

Last Updated: March 2024

While Mining and Quarrying is still one of the largest contributing sectors to Bahrain's economic output, the Kingdom has made concerted efforts to diversify its economy away from this sector. Bahrain targets the sector in its Economic Recovery Plan, aiming to optimize its performance and transform it through clean technologies for sustainable and accessible energy. In 2023, Bahrain inked its National Energy Strategy that aims to diversify the country's power mix and achieve a 30% reduction in emissions by 2035.



## Sector Opportunities & Trends

### 01. Sustainability and ESG targets

Environmental, social, and governance (ESG) considerations are becoming increasingly important for the mining and quarrying sector as sustainability disclosure requirements continue to increase, and community and investor pressures surge. This is pushing more action in the sector for a shift to sustainable practices, which include mitigation of environmental degradation, reduction of carbon footprint and determination of net-zero targets. Companies in the sector have an opportunity, through the adoption of sustainable practices, to enhance their reputation, attract investment and align with the government's initiatives, to reap incentives and achieve emissions reductions.

### 02. Artificial intelligence (AI)

AI can be used to analyze data collected during mining and quarrying operations to provide insights into performance and improve decision-making. For example, AI can be used to optimize drilling patterns that can lead to more efficient extraction and reduce the risk of accidents.

### 03. Emerging technologies

The mining and quarrying sector offers opportunities for growth and innovation through emerging technologies like IoT, VR and AR, and robotics. These technologies, when integrated with AI, enhance aspects such as operational efficiencies, monitoring capabilities and safety measures. Importing or developing innovative techniques for mature and unconventional fields can address the region's challenges with ageing sites. Additionally, integrating the sector with other energy sources and implementing water recycling initiatives contribute to sustainability and increased value. Embracing these opportunities drives growth and sustainability in the mining and quarrying sector.

### 04. Digital twins

A key emerging technology in the sector is digital twinning, which allows creating virtual and interactive models of real mines and equipment. These virtual simulations provide vast opportunities for optimization of operations and maintenance—including accurate operational estimates—such as for drilling and extraction work, testing of new methodologies, training, as well as automating real equipment through controlling the digital simulation.

### 05. Drones and autonomous vehicles

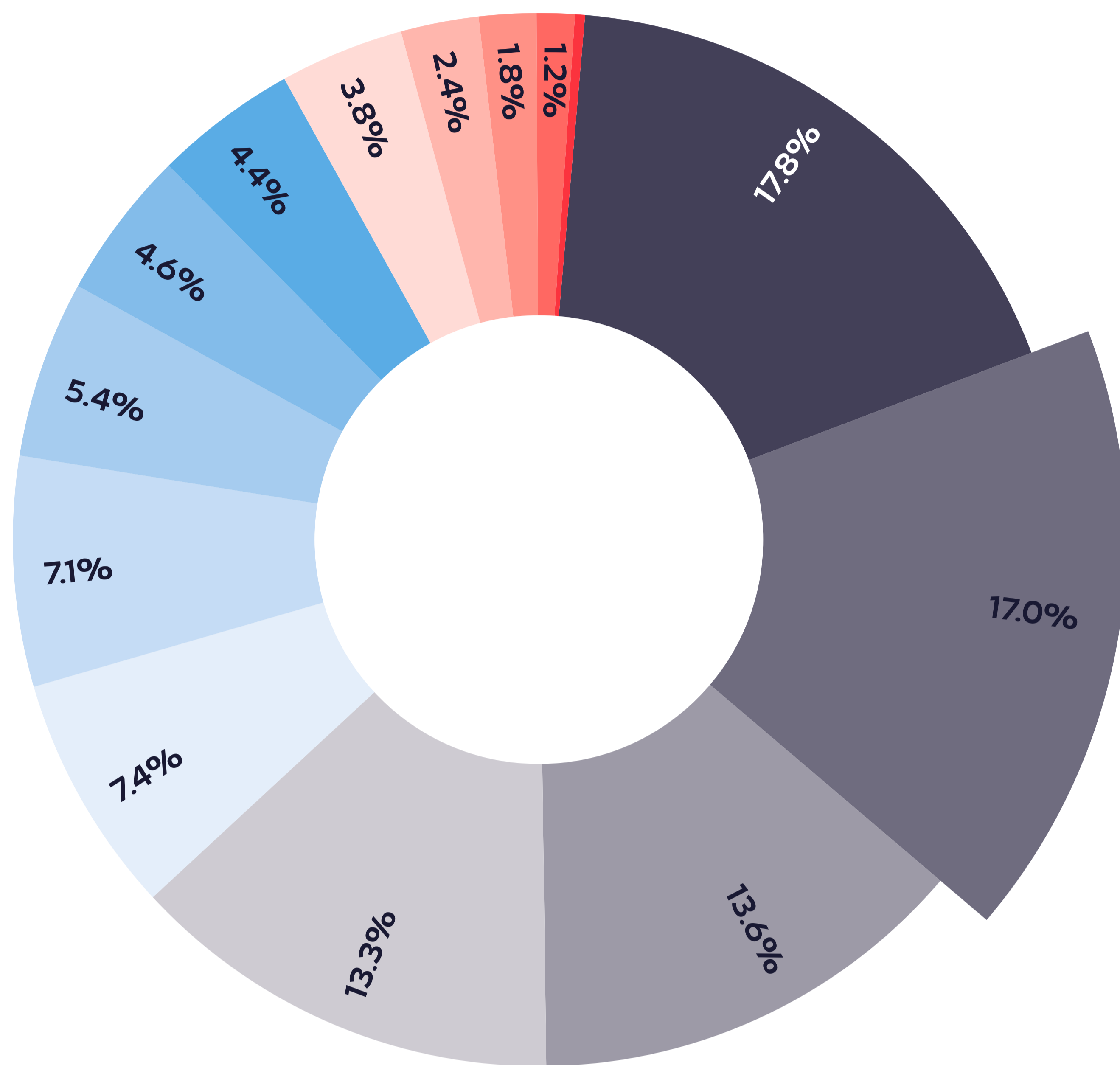
Drones can be used to collect data on mining and quarrying operations, providing real-time information on performance, safety and environmental impact. They can also be used to create 3D models of mining sites, improving planning and reducing the risk of accidents.

