



Ministry of Industry
& Mineral Resources

Belt Exploration Licensing

Al Hajar Site

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Mining Sector Overview

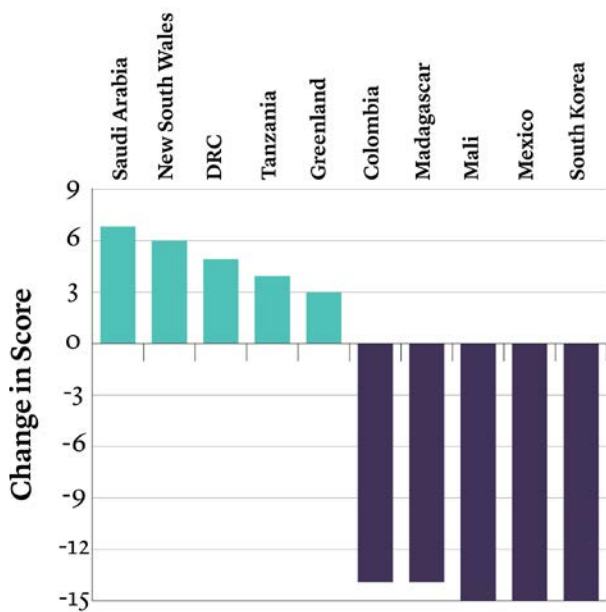
The Kingdom of Saudi Arabia (the **Kingdom**) has emerged as a prosperous hub of business opportunities, driven by the execution of its ambitious Vision 2030, a coordinated and focused strategic plan that is committed to establishing the country as a leading industrial powerhouse, driving economic growth and global competitiveness, while also seeking to diversify its dependence on oil and gas.

The mining sector is set to become the third pillar of the Kingdom's industrial economy (after oil and gas and petrochemicals), by capitalizing on the Kingdom's huge mineral resources and exponential growth in domestic demand for commodities. To support the achievement of these goals, the Ministry of Industry and Mineral Resources (the **Ministry**) has taken the lead in advancing the mining sector, with aspirations to increase global competitiveness in exploration, mineral extraction, processing and its contribution to the Kingdom's gross domestic product (**GDP**).



The latest annual assessment of mining investment risks from MineHutten and Mining Journal Intelligence recognizes Saudi Arabia for its exceptional mining investment environment.

Biggest Movers 2018-2023



*Source: World Risk Report 2023

The recently published World Risk Report 2023, which features MineHutten Risk Ratings, highlights Saudi Arabia as a standout best-performing mining jurisdiction, both regionally and globally. The Kingdom’s scores have risen sharply in terms of de-risking mining investments from 2018 to 2023 (five years) to become one of the top 10 countries with the least legal and financial risks - measuring an investor risk of losing the economic benefit of a mineral discovery, corporate taxation, and GDP growth. This follows its sweeping sector reforms designed to attract mining and mineral investment since Saudi Arabia’s mining and mineral strategy launched in 2018.



The Benefits of Investing in Saudi Arabia's Mining Sector

The full potential of Saudi Arabia's minerals sector stems from three key competitive advantages: geological endowment, local demand, and factor cost advantages. The exploration and mining sector in Saudi Arabia is bolstered by the Kingdom's provision of numerous compelling benefits, including:



Rich mineral endowment

Saudi Arabia estimates its untapped mineral resources comprising lucrative assets with over 52 identified minerals, such as precious metals, base metals, phosphate, and rare earths, valued at US\$2.5 trillion. The Kingdom's geological landscape offers two distinctive provinces rich in mineral resources. In the West lies the Nubian-Arabian Shield, renowned for extensive gold and copper mineralization. The eastern side features sedimentary rocks of various ages, providing a diverse range of mineral resources. These provinces house a plethora of minerals crucial for global industries, from precious and base metals to bauxite and uranium.



New mining regime

Significant reforms in the Kingdom have resulted in its regulatory and licensing processes aligning to global benchmarks. These reforms include a streamlined and transparent licensing and permitting process, a modernized mining code, and security of tenure-throughout all stages of exploration and development. The Exploration Licensing Rounds serve as an initiative aimed at enticing the mining sector to invest in mineral projects within Saudi Arabia. For investors seeking a more direct approach, the option to apply for licenses directly through the Ministry is available on a first-come, first-served basis, offering a streamlined licensing process. This includes the ability to issue mining licenses within 120 days and exploration licenses within 90 days.



Growth Trajectory

The Kingdom aims to drive its status as a leading G20 nation by substantially boosting the mining sector's contribution to its GDP, aligning with its ambitious Vision 2030. Standing at USD17 billion in 2015, the goal is to increase this figure to USD64 billion by 2030. Furthermore, the Kingdom projects an increase in exploration spending from approximately USD23 per km² in 2019 to around USD67 per km² by 2030. This endeavor underscores the Kingdom's strategic intent for the mining sector to rise as the third pillar of its industrial economy.



Generous and comprehensive financial support

The Kingdom provides robust support for mineral exploration through initiatives like the **Exploration Enablement Program (EEP)**, aimed at mitigating risks associated with mineral exploration in strategic and critical minerals.

Under the EEP, companies can submit applications for up to 15 exploration licenses, with the first five licenses eligible for a full grant of SAR 7.0 million (~USD 2.0 million) per license. For subsequent licenses, incentives focus on drilling activities, with a grant cap of SAR 4.0 million per license.

The Saudi Industrial Development Fund (SIDF) offers significant co-funding opportunities for mining projects, providing up to 75% of the project CAPEX at an attractive interest rate of 3%. Additionally, there are compelling incentives for midstream stakeholders and downstream processing in sectors such as green steel, aluminum smelting, and battery manufacturing.



National Geological Database (NGD)

The NGD represents a significant advancement in transparency and accessibility of geological information in Saudi Arabia. This database serves as a valuable resource for researchers, industry professionals, and policymakers worldwide, facilitating a better understanding of the Kingdom's geological landscape. The Saudi Geological Survey has cooperated with different International Geological Surveys to further enhance geological data availability. Over the course of 11 years, this partnership will focus on executing detailed geological mapping works for the Arabian Shield region, aiming to provide comprehensive insights into the geological characteristics and resources of this area.



Advanced Infrastructure

Saudi Arabia's advanced infrastructure, coupled with an ambitious pipeline of 11 mega-projects exceeding US\$1 trillion in value until 2030, underscores its commitment to leveraging domestically mined minerals. From transportation networks to new cities, these projects are poised to revolutionize various sectors of the economy while harnessing the nation's mineral resources for continuous development.



Factor Cost Advantages

Saudi Arabia offers significant cost advantages for exploration and mining, including low energy prices (oil, gas, diesel, and electricity), efficient water access despite the arid climate, and competitive labor costs with a well-educated workforce.



Talent Pool

Two-thirds of Saudi Arabia's population is under 35, representing significant future opportunities in emerging sectors, coupled with high government spending on education. This young and highly-educated population has contributed to an experienced and ever-growing talent pool. Companies like SABIC, with over 35,000 employees, Maaden, with over 6,000 employees, and AMAK, with over 500 employees, have successfully developed a robust local workforce in the Kingdom.



Competitive Investment Destination

Saudi Arabia has positioned itself as a competitive investment destination through favorable corporate tax policies and structured royalties. The corporate income tax rate is 20% competitive, and royalties on minerals produced range between 1.5% and 3.5%, depending on the commodity, with a honeymoon period for the first five years of production. The country allows for 100% foreign ownership in many sectors, giving foreigners full control over their operations and profits.

Additionally, Saudi Arabia imposes no constraints on foreign exchange transactions, allowing investors to freely convert and transfer their capital and profits. Combined with a stable and transparent regulatory framework, these factors create a financially attractive and secure environment for both startups and established ventures.

This combination of advantages positions Saudi Arabia as an attractive destination for ventures in the mining sector.

