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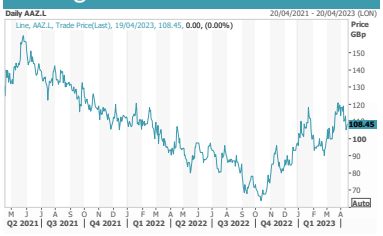
Mining



Source: Refinitiv

Market data

EPIC/TKR	**AAZ**
Price (p)	**110.0**
12m high (p)	124.0
12m low (p)	61.0
Shares (m)	114.2
Mkt cap (£m)	125.7
EV (£m)	108.8
Free float*	56.8%
Country of listing	UK
Currency of listing	USD
Market	AIM

*As defined by AIM Rule 26

Description

Anglo Asian Mining (AAZ) operates three gold-copper mines and downstream processing facilities at its main site at Gedabek in Azerbaijan. It is building two further mines nearby, and advancing two major copper projects at Xarxar/Garadag and Demirli.

Company information

Chairman	Khosrow Zamani
CEO	Reza Vaziri
CFO	Bill Morgan

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www.angloasianmining.com

Key shareholders

Directors	43.2%

Diary

May'23	Final results
Jul'23	2Q production

Analyst

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ANGLO ASIAN MINING

Growth in copper production poised to explode

AAZ is embarking on an expansion that will create a much larger mining business, extending well beyond its flagship Gedabek contract area ("Baseline Gedabek"). The company was awarded three concessions in 2022 at no cost, each containing a substantial copper deposit: Xarxar with nearly 100kt, Garadag over 300kt and Demirli estimated at 200kt. The staged development of the integrated Xarxar and Garadag project ("Copper 1") and Demirli ("Copper 2") will transform AAZ from a small-cap gold miner to a mid-sized copper producer with c.50kt p.a. of copper production, and significant gold and zinc by-products. We estimate an aggregate valuation for Baseline Gedabek + Copper 1 – Xarxar and Garadag + Copper 2 – Demirli of 214p per share.

- **Baseline Gedabek:** 2023 marks the low in production from declining grades at AAZ's existing mines. The commissioning of the Gilar and Zafar copper-gold-zinc mines within the next 12 months should lead to a rebound in production of more than 40%, when measured in copper equivalent tonnes (CETs). This is a "bridge" to greater shareholder value creation from Xarxar, Garadag and Demirli.
- **Copper 1 – Xarxar and Garadag:** We expect Xarxar to be commissioned in 2026, with copper production of c.10,000 tonnes p.a., followed by Garadag in 2028, with c.26,000 tonnes p.a. The proximity of the deposits (4km apart) will allow shared infrastructure, including processing, in an integrated project that we estimate will cost nearly $200m (with c.$140m debt).
- **Copper 2 – Demirli:** The copper mine and processing plant is believed to have been in operation as recently as 28 December 2022. If intact, little investment may be needed by AAZ to restart the operation (we assume $30m). There are difficulties with access, owing to Russian peacekeepers in the Karabakh region, potentially until November 2025, unless an alternative agreement is reached.
- **Risks:** AAZ faces the normal risks for a junior miner, albeit without equity funding risk faced by explorers/developers. These include volatility in gold and copper prices, political (albeit mitigated), environmental and operational risks in successfully executing the mining plan and operating processing facilities.
- **Investment summary:** We have calculated a fair value for AAZ of 214p per share from the aggregate of three DCF valuations for Baseline Gedabek (76p) + Copper 1 – Xarxar and Garadag (71p) + Copper 2 – Demirli (67p). These are based on a copper price of $8,000/tonne (3.63/lb), a gold price of $1,900/oz and an 8.0% discount rate. Notwithstanding the debt-financing requirements to fund growth in the next few years, we expect dividend payments to continue.

Financial summary and valuation

Year-end Dec ($m)	2019	2020	2021	2022E	2023E	2024E
Sales	94.534	102.054	92.494	83.494	86.598	112.227
Underlying EBIT	31.325	36.064	12.382	9.144	3.731	16.000
Reported EBIT	31.325	36.064	12.382	9.144	3.731	16.000
Underlying PTP	30.129	35.737	12.592	5.854	1.631	13.860
Reported PTP	30.129	35.737	12.592	5.854	1.631	13.860
Underlying EPS (c)	16.91	20.30	6.43	3.33	0.97	8.25
Statutory EPS (c)	16.91	20.30	6.43	3.33	0.97	8.25
DPS (c)	0.08	0.095	0.08	0.08	0.08	0.08
Net (debt)/cash	12.357	36.901	34.160	17.121	-12.726	-7.228
P/E (x)	7.9	6.6	20.7	40.0	137.1	16.1
Dividend yield	6.0%	7.1%	6.0%	6.0%	6.0%	6.0%

Source: Hardman & Co Research

Disclaimer: This research has been paid for by the company. Please read the important disclaimers at the end of this document.

Table of contents

Strategic transformation

AAZ investment case

We outline our valuation methodology in the next section. From the standpoint of fundamentals, our investment case for AAZ is based on:

- maximising the potential from AAZ's existing mines, as the company brings on additional mine production;
- commissioning two near-term development copper-zinc-gold projects – Gilar and Zafar – by the end of 2023/early 2024;
- the low-cost development of two substantial copper deposits – Xarxar and Garadag – into an integrated mine development by 2026-28;
- the potential development (at little cost to AAZ) of a further copper mine and processing plant – Demirli – which was operating as recently as December 2022;
- copper, gold, silver and zinc all have favourable supply and demand outlooks, in our opinion; and
- significant exploration upside over a longer period of time from exploiting AAZ's expanded portfolio of concessions (contract areas), several of which appear to contain numerous targets in "mineralised systems".

Small-cap gold to mid-sized copper miner

The timing of this report is significant, coinciding with AAZ embarking on a transformational step in its strategy, which, in three to five years, will see it evolve from:

a small-cap gold miner, with copper and silver as by-products

into:

a mid-sized copper miner, with gold, zinc and silver as by-products

Two catalysts to strategic transformation

The catalysts for this transformation are twofold:

- declining gold grades, albeit partly offset by rising copper grades, in AAZ's existing mines in the Gedabek concession (known as a "contract area"); and
- the award of three new contract areas to AAZ by the Government of Azerbaijan (GoA), each containing a substantial copper deposit and/or existing mine.

AAZ's existing mines have generated outstanding levels of cashflow for more than a decade, notably at the flagship gold-silver-copper mining and processing operation in the Gedabek contract area, where there are currently three operating mines:

- Gedabek open-pit mine – producing gold, silver and copper since 2009;
- Gadir underground mine – producing gold since 2015; and
- Gedabek underground mine – located beneath the open pit, and producing gold since 2018.

There is also a small gold mine operating in the Gosha contract area, which is 50km to the northwest of Gedabek.

These mines could keep producing for several years, if not longer. However, given the lower ore grades, it makes sense, from a shareholder value perspective, to halt production after 2024, at least temporarily, as production ramps up from new mines.

Bridging gap to substantial copper production…

The challenge for AAZ's management team has been to bridge the gap between lower gold production from existing mines and substantial growth in copper production from the three new contract areas.

...with Gilar and Zafar

An important first step towards executing this transformational strategy is being implemented, with the commissioning of two new copper-zinc-gold mines – Gilar and Zafar, expected in 4Q'23 and early 2024, respectively. With these new mines, AAZ expects production – measured in gold equivalent ounces (GEOs) – to rebound strongly, from 50,000-54,000 in 2023 to 70,000-75,000 in 2025, before the larger copper mines come into operation.

With regard to Gilar and Zafar, AAZ has a strong track record in rapidly commissioning new mines on time and on budget. The Ugur open-pit and Gedabek underground mines are good examples. Ugur, for example, was fast-tracked into production in less than 12 months in September 2017. During the next three years, it produced approximately 146,000 oz of gold.

AAZ's portfolio of mining concessions now equivalent to 3% of Azerbaijan's land mass

AAZ's portfolio of eight contract areas is shown below – three legacy ones (Gedabek, Gosha and Ordubad), two restored ones (Kyzlbulag and Vejnaly) and three new ones (Xarxar, Garadag and Demirli). The three new concessions add 882 sq km, giving a combined area of 2,544 sq km – equivalent to 3% of Azerbaijan's land mass.

