



INDEX OF THE PHYSICAL VOLUME OF MINING PRODUCTION FIRST QUARTER 2023 STATS BRIEF

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1.0 PREFACE

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

This statistical release presents quarterly Indices of Mining Production (**IMP**) for the period 2013 to the first quarter of 2023. Also encompassed in the report are the annual **IMP** for the period 2013 to 2022, derived as the average of the four quarters of the year. The base year is 2013. Data used in this publication are sourced from the Department of Mines under the Ministry of Minerals and Energy.

The Index of Mining Production stood at **112.5** in the first quarter of 2023, showing a year-on-year increase of 16.0 percent from 96.9 recorded in the first quarter of 2022. Comparison on a quarter-on-quarter basis shows an increase of 18.2 percent, from the index of 95.2 realised during the fourth quarter of 2022.

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 provides the trend in the local mining sector.

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
June 2023

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 2013 to the first quarter of 2023. This table forms the basis for the discussions under Sub-Section 2.1. Reference, however, is made to this table and other tables throughout the report.

2.1 Index of Mining Production

The Index of Mining Production stood at **112.5** during the first quarter of 2023, showing a year-on-year growth of **16.0** percent, from **96.9** registered in the first quarter of 2022. The main contributor to the increase in mining production was Diamond and Copper in Concentrates which contributed 10.1 and 5.5 percentage points respectively, as shown in **Table 2**. Gold and Soda Ash were the only negative contributors to the index of mining production.

The quarter-on-quarter analysis shows an increase of **18.2 percent** from the index of 95.2 in the fourth quarter of 2022 to **112.5** observed during the period under review.

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)
Q3_2019	85.8	(1.5)	(0.1)
Q4_2019	87.8	(7.9)	2.3
Q1_2020	84.6	(5.5)	(3.6)
Q2_2020	30.0	(65.1)	(64.6)
Q3_2020	72.5	(15.5)	141.9
Q4_2020	64.0	(27.1)	(11.7)
Q1_2021	74.4	(12.1)	16.2
Q2_2021	85.6	185.6	15.0
Q3_2021	101.9	40.6	19.1
Q4_2021	82.0	28.1	(19.6)
Q1_2022	96.9	30.3	18.2
Q2_2022	88.8	3.7	(8.4)
Q3_2022	106.6	4.5	20.0
Q4_2022	95.2	16.1	(10.7)
Q1_2023	112.5	16.0	18.2

Note: () denotes negative numbers

Figure 1: Figure 1: Total Index of Mining Production for the First Quarter of 2013 to the First Quarter of 2023