Belt Exploration Licensing Rounds Overview

As part of its proactive approach, the Ministry is extending a formal invitation to local and international exploration entities, urging stakeholders from around the world to seize the potential of Saudi Arabia’s vast mineral wealth. Stakeholders will be able to engage with the Kingdom’s mining and mineral sector through the upcoming Mineralized Belt Exploration Licensing Rounds, which involve licensing two large Mineralized Belts to successful bidders.

The belts to be offered under the Mineralized Belts Exploration Licensing Rounds are:

- **Jabal Sayid mineralized belt:** Mineralized belt hosting the largest currently known VMS deposit in Saudi Arabia, with substantial potential for additional discoveries.
- **Al Hajar gold-site:** A gold-rich site in a prospective geological setting.

Belt	Commodity	Area under Licensing	Region
Jabal Sayid	Cu, Au	2,892 km ²	Jiddah Terrane
Al Hajar	Au, Cu	1,896 km ²	Asir Terrane

These Exploration Licensing Rounds facilitate and expedite the presence and involvement of local and foreign exploration and mining entities in the Kingdom. This partnership opportunity aligns with the Kingdom’s aspiration to fully unlock the value of its mineral resources.

Following the pre-qualification round, the Ministry will issue Information Memorandums for both the belts. This will also be the beginning of Proposal Stage for these Belt Exploration License Rounds.

Timelines

Target Date	Process Stage
June 10 to October 15, 2024	Pre-qualification Round
October 31, 2024	Publication of Information Memorandums and Invitation to Proposal Stage
December 22, 2024	Proposal Submission Deadline
January 9, 2025	Announcement of Results

Scoring Criteria

The Scoring criteria for the proposal stage will emphasize the following:

Scoring Criteria	Description	Weightage
Work Program and Exploration Spend	Thoroughness and ambition of the proposed Work Program, focusing on detailed plans for the first two years and strategic outlines for years 35. Key factors include exploration spend commitments, ambitious area coverage targets, and progressive relinquishment plans.	65%
Demonstrated Expertise and Track Record in Large-Scale/Regional Exploration	Bidder's track record of exploration success, particularly within VMS and/or orogenic gold belts, including large-scale discoveries, regional targeting strategies, and the ability to manage multidisciplinary programs across extensive areas.	15%
Innovation	Bidder's use of innovative solutions and technologies in mineral exploration. Emphasis will be on data-driven targeting, advanced geophysics/geochemistry, and the scalability of these technologies to vast VMS and/or orogenic gold belts.	10%
Social Impact Management Plan	Bidder's ability to successfully implement social development in and around the Site, including proposed local community expenditure and initiatives to benefit the surrounding communities.	10%

This comprehensive and transparent licensing process ensures that the most qualified and committed entities are selected to develop the Kingdom's significant mineral resources.

Join us on this exciting journey to explore and develop Saudi Arabia's rich mineral resources. By participating in the Mineralized Belt Exploration Licensing Rounds, you can contribute to the Kingdom's ambitious vision for a diversified and sustainable economic future.

Al Hajar Site Overview

The Al Hajar Site, located within the Wadi Shwas VMS Belt in Saudi Arabia's Asir Terrane, is a highly prospective region for gold and base metal exploration. This mineral-rich belt is characterized by its unique geology, historical mining activity, and promising exploration targets.

Key Information

- **Size:** Approximately 3,893 km² (Wadi Shwas VMS belt), Al Hajar Site – 1,896 km² (Two license areas - North and South).
- **Location:** Asir Terrane, Saudi Arabia - The Wadi Shwas VMS belt.
- **Primary Commodities:** Gold (Au), Copper (Cu), Zinc (Zn).
- **Deposit Type:** Volcanogenic Massive Sulfide (VMS).
- **Exploration Status:** Historical drilling, including the inactive Al Hajar mine, which previously produced approximately 40,000 ounces of gold annually.
- **Infrastructure:** The site has good infrastructure with access to the main road and is approximately 480 km from the Jeddah seaport.

Geological Highlights

- **Host Rocks:** Primarily hosted within the Khutnah Formation sedimentary rocks and the Quirshah Formation mafic to intermediate volcanic and volcanoclastic rocks.
- **Mineralization:** Gold-bearing massive sulfide mineralization, often associated with copper and zinc, hosted in an orogenic gold formation.

Exploration and Key Mineral Occurrences

- **Al Hajar Deposit:** The most advanced and prospective prospect in the belt, with historical estimates of gold-enriched gossan and underlying copper-zinc sulfide resources.
- **Al Qadmah Deposit:** A high-priority VMS target with historical resource estimates for gold and base metals.
- **Additional Prospects:** Numerous other occurrences within the belt offer further exploration potential.

Exploration Potential

- **Proven Mineralization:** The presence of known VMS deposits with historical resource estimates demonstrates the belt's potential for economic mineralization.
- **Greenfield/brownfield areas:** Significant portions of the belt remain under-explored, offering opportunities for new discoveries.
- **PFS/FS:** Prepared by BRGM in 1989.

Terrane	Asir Terrane
Site size	1896 KM2
Number of sites available for competition	2
Primary commodity	Gold
Secondary commodity	Copper, Zinc
Closest mine	Al-Hajar
Geological data	44 MODS
Nearest seaport/airport	480km Jeddah, 470km Jazan
Exploration	1965 - 1989 USGS, DGMR, BRGM

Key Enablement Programs for Mining Success

Exploration Enablement Program (EEP)



In April this year, the Ministry launched a game-changing initiative—the 685 million SAR (equivalent to US\$182 million) Exploration Enablement Program (EEP). This innovative program is specifically tailored for companies holding an active exploration license in the Kingdom in the first 5 years duration of the life of the license (New license), focusing its efforts on greenfield exploration sites.

The primary objective of the EEP is to entice mineral exploration companies to engage in strategic and critical mineral exploration activities within Saudi Arabia. Stimulate and de-risk mineral exploration investment. Enhance detailed innovative data acquisition with world class standards. Identify new areas of high mineral potential on green field areas, which can be prioritized for further exploration and development. Targeting companies with a shorter exploration license duration ensures a concentrated effort on greenfield exploration. Support the development of local talent in the field of exploration in the Kingdom.

The program, allocates an impressive US\$2 million per license capped with 15 applications (licenses) for each company. Designed to span from 2024 to 2030, this initiative is more than just financial backing; it's a strategic partnership aimed at fostering knowledge exchange and mutual growth. The program seeks to deepen geological understanding, ultimately expediting new discoveries within Saudi Arabia. The EEP emerges as a pivotal step towards advancing the mineral exploration landscape in Saudi Arabia.

Enablers Under the Program

Under the wings of the EEP, the Ministry is committed to providing comprehensive support by covering specific costs incurred by mineral exploration companies. Here's a breakdown of the financial assistance offered:

➤ **Drilling, Lab Testing, and Geoscientific Studies Costs**

The Ministry will contribute up to 25 percent of the total expenses related to drilling, laboratory testing, and geoscientific studies. This injection of funds aims to significantly alleviate the financial burden associated with these critical exploration activities.

➤ **Salary Costs for Employees Residing in the Kingdom**

The EEP extends its support to cover up to 15 percent of the salary costs for employees residing in the Kingdom. This facet of the program acknowledges and addresses the workforce-related financial aspects, enhancing the overall feasibility of companies engaged in mineral exploration.

➤ **Local Salary Costs**

To further facilitate companies during their initial years, the program will cover 70 percent of local salary costs in the first two years of exploration. Subsequently, after the initial two years, the Ministry will take charge of the entirety of local salary costs, providing sustained financial relief as companies continue their exploration endeavors within the Kingdom.

Cost Items	Threshold, %	Cap, SAR
Drilling, Lab Testing and Geoscientific Studies	Up-to-25% of total drilling, lab testing and geoscientific studies costs	4 million (max 15 applications per company)
Talent / Labor	Up-to-15% of salary costs of employees' resident in KSA	1.5 million (max 5 applications per company)
Talent / Labor: Additional cash incentive to cover local salary costs beyond HRDF coverage	(70% of total local salary costs in the first 2 years) (100% of total local salary costs post 2 years)	1.5 million (max 5 applications per company)
Total	20-25% of total costs	7.0 million

* Source: Ministry of Industry and Mineral Resources

These financial provisions underscore the Ministry's commitment to fostering a conducive environment for mineral exploration, ensuring that companies can focus on advancing their projects with reduced financial barriers and enhanced sustainability.

