakdowns that were experienced at the mine.

Salt production in the first quarter of 2014 indicates a drop of 29.3 percent as compared to the corresponding quarter of the previous year. The decrease in production is mainly due to plant breakdowns that were experienced at the mine.

Silver production started during 2013 first quarter, however the first quarter of 2014 shows a drop of 28.4 percent in production as compared to 2013 first quarter. Coal production decreased by 11.7 percent in the first quarter of 2014. The decline can be attributed to the low offtake at Morupule Power Plant.



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**Statistician General**  
**July 2014**

**Table 2: Index of Mining Production for First Quarter 2014 by Mineral Group and Mineral**

Base: 2013=100

Mineral Group / Mineral	Weights (2013)	First Quarter 2013	First Quarter 2014	Year-on-Year % change	Contribution (% points) to Year-on-Year percentage change
Diamonds	82.5	80.5	101.5	26.0	21.0
Copper-Nickel-Cobalt Matte	8.6	88.0	46.8	(46.8)	(4.3)
Copper	5.5	94.0	96.9	3.1	0.2
Gold	1.4	76.6	96.4	25.8	0.3
Soda Ash	0.9	122.9	109.0	(11.4)	(0.2)
Salt	0.5	97.0	68.6	(29.3)	(0.2)
Silver	0.4	102.3	73.2	(28.4)	(0.2)
Coal	0.3	107.5	95.0	(11.7)	(0.0)
<b>Total</b>	<b>100.0</b>	<b>82.5</b>	<b>96.2</b>	<b>16.7</b>	<b>16.7</b>

**NB:** 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.  
 ( ) denotes negative numbers

**Table 3: Index of the Volume of Mining Production by Mineral Group and Mineral**

(Base 2013 = 100)

	Diamonds	Matte	Copper	Gold	Soda Ash	Salt	Silver	Coal	Total Index
<b>Weights</b>	<b>82.5</b>	<b>8.6</b>	<b>5.5</b>	<b>1.4</b>	<b>0.9</b>	<b>0.5</b>	<b>0.4</b>	<b>0.3</b>	<b>100.0</b>
<b>2003</b>	131.3	117.1	n.a.	n.a.	102.8	44.0	n.a.	55.0	<b>119.6</b>
<b>2004</b>	134.2	99.4	n.a.	n.a.	116.1	41.6	n.a.	60.9	<b>120.6</b>
<b>2005</b>	137.6	133.7	n.a.	268.1	123.7	37.7	n.a.	65.8	<b>130.1</b>
<b>2006</b>	148.2	126.6	n.a.	250.4	104.8	40.0	n.a.	64.3	<b>137.9</b>
<b>2007</b>	145.4	111.4	n.a.	220.0	122.7	50.4	n.a.	55.4	<b>134</b>
<b>2008</b>	140.9	118.1	n.a.	263.2	115.6	32.8	n.a.	60.8	<b>131.3</b>
<b>2009</b>	76.7	121.1	n.a.	134.7	93.0	45.5	n.a.	49.3	<b>76.7</b>
<b>2010</b>	95.2	110.7	12.5	147.0	105.7	70.0	n.a.	66.1	<b>92.2</b>
<b>2011</b>	99.0	71.9	22.1	129.4	113.1	85.7	n.a.	52.7	<b>92.4</b>
<b>2012</b>	89.1	80.5	31.1	114.1	109.1	70.5	n.a.	97.2	<b>85.3</b>
<b>2013</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
<b>2003 Q1</b>	102.3	67.7	n.a.	n.a.	98.4	40.3	n.a.	51.6	<b>91.3</b>
<b>Q2</b>	134.6	143.4	n.a.	n.a.	111.0	50.4	n.a.	61.6	<b>124.7</b>
<b>Q3</b>	149.6	137.2	n.a.	n.a.	103.7	50.3	n.a.	59.8	<b>136.5</b>
<b>Q4</b>	138.7	120.0	n.a.	n.a.	97.9	35.1	n.a.	47.0	<b>125.8</b>
<b>2004 Q1</b>	99.9	133.3	n.a.	n.a.	90.3	39.2	n.a.	55.2	<b>95.0</b>
<b>Q2</b>	108.5	78.6	n.a.	n.a.	102.7	49.4	n.a.	60.7	<b>97.5</b>
<b>Q3</b>	166.1	43.8	n.a.	n.a.	128.8	37.9	n.a.	61.7	<b>142.3</b>
<b>Q4</b>	162.1	142.0	n.a.	n.a.	142.8	39.9	n.a.	66.0	<b>147.5</b>
<b>2005 Q1</b>	123.0	142.5	n.a.	304.3	132.7	43.2	n.a.	64.6	<b>119.5</b>
<b>Q2</b>	141.2	133.1	n.a.	352.6	108.7	33.2	n.a.	60.8	<b>134.0</b>
<b>Q3</b>	141.0	135.5	n.a.	215.4	130.7	36.9	n.a.	66.1	<b>132.4</b>
<b>Q4</b>	145.3	123.8	n.a.	200.1	122.8	37.5	n.a.	71.9	<b>134.7</b>
<b>2006 Q1</b>	143.8	115.5	n.a.	230.7	74.9	29.7	n.a.	66.9	<b>132.7</b>
<b>Q2</b>	136.8	131.1	n.a.	261.9	113.7	41.9	n.a.	67.4	<b>129.1</b>
<b>Q3</b>	154.1	136.1	n.a.	260.2	138.6	56.4	n.a.	59.9	<b>144.0</b>
<b>Q4</b>	158.3	123.8	n.a.	248.6	92.2	31.9	n.a.	63.2	<b>145.8</b>