# Mining & Quarrying Sector Economic Indicators

## iGA-National Accounts, 2023

### Mining & Quarrying Sector Contribution to Real GDP

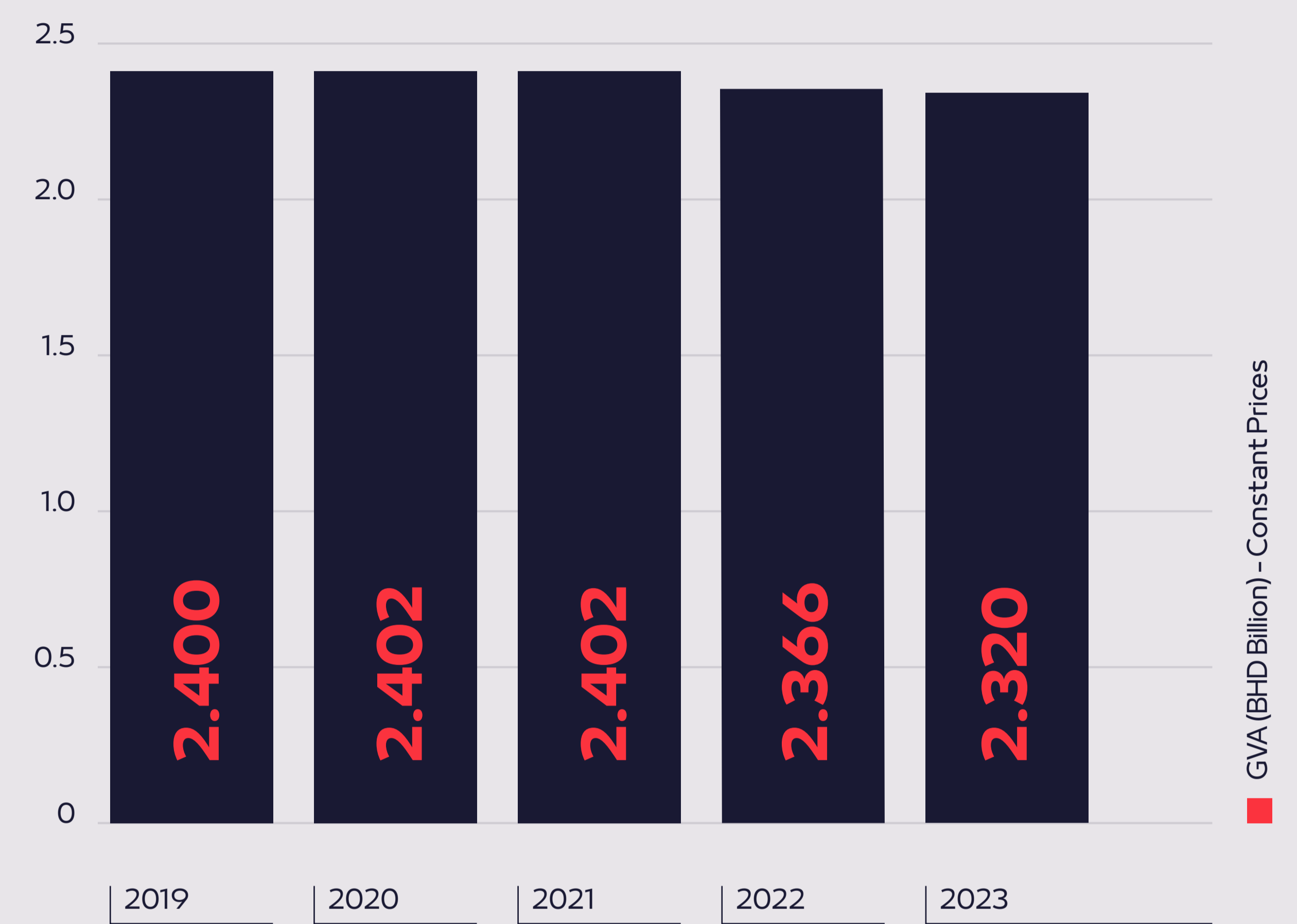
(%, 2023)