Anglo Asian Mining: existing, restored and new mining concessions

Source: AAZ

Major beneficiary of ceasefire agreement with Armenia

AAZ has been a major beneficiary of the adjustments made to its portfolio of contract areas following the 2020 Nagorno-Karabakh ceasefire agreement signed on 9 November 2020. Following Armenian withdrawal, seven territories were returned to Azerbaijan in compliance with four United Nations Security Council Resolutions (nos. 822, 853, 874 and 884). AAZ had been unable to access the Kyzlbulag and Vejnaly contract areas, along with a third one, Soutely, owing to their locations in Karabakh and territories occupied by Armenia following the first Karabakh War in 1994.

Three new contract areas have substantial copper deposits

On 29 September 2021, the company announced that it was relinquishing its rights to the Soutely contract areas, and, in recompense, was awarded three new contract areas by the GoA. All three contain substantial copper deposits:

- Xarxar – copper deposit in the upper part of a porphyry;
- Garadag – copper and molybdenum porphyry deposits; and
- Demirli – copper/molybdenum mine and a processing plant, which is thought to be intact.

Strategic growth plan announcement in March 2023

With Gilar/Zafar acting as the "bridge" in AAZ's transformation, the company provided more details with the announcement, "Strategic plan for transformation to mid-tier copper and gold production", on 30 March 2023. The company laid out its targets, which see production increasing by 30%-50% between 2023 and 2024-25, owing to Gilar/Zafar, more than doubling by 2026-27, owing to Xarxar, and more than trebling by 2028, owing to Garadag. These are summarised in the table below, together with our estimates, in terms of GEOs and CETs.

AAZ production estimates vs. Hardman & Co estimates

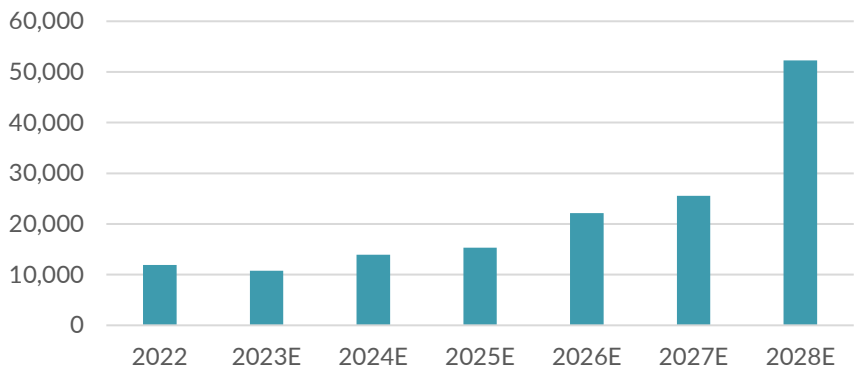
Strategic plan: AAZ production targets vs. Hardman & Co estimates

	AAZ targets		Hardman & Co estimates	
Years	GEOs	CETs	GEOs	CETs
2023	50k-54k	10.2k-11.3k	52.3k	10.8k
2024	70k-75k	15.0k-15.5k	67.7k	14.0k
2025	70k-75k	15.0k-15.5k	74.2k	15.3k
2026	115k-125k	24.0k-26.0k	102.9k	22.1k
2027	115k-125k	24.0k-26.0k	253.5k	52.3k
2028	175k	36.0k	253.5k	52.3k

Source: AAZ, Hardman & Co estimates

AAZ's targets are based on prices of $1,650/oz for gold and $8,000/tonne for copper. We have used the same ratio for the comparison with Hardman & Co estimates, although our gold price assumption, used in our financial model and valuation, is $1,900/oz. We should also note that, in our model, we are assuming that Garadag is commissioned in 2028. The company has indicated "2027/28", and has not added in the full potential for annual Garadag production, which we estimate will be in the region of 25,000 tonnes p.a. of copper. Our production estimates in CETs, and based on the company's price forecasts, are illustrated in the chart below.

Anglo Asian Mining: total production in CETs, 2022-28E



Source: AAZ, Hardman & Co estimates

We currently assume that AAZ has access to Demirli from 2026

It is important to note that the current plan (and as per the above chart) excludes the Demirli copper mine and processing facility, to which the company does not have access at this stage, owing to Russian peacekeeping forces in the region. We have put together tentative forecasts and a valuation for Demirli in this report (see below), assuming that AAZ has access from the beginning of 2026, after the peacekeepers are scheduled to leave in November 2025.

Potential for more than 50,000 tonnes p.a. of copper production with Demirli

We estimate that Demirli could produce c.11,000 tonnes p.a. of copper and closer to 12,000 tonnes p.a. in terms of CETs (including the molybdenum by-product). The refurbishment/restart of Demirli, together with Gilar/Zafar and Xarxar/Garadag, could see AAZ achieving more than 50,000 tonnes p.a., of copper production alone (excluding by-products), which would imply annual revenue from copper alone in the region of $430m p.a. at current metal prices.

Located on one of world's largest copper-gold belts

Longer term, exploration upside – in conjunction with exploiting mineralised systems that are likely contained within several of its contract areas – is part of the investment case for AAZ. The eight contract areas are located on the Tethyan Tectonic Belt, which extends from Pakistan through Iran, the Caucasus, Turkey and Greece into the Balkans. It is one of the world's largest copper-gold belts, with numerous mines containing hydrothermal gold and porphyry copper deposits. Some of them are among the largest sources of gold and copper worldwide. It is worth highlighting that:

- the Madneuli and Zod/Soyudlu mines on the Armenia-Azerbaijan border are less than 100km from Gedabek and Gosha; and
- the Sungun, Kadjaran and Agarak mines are 10km-50km from the company's Ordubad Contract Area.

Fully exploiting contract areas…

Gilar and Zafar will be the fifth and sixth mines to be opened within the Gedabek contract area – which contains widespread epithermal-porphyry mineralisation. Ordubad, the third legacy contract area, is potentially another example. It is an early-stage gold and copper project, with 15 known mineral deposits. Of these, six have resource estimates classified during the Soviet era.

The potential to access mineralised systems may also stretch beyond individual contract areas. The three new concessions awarded to AAZ border the company's existing contract areas:

- Garadag and Xarxar – border the Gedabek and Gosha contract areas; and
- Demirli – borders the Kyzlbulag contract area to the northwest.

…containing epithermal-porphyry mineralised systems

It is our view that Gedabek, Ordubad and other contract areas, notably Garadag/Xarxar and Kyzlbulag/Demirli, contain major epithermal-porphyry copper-gold mineral systems. In other words, there is potential to economically exploit multiple deposits, with production going well beyond existing, externally published and internal resource/reserve estimates.

Production, earnings and valuation – three scenarios

Our projections for AAZ's financial outlook come in three parts, which we refer to as:

- Baseline Gedabek
- Copper 1 – Xarxar and Garadag
- Copper 2 – Demirli

First scenario – largely existing mines, plus Gilar and Zafar

Our first scenario, **"Baseline Gedabek"**, includes the following existing mines and projects:

- mines already operating in the Gedabek block, i.e. Gedabek open-pit, Gedabek underground and Gadir;
- the Gilar and Zafar mines, which are scheduled to be onstream in 4Q'23 and 1Q'24, respectively; and
- small contributions from the Gosha and Vejnaly mines, and previously heap leached ore at Gedabek.

These baseline forecasts extend out to 2031, when we assume that Gilar and Zafar will be exhausted.

Second scenario – Xarxar and Garadag copper project

Our second scenario is **"Copper 1 – Xarxar and Garadag"**, the integrated copper mining operation incorporating mines in the Xarxar and Garadag contract areas. They are scheduled for commissioning in 2026 and 2027, respectively, and represent a major step in AAZ's transformation into a mid-sized copper producer. Our estimates cover the period from 2024 (which sees the beginning of the investment phase) to 2035, when we expect Garadag to be exhausted.

For the time being, we are showing our estimates and valuation for Copper 1 – Xarxar and Garadag separately from Baseline Gedabek. This permits a better understanding of the implications for AAZ. The P&L, cashflow and balance sheet projections can be aggregated at a later date, and it is simple to aggregate them for valuation purposes.