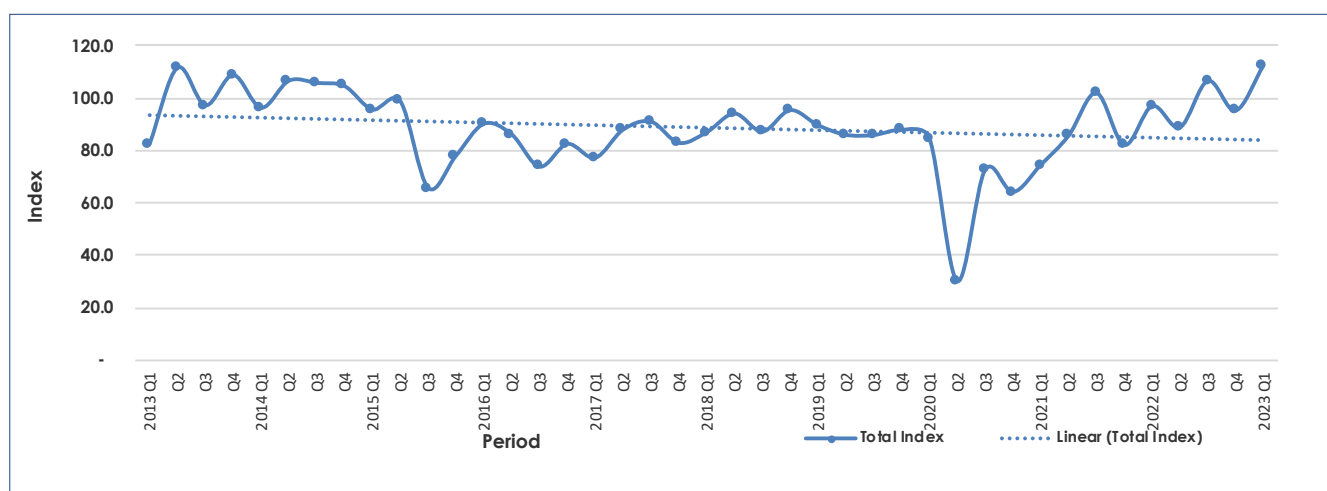
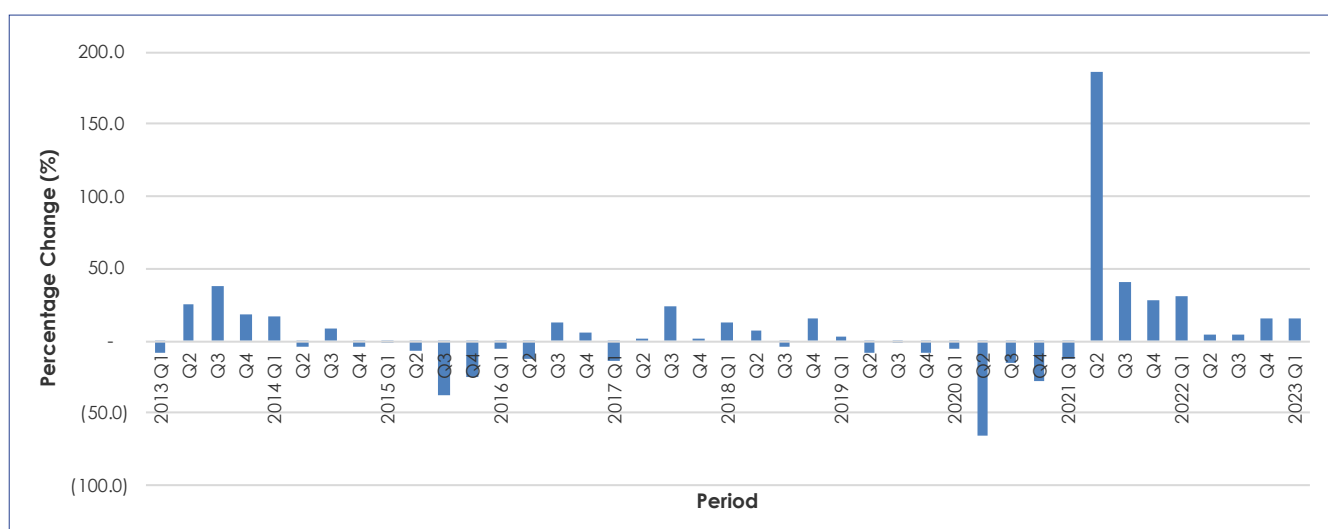


Figure 1 shows the graphical presentation of the Total Index from the first quarter of 2013 to the first quarter of 2023. The linear graph shows that, on average, production has been declining gradually, between the years 2013 and 2023.

Figure 2: Year-on-Year Percentage Change for the first Quarter of 2013 to the First Quarter of 2023



2.2 Mineral Production

The discussions on mineral production compare production during the first quarter of 2023 to the same quarter of 2022, are based on **Table 2**, **Table 3** and **Table 6**. **Table 5** provides analysis of the mineral production for the quarter under review, in comparison to the preceding quarter.

Diamond production increased by 10.9 percent (690 thousand carats) from 6,299 thousand carats during the first quarter of 2022 to 6, 989 thousand carats during the period under review. Similarly, quarter-on-quarter analysis shows that production increased by 18.9 percent (1,111 thousand carats) during the first quarter of 2023 compared with 5, 878 thousand carats recorded during the fourth quarter of 2022.

Copper in Concentrates production increased by 121.5 percent (6,825 tonnes) from 5,615 tonnes during the first quarter of 2022 to 12, 440 tonnes during the period under review. The quarter-on-quarter analysis also shows that production increased by 14.0 percent (1,529 tonnes) during the first quarter of 2023 compared with 10, 911 tonnes produced during the fourth quarter of 2022.

Gold production decreased for the seventh consecutive quarter, decreasing by 42.8 percent (52 kilograms), from 122 kilograms extracted during the first quarter of 2022 to 70 kilograms during the first quarter of 2023. Similarly, the quarter-on-quarter analysis reflects a decrease of 2.0 percent (1 kilogram) from 71 kilograms during the fourth quarter of 2022 to 70 kilograms registered during the quarter under review.