**Table 3 continued... Index of the Volume of Mining Production by Mineral Group and Mineral (Base 2013 = 100)**

	Diamonds	Matte	Copper	Gold	Soda Ash	Salt	Silver	Coal	Total Index
<b>Weights</b>	<b>82.5</b>	<b>8.6</b>	<b>5.5</b>	<b>1.4</b>	<b>0.9</b>	<b>0.5</b>	<b>0.4</b>	<b>0.3</b>	<b>100.0</b>
<b>2007 Q1</b>	141.9	123.6	n.a.	174.0	100.4	14.8	n.a.	59.4	<b>131.2</b>
<b>Q2</b>	141.8	128.2	n.a.	249.6	122.4	56.4	n.a.	56.0	<b>133.0</b>
<b>Q3</b>	157.8	44.9	n.a.	228.4	147.3	70.3	n.a.	57.5	<b>139.0</b>
<b>Q4</b>	140.1	149.1	n.a.	228.1	120.6	60.1	n.a.	48.7	<b>133.0</b>
<b>2008 Q1</b>	140.7	130.0	n.a.	217.0	113.8	31.3	n.a.	61.3	<b>131.6</b>
<b>Q2</b>	138.9	111.2	n.a.	257.6	100.7	21.1	n.a.	59.3	<b>128.8</b>
<b>Q3</b>	158.0	124.3	n.a.	266.4	123.5	44.3	n.a.	62.0	<b>146.2</b>
<b>Q4</b>	126.0	106.8	n.a.	311.7	124.5	34.5	n.a.	60.7	<b>118.8</b>
<b>2009 Q1</b>	-	92.5	n.a.	140.2	86.7	43.4	n.a.	58.7	<b>11.0</b>
<b>Q2</b>	67.7	131.0	n.a.	155.5	67.4	32.6	n.a.	50.2	<b>70.1</b>
<b>Q3</b>	101.3	136.9	n.a.	133.8	116.8	43.5	n.a.	45.6	<b>98.5</b>
<b>Q4</b>	137.7	123.9	n.a.	109.4	101.2	62.7	n.a.	42.8	<b>127.0</b>
<b>2010 Q1</b>	79.4	127.4	6.1	134.7	103.7	58.5	n.a.	63.4	<b>80.0</b>
<b>Q2</b>	98.1	81.8	10.5	135.0	91.2	56.7	n.a.	63.8	<b>91.6</b>
<b>Q3</b>	103.5	134.1	16.8	160.9	109.8	95.8	n.a.	71.9	<b>101.7</b>
<b>Q4</b>	99.7	99.7	18.6	157.6	118	68.9	n.a.	65.2	<b>95.5</b>
<b>2011 Q1</b>	93.3	95.2	15.7	111.1	98.7	71.8	n.a.	55.6	<b>88.9</b>
<b>Q2</b>	102.5	85.9	23.8	111.8	101.6	69.5	n.a.	72.4	<b>96.2</b>
<b>Q3</b>	119.8	7.2	25.8	134.3	130.9	106.5	n.a.	56.9	<b>104.6</b>
<b>Q4</b>	80.3	99.3	23.1	160.4	121.4	94.7	n.a.	25.8	<b>79.9</b>
<b>2012 Q1</b>	92.5	110.1	23.8	134.6	105.9	65.8	n.a.	62.6	<b>90.3</b>
<b>Q2</b>	92.4	99.6	22.9	119.8	99.2	78.3	n.a.	60.1	<b>89.1</b>
<b>Q3</b>	75.8	25.6	41.0	108.9	129.1	58.2	n.a.	118.8	<b>70.2</b>
<b>Q4</b>	95.7	86.9	36.6	93.1	102.1	79.9	n.a.	147.4	<b>91.4</b>
<b>2013 Q1</b>	80.5	88.0	94.0	76.6	122.9	97.0	102.3	107.5	<b>82.5</b>
<b>Q2</b>	111.7	112.4	115.5	98.5	89.0	116.8	118.1	74.6	<b>111.6</b>
<b>Q3</b>	95.8	107.8	93.2	102.4	112.9	118.6	108.0	113.8	<b>97.1</b>
<b>Q4</b>	111.9	91.9	97.4	122.5	75.2	67.6	71.7	104.1	<b>108.8</b>
<b>2014 Q1</b>	101.5	46.8	96.9	96.4	109.0	68.6	73.2	95.0	<b>96.2</b>