Third scenario – Demirli copper project

Our third scenario is **"Copper 2 – Demirli"**, the copper project based in the Demirli contract area. Owing to the continuing presence of Russian peacekeepers in the region, the timing of this project remains uncertain. Our estimates and valuation currently assume a 14-year period – one year to refurbish the mine and processing facility, and 13 years of operation. Once again, we are showing our estimates and valuation for Copper 2 – Demirli separately, for the same reason as that for Copper 1 – Xarxar and Garadag.

Baseline Gedabek

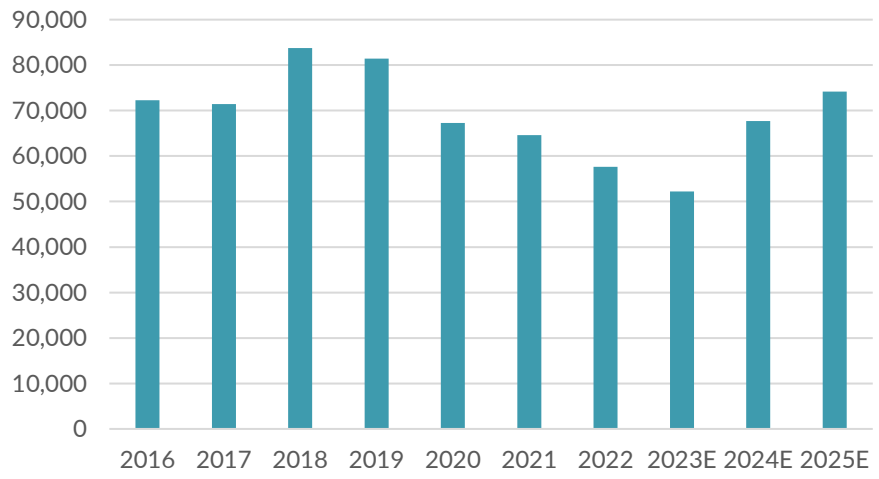
Production

2023 the nadir in production

This financial year (2023) represents the nadir in AAZ's production cycle, as the company feels further adverse effects of the decline in gold production in the "Gedabek block". However, the seeds of the recovery will be sown in 4Q'23, with the commissioning of the Gilar and Zafar mines, followed by AAZ's transformation, with the commissioning of Xarxar and Garadag in 2026-27.

Production guidance for 2023 is for 50,000-54,000 GEOs, based on a further decline in gold, partially offset by an expected 63%-71% increase in copper production. With high-grade gold ore from the Gedabek open-pit and underground mines in decline, the agitation leaching plant will be operated on a "campaign" basis in 2023. The 1.4m tonnes of crushing and grinding capacity will focus on providing feedstock for the expanded flotation plant to maximise copper production.

Anglo Asian Mining: total production in GEOs, 2016-24E



Source: AAZ, Hardman & Co estimates

Crushing and grinding capacity will focus on maximising copper production

The copper-gold-zinc production from commissioning Gilar and Zafar should drive a rebound in AAZ's overall production in 2024. The outlook for 2025 is more difficult to judge, and we are assuming a modest rise overall, as shown above. The outcome depends on the degree to which higher volumes of gold, copper and zinc at Gilar/Zafar, as they reach full production, are offset by what we are expecting will be a curtailment of mine production at the Gedabek block – we are assuming zero contribution for 2026-31. This makes economic sense, i.e. fully utilising the Gedabek processing capacity with higher-grade ore from Gilar/Zafar.

The "Gedabek block" will have significant reserves after 2025, which can be mined at a later date

The table below shows our estimates for remaining gold and copper reserves in the Gedabek block, i.e. Gedabek open-pit, Gedabek underground and Gadir mines. It also shows gold and copper contained in reclaimed ore that has previously been heap leached ("Reclaimed HL") and an existing "Ore stockpile". We are assuming that gold from Reclaimed HL/Ore stockpile will be recovered through the existing processing facilities at the rate of 5,000 oz p.a. In aggregate, these mine reserves/ore sources amounted to 144.4k oz of gold and 20,361 tonnes of copper at the beginning of 2023.

Gedabek block – estimate of mineable gold and copper (January 2023)

	Tonnage (mt)	Gold (k oz)	Gold (g/t)	Copper (t)	Copper (%)
Gedabek o/p	5.849	66.9	0.36	20,885	0.36%
Gedabek u/g	0.324	18.3	1.76	122	n/a
Gadir	0.225	14.9	2.06	451	0.20%
Reclaimed HL	1.394	38.1	0.85	n/a	n/a
Ore stockpile	0.555	6.2	0.35	2,173	n/a
Total	**8.347**	**144.4**		**23,631**	

Source: AAZ, Hardman & Co estimates

Remaining ore in Gedabek block can be processed at a later date

Adjusted for our estimates for 2024 and 2025 production, we estimate 114.4k oz of gold and 23,631 of copper remaining by the end of 2025. While the majority of the mine reserves, especially the Gedabek open pit, are relatively low-grade, and therefore unsuitable for agitation leaching, they can still be exploited by flotation (to extract the copper) and additional heap leaching. AAZ could process these ores after Gilar and Zafar have been mined out – if there are no superior sources of feedstock for the processing capacity.

On that note, there are numerous other known deposits in the Gedabek contract area that could be explored and potentially developed in the same way we saw with Ugur and, currently, Gilar and Zafar. These might be prioritised over the remaining Gedabek resources.

Production estimates for Gilar and Zafar based on Measured and Indicated, or the equivalent

Our Gilar and Zafar current production estimates are confined to specific parts of their current resource estimates, namely:

- the "lower-zone" section of the ore body at Gilar and its "Class 1+2", which are broadly equivalent to Measured and Indicated resources; and
- Measured and Indicated resources for Zafar.

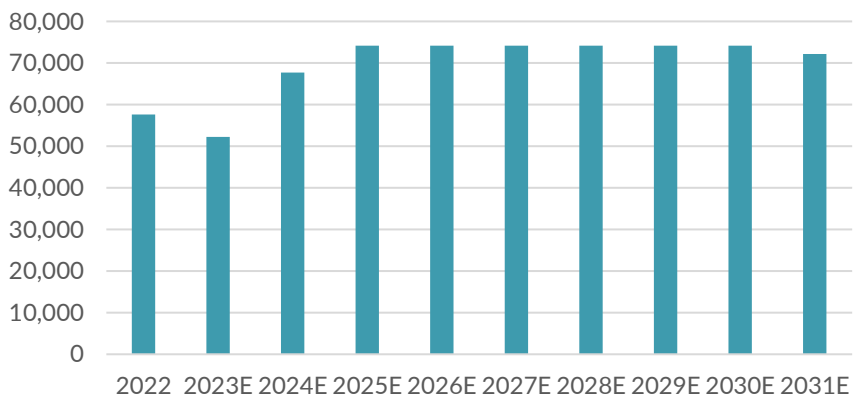
At this stage, we are assuming that these resources are extracted over mine lives of eight years, with ramp to full production taking about one year. The mine plans for both Gilar and Zafar are targeting the higher-grade zones initially – the deepest southwest zone of Gilar's ore body and the upper section of Zafar's ore body. For the time being, we are assuming that the resources are mined evenly over the mine life once full production is achieved. However, we should note:

- it is likely that the early years will see higher production than we estimate; and
- ongoing exploration will lead to increases in the current resource estimates for both deposits and longer mine lives overall.

Baseline production forecasts for AAZ during 2023-31E

The next chart shows our baseline forecasts for AAZ's overall production from 2022-31 in terms of GEOs - including copper and zinc converted into GEOs. These baseline forecasts show that the development of the Gilar and Zafar mines will allow AAZ to maintain a production profile with at least 60,000 GEOs. This is the platform from which rapid growth in copper production during 2026-27 transforms AAZ into a mid-sized copper company, with the commissioning of Xarxar, Garadag and, all being well, Demirli.

Anglo Asian Mining: baseline production estimates in GEOs, 2022-31E



Source: AAZ, Hardman & Co estimates

Earnings and valuation

Price assumptions used in our financial model

We have taken our production forecasts and incorporated them into projections for revenues, based on our price assumptions for copper, gold, zinc and silver from 2023 onwards. These are shown in the following table. We note that AAZ does not hedge metal prices.