Soda Ash production decreased by 11.3 percent (8,539 tonnes) from 75, 241 tonnes during the first quarter of 2022 to 66, 702 tonnes produced during the period under review. On the other hand, quarter-on-quarter analysis shows that production increased by 0.9 percent (599 tonnes) during the first quarter of 2023, from 66, 103 tonnes registered during the fourth quarter of 2022.

Salt production increased by 54.2 percent (32, 393 tonnes), from 59, 714 tonnes during the first quarter of 2022 to 92, 107 tonnes during the quarter under review. Similarly, quarter-on-quarter analysis shows that salt production recorded an increase of 25.1 percent (18, 473 tonnes) compared to 73, 634 tonnes registered during the fourth quarter of 2022.

Silver production increased by 143.0 percent (7, 404 kilograms) from 5, 178 kilograms during the first quarter of 2022 to 12, 582 kilograms during the period under review. The quarter-on-quarter analysis shows that production increased by 26.5 percent (2, 635 kilograms) during the first quarter of 2023 compared to 9, 947 kilograms produced during the fourth quarter of 2022.

Coal production increased by 17.7 percent (96, 753 tonnes), from 547, 921 tonnes during the first quarter of 2022, to 644, 674 tonnes in the current quarter. On the other hand, quarter-on-quarter comparison shows that coal production decreased by 1.0 percent (6, 537 tonnes) compared with 651, 211 tonnes during the fourth quarter of 2022.

Copper-Nickel-Cobalt Matte, recorded zero production during the period under review. The affected mines are still undergoing provisional liquidation.

Table 2: Index of Mining Production for the First Quarter of 2023 by Mineral Groups and Minerals

Base:2013=100					
Mineral	Weights (2013)	Jan-Mar 2022	Jan-Mar 2023	Year-on-Year Percentage Change	Contribution (% points) to the Percentage Change in the total Mining Production
Diamonds	82.5	108.9	120.8	10.9	10.1
Copper-Nickel-Cobalt Matte	8.6	n.a.	n.a.	n.a.	n.a.
Copper in Concentrates	5.5	79.8	176.8	121.5	5.5
Gold	1.4	40.4	23.1	(42.8)	(0.2)
Soda Ash	0.9	132.1	117.1	(11.3)	(0.1)
Salt	0.5	45.8	70.7	54.2	0.1
Silver	0.4	91.7	222.7	143.0	0.6
Coal	0.3	146.5	172.4	17.7	0.1
Total	100	96.9	112.5	16.0	16.0

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

Mineral	Diamonds	Copper-Nickel-Cobalt Matte				Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal
		Matte	Copper	Nickel	Cobalt						
Unit of measure	('000 carats)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	Kg	(tonnes)	(tonnes)	Kg	(tonnes)
Year											
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.	1 462	1,105	297,237	392,244	n.a.	2,482,313
2019	23,687	n.a.	n.a.	n.a.	n.a.	n.a.	943	264,119	383,779	n.a.	2,110,891
2020	16,868	n.a.	n.a.	n.a.	n.a.	n.a.	851	238,476	418,379	n.a.	1,923,992
2021	22,696	n.a.	n.a.	n.a.	n.a.	11,742	649	261,838	484,628	10, 383	2,021,218
2022	24,479	n.a.	n.a.	n.a.	n.a.	34, 201	427	285,215	323,303	31, 174	2,460,868
2023											
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
2024	5,870	5,193	2,447	2,715	31	6,819	291	62,090	89,417	4,136	355,096
Q1	6,364	8,148	3,964	4,134	50	8,069	224	65,846	131,405	4,998	463,235
Q2	6,321	5,732	2,880	2,810	42	9,573	255	66,818	151,481	7,648	488,335
Q3	6,103	10,709	5,337	5,299	73	7,632	188	73,775	143,008	5,506	404,889
2025	5,734	9,724	4,423	5,169	132	5,230	156	41,836	80,244	2,801	474,619
Q1	6,022	11,675	5,127	6,439	109	2,135	150	55,199	79,655	n.a.	505,016
Q2	4,207	2,204	989	1,194	21	1,031	235	71,562	138,924	n.a.	578,979
Q3	4,860	7,390	3,349	3,987	54	n.a.	212	74,772	105,472	n.a.	507,164