**Note:** 1. 2013-2014 Figures are provisional; 2. n.a signifies data not available/no production at the specified period, 3. ...data is not zero but the figure is not large enough to be measured. Matte: refers to a mixture of copper, nickel and cobalt

**Table 4: Year-on-Year Percentage Change in the Volume of Mining Production by Mineral Group and Mineral  
(Base 2013 = 100)**

	Diamonds	Matte	Copper	Gold	Soda Ash	Salt	Silver	Coal	Total Index
<b>Weights</b>	<b>82.5</b>	<b>8.6</b>	<b>5.5</b>	<b>1.4</b>	<b>0.9</b>	<b>0.5</b>	<b>0.4</b>	<b>0.3</b>	<b>100.0</b>
<b>2004</b>	2.2	(15.1)	n.a.	n.a.	13.0	(5.5)	n.a.	10.7	0.8
<b>2005</b>	2.6	34.5	n.a.	n.a.	6.5	(9.4)	n.a.	8.1	7.9
<b>2006</b>	7.7	(5.3)	n.a.	(6.6)	(15.3)	6.1	n.a.	(2.3)	6.0
<b>2007</b>	(1.9)	(12.0)	n.a.	(12.1)	17.0	26.1	n.a.	(14.0)	(2.8)
<b>2008</b>	(3.1)	6.0	n.a.	19.6	(5.7)	(34.9)	n.a.	9.8	(2.0)
<b>2009</b>	(45.6)	2.5	n.a.	(48.8)	(19.6)	38.8	n.a.	(18.9)	(41.6)
<b>2010</b>	24.2	(8.5)	n.a.	9.1	13.6	53.6	n.a.	33.9	20.3
<b>2011</b>	4.0	(35.1)	n.a.	(12.0)	7.0	22.4	n.a.	(20.3)	0.2
<b>2012</b>	(10.0)	12.0	n.a.	(11.8)	(3.6)	(17.6)	n.a.	84.7	(7.7)
<b>2013</b>	12.2	24.2	...	(12.4)	(8.3)	41.8	...	2.8	17.3
<b>Annualised growth</b>	(2.7)	(1.6)	...	...	(0.3)	8.6	...	6.2	(1.8)
<b>2005 Q1</b>	23.1	7.0	n.a.	...	46.9	10.3	n.a.	17.1	25.8
<b>Q2</b>	30.1	69.3	n.a.	...	5.9	(32.8)	n.a.	0.2	37.4
<b>Q3</b>	(15.1)	209.2	n.a.	...	1.5	(2.7)	n.a.	7.1	(6.9)
<b>Q4</b>	(10.4)	(12.9)	n.a.	...	(14.0)	(6.1)	n.a.	8.9	(8.7)
<b>2006 Q1</b>	16.9	(19.0)	n.a.	(24.2)	(3.6)	(31.4)	n.a.	3.7	11.1
<b>Q2</b>	(3.1)	(1.5)	n.a.	(25.7)	4.6	26.4	n.a.	10.7	(3.7)
<b>Q3</b>	9.3	0.5	n.a.	20.8	6.0	53	n.a.	(9.3)	8.8
<b>Q4</b>	9.0	0.0	n.a.	24.2	(24.9)	(14.8)	n.a.	(12.1)	8.2
<b>2007 Q1</b>	(1.3)	7.0	n.a.	(24.6)	34.1	(50.2)	n.a.	(11.3)	(1.2)
<b>Q2</b>	3.7	(2.2)	n.a.	(4.7)	7.7	34.6	n.a.	(16.9)	3.0
<b>Q3</b>	2.4	(67.0)	n.a.	(12.2)	6.3	24.8	n.a.	(4.1)	(3.5)
<b>Q4</b>	(11.5)	20.4	n.a.	(8.3)	30.8	88.3	n.a.	(22.9)	(8.8)
<b>2008 Q1</b>	(0.8)	5.2	n.a.	24.7	13.4	111.8	n.a.	3.2	0.3
<b>Q2</b>	(2.1)	(13.2)	n.a.	3.2	(17.7)	(62.6)	n.a.	6.0	(3.1)
<b>Q3</b>	0.1	176.9	n.a.	16.6	(16.2)	(37.0)	n.a.	7.9	5.1
<b>Q4</b>	(10.0)	(28.3)	n.a.	36.7	3.2	(42.6)	n.a.	24.6	(10.6)

**Table 4 continued... Year-on-Year Percentage Change in the Volume of Mining Production by Mineral Group and Mineral (Base 2013 = 100)**