Price assumptions for key AAZ metals

Metal	Price
Gold	$1,900/oz
Copper	$8,000/tonne
Silver	$25.00/oz
Zinc	$3,000/tonne

Source: Hardman & Co estimates

Details of PSA with GoA

Under the Production Sharing Agreement (PSA), production to which the GoA is entitled is excluded from the P&L account. The GoA is entitled to 51% of "profit production", i.e. the value of production less all accumulated operating and capital costs. The agreement is subject to a minimum of 25% of the above-mentioned 51%, i.e. 12.75%, until all costs are recovered. This has been the royalty rate every year since production commenced in 2009. With substantial further investment in the Gedabek contract area for developing the Gilar and Zafar mines, we expect the effective royalty rate to remain at 12.75% for the foreseeable future.

Industry-wide cost increases for energy and other inputs

Costs have been rising across the board, notably for electricity and other inputs, such as haulage costs and steel grinding balls. While cyanide costs have risen by a third, the impact has been mitigated by less need for agitation leaching, owing to the changing ore compositions. This is obviously a factor common to mining companies in general. In 1H'22, AAZ reported a 15.9% rise in the all-in sustaining cost (AISC) of gold production, to $983/oz ($848/oz in 1H'21). Costs remained elevated in 2H'22, and we expect further modest cost inflation in FY'23 versus FY'22.

Our P&L estimates for 2022-26 are shown below:

Anglo Asian Mining – profit & loss account

Year-end Dec ($m)	2022E	2023E	2024E	2025E	2026E
Sales	83.494	86.598	112.227	122.970	122.970
Cost of sales	-67.600	-75.746	-88.008	-89.015	-89.015
Gross profit	15.894	10.853	24.219	33.955	33.955
Margin	19.0%	12.5%	21.6%	27.6%	27.6%
Other income	0.000	0.000	0.000	0.000	0.000
Admin. expenses	-5.900	-6.322	-7.519	-8.362	-8.485
Other op. expenses	-0.850	-0.800	-0.700	-0.600	-0.500
Operating profit	**9.144**	**3.731**	**16.000**	**24.993**	**24.971**
Finance income	0.100	0.000	0.160	0.200	0.250
Finance costs	-0.750	-1.000	-1.200	-1.100	-1.000
Other expenses	-0.840	-0.100	-0.100	-0.100	-0.100
Share of loss of Libero	-1.800	-1.000	-1.000	-1.000	-1.000
Pre-tax profit	**5.854**	**1.631**	**13.860**	**22.993**	**23.121**
Taxation	-2.049	-0.522	-4.435	-7.358	-7.399
Tax rate	35.0%	32.0%	32.0%	32.0%	32.0%
Attributable profit	**3.805**	**1.109**	**9.425**	**15.636**	**15.722**
Basic no. of shares (m)	114.2	114.2	114.2	114.2	114.2
Basic EPS (c)	**3.33**	**0.97**	**8.25**	**13.69**	**13.76**

Source: Hardman & Co estimates

AAZ has paid a dividend of at least 25% of free cashflow

The company has paid a dividend equivalent to at least 25% of its free cashflow each year. Free cashflow is defined as:

Net cashflow from operations - capex

AAZ paid its maiden dividend of $0.03 with its 2018 interim results. The company reviews its dividend policy each year. In 2021, the total dividend of $0.08 ($0.045 interim and $0.035 final) was equivalent to 46.2% of free cashflow.

We are expecting a final dividend for 2022 at a similar level to the interim

AAZ's board has restated its commitment to the dividend policy while it executes its strategic growth plan. An interim dividend of $0.04 was announced with the 2022 interim results. At this stage, we are tentatively expecting a final dividend of $0.04, which would make a total of $0.08 for the year.

The next table shows our cashflow estimates for 2022-26:

Anglo Asian Mining – cashflow statement

Year-end Dec ($m)	2022E	2023E	2024E	2025E	2026E
Operating profit	9.144	3.731	16.000	24.993	24.971
Non-cash items:					
Depreciation	16.000	14.500	15.000	15.500	15.000
Amort. off mining rights	1.100	1.150	1.200	1.250	1.300
Depn. of leased assets	0.600	0.850	1.000	1.200	1.200
Share-based expenses					
Other	0.000	0.000	0.000	0.000	0.000
Operating cashflow	**27.055**	**20.231**	**33.200**	**42.943**	**42.471**
Change in inventories	-3.500	-1.000	0.000	0.000	0.000
Change in receivables	-5.000	0.000	0.000	0.000	0.000
Change in payables	3.000	0.000	0.000	0.000	0.000
Cash from operations	**21.555**	**19.231**	**33.200**	**42.943**	**42.471**
Tax paid	-5.231	-2.049	-0.522	-4.435	-7.358
Net cash from ops.	**16.324**	**17.182**	**32.678**	**38.508**	**35.113**
Capex on PPE & mines	-10.000	-10.000	-8.000	-8.000	-8.000
Inv. in exploration	-11.000	-10.000	-8.000	-8.000	-8.000
Acqn. of Libero	-2.776	-0.289	0.000	0.000	0.000
Purchase of leased assets	0.000	-9.000	-1.000	0.000	0.000
Net cash for investing	**-23.776**	**-29.289**	**-17.000**	**-16.000**	**-16.000**
Share issues	0.000	0.000	0.000	0.000	0.000
Increase in borrowings	0.000	3.000	0.000	0.000	0.000
Repayment of borrowings	0.000	0.000	0.000	0.000	0.000
Repayment of leases	-0.400	0.000	0.000	0.000	0.000
Dividends paid	-8.580	-9.139	-9.139	-9.139	-9.139
Interest received	0.080	0.120	0.160	0.200	0.250
Interest on debt/leases	-0.750	-1.000	-1.200	-1.100	-1.000
Net cash for financing	**-9.650**	**-7.019**	**-10.179**	**-10.039**	**-9.889**
Net change in cash	**-17.102**	**-19.126**	**5.499**	**12.469**	**9.223**
Cash: end of year	**20.351**	**1.225**	**6.723**	**19.192**	**28.416**
Debt: end of year	**-3.230**	**-13.951**	**-13.951**	**-12.751**	**11.551**
Net cash: end of year	**17.121**	**-12.726**	**-7.228**	**6.441**	**16.865**

Source: Hardman & Co estimates

DCF valuation using 8% discount rate and metal prices close to current prices

We have valued AAZ using a DCF model, incorporating a discount rate of 8%, production through to 2031, and long-term gold, silver, copper and zinc prices of $1,900/oz, $25.00/oz, $8,000/tonne and $3,000/tonne, respectively.

Anglo Asian Mining – baseline Gedabek DCF valuation (2023-31E)

$m (unless stated)	2023E	2024E	2025E	2026E	2027E
PTP	1.631	13.860	22.993	23.121	23.248
Tax	-2.049	-0.522	-4.435	-7.358	-7.399
NOPAT	**-0.418**	**13.338**	**18.558**	**15.763**	**15.849**
Depreciation	14.500	15.000	15.500	15.000	14.500
Amort. of mining rights	1.150	1.200	1.250	1.300	1.250
Depn. of leased assets	0.850	1.000	1.200	1.200	1.200
Share of loss of assoc.	1.000	1.000	1.000	1.000	1.000
Change in working cap.	-1.000	0.000	0.000	0.000	0.000
Capex	-10.000	-8.000	-8.000	-8.000	-8.000
Inv. in exploration	-10.000	-8.000	-8.000	-8.000	-8.000
Purchase of leased assets	-9.000	-1.000	0.000	0.000	0.000
Other	0.000	0.000	0.000	0.000	0.000
Free cashflow	**-12.918**	**14.538**	**21.508**	**18.263**	**17.799**
Discount rate = 8%					
Discount factor		0.93	0.86	0.79	0.74
Disc. free cashflow	**-12.918**	**13.461**	**18.440**	**14.497**	**13.083**

Source: Hardman & Co estimates

Anglo Asian Mining – baseline Gedabek DCF valuation (2028-31E & summary)