Note: Acquiring a license through the Auction Round does not automatically qualify the holder for the Exploration Enablement Program.

Eligibility for the EEP is determined through a separate and independent application process.

For concerns and inquiries, email:

ExplorationIncentive@mim.gov.sa



THE GEOLOGY OF THE KINGDOM OF SAUDI ARABIA

The geology of the Kingdom of Saudi Arabia (KSA) can be broadly classified into two provinces. The western side of KSA is dominated by the Arabian Shield, comprising predominantly crystalline igneous and metamorphic rocks of Pre-Cambrian age. The eastern side of the country is predominantly comprised of sedimentary rocks from the Palaeozoic and Mesozoic age. These sedimentary rocks overlie a basal igneous and metamorphic complex, which is the eastern, underlying extension of the Arabian Shield.

The Arabian Shield is the eastern part of the more extensive Arabian-Nubian Shield (ANS). The ANS consists of the Arabian Shield and the Nubian Shield in northeastern Africa, which are separated by the Red Sea. The Red Sea occupies a continental-scale rift system, where seafloor spreading commenced geologically recently, an estimated 13 million years ago (Figure 1).

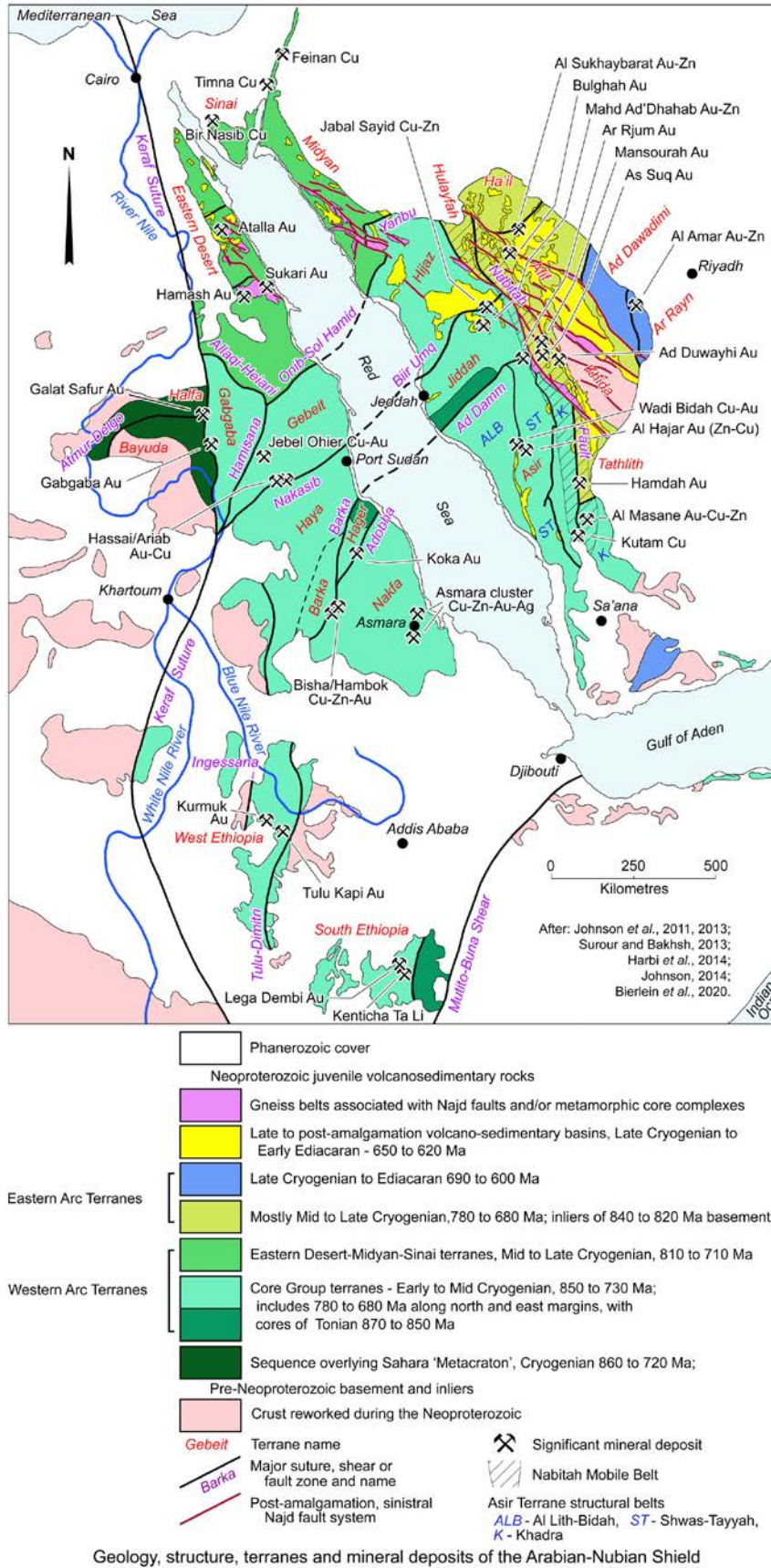


Figure 1 Significant mineral deposits of the Arabian-Nubian Shield

Source: Porter Geodatabase : [https://portergeo.com.au/database/display.asp:Arabian Nubian Shield Overview](https://portergeo.com.au/database/display.asp:Arabian+Nubian+Shield+Overview)

Both the Arabian Shield and the Nubian Shield consist of multiple terranes which have differing geological and structural characteristics but which were amalgamated by plate tectonics during the Neoproterozoic Era, 1 billion to ~540 Ma (ibid).

The Arabian Shield comprises predominantly deformed meta-volcanic and meta-sedimentary rocks that have been intruded by Neoproterozoic oceanic arc igneous rocks. Subsequently, large volumes of post-orogenic granitic intrusions and unconformable volcano-sedimentary successions have resulted in a relatively complex regional geological framework. Rare pre-Neoproterozoic enclaves crop out in the southwest part of the Arabian Peninsula. The Shield formed through the amalgamation of island arc terranes and multiple oceanic sutures cross-cut the region and has acted as a focus for subsequent deformation.

The Arabian Shield is sub-divided into eleven terranes (Midyan, Hijaz, Hulayfah, Ha'il, Afif, Jiddah, Ad Dawadimi, Ar Rayn, Asir, Tathlith, and the pre-Neoproterozoic Khida terrane)³ separated by major regional faults and shear zones which play an important role in mineral emplacement in the region. These terranes are formed by global tectonic events and various accretions of oceanic crust and continental micro-plates.

The gold and base metal deposits of the Arabian-Nubian Shield, many of which are globally significant, are dated during the Cryogenian Period (850 to ~630 Ma) of the Neoproterozoic (Figure 2). To reiterate, the host terranes are composed of Late Tonian to Cryogenian intra-oceanic magmatic arcs, unconformably overlain by late to post-tectonic marine and terrestrial basins, all intruded by large volumes of granitoid batholiths.