	Diamonds	Matte	Copper	Gold	Soda Ash	Salt	Silver	Coal	Total Index
<b>Weights</b>	<b>82.5</b>	<b>8.6</b>	<b>5.5</b>	<b>1.4</b>	<b>0.9</b>	<b>0.5</b>	<b>0.4</b>	<b>0.3</b>	<b>100.0</b>
<b>2009 Q1</b>	(100.0)	(28.9)	n.a.	(35.4)	(23.8)	38.7	n.a.	(4.1)	(91.6)
<b>Q2</b>	(51.3)	17.7	n.a.	(39.6)	(33.1)	54.6	n.a.	(15.4)	(45.6)
<b>Q3</b>	(35.9)	10.2	n.a.	(49.8)	(5.5)	(1.8)	n.a.	(26.4)	(32.6)
<b>Q4</b>	9.3	16.0	n.a.	(64.9)	(18.7)	81.6	n.a.	(29.5)	6.9
<b>2010 Q1</b>	...	37.8	...	(3.9)	19.6	34.8	n.a.	7.9	626.4
<b>Q2</b>	44.9	(37.5)	...	(13.2)	35.4	73.9	n.a.	27.2	30.6
<b>Q3</b>	2.2	(2.1)	...	20.2	(5.9)	120.3	n.a.	57.6	3.2
<b>Q4</b>	(27.6)	(21.8)	...	44.0	16.6	9.9	n.a.	52.4	(24.8)
<b>2011 Q1</b>	17.5	(25.3)	158.6	(17.5)	(4.8)	22.8	n.a.	(12.3)	11.1
<b>Q2</b>	4.5	5.0	126.7	(17.2)	11.3	22.5	n.a.	13.4	5.0
<b>Q3</b>	15.8	(94.6)	53.2	(16.5)	19.1	11.3	n.a.	(20.9)	2.9
<b>Q4</b>	(19.4)	(0.4)	24.6	1.7	2.8	37.5	n.a.	(60.4)	(16.4)
<b>2012 Q1</b>	(0.8)	15.6	51.4	21.1	7.3	(8.4)	n.a.	12.7	1.6
<b>Q2</b>	(9.8)	15.9	(3.9)	7.2	(2.3)	12.6	n.a.	(17.0)	(7.3)
<b>Q3</b>	(36.7)	255.4	59.1	(18.9)	(1.3)	(45.4)	n.a.	109	(32.9)
<b>Q4</b>	19.2	(12.5)	58.4	(42.0)	(15.9)	(15.6)	n.a.	471.1	14.4
<b>2013 Q1</b>	(13.0)	(20.1)	294.5	(43.1)	16.1	47.4	...	71.6	(8.7)
<b>Q2</b>	20.9	12.8	405.1	(17.8)	(10.3)	49.3	...	24.1	25.2
<b>Q3</b>	26.4	320.7	127.4	(5.9)	(12.6)	103.7	...	(4.2)	38.4
<b>Q4</b>	16.9	5.7	165.9	31.6	(26.3)	(15.4)	...	(29.4)	19.1
<b>2014 Q1</b>	26.0	(46.8)	3.1	25.8	(11.4)	(9.3)	(28.4)	(11.7)	16.7

**Note:** 2012- 2013 Figures are provisional  
 Matte: refers to a mixture of copper, nickel and cobalt  
 ( ) denotes negative numbers



**Table 5: Contribution of each Mineral Group and Mineral to the Year-on-Year Percentage Change in the Volume of Mining Production (Base 2013: 100)**