$m (unless stated)	2028E	2029E	2030E	2031E	Total
PTP	23.398	24.548	25.198	24.670	**182.665**
Tax	-7.439	-7.487	-7.855	-8.063	**-52.607**
NOPAT	**15.958**	**17.060**	**17.342**	**16.607**	**130.058**
Depreciation	14.000	13.500	12.710	12.000	**126.710**
Amort. of mining rights	1.200	1.150	1.100	1.050	**10.650**
Depn. of leased assets	1.200	1.200	1.200	1.200	**10.250**
Share of loss of assoc.	1.000	0.000	0.000	0.000	**6.000**
Change in working cap.	0.000	0.000	0.000	0.000	**-1.000**
Capex	-8.000	-8.000	-8.000	-8.000	**-74.000**
Inv. in exploration	-8.000	-8.000	-8.000	-8.000	**-74.000**
Purchase of leased assets	0.000	0.000	0.000	0.000	**-10.000**
Other	0.000	0.000	0.000	0.000	**0.000**
Free cashflow	**12.995**	**12.598**	**12.164**	**12.520**	**124.668**
Discount rate = 8%					
Discount factor	0.68	0.63	0.58	0.54	
Disc. free cashflow	**7.582**	**6.806**	**6.085**	**5.799**	**86.602**
	86.602				
Cum. disc. FCF					
Net (debt)/cash	17.121				
Total	**103.723**				
Libero Copper & Gold (19.8%)	1.970				
Est. market cap.	**105.693**				
FD shares (m)	114.242				
Valuation/share ($)	0.93				
$/£	1.21				
Valuation/share (£)	**0.76**				

Source: Hardman & Co estimates

We estimate a fair value of 76p/share

Using these assumptions, our fair value for the company is 76p/share, versus the current price of 110.0p. However, this part of our valuation takes no account of the upside potential from the recent award/restoration of major mineral concessions courtesy of the GoA.

We consider the impact on AAZ's valuation of "Copper 1 – Xarxar and Garadag" and "Copper 2 – Demirli" in the next two sections.

Copper 1 – Xarxar and Garadag

Production

Xarxar and Garadag – an integrated mining project

AAZ's management team is advancing plans to develop the Xarxar and Garadag deposits into an integrated mining operation. Consequently, it is necessary to estimate the potential value to shareholders from this project. We discuss the key financial metrics for Xarxar and Garadag in this section, while discussing the projects in more detail later in the report.

Xarxar is being fast-tracked

Xarxar is the smaller of the two mines, and will be developed first. While AAZ has purchased the exploration data from the previous concession holder (AzerGold CJSC), its own drilling operation is well under way. So far, 19 drill holes have been completed, with more in progress as the project is fast-tracked towards production. This is in addition to 23 holes drilled in the Soviet era and 13 by AzerGold CJSC.

Capital costs will depend on processing route chosen…either flotation or bacterial leaching

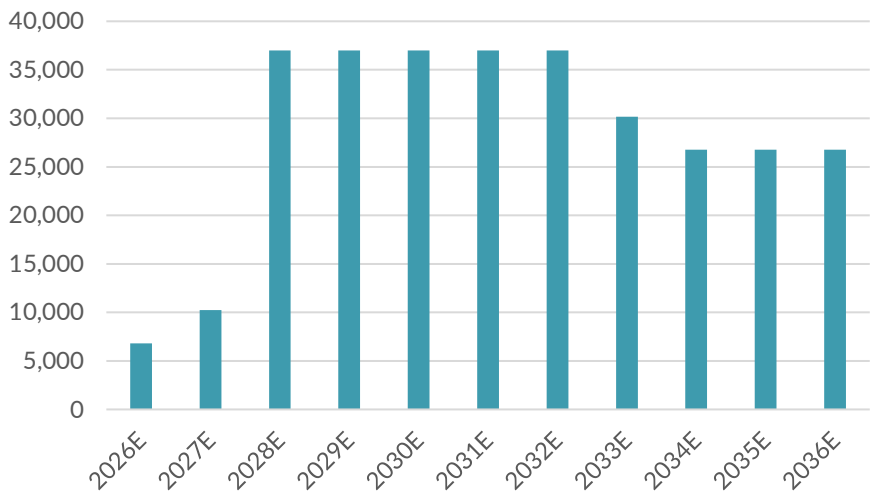
In terms of the capital cost of these projects, the key variable is whether the company decides to process the ore via a flotation plant, or the less expensive route of bacterial leaching. Although a decision has yet to be taken, we believe that flotation will be chosen, since recovery rates will be about 85%, compared with about 60% for bacterial leaching.

We assume AAZ will choose flotation route, which implies capital approaching $200m

AAZ currently estimates that the flotation route will require a capital investment of up to $140m for a flotation processing facility to bring the projects onstream, versus less than $100m for the bacterial leaching route. We are assuming a capital cost of $190m in total – made in instalments of $20m, $100m, $50m and $20m over 2024-27.

The chart below shows our estimates for the combined production for Xarxar and Garadag. This assumes an 85% recovery rate from flotation, and excludes 12.75% of output under the PSA. We are expecting Xarxar to be commissioned in 2026 and Garadag in 2028, with the combined operation running at full production of more than 35,000 tonnes of copper p.a. in 2028.

Xarxar and Garadag: combined copper production, 2026-36E (tonnes)



Source: Hardman & Co estimates

Earnings and valuation

We have valued Copper 1 – Xarxar and Garadag using a DCF model, incorporating a discount rate of 8%, production through to 2036, and a long-term copper price of $8,000/tonne. At this stage, we are not assuming any potential revenue from by-products such as gold, silver, zinc or molybdenum.

We estimate fair value for Copper 1 – Xarxar/Garadag of 71p/share

Using these assumptions, our fair value for the combined Xarxar and Garadag project is 71p/share. Please note that this is the valuation discounted back to today, not when we expect AAZ to embark on the investment (2024) or when Xarxar (2026) and Garadag (2028) are commissioned.

Copper 1 – Xarxar and Garadag valuation (2023-36E)

$m (unless stated)	2023E	2024E	2025E	2026E	2027E	2028E	2029E
PTP				9.576	14.365	51.916	51.916
Tax				-3.064	-4.597	-16.613	-16.613
NOPAT				**6.512**	**9.768**	**35.303**	**35.303**
Depreciation & amort.				4.149	6.224	22.494	22.494
Change in working cap.				0.000	0.000	0.000	0.000
Capex & exploration	0.000	-20.000	-100.000	-50.000	-20.000	-1.000	-1.000
Free cashflow		**-20.031**	**-100.000**	**-39.339**	**-4.008**	**56.797**	**56.797**
Discount rate = 8%							
Discount factor	1.00	0.93	0.86	0.79	0.74	0.68	0.63
Disc. free cashflow	**0.000**	**-18.519**	**-85.734**	**-31.228**	**-2.946**	**38.655**	**35.792**

Source: Hardman & Co estimates

Copper 1 – Xarxar and Garadag valuation (2030-36E & summary)

$m (unless stated)	2030E	2031E	2032E	2033E	2034E	2035-36E	Total
PTP	51.916	51.916	51.916	42.340	37.552	75.104	**438.519**
Tax	-16.613	-16.613	-16.613	-13.549	-12.017	-24.033	**-140.326**
NOPAT	**35.303**	**35.303**	**35.303**	**28.791**	**25.535**	**51.071**	**298.193**
Depreciation & amort.	22.494	22.494	22.494	18.345	16.270	32.541	**190.000**
Change in working cap.	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**
Capex & exploration	-1.000	-1.000	-1.000	-1.000	-1.000	-2.000	**-199.000**
Free cashflow	**56.797**	**56.797**	**56.797**	**46.136**	**40.806**	**81.611**	**289.193**
Discount rate = 8%							
Discount factor	0.58	0.54	0.50	0.46	0.43	0.39	
Disc. free cashflow	**33.141**	**30.686**	**28.413**	**21.370**	**17.501**	**31.209**	**98.339**
Total cum. disc. FCF		**98.339**					
FD shares (m)		114.242					
Valuation/share ($)		0.86					
$/£		1.21					
Valuation/share (£)		**0.71**					

Source: Hardman & Co estimates

Summary of assumptions for Xarxar and Garadag

The table below summarises our key assumptions for the two projects.