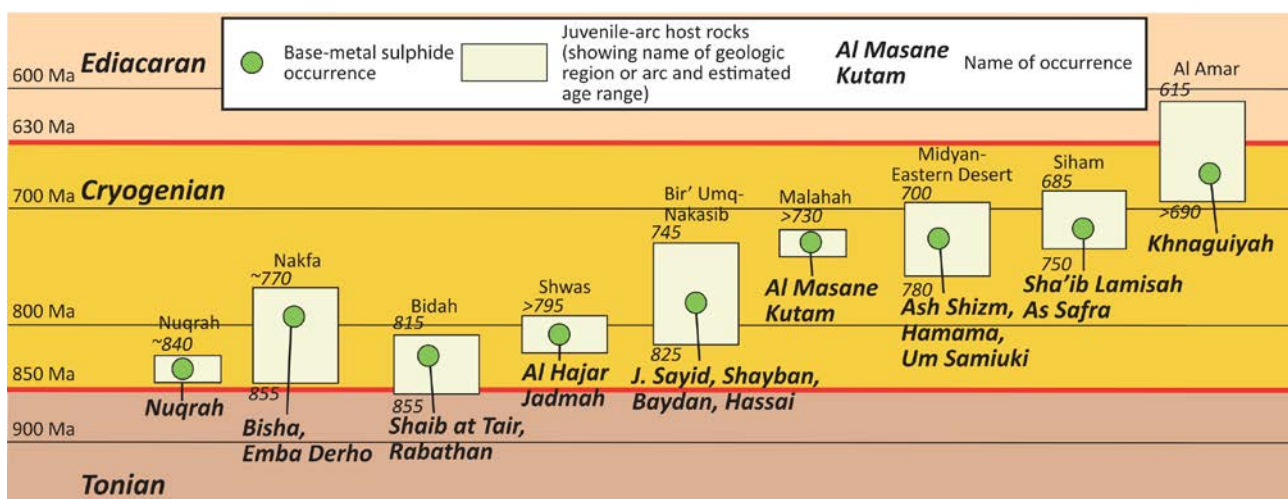


Figure 2 Time spread of mineral deposits of the Arabian-Nubian Shield

Source: Volesky, J.C., Leybourne, M.I., Stern, R.J., Peter, J.M., Layton-Matthews, D., Rice, S. and Johnson, P.R., 2017: Metavolcanic host rocks, mineralization, and gossans of the Shaib al Tair and Rabathan volcanogenic massive sulphide deposits of the Wadi Bidah Mineral District, Saudi Arabia, *International Geology Review*, 2017 Vol. 59, No. 16, 1975-2002

This complex geological setting is highly prospective for a wide range of metallic deposit types, representative of different parts of the supercontinent cycle, examples of which are found in the project areas. This range includes:

- VHMS/VMS (volcanic-hosted or volcanogenic massive sulphide) deposits, such as Mahd Ad'Dhahab in Saudi Arabia which produced 31,227 oz gold in 2018, and the world-class Bisha Cu-Zn Mine in Eritrea (Total Resource of 68.7 million tons containing 1.49 MOz gold, 71.2 MOz silver, 696.7 kt copper and 3.071 Mt of lead plus zinc),
- Intrusion-related gold systems (IRGS) such as the Ad Duwayhi gold deposit in Saudi Arabia (which in 2018 produced 274,519 oz of gold) and the Sukari gold mine in Egypt (which produced 472,418 oz of gold in 2018),
- Cogenetic VHMS - epithermal gold deposits like the Al Amar prospect in Saudi Arabia (Total Reserves in 2019 of 2.77 million tons at 3.26 g/t gold and 3.96% zinc)
- Orogenic gold deposits like the As Suq gold mine in Saudi Arabia (Total Reserves in 2019 of 5.7 million tons at 1.59 g/t gold).

2Stern, R.J. and Johnson, P. (2010) Continental Lithosphere of the Arabian Plate: A Geologic, Petrologic, and Geophysical Synthesis. Earth-Science Reviews, 101, 2967-

3Johnson, P.R., Zoheir, B.A., Ghebreab, W., Stern, R.J., Barrie, C.T. and Hamer, R.D., 2017 - Gold-bearing volcanogenic massive sulfides and orogenic-gold deposits in the Nubian Shield: in S. Afr. J. Geol. v.120

4Porter Geodatabase : <https://portergeo.com.au/database/display.asp>: Arabian Nubian Shield Overview



Infrastructure Network of Saudi Arabia

Infrastructure

Saudi Arabia has historically invested considerable effort in developing a robust transportation network and continues to invest in mega transportation projects. In 2019, the World Economic Forum ranked Saudi Arabia first in road connectivity and 21st in liner shipping connectivity.

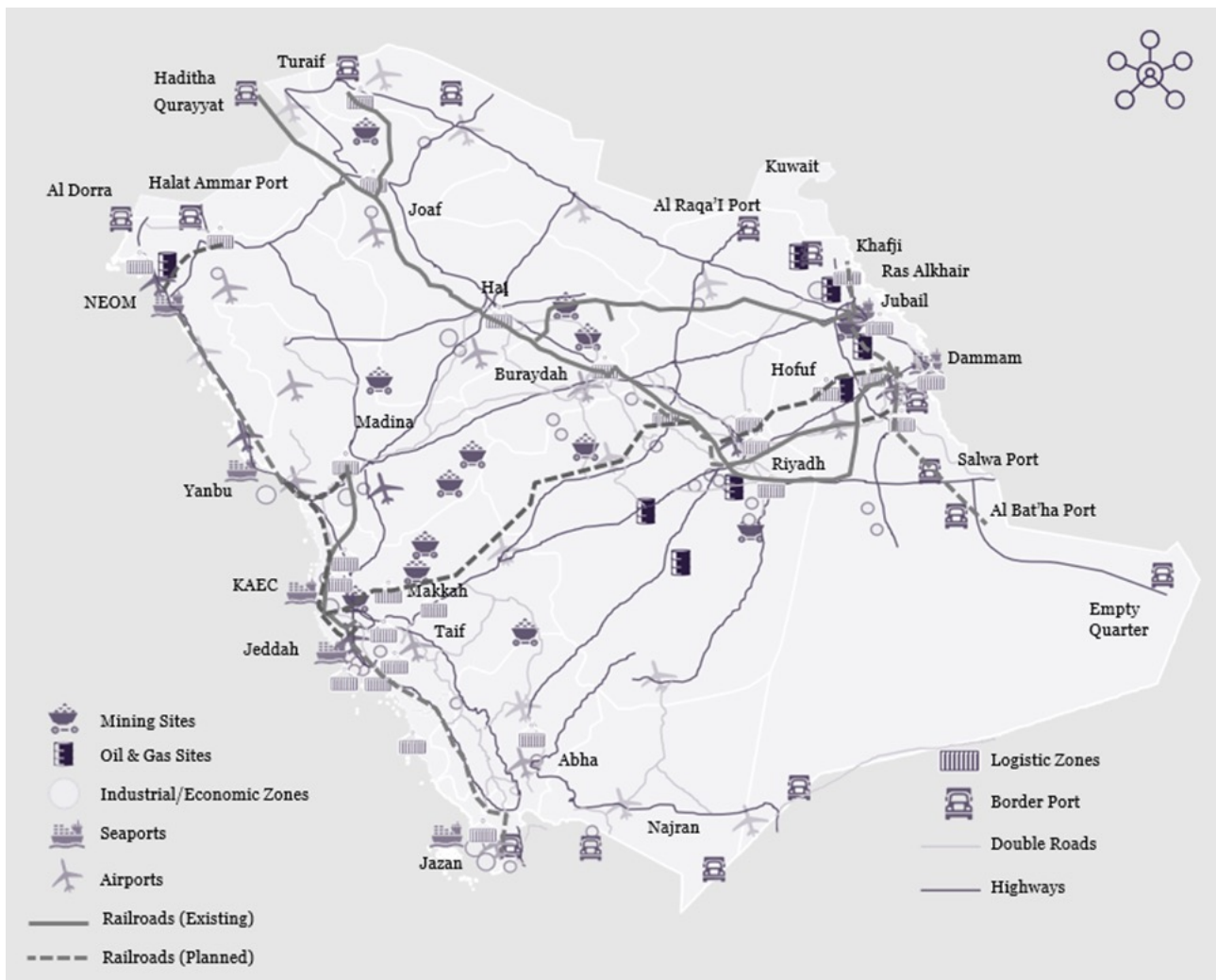


Figure 3 Infrastructure Network of Saudi Arabia

Source: Ministry of Industry and Mineral Resources

Highlights	
Roads	Railroads
73,000 km total length of roads in KSA	2.5 million passengers
4,900 km of highways	10.4 millions tons of minerals (North-South)
14,189 km of double roads	+350k containers (Riyadh-Dammam)
54,180 km of single roads	
Seaports	Airports
10 Seaports (for Non-oil trade)	29 Airports
9 million containers	13 international airports
+280 millions tons of goods	16 domestic airports
	103.3 million passengers
	0.8 million tons of cargo