Table 3 Cont'd: Physical Volume of Mineral Production

Mineral		Diamonds	Copper-Nickel-Cobalt Matte				Copper in Concentrates	Gold	Soda Ash	Salt	Sliver	Coal
			Matte	Copper	Nickel	Cobalt						
Unit of measure		('000 carats)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	Kg	(tonnes)	(tonnes)	Kg	(tonnes)
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.	689	209	35,780	52,853	n.a.	575,250
	Q3	6,117	n.a.	n.a.	n.a.	n.a.	340	297	71,868	153,283	n.a.	583,719
	Q4	5,568	n.a.	n.a.	n.a.	n.a.	210	274	78,044	103,551	n.a.	566,163
2018	Q1	5,885	n.a.	n.a.	n.a.	n.a.	135	238	64,510	85,987	n.a.	597,298
	Q2	6,360	n.a.	n.a.	n.a.	n.a.	547	314	51,189	58,972	n.a.	664,448
	Q3	5,825	n.a.	n.a.	n.a.	n.a.	625	265	96,136	104,507	n.a.	667,782
	Q4	6,426	n.a.	n.a.	n.a.	n.a.	155	288	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	86,686	n.a.	622,620
	Q3	5,804	n.a.	n.a.	n.a.	n.a.	n.a.	262	76,432	86,539	n.a.	476,494
	Q4	5,973	n.a.	n.a.	n.a.	n.a.	n.a.	213	62,518	99,086	n.a.	457,141
2020	Q1	5,737	n.a.	n.a.	n.a.	n.a.	n.a.	212	64,460	114,245	n.a.	581,910
	Q2	1,925	n.a.	n.a.	n.a.	n.a.	n.a.	177	67,974	100,507	n.a.	368,907
	Q3	4,916	n.a.	n.a.	n.a.	n.a.	n.a.	241	35,883	91,261	n.a.	543,792
	Q4	4,290	n.a.	n.a.	n.a.	n.a.	n.a.	222	70,159	112,366	n.a.	429,382
2021	Q1	5,040	n.a.	n.a.	n.a.	n.a.	n.a.	174	71,638	69,275	n.a.	516,868
	Q2	5,827	n.a.	n.a.	n.a.	n.a.	n.a.	186	57,962	101,776	n.a.	485,642
	Q3	6,500	n.a.	n.a.	n.a.	n.a.	7,517	176	65,195	169,826	6,757	549,227
	Q4	5,329	n.a.	n.a.	n.a.	n.a.	4,225	113	67,043	143,751	3,626	469,481
2022	Q1	6,299	n.a.	n.a.	n.a.	n.a.	5,615	122	75,241	59,714	5,178	547,921
	Q2	5,576	n.a.	n.a.	n.a.	n.a.	8,237	150	61,647	54,124	7,542	599,474
	Q3	6,726	n.a.	n.a.	n.a.	n.a.	9,438	83	82,224	135,831	8,507	662,262
	Q4	5,878	n.a.	n.a.	n.a.	n.a.	10,911	71	66,103	73,634	9,947	651,211
2023	Q1	6,989	n.a.	n.a.	n.a.	n.a.	12,440	70	66,702	92,107	12,582	644,674

Source: Department of Mines

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

Base 2013 = 100									
	Diamonds	Copper-Nickel-Cobalt Matte	Copper in concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total Index
Weights	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
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	106.8	77.6	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
2019	102.4	n.a.	n.a.	78.1	115.9	73.6	n.a.	141.1	87.3
2020	72.9	n.a.	n.a.	70.5	104.6	80.3	n.a.	128.6	62.8
2021	98.1	n.a.	41.7	53.8	114.9	93.0	45.9	135.1	86.0
2022	105.8	n.a.	121.5	35.3	125.1	62.0	138.0	164.5	96.9
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	66.5	n.a.	166.5	85.9
Q3	100.4	n.a.	n.a.	87.0	134.1	66.4	n.a.	127.4	85.8
Q4	103.3	n.a.	n.a.	70.5	109.7	76.0	n.a.	122.3	87.8
2020 Q1	99.2	n.a.	n.a.	70.3	113.1	87.7	n.a.	155.6	84.6
Q2	33.3	n.a.	n.a.	58.7	119.3	77.1	n.a.	98.7	30.0
Q3	85.0	n.a.	n.a.	79.8	63.0	70.0	n.a.	145.4	72.5
Q4	74.2	n.a.	n.a.	73.4	123.1	86.2	n.a.	114.8	64.0