	Diamonds	Matte	Copper-	Gold	Soda Ash	Salt	Silver	Coal	Total Index
<b>Weights</b>	<b>82.5</b>	<b>8.6</b>	<b>5.5</b>	<b>1.4</b>	<b>0.9</b>	<b>0.5</b>	<b>0.4</b>	<b>0.3</b>	<b>100.0</b>
<b>2005</b>	2.4	2.4	n.a.	...	0.1	0.0	n.a.	0.0	7.9
<b>2006</b>	6.7	(0.5)	n.a.	(0.2)	(0.1)	0.0	n.a.	(0.0)	6.0
<b>2007</b>	(1.7)	(0.9)	n.a.	(0.3)	0.1	0.0	n.a.	(0.0)	(2.8)
<b>2008</b>	(2.8)	0.4	n.a.	0.4	0.0	(0.1)	n.a.	0.0	(2.0)
<b>2009</b>	(40.3)	0.2	n.a.	(1.4)	(0.2)	0.0	n.a.	(0.0)	(41.6)
<b>2010</b>	19.9	(1.2)	n.a.	0.2	0.1	0.2	n.a.	0.1	20.3
<b>2011</b>	3.4	(3.6)	n.a.	(0.3)	0.1	0.1	n.a.	(0.0)	0.2
<b>2012</b>	(8.8)	0.8	n.a.	(0.2)	0.0	(0.1)	n.a.	0.1	(7.7)
<b>2013</b>	10.5	2.0	...	(0.2)	(0.1)	0.2	...	0.0	17.3
<b>2005 Q1</b>	20.0	0.8	n.a.	...	0.4	0.0	n.a.	0.0	25.8
<b>Q2</b>	27.6	4.8	n.a.	...	0.1	(0.1)	n.a.	0.0	37.4
<b>Q3</b>	(14.6)	5.5	n.a.	...	0.0	0	n.a.	0.0	(6.9)
<b>Q4</b>	(9.4)	(1.1)	n.a.	...	(0.1)	0.0	n.a.	0.0	(8.7)
<b>2006 Q1</b>	14.4	(1.9)	n.a.	(0.9)	(0.4)	(0.1)	n.a.	0.0	11.1
<b>Q2</b>	(2.7)	(0.1)	n.a.	(0.9)	0.0	0.0	n.a.	0.0	(3.7)
<b>Q3</b>	8.2	0.0	n.a.	0.5	0.1	0.1	n.a.	(0.0)	8.8
<b>Q4</b>	8.0	0.0	n.a.	0.5	(0.2)	0.0	n.a.	(0.0)	8.2
<b>2007 Q1</b>	(1.2)	0.5	n.a.	(0.6)	0.2	(0.1)	n.a.	(0.0)	(1.2)
<b>Q2</b>	3.2	(0.2)	n.a.	(0.1)	0.1	0.1	n.a.	(0.0)	(3.0)
<b>Q3</b>	2.2	(5.4)	n.a.	(0.3)	0.1	0.0	n.a.	(0.0)	(3.5)
<b>Q4</b>	(10.3)	1.5	n.a.	(0.2)	0.2	0.1	n.a.	(0.0)	(8.8)
<b>2008 Q1</b>	(0.7)	0.4	n.a.	0.5	0.1	0.1	n.a.	0.0	0.3
<b>Q2</b>	(1.8)	(1.1)	n.a.	0.1	(0.1)	(0.1)	n.a.	0.0	(3.1)
<b>Q3</b>	0.1	4.9	n.a.	0.4	(0.2)	(0.1)	n.a.	0.0	5.1