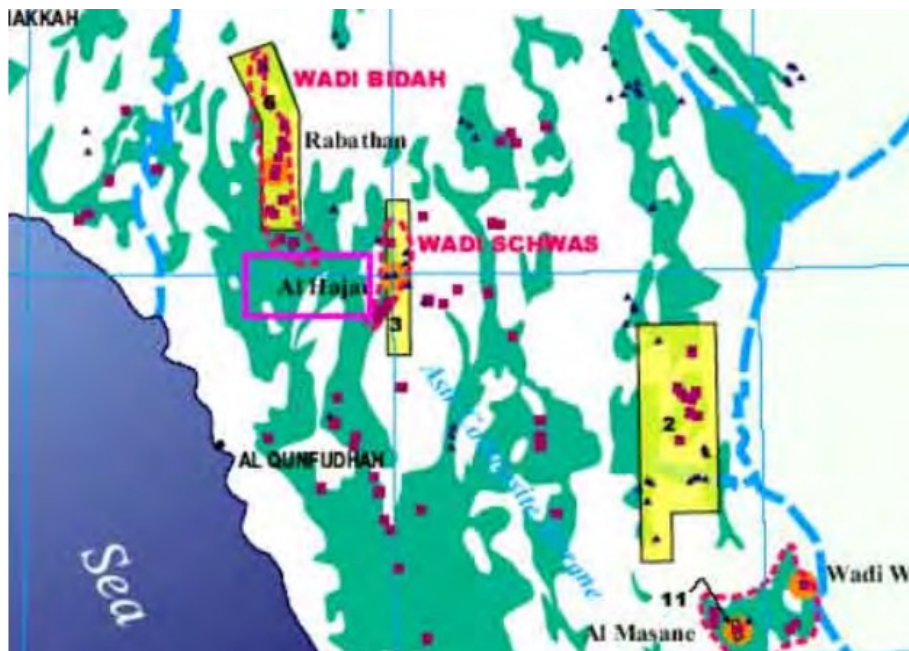
Table 4 Saudi Arabia Infrastructure



Success Stories: Proven Track Record

Al Hajar gold mine is situated in Asir Province of KSA, located in the South of Riyadh.

The mining operation including exploration, development and production was started in 1979s leading to the establishment of Heap Leach mining operation in 2001 along with the limited ore reserve base. Commissioned in 2001, Al Hajar with a rated capacity of 750ktpa continued mining and processing operations until depletion of the open-pit Ore Reserves in 2006. In 2006, Ma'aden completed a technical study investigating the potential for re-crushing material stacked and leached up until Oct 2005.



Al-Hajar deposit occupies two adjacent hills, and is amenable to surface mining. Al Hajar is a volcanic hosted massive sulphide deposits hosted in a sequence of Neoproterozoic rhyolitic lavas, breccias and tuffs. Gold and silver are retrieved from supergene oxide ore (gossan). Gold recovery was up to 80%, while silver recovery is at 30% as most of the silver is contained within jarosite which is not amenable to leaching.

As of 2001, the gold ore reserves of Al Hajar were 4.23 Mt @ 2.91 g/t Au, 25 g/t Ag (about 12t of contained gold).

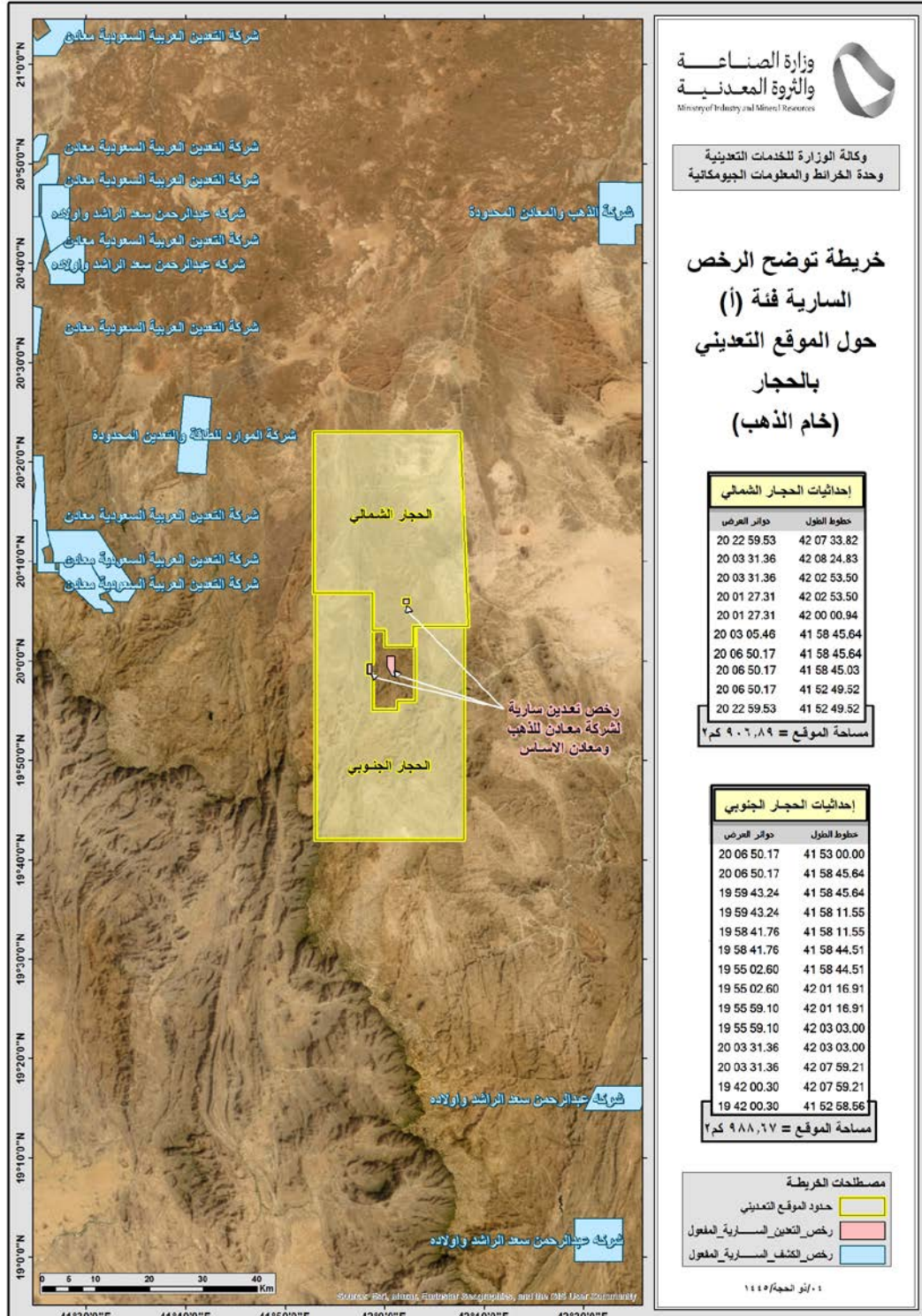
Water source for Al Hajar came from ground water renewable wells.

Historical work

1979	First schematic geological map
1989	Pre-Feasability report by BRGM
1994	An extensive sampling and drilling programme undertaken in the area
December 1995	SRK Consulting Ltd completes a final feasibility study for Al Hajar deposit
1996	A mine application is submitted to establish an open pit heap leach operation
1998	Mining license awarded covering an area of 6km ² over two blocks: Al Hajar and Jadmah
2001	Al Hajar open pit mine commissioned
2006	Mining ceased at Al Hajar
2006	The mine begins a programme of re-processing gold from leach tailings
2006	Sourcing ore from the neighboring Jadmah and Sherss deposits
2012	All mining activity at Al Hajar ceased

Al Hajar Gold Site

Site location and map



The Al Hajar site is located within the Wadi Shwas VMS Belt, which occupies an area of about 3,893 km² in the Asir Terrane. The Al Hajar site is divided into two distinct license areas:

- **Al Hajar North:** 906.89 km²
- **Al Hajar South:** 988.67 km²

The above maps illustrate the precise boundaries and coordinates of these two license areas.

