

Jamaica's Mining and Quarrying Sector Performance 2023

A Synopsis of mineral production, use and exploration in Jamaica in 2023

GENERAL SECTOR PERFORMANCE

Jamaica's mineral portfolio is dominated by the production of the metallic mineral, bauxite used for alumina production, and to a lesser extent, non-metallic minerals used in the Construction Sector, and some industrial applications (Table 1).

The Mining (and Quarrying) Sector contributed 1.8% to Jamaica's Gross Domestic Product (GDP) in 2023: a slight increase from the 1% in 2022, but lower than the 2.4% in 2019. The Sector is the lowest performer of the Goods Producing Sectors which was led in much greater numbers by Manufacturing, Agriculture and Construction, respectively. Despite this, the Bauxite and Alumina sub-sector still dominates in Traditional Exports, as it has done for decades, particularly over agricultural produce. The sub-sector contributed US\$551.5 Million in export earnings in 2023; 68% more than it had in 2022, and 32.3% less than 2019 when the contribution was US\$814.2 Million (PIOJ, 2021 and 2024). The Mining Sector has the potential to contribute significantly more to the Jamaican economy.

MINERAL PRODUCTION

Bauxite and Alumina: Bauxite is the only metallic mineral currently mined in Jamaica. Approximately 5.99 million tonnes (Mt) were produced in 2023, of which 34% was processed as crude bauxite, and exported from the Discovery Bay mines mostly to the USA, with a small amount (about 80 thousand tonnes; Kt) to China. The difference of bauxite was converted to 1.4 Mt of alumina at the JAMALCO and WINDALCO (Ewarton) alumina plants. The two alumina plants shipped approximately 1.35 Mt of alumina to various global destinations with JAMALCO accounting for 65% of the exports. Between the companies the alumina was exported to Russia (30%), Latvia (21%), Iceland (20%) and Netherlands (10%) mostly for use as smelter grade alumina from which aluminium metal is made. Smaller amounts were also sent to Libya, Ireland, Ghana and Georgia. Approximately 74.8 Kt of the alumina produced was exported as alumina hydrate to the USA, Panama and Netherlands for use as specialty alumina in non-metallurgical and chemical industrial purposes.

Limestone: This commodity is largely consumed in the Construction Sector where it is crushed to make hard rock aggregate (i.e., for manufactured sand and gravel) and also burnt in making Ordinary Portland Cement (OPC) and industrial lime. Limestone production amounted to 1.9 Mt in 2023; a significant decrease from previous years.

Whiting (Ground Calcium Carbonate): This specialty mineral is prepared from limestone having high purity (more than 96% calcium carbonate) and is used in paints, plastics, animal feed, food and pharmaceuticals. The production of Whiting showed a sharp increase of 245 Kt in 2023 compared to previous years. This is the highest production over the last decade. It reflects the demand locally, and the increased amounts exported to the USA where one St. Ann-based producer had significantly increased its exports within the western hemisphere (Anonymous 2024).

Marl and Fill: This low-value bulk construction material showed a significant increase in production at 595.4 Kt. The demand for this commodity is driven by the local large infrastructure projects.

Sand and Gravel (River-derived aggregates): The production of river sand and stone was 1.62 Mt tonnes in 2023, a consistent trend from previous years. Demand of this commodity is also driven by the Construction Sector. This mineral product is a renewable resource, replenished during the wet season.

Other Commodities: Silica Sand, Pozzolan, Gypsum and Shale are the other commodities in the country's mineral portfolio that were actively extracted, but in relatively small quantities. Silica Sand, used as an aggregate in thin-set manufacture (for tiling), amounted to 24 Kt, a sharp decrease from the 30 Kt produced in each of the previous years. Pozzolan production increased to 286 Kt from the less than 200 Kt generally produced in previous years. Gypsum production was consistent with previous years. Shale production was unusually low at approximately 59 Kt. Pozzolan, Gypsum and Shale are used in the manufacture of OPC where the pozzolan is an additive, gypsum

Table 1. Production of Minerals in Jamaica, 2019 - 2023 ('000 tonnes)

Commodity	2019	2020	2021	2022	2023
Bauxite	9,022.3	7,546.1	5,949.6	4,364.7	5,988.1
Alumina	2,173.0	1,620.9	1,158.5	634.1	1,400.8
Limestone	2,863.4	2,467	2,858.9	2,291.5	1,898.2
Whiting	164.2	124.5	144.9	125.1	245.1
Marl and Fill	1,664.2	1,046.9	505.2	443.7	595.4
Sand and Gravel	1,837.9	1,463.5	1,912.2	1350.4	1,616.9
Silica Sand	27.7	29.8	30.5	30.2	24.1
Shale	217.4	166.8	129.1	252.6	58.6
Pozzolan	80.3	102.3	132.5	194.1	286.3
Gypsum	55.0	65.8	65.6	84.5	70.5
Clay	0.6	0.5	0	0	0

Data compiled from the Mines and Geology Division, Jamaica Bauxite Institute and PIOJ (2021; 2024).

is a setting retardant, and shale is a main ingredient burnt with limestone to make clinker, a pre-product before cement.