<b>Q4</b>	(8.7)	(2.7)	n.a.	0.9	0.0	(0.1)	n.a.	0.0	(10.6)

**Table 5 continued... Contribution of each Mineral Group and Mineral to the Year-on-Year Percentage Change in the Volume of Mining Production (Base 2013: 100)**

	Diamonds	Matte	Copper-	Gold	Soda Ash	Salt	Silver	Coal	Total Index
<b>Weight</b>	<b>82.5</b>	<b>8.6</b>	<b>5.5</b>	<b>1.4</b>	<b>0.9</b>	<b>0.5</b>	<b>0.4</b>	<b>0.3</b>	<b>100.0</b>
<b>2009 Q1</b>	(88.2)	(2.4)	n.a.	(0.8)	(0.2)	0.0	n.a.	0.0	(91.6)
<b>Q2</b>	(45.6)	1.3	n.a.	(1.1)	(0.2)	0.0	n.a.	0.0	(45.6)
<b>Q3</b>	(32.0)	0.7	n.a.	(1.3)	0.0	0.0	n.a.	0.0	(32.6)
<b>Q4</b>	8.1	1.2	n.a.	(2.4)	(0.2)	0.1	n.a.	0.0	6.9
<b>2010 Q1</b>	594.7	27.2	...	(0.7)	1.4	0.7	n.a.	0.1	626.4
<b>Q2</b>	35.7	(6.0)	...	(0.4)	0.3	0.2	n.a.	0.0	30.6
<b>Q3</b>	1.9	(0.2)	...	0.4	(0.1)	0.3	n.a.	0.1	3.2
<b>Q4</b>	(24.7)	(1.6)	...	0.5	0.1	0.0	n.a.	0.0	(24.8)
<b>2011 Q1</b>	14.3	(3.4)	0.7	(0.4)	(0.1)	0.1	n.a.	0.0	11.1
<b>Q2</b>	4.0	0.4	0.8	(0.4)	0.1	0.1	n.a.	0.0	5.0
<b>Q3</b>	13.2	(10.7)	0.5	(0.4)	0.2	0.1	n.a.	0.0	2.9
<b>Q4</b>	(16.7)	0.0	0.3	0.0	0.0	0.1	n.a.	(0.1)	(16.4)
<b>2012 Q1</b>	(0.7)	1.4	0.5	0.4	0.1	0.0	n.a.	0.0	1.6
<b>Q2</b>	(8.6)	1.2	(0.1)	0.1	0.0	0.0	n.a.	0.0	(7.3)
<b>Q3</b>	(34.7)	1.5	0.8	(0.3)	0.0	(0.2)	n.a.	0.1	(32.9)
<b>Q4</b>	15.9	(1.3)	0.9	(1.2)	(0.2)	(0.1)	n.a.	0.4	14.4
<b>2013 Q1</b>	(11.0)	(2.1)	4.3	(0.9)	0.2	0.2	...	0.1	(8.7)
<b>Q2</b>	17.9	1.2	5.7	(0.3)	(0.1)	0.2	...	0.0	25.2
<b>Q3</b>	23.5	10.0	4.1	(0.1)	(0.2)	0.4	...	0.0	38.4
<b>Q4</b>	14.6	0.5	3.6	0.5	(0.3)	(0.1)	...	(0.1)	19.1
<b>2014 Q1</b>	21.0	(4.3)	0.2	0.3	(0.2)	(0.2)	(0.2)	0.0	16.7