Highlights

The Wadi Shwas VMS Belt occupies an area of about 3,893 km² in the Asir Terrane, and it is located east of and mostly parallel to the adjacent Wadi Bidah Belt. The belt is underlain by Khutnah Formation sedimentary rocks and Quirshah Formation mafic to intermediate volcanic and volcanoclastic rocks that have been metamorphosed to the greenschist facies. The Quirshah Formation hosts most of the known VMS deposits.

The Wadi Shwas belt contains two main VMS deposits, Al Hajar and Jadmah, the second of which is currently known as Al Qadmah. Both are associated with a large number of lesser prospects (Table 1). Al Hajar is significant for its large amount of gold.

Table 1
Summary of Occurrences in the Wadi Shwas VMS Belt

MODS	Name New	Name Old	Main Commodity	Longitude	Latitude	Nearest Town	Potential Ranking	Geometry
1106	Shaib Al Qurahah	Abu Sydra	Ag	41.9656110	20.3048610	Al 'Aqiq	Low	undetermined
0645	Wadi Kutaynah	Iktinah	Cu	41.9650560	20.2300560	Bishah	Medium	dd, sm / ms
0641	Wadi Shirs	Shmaytah	Cu	42.0055560	20.1861110	Bishah	Low	dd, v
1262	Yisrah	Ysrah	G	41.9902780	20.0094440	Balqarn	Undefined	undetermined
0639	Al Qadmah	Jadmah	Cu	41.9754720	19.9888890	Balqarn	Very high	sm / ms, lenses, stringers
0649	Al Hajar	Al Hajar	Cu-Au	42.0136110	19.9810560	Balqarn	Very high	dd, sm / ms, stockwork v
0644	Wadi Al Khanaq	Al Wakaban	Cu	41.9833330	19.9166670	Balqarn	Very low	dd
1263	Wadi Siqam-NE	Al Hashiyah	G	41.9930560	19.8725000	Balqarn	Very low	veins
0647	Abu Hadid-E	Siqam As Sawan	Cu	41.9833330	19.8666670	Balqarn	Medium	dd, stratiform
0648	Abu Hadid-E	Shabat As Suqah	Cu	41.9833330	19.8500000	Balqarn	Medium	dd, stratiform
0646	Abu Hadid	Abu Hadid	Cu	41.9833330	19.8333330	Balqarn	Medium	dd, stratiform
1102	Wadi Rimah	Al Mahtriq	Cu	41.9638890	19.8222220	Balqarn	Medium	dd, stratiform
No Index	?	*Iktinah 13	Gossan	uncertain		----	----	----
No Index	?	*Gossan GO 14	Gossan	uncertain		----	----	----

NOTES: 1) *ranking according to MODS 2) v=veins, dd = disseminated; sm = sub-massive; ms = massive
*classified as VMS based on limited descriptions - no resource estimates available

Location

The Wadi Shwas VMS belt lies east of and mainly parallel to the adjacent Wadi Bidah Mineral Belt, which occupies an area of about 3893 sq. km in the Asir Terrane (Figure 1).

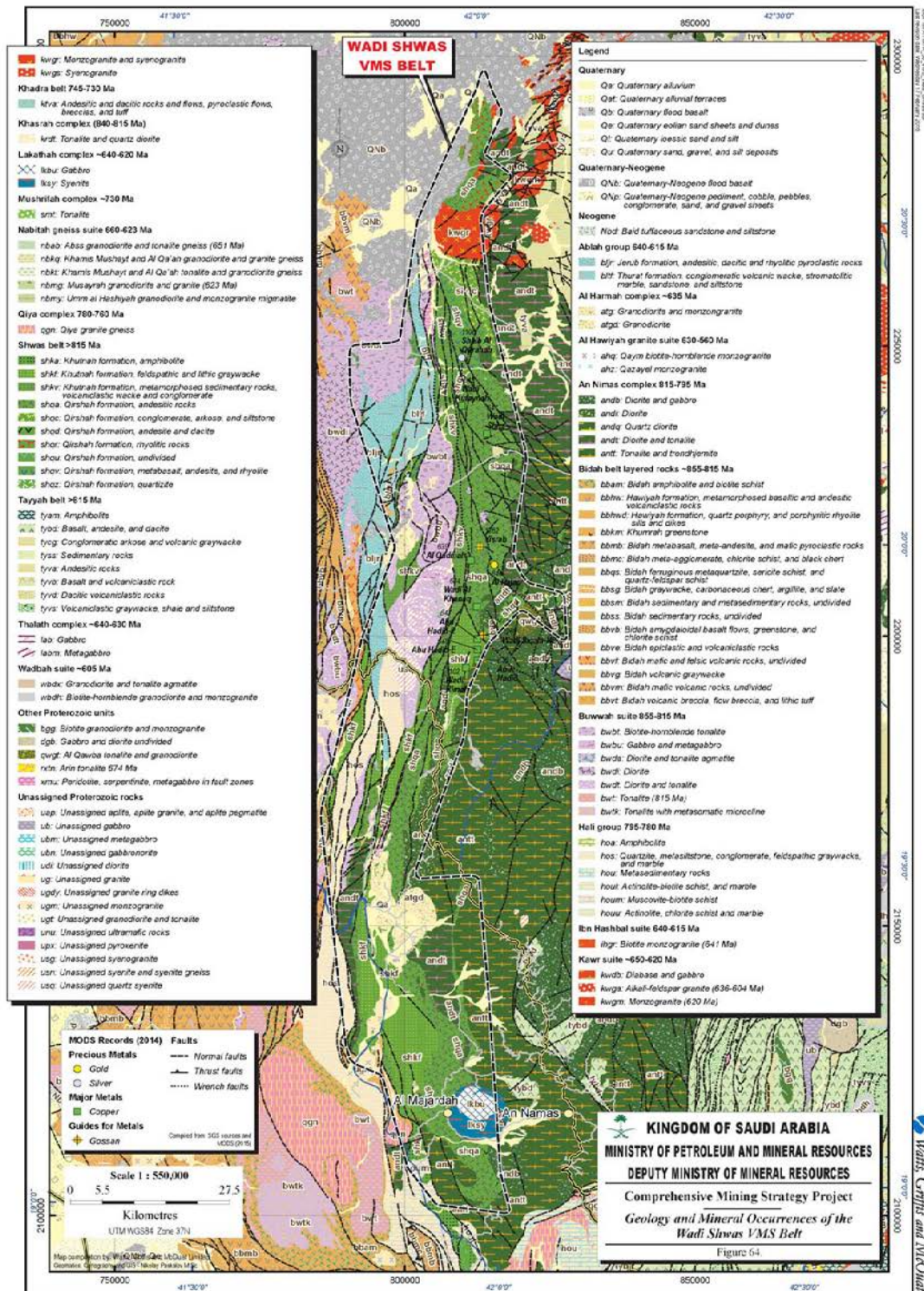


Figure 1: Geology and Mineral Occurrences of the Wadi Shwas VMS Belt

Previous Exploration

It is possible that the first visit to the ancient workings at Al Hajar occurred in 1965 by the USGS when an attempt was made to find the sources of airborne EM conductors on the ground (Trent, 1965). In 1973, the first systematic exploration by the DGMR consisted of a 20 m x 40 m SP survey and a small amount of Turam (EM) surveying. A long SP anomaly was found to be coincident with the gossans. IP and/or more Turam-EM were recommended before drill-testing the conductors (Gazzaz, 1974).

The Japanese Geological Mission (“JGM”) carried out 1:2,000-scale geological mapping using aerial photographs for control purposes. The gossans were extensively sampled, and three diamond drill holes totaling 562 m were completed. The logs and sections of drill holes HAJ-1 to HAJ-3 are missing from the Fujii and others (1978) report. The log of HAJ 3, revised sections of all drill holes, and selected analytical data are reproduced in Cheeseman and Poloni (1980).