Financial & Insurance Activities	17.8%	Net Tax on Products	4.6%
Mining & Quarrying	17.0%	Trade	4.4%
Manufacturing	13.6%	Others <sup>2</sup>	3.8%
Government Services	13.3%	Private Education Services	2.4%
Transport & Communication	7.4%	Hotels & Restaurants	1.8%
Construction	7.1%	Private Health Services	1.2%
Real Estate & Business Activities	5.4%	Agriculture & Fishing	0.3%

### Mining & Quarrying Services Sector GVA<sup>1</sup>

(BHD B, 2019 - 2023)



<sup>1</sup> Gross Value added (GVA) is the measure of the value of goods and services produced in an area, industry or sector of an economy

<sup>2</sup> Others include Electricity & Water, Other Social & Personal Services, Private Non-Profit Institutions, and Households with Employed Persons.

### Mining & Quarrying Sector Enterprises

LMRA, Q2 2023 - BLMi

# 3,928

Active CRs

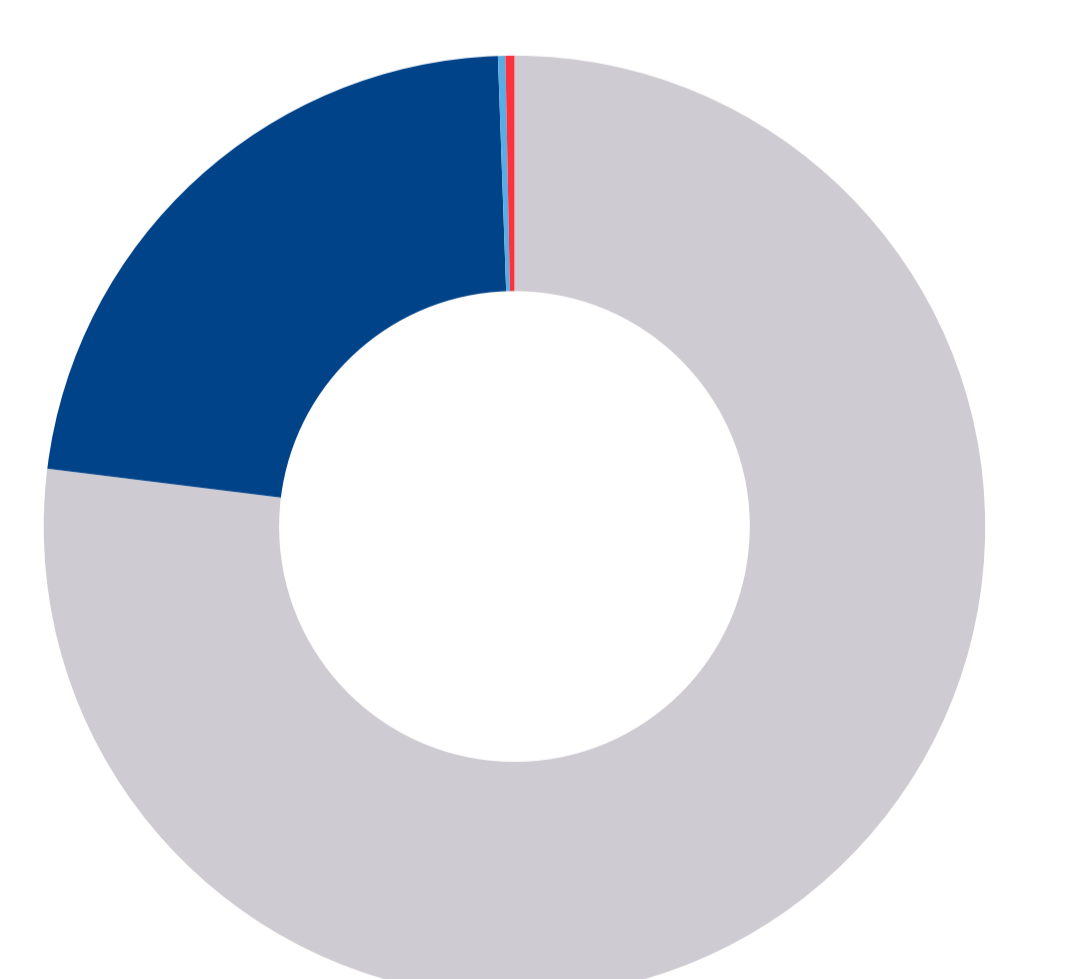
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# 5.3%

of total Active CRs in Bahrain

### Mining & Quarrying Sector by Enterprise Size

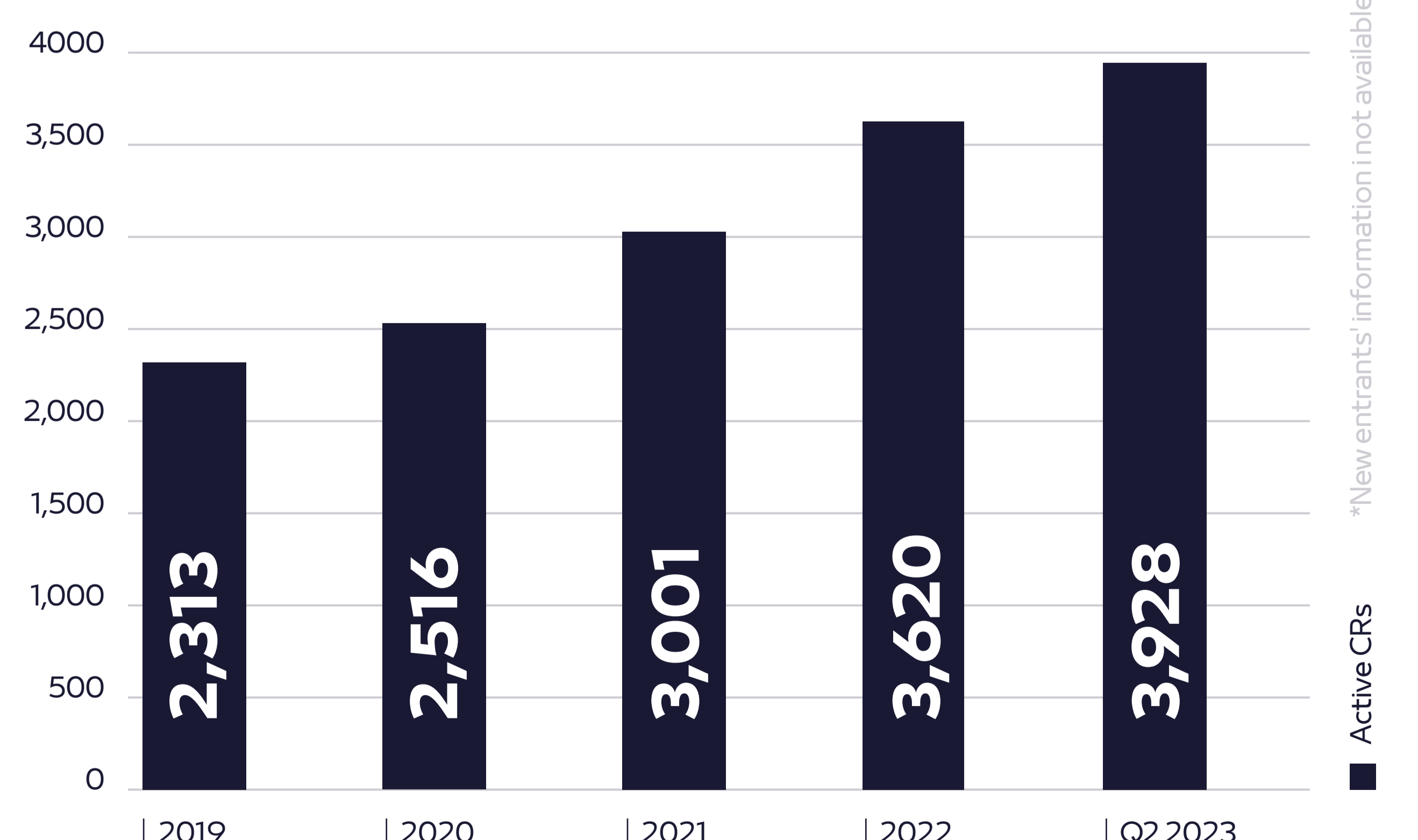
(%, Q2 2023)