Xarxar and Garadag projects – key assumptions

Year-end Dec ($m)	Xarxar	Garadag	Combined
Initial LOM	8 years	9 years	11 years
Ore grade (Cu)	0.46%	0.49%	0.48%
LOM ore prodn. (before recovery/PSA) (mt)	21.0	66.3	85.1
AAZ share (after PSA)	87.25%	87.25%	87.25%
Copper recovery	85%	85%	85%
LOM copper prodn. (before recovery/PSA)	96,600	324,686	421,286
LOM copper production (AAZ share)	71,641	240,795	312,436
Copper production p.a. (at full production)	11,730	30,665	42,395
Copper price LOM ($/tonne)	8,000	8,000	8,000
Copper price LOM ($/lb)	3.63	3.63	3.63
TC/RC ($/tonne, $/lb)	8.00/0.08	8.00/0.08	8.00/0.08
Cash operating cost ($/lb Cu)	2.60	2.60	2.60
Tax charge	32.0%	32.0%	32.0%
Initial capital cost	n/a	n/a	190.0
Maintenance capex (p.a.)	n/a	n/a	1.0
Discount rate	n/a	n/a	8.0%
NPV ($m)			98.339
$/£			1.21
F.D. shares (m)			114.242
NPV (£ per AAZ share)			0.71

Source: Hardman & Co Research

Combined valuation of baseline Gedabek and Copper 1 – Xarxar and Garadag is £1.47

It is worth highlighting that our valuation of Copper 1 – Xarxar and Garadag is more than our estimate of the fair value for AAZ's existing operations at Gedabek and the Gilar/Zafar projects, i.e. Baseline Gedabek. Our combined valuation for

Baseline Gedabek + Copper 1 – Xarxar and Garadag

is shown in the following table:

AAZ combined valuation

	$m	£m	£/share
Baseline Gedabek	105.693	87.349	0.76
Copper 1 – Xarxar and Garadag	98.339	81.272	0.71
Total	**204.032**	**168.621**	**1.47**

Source: Hardman & Co estimates

We complete our aggregate valuation estimate for AAZ from a DCF valuation of Demirli below.

Copper 2 – Demirli

Another substantial mining development

AAZ's plan is that Copper 1 – Xarxar and Garadag will be followed by the commissioning of another substantial copper (and molybdenum) mining development, located in the Kyzlbulag and Demirli contract areas. For the time being, this is complicated by the difficulties of access to the Karabakh region, where Russian forces are acting as peacekeepers.

The existence of a mine and processing facility at Demirli means that their value to AAZ shareholders could be substantial. A resource estimate from the Soviet era suggested that the deposit contained more than 300,000 tonnes of copper. The mine and processing facilities (under Armenian control) are believed to have been in operation as recently as 28 December 2022, and, therefore, may require little additional capital to restart.

Production

Working assumptions for Demirli

Our working assumption is that Demirli contained 56.0m tonnes of ore, 275,000 tonnes of copper and 3,200 tonnes of molybdenum at the end of December 2015. These estimates are in line with media reports shortly after the processing plant was inaugurated on 26 December 2015 (see below).

Calculating the remaining resources

For the intervening years of 2016-22, we have assumed that the production plant was fully utilised, with 1.7m tonnes p.a. of production during 2016-20 and two conflict/COVID-19-affected years in 2021-22. We have also assumed that, to maximise the mine's NPV, high-grading was taking place at 50% higher than the average grades of 0.49% for copper (actually 0.4911%) and 0.0057% for molybdenum (actually 0.005714%).

Demirli – mineral resources & reserves

	Ore (mt)	Copper (t)	Copper (%)	Molyb. (t)	Molyb. (%)
Measured, Indicated & Inferred equiv.	56.0	275,000	0.49%	3,200	0.0057%
Total est. end-2015	**56.0**	**275,000**	**0.49%**	**3,200**	**0.0057%**
2016 est. prodn.	-1.7	-12,524	0.74%	-86	0.0086%
2017 est. prodn.	-1.7	-12,524	0.74%	-146	0.0086%
2018 est. prodn.	-1.7	-12,524	0.74%	-146	0.0086%
2019 est. prodn.	-1.7	-12,524	0.74%	-146	0.0086%
2020 est. prodn.	1.7	-12,524	0.74%	-146	0.0086%
2021 est. prodn	-1.0	-7,637	0.74%	-86	0.0086%
2022 est. prodn.	-1.0	-7,637	0.74%	-86	0.0086%
Total est. prodn. 2016-22	-10.5	-77,084		-900	
Total est. end-2022	**45.5**	**197,916**	**0.43**	**2,300**	**0.0051%**

Source: AAZ, Hardman & Co estimates

Earnings and valuation

We have estimated a tentative Demirli valuation

We have estimated a tentative DCF valuation for Demirli on the basis that the mine and processing plant are relatively undamaged. Our assumption is that AAZ can restart the mine and increase processing capacity to 3.5m tonnes p.a. for a total cost of $30.0m in a timeframe of one year. In our discussions with AAZ, the company has emphasised that the cost could be substantially lower than our estimate, and could take less than one year (there is an existing workforce, for example).

We have incorporated a 13-year life-of-mine – 45.5mt of ore at 3.5mt p.a. – and copper and molybdenum prices of $8,000/tonne and $30,000/tonne, respectively. Aside from the $30.0m that we have assumed AAZ will need to spend to restart the mine and processing operations, the company has confirmed that the Demirli assets will be brought on to AAZ's balance sheet (and for the purposes of the PSA) at nil cost.

Investment at Demirli $130-$250m

It is worth highlighting how beneficial this is for shareholders. In our detailed discussion of Demirli later in this report, we have highlighted media reports that disclose the level of investment in Demirli by the former operators of the mine and processing facility when the region was under Armenian control. It is not helpful that the two figures are so different, being $130m and $250m, respectively. It is unlikely that AAZ will be able to access the correct figures; however, it is clear that the investment has been substantial.

We estimate a fair value of 67p per share

In the DCF valuation below, we assume that AAZ can obtain full access to the Demirli operation from the beginning of 2026 – after Russian peacekeepers are scheduled to leave in November 2025. The timeline could change, but this is what we have to work with currently. Please note that the valuation is discounted back to today – the discount factor for "2026E" is 0.79, not 1.00, i.e. four years out.

Based on this timeline and our other assumptions (see next page), our fair value for Demirli is 67p/share. In comparison, if AAZ had access to Demirli today, and could begin work on the project immediately, we estimate that the valuation would increase to 83p/share.

Copper 2 – Demirli DCF valuation (2026-39E)

$m (unless stated)	2026E	2027E	2028E	2029E	2030E	2031E	2032E
PTP		26.695	26.695	25.570	24.876	24.876	24.876
Tax		-8.542	-8.542	-8.182	-7.960	-7.960	-7.960
NOPAT		**18.153**	**18.153**	**17.388**	**16.915**	**16.915**	**16.915**
Depreciation & amort.		2.444	2.444	2.341	2.277	2.277	2.277
Change in working cap.		0.000	0.000	0.000	0.000	0.000	0.000
Capex & exploration	-30.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Other		0.000	0.000	0.000	0.000	0.000	0.000
Free cashflow	**-30.000**	**19.596**	**19.596**	**18.728**	**18.193**	**18.193**	**18.193**
Discount rate = 8%							
Discount factor	0.79	0.74	0.68	0.63	0.58	0.54	0.50
Disc. free cashflow	**-23.815**	**14.404**	**13.337**	**11.802**	**10.615**	**9.829**	**9.101**

Source: Hardman & Co estimates

Copper 2 – Demirli DCF valuation (2033-39E & summary)

$m (unless stated)	2033E	2034E	2035E	2036E	2037E	2038-39E	Total
PTP	24.876	24.876	24.876	24.876	24.876	49.752	**327.717**
Tax	-7.960	-7.960	-7.960	-7.960	-7.960	-15.920	**-104.869**
NOPAT	**16.915**	**16.915**	**16.915**	**16.915**	**16.915**	**33.831**	**222.847**
Depreciation & amort.	2.277	2.277	2.277	2.277	2.277	4.554	**30.000**
Change in working cap.	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**
Capex & exploration	-1.000	-1.000	-1.000	-1.000	-1.000	-2.000	**43.000**
Other	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**
Free cashflow	**18.193**	**18.193**	**18.193**	**18.193**	**18.193**	**36.386**	**209.847**
Discount rate = 8%							
Discount factor	0.46	0.43	0.40	0.37	0.34	0.31	
Disc. free cashflow	**8.427**	**7.803**	**7.225**	**6.689**	**6.194**	**11.045**	**92.655**

Total cum. disc. FCF	**92.655**
FD shares (m)	114.242
Valuation ($)	0.81
$/£	1.21
Valuation (£)	**0.67**

Source: Hardman & Co estimates

Summary of our assumptions for Demirli

The table below summarises our key assumptions for Demirli.