INDUSTRY TRENDS 2023

The trends in mineral production reflect the prevailing economic conditions of the year. The metallic mineral commodities, specifically bauxite and alumina showed growth due to favourable world market prices for alumina and aluminium, and a reduction in the cost of the main operating inputs like fuel and energy, ore, and caustic soda which were negatively impacted in 2022 due to the Russia - Ukraine war. Locally, the JAMALCO alumina plant operated at normal levels for all of 2023. That company had restarted operations in the last six months of 2022 as it recovered from a shutdown caused by a powerhouse fire in August 2021.

Production of the industrial minerals, specifically the quarry products of limestone, sand and gravel, marl and fill, silica sand, shale, gypsum and pozzolan are largely driven by the Construction industry. This industry did not perform as well as in 2022, however, specific infrastructure projects, particularly the Southern Coastal Highway Improvement Project (SCHIP) utilized much marl and fill from the quarries for road foundations, and river-derived sand and gravel for use in concrete and road surfacing. Cement supply was generally consistent with previous years at 1.15 Mt, though local supplies were supplemented with imports of about 190 Kt. Asphalt sales dramatically increased from 16 million litres in 2022, to 25.2 million litres in 2023, and this likely drove the demand for river stone (PIOJ, 2024). Both asphalt and crushed river stone are combined for making road pavements, especially those surfaces that must meet specifications, e.g., wearing courses for highways.

MINERAL EXPLORATION

Prospecting for metals was conducted entirely by two mineral exploration companies: the Jamaican company, Geophys Jamaica Limited, and Canadian-registered, C3 Metals Inc. Geophys Jamaica Ltd explored for copper, gold and rare earth elements in its 71 exploration licence areas, spanning approximately 4,200 km² or about 40% of the land area of Jamaica. The work program entailed mostly geochemical surveys. C3 Metals Inc focused on copper and gold deposits, mostly in central Jamaica in its five exploration licence areas spanning 207 km². Among its prospects are the popular metalliferous districts of Main Ridge, Clarendon known for the first modern gold mine in Jamaica, and the porphyry copper-gold deposit at Bellas Gate, St. Catherine. In 2023 that company drilled multiple holes totalling several hundred metres at the Bellas Gate prospect and assays showed promising values for the metals (C3 Metals Inc, 2023a). Testing at Main Ridge also revealed up to 35.8 grams per tonne gold in rock, which prompted the company to seriously pursue drilling of the deposit (C3 Metals Inc, 2023b).

Government-funded mineral exploration program, implemented by the Mines and Geology Division was centred on assessing the high purity limestone deposit at Fort Charles, St. Elizabeth, and also to conclude an assessment of coloured gemstones (formerly called semi-precious stones) in central Jamaica.

Based on surface surveys at Fort Charles conducted in 2022, approximately 9 km² were defined as having soft limestone with purity in excess of 97% calcium carbonate useful for industrial applications. High purity limestone generally fetch high prices. In consideration of these favourable results, five localities were identified for sub-surface exploration (drilling) in 2024 to define the quantities available. The material, from preliminary chemical analyses, may find application in food and pharmaceuticals. This is an investment opportunity for local industrialists.

The coloured gemstones assessment program defined the economic potential of these minerals at three prospects: Hectors River (Manchester – Trelawny boundary), Pembroke Hall and Rio Nuevo (St. Mary), and the Rio Minho (Clarendon). Economic evaluation reports were prepared for each prospect, with specific guidelines for exploration to increase discovery success. In 2024, a comprehensive lapidary guide will be prepared and promoted to increase the utilization of these gemstones in authentic Jamaican craft, diversify the country's mineral portfolio, and stimulate economic benefits particularly in artisanal and small-scale mining.

PROJECTIONS FOR 2024

Growth in the Mining and Quarrying Sector is expected to continue in 2024, driven by the anticipated increase in production within the bauxite and alumina sub-sector. Contributing factors include a stronger economy in China - one of the world's largest consumer society, coupled with lower operational input costs and higher aluminium prices. Additionally, there is a rising demand for construction materials in North America and the southern Caribbean, which will stimulate increased investment to meet these needs, and further boost the industry.

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