Micro	3,023	(77%)
Small	883	(22.5%)
Medium	10	(0.2%)
Large	12	(0.3%)

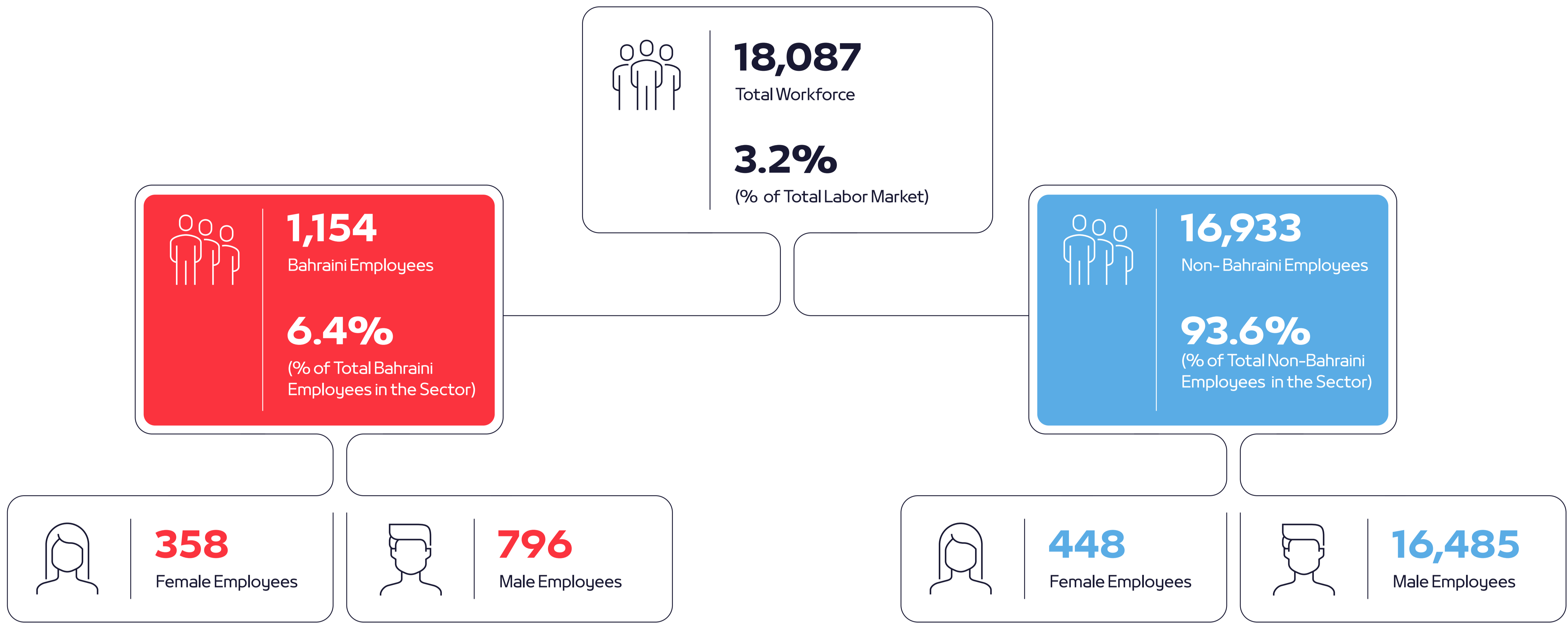
### Mining & Quarrying Sector Active Commercial Registrations