The work by the JGM defined several types of gossan, including an opaline variety, in four zones. Fifty-three samples contained between 0.01% and 1.33% Cu, nil to 1.25% Pb, and 0.01% to 0.27% Zn. The JGM reported that 19 samples contained between 0.12 to 7.70 ppm Au and 0.8 to 19.5 ppm Ag, the first report of gold at the site. Drill hole HAJ-1 intersected copper mineralization grading 3.01% Cu over 1.2 m and 2.07% Cu over 3.1 m due to supergene enrichment (chrysocolla and native copper). Elsewhere, only disseminated pyrite and minor chalcopyrite were intersected (Fujii and others). Further sampling of the gossans by the JGM totaling 13 one-meter samples returned 210 to 5,470 ppm Cu and 140 to 1,450 ppm Zn. There was no attempt to determine gold or silver contents.



During 1975-1976-, the DGMR undertook geophysical surveys on a 20 m x 40 m and 20 m x 80 m grid for a total of 8 line kilometers of surveying, including a magnetic survey (352 stations), gradient array IP survey (286 measurements), three-array IP survey on four lines, and a dipole-dipole IP survey on one line (ARGAS, 1978). The work outlined an N-striking, 400-500- m long anomaly comprising a weak SP response, high chargeability, and low resistivity (Gazzaz, 1974). The IP response is characteristic of a weathering or oxidized horizon near the surface and may reflect the base of the oxidized zone. A second anomaly to the north was associated with an area of gossan and underlying disseminated sulfide mineralization tested by drill holes HAJ-1 and HAJ-2 (Cheeseman and Poloni). During 1975-1980-, the DGMR remapped the prospect and undertook a small drainage geochemical program, with a sampling program to test gossan and other bedrock types. Drill hole HAJ-3 was deepened, and drill hole HAJ-4 was drilled for a total of 406.35 m.

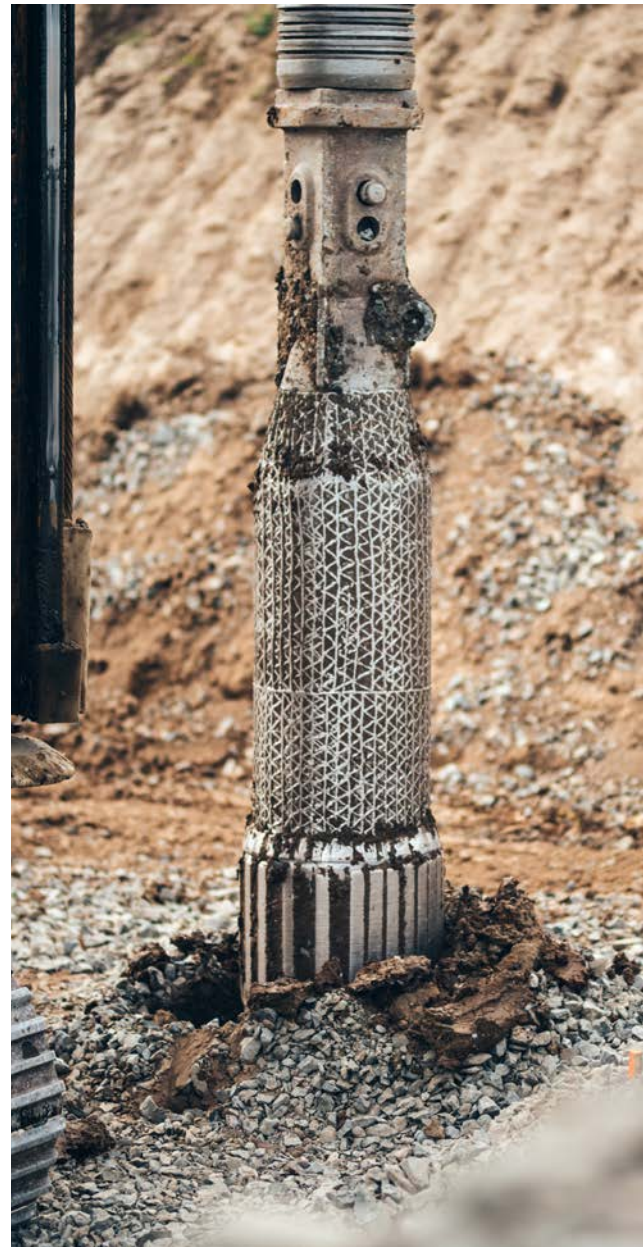


Other work included petrographic studies of drill core and gossans. Seventeen chip samples were taken from or across the base of the weathered profile in gossan zones. Samples averaged 0.82 g Au/t, but one 5.5 m interval gave average gold values of 3.9 g/t and 51 g Ag/t. Mineralization in the extension of drill hole HAJ-3 consisted of 1-3% pyrite to a depth of 320 m, with minor base-metal concentrations (1.98% Cu, 0.14% Zn and 12.1 g Ag/t over 1.5 m). Zones up to 56 m in width of chloritized rhyolite in hole HAJ-4 contained 2-5% pyrite but only minor base-metal concentrations. The best assays were obtained from two 1.5 m intervals containing 1.58% and 0.08% Cu, and 0.07% and 1.71% Zn. The DGMR felt that the sulfide mineralization of drill holes HAJ-3 and HAJ-4 and the overlying gossans explained the principal geophysical anomaly. Cheeseman and Poloni recommended no further exploration for base metals at Al Hajar but felt that there should be an additional sampling of the weathered rocks for precious metals. Initial geochemical

studies at Al Hajar by BRGM in 1979 and 1980 showed that the chlorite-rich, chalcopyrite-bearing rocks are the product of magnesian alteration of felsic tuffs, and thus represent alteration pipes up to 100 m thick. Barbier and others (1983) noted that drill holes HAJ-1 and HAJ-2 were sited outside surface areas of high copper content and that the grades encountered may therefore be relatively low.

Between 1987 and 1989, BRGM undertook a major exploration program to evaluate the gold potential of the near-surface oxidized zone at Al Hajar. Surface work included 1:500-scale geological mapping, "reconnaissance" rock chip sampling (900 samples), sampling in forty 25-m spaced trenches (4,637 samples), and geophysical surveying (SP, mise-a-la-masse, magnetic, resistivity, and IP). Both gossans had been adequately diamond drilled with 44 holes totaling 3,850 m at a 25 m x 25 m spacing at Al Hajar North and 37 holes totaling 2,308 m on a 50 m x 50 m grid at Al Hajar South. About 6,000 drill core samples were analyzed.

Other work included petrographic studies, density measurements, more than 1,000 spot cyanidation tests on drill core and trench samples, bottle and column cyanidation tests (mostly on samples from Al Hajar North), and an in-situ heap-leaching test of 1,500 t of material from Al Hajar North which yielded 6,224.48 g gold and 2,634.5 g silver. A water availability study involving a VLF-EM survey was completed, and nine additional holes totaling 447 m were drilled for pumping tests. A feasibility study was also completed at that time by the BRGM. The Al Hajar North deposit was demonstrated to be shaped like a 300 m x 130 m ellipse, with an average depth of 45 m. Its total geological reserves were estimated to be 2.37 Mt grading 2.5 g Au/t, with estimated recoverable reserves of 1.54 Mt grading 3.45 g Au/t using a 1 g/t cut-off. It was estimated that 80-92% of the gold would be recoverable. The Al Hajar South deposit is also an elliptical zone 410 m long and 220 m wide, with an average thickness of 37 m. It was estimated to contain



total geological reserves of 5.73 Mt grading 1.44 g Au/t and estimated recoverable reserves of 2.69 Mt grading 2.6 g Au/t with 70-85% of the gold recoverable. The BRGM's preliminary feasibility study was favorable at a throughput of 400,000 t per year, grading 2.88 g Au/t and 500,000 t per year at 2.53 g Au/t.