Demirli project – key assumptions	
Year-end Dec ($m)	**Combined**
Initial LOM	13 years
Ore grade (Cu)	0.43%
Ore grade (Mo)	0.0051%
LOM ore production (before recovery/PSA) (mt)	45.5
AAZ share (PSA after subtracting capital/op. costs)	49.00%
Cu and Mo recovery	85%
LOM copper production (before recovery/PSA)	197,916
LOM copper production (AAZ share)	138,609
Copper production p.a. (AAZ share at full production)	10,521
LOM molybdenum production (before recovery/PSA)	2,300
LOM molybdenum production (AAZ share)	1,611
Molybdenum production p.a. (AAZ share at full production)	122
Copper price LOM ($/tonne)	8,000
Copper price LOM ($/lb)	3.63
Molybdenum price LOM ($/tonne)	30,000
Molybdenum price LOM ($/lb)	13.61
TC/RC (Cu $/tonne, $/lb)	8.00/0.08
Cash operating cost ($/lb Cu)	2.50
Tax charge	32.0%
Initial capital cost	30.0
Maintenance capex (p.a.)	1.0
Discount rate	8.0%
NPV ($m)	92.655
$/£	1.21
F.D. shares (m)	114.242
NPV (£ per AAZ share)	0.67

Source: Hardman & Co Research

Combined valuation of baseline Gedabek, Copper 1 – Xarxar and Garadag and Copper 2 – Demirli is £2.14

Our valuation of Copper 2 – Demirli is £0.67, based on the assumptions outlined above. The table below details our estimate of the combined fair value for AAZ of £2.14.

Baseline Gedabek + Copper 1 – Xarxar and Garadag + Copper 2 – Demirli

is shown in the following table:

AAZ combined valuation			
	$m	**£m**	**£/share**
Baseline Gedabek	105.693	87.349	0.76
Copper 1 – Xarxar and Garadag	98.339	81.272	0.71
Copper 2 - Demirli	92.655	76.575	0.67
Total	**296.687**	**245.196**	**2.14**

Source: Hardman & Co estimates

The "right" metals

Copper, gold, silver and zinc

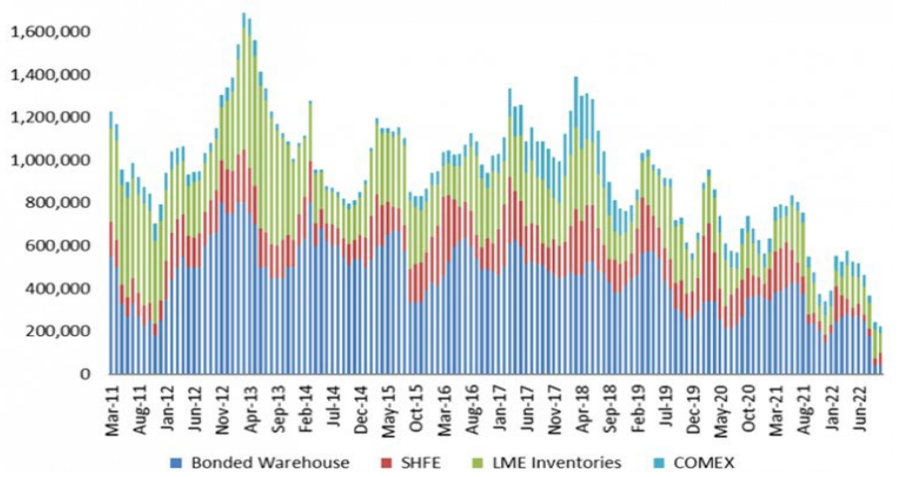
Leaving aside the potential for future production growth for a moment, AAZ's primary metal exposures, namely copper and gold, should be increasingly attractive to investors, in our view. Below, we summarise some key points on the outlook for copper and gold, as well as AAZ's by-products, zinc and silver.

Copper

Copper heading for shortage

Copper has already experienced a shortage in supply, and looks likely to move back into deficit on a medium-/long-term time horizon, if not earlier. This stems from the combined effects of a structural shortage in new mine supply and the demand boost from "green energy" applications. The chart below shows the severe decline in global copper inventories in metal exchanges and bonded warehouses since 2011.

Global copper inventories since 2011



Source: Trafigura

Trafigura's warning on copper inventories

In October 2022, the major commodities trader, Trafigura, warned that global copper inventories were dangerously low, being equivalent to only 4.9 days of consumption. The company's head of Metals and Minerals Trading, Kostas Bintas, noted that electric vehicle-related demand was more than compensating for the softness in the Chinese property sector. Media stories in early 2023 stated that Trafigura was planning to remove large amounts of copper from LME warehouses. While it declined to comment directly, Trafigura noted that "in an environment of constrained supply…we are ensuring we can continue to supply our customers with the metals they need".

ICSG and Fitch forecast slight easing in tightness in copper market in 2023

Reports from the International Copper Study Group and Fitch Ratings (ICSG) have forecast an easing in supply tightness in 2023. Both groups expect supply growth to slightly outpace the increase in demand, with low inventories helping to support prices. ICSG expects the copper market to move from a deficit of 325,000 tonnes in 2022 to a marginal surplus of 155,000 tonnes in 2023. This compares with estimates for global refined copper consumption in the region of 23.0m-24.0m tonnes. Fitch Ratings forecasts 2% growth in copper demand versus 4% growth in copper supply. However, in January 2023, Fitch raised its 2023 average price forecast from $8,400/tonne to $8,500/tonne, owing to a weaker supply outlook and a rebound in demand from the opening of the Chinese economy following the prolonged COVID-19 lockdown.

Gold

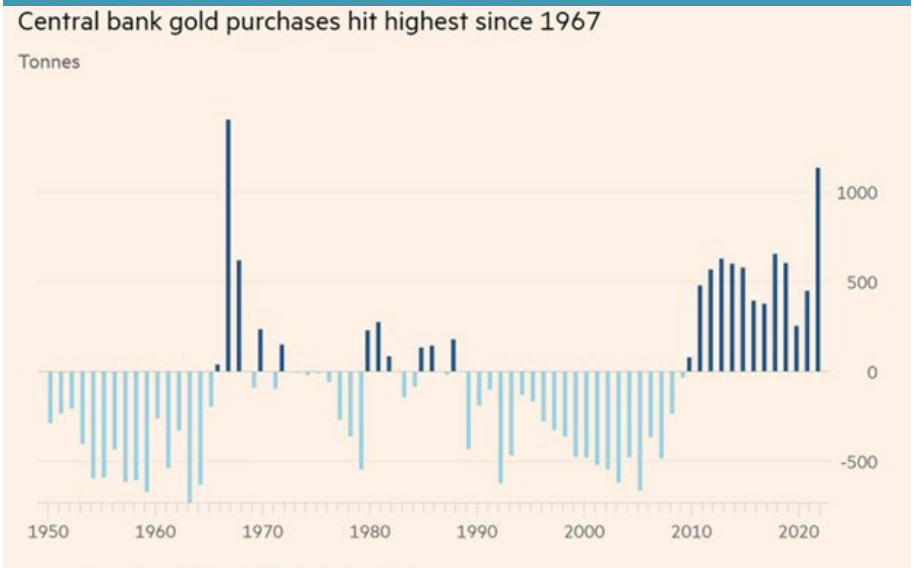
Gold in a world drowning in debt

Turning to gold, it should benefit from the shift to a more inflationary global economic environment. At the same time, central banks are constrained in their ability to counteract inflation without causing a severe recession (at best). The total global debt of governments, financial companies and non-financial corporates exceeds $300tr, more than 350% of global GDP. This compares with the peak debt/GDP ratio for the US in the Great Depression of 275%. In our view, it is likely that central banks will raise inflation targets, probably within the next 12 months. In the case of the Federal Reserve, we expect an increase from around 2% to around 3%.