(2019 - Q2 2023)

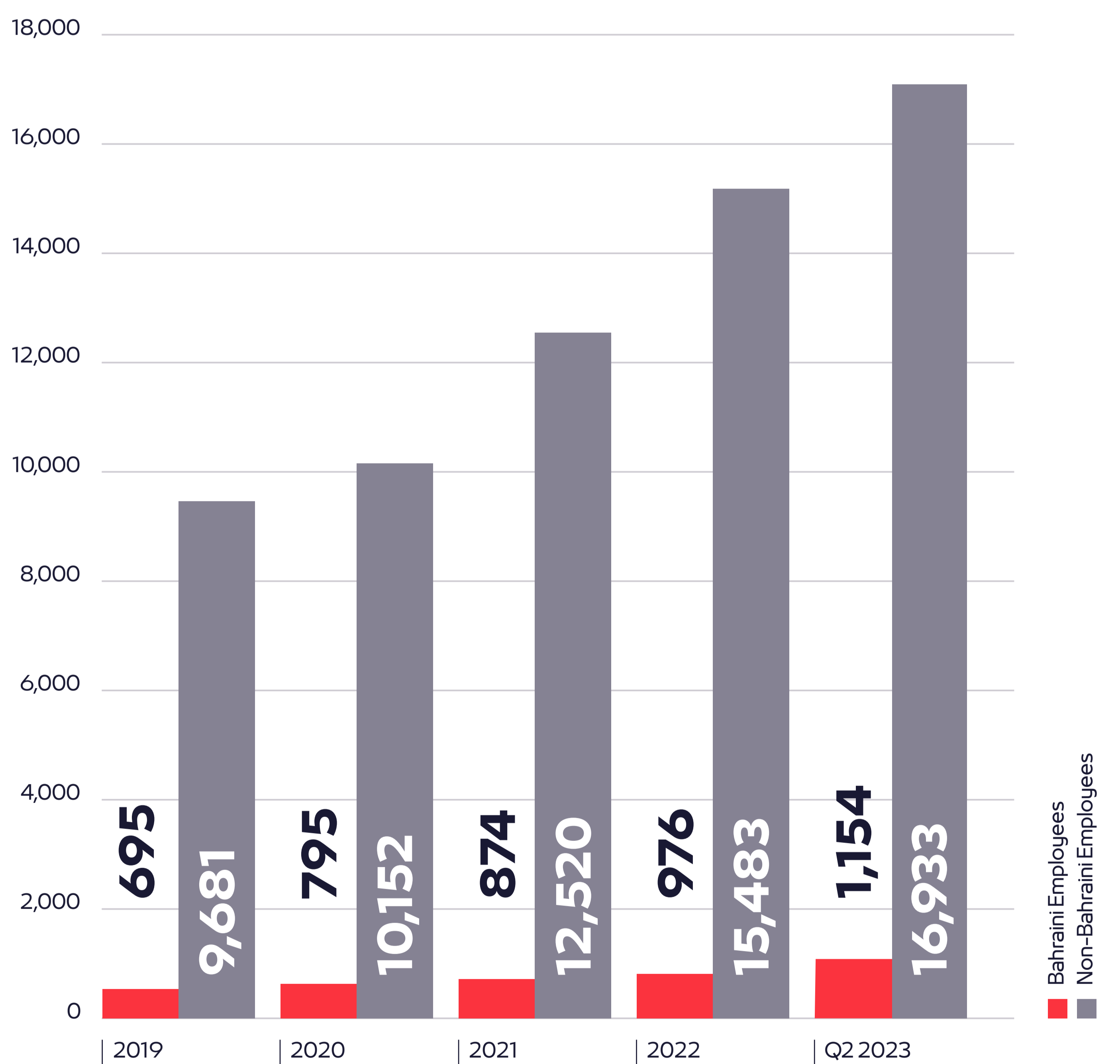


# Mining & Quarrying Sector Employment

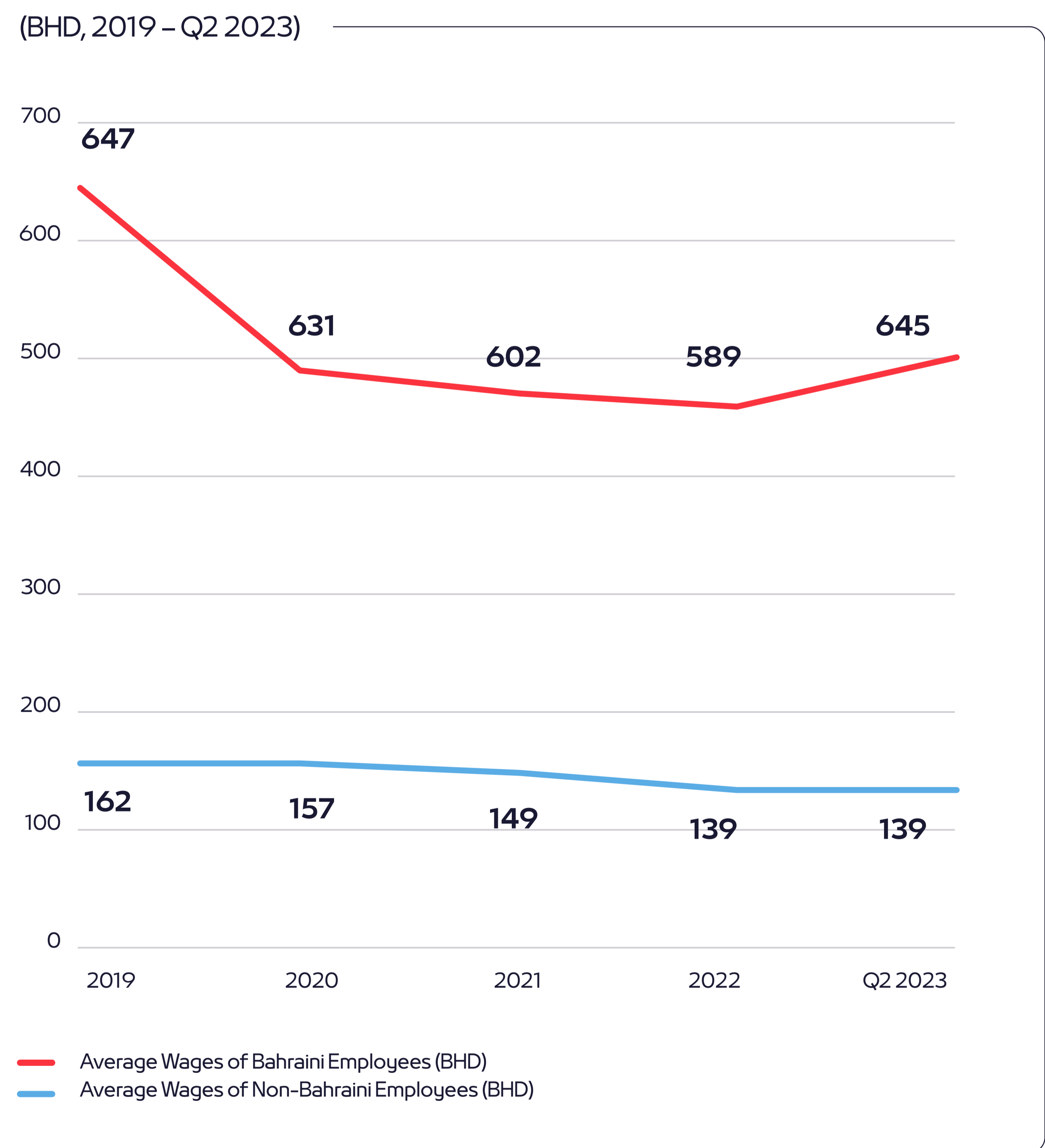
LMRA, Q2 2023 – BLMI



## Mining & Quarrying Sector Employees by Citizenship (2019 – Q2 2023)



## Mining & Quarrying Sector Average Wages by Citizenship (BHD, 2019 – Q2 2023)



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