The BRGM envisaged additional drilling at both deposits (3,500 m), further metallurgical work, completion of the hydrogeological studies, and a final feasibility study (BRGM, 1989). A resource of 300,000 t grading 6.82% Cu was estimated for sulfate-enriched rock at the base of the gold-rich gossan. Below this, a resource of primary (hypogene) massive sulfides for Al Hajar North and South was estimated to total 1.85 Mt grading 2.13% Zn in primary massive sulfides and 904,500 t grading 1.30% Cu in vein stockwork sulfides (BRGM, 1989).

Regional Geology

The Wadi Shwas VMS belt is underlain by Shwas belt metasedimentary rocks and volcanic rocks (>815 Ma) belonging to the Khutnah and Qirshah Formations, respectively, that have been metamorphosed to the greenschist facies. The Quishah Formation is made up of mafic to intermediate volcanic and volcanoclastic rocks, and it hosts most of the known VMS deposits.

Local Geology

The Al Hajar Au-Ag-Cu-Zn deposit (MODS 0649) is the most advanced and prospective prospect in the Wadi Shwas VMS belt. It is hosted by steeply dipping, moderately folded volcanic rocks of the Qirshah Formation, including dacitic to rhyodacitic pyroclastic rocks and flows, rhyolite, and mafic flows and dikes (Fujii and others, 1978). The Al Hajar deposit is also part of the Wadi Shwas Gold Belt, and a figure showing the geological setting is presented in that section of this report.



Mineralization

Disseminated, veinlet, and massive sulfide mineralization is mainly hosted within chloritized (hydrothermally altered) rhyodacite. At Al Hajar North, a massive sulfide body, 160 m long and 40 to 90 m thick, occurs within a talcose and chloritic zone. The massive body and the altered rocks enclosing it are cut by a stockwork sulfide zone. Massive sulfides at Al Hajar South are less well-defined. Pyrite and pyrrhotite predominate with minor chalcopyrite, sphalerite, arsenopyrite, magnetite, and several minor sulfide minerals and sulphosalts.

Nearby occurrences

The Al Qadmah (0639) and Wadi Al Khanaq (0644) sites are close by. Based on previous exploration results, Wadi Al Khanaq is considered a low priority; however, Al Qadmah is a high-priority volcanogenic massive sulfide target. It was explored by the Japanese Geological Mission and the Bureau de Recherches Geologique et Miniere (“BRGM”) during the 1970s and 1980s, resulting in 2,881 m of diamond drilling and nearly 300 m of trenching. At the time, the gold-enriched gossan was estimated to contain a resource of 257,500 t, averaging 5.58 g Au/t and 56.5 g Ag/t. The underlying Cu-Zn sulfide body was estimated to contain a resource in the range of 696,000 t, averaging 3.11% Cu, 1.76% Zn, and 21 g Ag/t; or 1,393,000 t, averaging 2.08% Cu, 1.54% Zn, and 19.4 g Ag/t.

Prospectivity

The Wadi Shwas mineral belt is an excellent VMS belt with considerable potential for additional discoveries. We understand that the weathered zone at Al Hajar and possibly Jadmah has been mined, but the unoxidized sulfides have not. Details of any recent work in this area are unavailable, so our recommendations are made without recourse to this work.

Similar deposits

Deposits with geology similar to Al Hajar are well known in the Arabian Shield and elsewhere in the world. The Hawiyah deposit, a relatively recent discovery by Kefi Minerals and its joint venture partner ARTAR, is of the same class of deposit but located in the adjacent Wadi Bidah belt. Hawiyah is the largest and most advanced project in the Wadi Bidah mineral belt (MODS 1304). The project was acquired in 2014 based on analytical results generated by the BRGM in 1989 from samples taken from the ancient mine dumps and gossans, which returned gold values of up to 9 g/t.

Mineralization is hosted by a series of lithological units comprised of chert, banded ironstones, and intermediate breccias, all belonging to the Hawiyah formation. The mineralized zone exhibits a weathering profile consisting of a near-surface oxide zone variably enriched in gold, a transitional zone enriched in copper, and a fresh domain of pyritic, stratiform massive sulfides.

Since the start of the recent project, Kefi has completed 70 drill holes and excavated 53 trenches along a 4.5 km long mineralized zone 115- m in thickness. The outlined zone encloses three significant mineralized lodes. Based on this



work and subsequent additional work, the initial resource was recently upgraded to 29 Mt grading 0.89% Cu, 0.94% Zn, 0.7 g/t Au, and 10 g/t AG (Kefi, 2023). This estimate is JORC compliant. A pre-feasibility study was released in 2020, showing a positive economic outlook and additional work planned to achieve an estimated production date of 2027. The success of this project serves to validate the potential of the Wadi Bidah Mineral Belt; however, patience and quality exploration are required to harness its reward. This lesson applies to belts like the Wadi Shwas Belt hosting Al Hajar.

LEGAL FRAMEWORK

Overview of the KSA Mining Regime

The Mining Regime in the Kingdom is regulated pursuant to the Mining Investment Law (issued by Royal Decree No. M/140 dated 101441/19/H) (Mining Law), which came into force on 1 January 2021.

The Mining Law is supported by the Implementation Regulations, which provide a comprehensive set of executive regulations to support the implementation and interpretation of the Mining Law.

The Ministry of Industry and Mineral Resources (the Ministry) is mandated to oversee and supervise the application of the Mining Law and its Implementation Regulations.

The Ministry is permitted to designate sites for competitive bidding, in which case it must make a public declaration announcing that the license for the designated site is subject to an open bidding process. The announcement must include information such as the description of the land and qualification criteria.

Classification of Minerals

Minerals are classified under the Mining Regime into three categories:

Class A

this includes metallic minerals, precious and semi-precious stones, and ores that require advanced operations and concentration (e.g., zinc, copper, gold, manganese, uranium)

Class B

non-metallic minerals, industrial minerals, and raw materials (e.g., low-grade iron ore, dolomite, gypsum, red clay, magnesite, salt)

Class C

materials used for construction (e.g., gravel, crushed marble, sand, and clay).

The Mining Regime further clarifies that certain minerals are subject to special regulation, such as phosphates, tantalum, niobium, rare earth elements, thorium, quartz, high-grade iron, high-grade bauxite, and all radioactive minerals.

Please refer to the Mining Investment Law, available on the Taadeen platform, for more information.



Web Links & Contacts

The Ministry of Industry and Minerals Resources is committed to leading initiatives to drive the industrial and mining sectors and contribute to achieving Vision 2030 goals. These goals aim to position the mineral sector as the third pillar of the Kingdom’s economy and increase mining GDP.

The Saudi Geological Survey is responsible for all specialized earth science works in the Kingdom of Saudi Arabia, from basic geologic mapping to applied geoscientific studies, especially mineral and groundwater explorations and the development of mineral resources, including the provision of investment opportunities in the field of mining.

INVEST SAUDI is Saudi Arabia's national investment promotion platform established to support global business expansion in the Kingdom. It is overseen by the Ministry of Investment (MISA), which facilitates investments in the Kingdom, supports the country's economic growth, and positions it at the forefront of global business opportunities.

The Ministry of Investment for Saudi Arabia (MISA) facilitates access to business opportunities in the Kingdom by developing a reliable, robust, business-friendly ecosystem. It works across government ecosystems to support investors and businesses throughout their investment journey.

The National Geological Database is Saudi Arabia’s mineral wealth and mining information management system. It provides a reliable national geological and topographic data repository for the entire Kingdom, including geological and topographic maps, Mineral Occurrences Documentation System (MODS), geochemistry and geophysics data, borehole data, surface samples, data, and more.

Taaden is a platform that offers an easy and legal process for obtaining the necessary permitting and mining licenses to operate in Saudi Arabia.

Below are web links to Saudi Arabia’s investment ecosystem:

Ministry of Industry and Mineral Resources	mim.gov.sa
Saudi Geological Survey	sgs.gov.sa
Saudi Invest	investsaudi.sa
Ministry of Investment of Saudi Arabia	www.misa.gov.sa
National Geological Database	ngp.sgs.org.sa
Taadeen	mining.smsc.sa
For inquiries	miningbidding@mim.gov.sa



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