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

Base 2013 = 100									
	Diamonds	Copper-Nickel-Cobalt Matte	Copper in concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total Index
Weights	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
2021Q1	87.1	n.a.	n.a.	57.7	125.7	53.2	n.a.	138.2	74.4
Q2	100.8	n.a.	n.a.	61.8	101.7	78.1	n.a.	129.9	85.6
Q3	112.4	n.a.	106.8	58.3	114.4	130.3	119.6	146.9	101.9
Q4	92.1	n.a.	60.0	37.4	117.7	110.3	64.2	125.6	82.0
2022Q1	108.9	n.a.	79.8	40.4	132.1	45.8	91.7	146.5	96.9
Q2	96.4	n.a.	117.1	49.9	108.2	41.5	133.5	160.3	88.8
Q3	116.3	n.a.	134.1	27.5	144.3	104.2	150.6	177.1	106.6
Q4	101.6	n.a.	155.1	23.6	116.0	56.5	176.1	174.2	95.2
2023Q1	120.8	n.a.	176.8	23.1	117.1	70.7	222.7	172.4	112.5

Note: 1. 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									
	Diamonds	Copper-Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total
Year/Weights	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
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)	(22.2)	n.a.	12.3	(4.1)
Q3	(0.4)	n.a.	n.a.	(2.9)	49.2	(0.2)	n.a.	(23.5)	(0.1)
Q4	2.9	n.a.	n.a.	(18.9)	(18.2)	14.5	n.a.	(4.1)	2.3
2020 Q1	(4.0)	n.a.	n.a.	(0.3)	3.1	15.3	n.a.	27.3	(3.6)
Q2	(66.4)	n.a.	n.a.	(16.5)	5.5	(12.0)	n.a.	(36.6)	(64.6)
Q3	155.4	n.a.	n.a.	36.0	(47.2)	(9.2)	n.a.	47.4	141.9
Q4	(12.7)	n.a.	n.a.	(8.0)	95.5	23.1	n.a.	(21.0)	(11.7)
2021 Q1	17.5	n.a.	n.a.	(21.4)	2.1	(38.3)	n.a.	20.4	16.2
Q2	15.6	n.a.	n.a.	7.0	(19.1)	46.9	n.a.	(6.0)	15.0
Q3	11.6	n.a.	...	(5.5)	12.5	66.9	...	13.1	19.1
Q4	(18.0)	n.a.	(43.8)	(35.9)	2.8	(15.4)	(46.3)	(14.5)	(19.6)
2022 Q1	18.2	n.a.	32.9	8.1	12.2	(58.5)	42.8	16.7	18.2
Q2	(11.5)	n.a.	46.7	23.4	(18.1)	(9.4)	45.6	9.4	(8.4)
Q3	20.6	n.a.	14.6	(44.9)	33.4	151.0	12.8	10.5	20.0
Q4	(12.6)	n.a.	15.6	(14.1)	(19.6)	(45.8)	16.9	(1.7)	(10.7)
2023 Q1	18.9	n.a.	14.0	(2.0)	0.9	25.1	26.5	(1.0)	18.2

Note: 1. () Denote negative numbers

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

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

Base 2013 = 100									
	Diamonds	Copper Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total
Weights	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
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
2019	(3.3)	n.a.	(100.0)	(14.7)	(11.1)	(2.2)	n.a.	(15.0)	(3.9)
2020	(28.8)	n.a.	n.a.	(9.7)	(9.7)	9.0	n.a.	(8.9)	(28.1)
2021	34.6	n.a.	...	(23.7)	9.8	15.8	...	5.1	37.0
2022	7.9	n.a.	191.3	(34.3)	8.9	(33.3)	200.3	21.8	12.7
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)	5.0	11.4	(49.1)	72.2	62.3	35.9	4.0	(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	47.0	n.a.	(6.3)	(8.7)
Q3	(0.4)	n.a.	(100.0)	(1.0)	(20.5)	(17.2)	n.a.	(28.6)	(1.5)
Q4	(7.1)	n.a.	(100.0)	(26.1)	(26.8)	(30.6)	n.a.	(17.3)	(7.9)
2020 Q1	(5.7)	n.a.	n.a.	7.2	(12.8)	2.5	n.a.	4.9	(5.5)
Q2	(67.0)	n.a.	n.a.	(34.5)	32.7	15.9	n.a.	(40.7)	(65.1)
Q3	(15.3)	n.a.	n.a.	(8.3)	(53.1)	5.5	n.a.	14.1	(15.5)
Q4	(28.2)	n.a.	n.a.	4.1	12.2	13.4	n.a.	(6.1)	(27.1)