**Note:** 2012- 2013 Figures are provisional  
 Matte: refers to a mixture of copper, nickel and cobalt  
 ( ) denotes negative numbers

## **3.0 ANNEX**

### **3.1 Background Information**

Mining activity in Botswana started in the 19th century with production of gold by Europeans from the Tati reefs which is now modern Francistown area. However, much of this activity could not be accounted for, despite its significant contribution to the economy at the time. Modern mining in Botswana started with the mining of diamonds at Orapa in 1971 followed by copper-nickel production in 1973 at Selibe Phikwe. Since the early 80s, the mining industry has been the largest contributor to real Gross Domestic Product (GDP). During the second of 2006/07, the mining sector contributed 43.2% to the GDP (National Accounts Stats Brief, 2007). In 2009, the mining sector's share in the GDP was 39.2% (National Accounts Statistics Report, 2009).

These mineral contributions enabled the government to undertake investments, in both human and physical infrastructure development over time. In 2012, the mining sector accounted for 19.6 percent of Botswana's GDP, and more than 50 percent of Government revenues (National Accounts Report, 2012). Even though the mining sector's contribution to GDP has been below 25 percent since the 2009 economic recession, available data shows that the sector still leads in terms of value added contribution to GDP. Despite the great contribution to Botswana's GDP, the mining industry is capital intensive and accounts for less than 5 percent of the private sector employment.

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

### **3.2 Data collection**

A mining production survey is carried out by the Department of Mines, covering all mining establishments operating in the country. After completion of data collection Department of Mines through the data sharing agreement provides the data to Statistics Botswana. The results of the survey are used to calculate the volume of mining production indices on quarterly basis.

### **3.3 Scope of the survey**

The survey covers all mining establishments conducting activities relating to the extraction of minerals occurring naturally as solids such as diamonds, copper-nickel-cobalt matte, gold, copper concentrates, soda ash, salt, 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 Central Product Classification (CPC) Version 2.

## **4.0 Concepts, definitions and methods**

### **4.1 Index of the volume of mining production:**

Index is a ratio that indicates the increase or decrease of a magnitude (Allen, 1975). The index form is used not only for intertemporal comparisons but for comparisons between countries (Bal, 2008).

The Index of Mining Production (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 (UNSD, 2010). The base period, also referred to as reference 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 Year-on-year percentage change

Year-on-year percentage change in a variable for any given period is the rates of change expressed over the same period (OECD, 2007)

### 4.5 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.

### 4.6 Calculation of the Index of Mining Production.

To calculate the evolution of physical volume of mining production on 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  $i^{\text{th}}$  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  $i^{\text{th}}$  item in the current quarter and  $P_{i0}$  is the production of the  $i^{\text{th}}$  item in the base year.