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

Base 2013 = 100									
	Diamonds	Copper Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total
Weights	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
2021 Q1	(12.1)	n.a.	n.a.	(17.9)	11.1	(39.4)	n.a.	(11.2)	(12.1)
Q2	202.7	n.a.	n.a.	5.2	(14.7)	1.3	n.a.	31.6	185.6
Q3	32.2	n.a.	...	(26.9)	81.7	86.1	...	1.0	40.6
Q4	24.2	n.a.	...	(49.1)	(4.4)	27.9	...	9.3	28.1
2022 Q1	25.0	n.a.	...	(30.0)	5.0	(13.8)	...	6.0	30.3
Q2	(4.3)	n.a.	...	(19.2)	6.4	(46.8)	...	23.4	3.7
Q3	3.5	n.a.	25.6	(52.9)	26.1	(20.0)	25.9	20.6	4.5
Q4	10.3	n.a.	158.2	(36.8)	(1.4)	(48.8)	174.3	38.7	16.1
2023 Q1	10.9	n.a.	121.5	(42.8)	(11.3)	54.2	143.0	17.7	16.0

Note: 1. () Denote negative numbers

2. 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									
	Diamonds	Copper-Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total
Weights	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
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
2019	(3.2)	0.0	(0.3)	(0.2)	(0.1)	(0.0)	0.0	(0.1)	(3.9)
2020	(27.8)	0.0	0.0	(0.1)	(0.1)	0.0	0.0	(0.0)	(28.1)
2021	33.1	0.0	3.6	(0.4)	0.1	0.1	0.3	0.0	37.0
2022	7.4	0.0	5.1	(0.3)	0.1	(0.2)	0.5	0.1	12.7
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)
Q3	(0.3)	0.0	(0.6)	(0.0)	(0.4)	(0.1)	0.0	(0.1)	(1.5)
Q4	(6.8)	0.0	(0.1)	(0.4)	(0.4)	(0.2)	0.0	(0.1)	(7.9)
2020 Q1	(5.5)	0.0	0.0	0.1	(0.2)	0.0	0.0	0.0	(5.5)
Q2	(64.8)	0.0	0.0	(0.5)	0.3	0.1	0.0	(0.2)	(65.1)
Q3	(14.8)	0.0	0.0	(0.1)	(0.7)	0.0	0.0	0.1	(15.5)
Q4	(27.3)	0.0	0.0	0.0	0.1	0.1	0.0	(0.0)	(27.1)

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

Base 2013 = 100									
	Diamonds	Copper-Nickel-Cobalt Matte	Copper in Concentrates	Gold	Soda Ash	Salt	Silver	Coal	Total
Weights	82.5	8.6	5.5	1.4	0.9	0.5	0.4	0.3	100.0
2021 Q1	(11.7)	0.0	0.0	(0.2)	0.1	(0.2)	0.0	(0.1)	(12.0)
Q2	185.7	0.0	0.0	0.1	(0.5)	0.0	0.0	0.3	185.6
Q3	31.2	0.0	8.1	(0.4)	0.6	0.4	0.7	0.0	40.6
Q4	23.1	0.0	5.1	(0.8)	(0.1)	0.2	0.4	0.0	28.1
2022 Q1	24.1	0.0	5.9	(0.3)	0.1	(0.0)	0.6	0.0	30.3
Q2	(4.2)	0.0	7.6	(0.2)	0.1	(0.2)	0.7	0.1	3.7
Q3	3.2	0.0	1.5	(0.4)	0.3	(0.1)	0.1	0.1	4.5
Q4	9.5	0.0	6.3	(0.2)	(0.0)	(0.3)	0.6	0.1	16.1
2023 Q1	10.1	0.0	5.5	(0.2)	(0.1)	0.1	0.6	0.1	16.0

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, which can also be referred to as the production index is a statistical measure of the change in the volume of production. The production index of a mineral group is the ratio between the volume of production of a mineral group in a given period and the volume of production of the same mineral group in the base period. The index form is used not only for intertemporal comparisons, but also for comparisons between countries.

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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