Gold buying by central banks at highest level for more than 50 years

We are in a heavily extended global debt cycle, with out-of-control central bank balance sheets and government deficits. These factors are ramping up currency debasements. Central banks themselves are aware of this. Last year saw the fastest rate of central bank gold buying since 1967, which preceded the end of the gold price being fixed in US dollars at $35.0/oz in March 1968.

Gold buying by central banks, 1950-2020



Source: FT

Zinc

Zinc market in deficit again in 2023?

The zinc market was in deficit in 2022, and the International Lead and Zinc Study Group (ILZSG) expects this to continue in 2023, albeit at a lower level. The smelter and refining bottlenecks, which kept the market tight in 2022, are expected to continue in 2023. LME inventories have been in decline for around 18 months, and are critically low. The situation has barely eased so far in 2023.

LME zinc – warehouse stocks (5 years)

Source: www.kitco.com

Chinese zinc demand being compensated by new mine supply

Chinese zinc demand has recovered after the removal of the COVID-19 lockdowns but is being more than compensated for by production from new mines, some of which was delayed from 2022. However, the prospects for operating high-cost smelting capacity in Europe, for example, remain unclear, owing to volatility in energy prices.

Silver

Silver market in deficit for second successive year

The outlook for AAZ's by-products is also favourable. Based on the Silver Institute's estimates, silver demand is forecast to have reached a record in 2022, at 2.21bn oz, a 16% increase on the previous year. All market sectors, except photography, recorded a new peak. Net physical investment increased by 18%, to a record 329m oz. Mine production rose by 1%, to 830m oz. The global silver market was estimated to have been in deficit for a second consecutive year. At 194m oz, it was at "a multi-decade high", and more than four times the previous year's 48m oz.

Silver market balance, 2010-22

Source: Metals Focus

Gold-silver ratio out of line with historical average

Silver inventories have fallen sharply over the past two years. In London, for example, vault holdings of silver stood at 0.847m oz at the end of February 2023. This is 28% lower than the peak of 1.180m oz in 2021. The current gold/silver ratio of 94.2 is far above the historical average of around 15.0 times, although the ratio has generally averaged within the 60-70 times range in the past 30 years.

Mineralised systems upside

In previous reports on AAZ, we explained that, based on our assessment of the existing mines, known deposits and recently discovered targets, our belief was that the Gedabek and Ordubad contract areas were associated with large porphyry-epithermal mineralised "systems". In specific terms, we argued that:

We have argued that Gedabek and Ordubad have potential to be large mineralised systems…

- the Gedabek open-pit/underground mines, Gadir mine and former Ugur mine were likely part of a much larger porphyry-epithermal mineralised system; and
- the deposits in the Ordubad contract area were thought to be connected to a large copper-gold porphyry system.

…which means there is potential to go well beyond existing external and internal resource estimates

In other words, there is potential to economically exploit multiple deposits across any individual contract area, and more than one contract area, if they are linked. Consequently, there is potential for production that could go far beyond existing external/resource/reserve estimates and market expectations. This view is supported by:

- favourable regional and continental geology (see below);
- evidence of extensive further mineralisation adjacent to the existing mines at the Gedabek open pit, and Gadir;
- the linking of the Gadir and Gedabek underground mines; and
- the results of the Z-Axis Tipper Electromagnetic System (ZTEM) airborne geophysical survey in 2018, which confirmed a large number and broad distribution of targets (including possible porphyry-epithermal structures) across the Gedabek and Ordubad contract areas.

We stand by our thesis relating to Gedabek and Ordubad. We believe that key announcements by AAZ since our last report have provided evidence to support our thesis, and this thesis can likely be extended to some of the company's new and restored contract areas.

Two more mines, Gilar and Zafar, within Gedabek contract area

Within the Gedabek contract area, two more mines, Zafar and Gilar, have been developed. Zafar is located 3.5km northwest of the Gedabek open pit, and is believed to be linked to the Gedabek intrusion and an additional porphyry ZTEM anomaly nearby. Gilar is located 7km northeast of the Gedabek open pit and to the east of the Maarif copper-molybdenum porphyry mineral occurrence in the centre of the Gedabek area, and halfway towards the adjacent Xarxar contract area.

These mineral systems could incorporate more than one of AAZ's contract areas

We also note the Gedabek and Gosha contract areas, which border the recently awarded Garadag and Xarxar contract areas. This opens the potential for a larger mineral system, or systems, incorporating more than one of these contract areas. Garadag and Xarxar have known resources/deposits, and AAZ has purchased a large amount of exploration data undertaken by the previous concession holders. The company believes that Garadag and Xarxar are extensions of the Gedabek mineral system.

We would also note that the chart on page 4, showing AAZ's eight contract areas, shows how the restored Kyzlbulag contract area borders the recently awarded Demirli contract area. Once again, this raises the possibility that a larger mineralised system could straddle both contract areas.

In stress-testing our hypothesis, geology is our starting point – notably, the geological structure and location of AAZ's contract areas and deposits. Porphyry deposits are formed by hydrothermal fluids originating in a large magma chamber deep below the surface. The majority of the world's largest copper-gold mines are

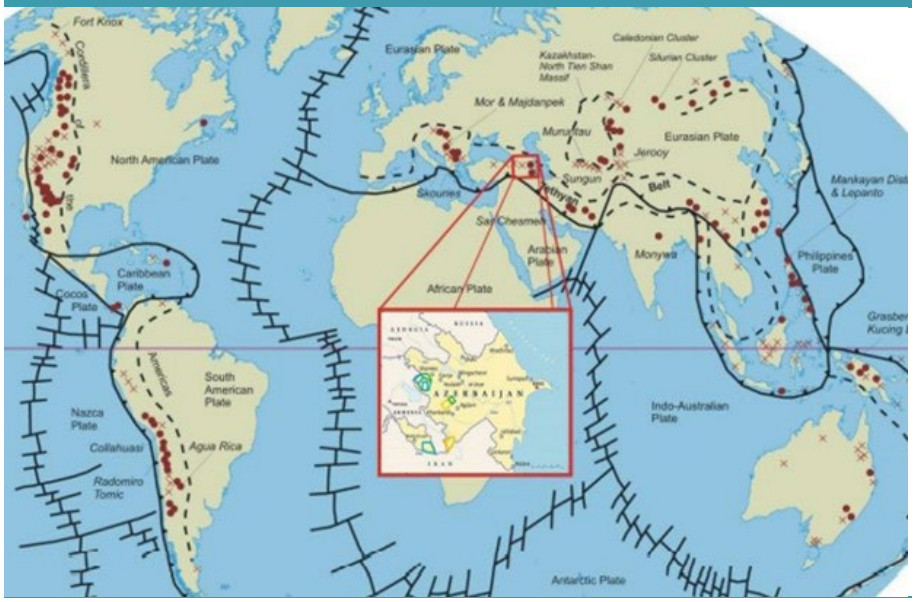
based on porphyry deposits, many with associated epithermal vein systems. High-profile examples include:

- Chuquicamata (the largest copper mine) and Escondida in Chile;
- Bingham Canyon in the US;
- Grasberg in Indonesia; and
- Oyu Tolgoi in Mongolia.

AAZ located in Tethyan Tectonic Belt

Geographically, porphyry deposits tend to be found in groups in mineral provinces, especially those located on linear orogenic belts. Orogenic belts form at convergent tectonic plate margins, when a continental plate crumples and is pushed upwards to form mountain ranges. Examples include the Andes in South America, the North American Cordillera and the Tethyan Tectonic Belt (TTB), the latter hosting AAZ's contract areas.

AAZ's location vis-a-vis TTB and orogenic belts worldwide



Source: AAZ

The biggest mines in the TTB are porphyry copper and/or hydrothermal gold deposits

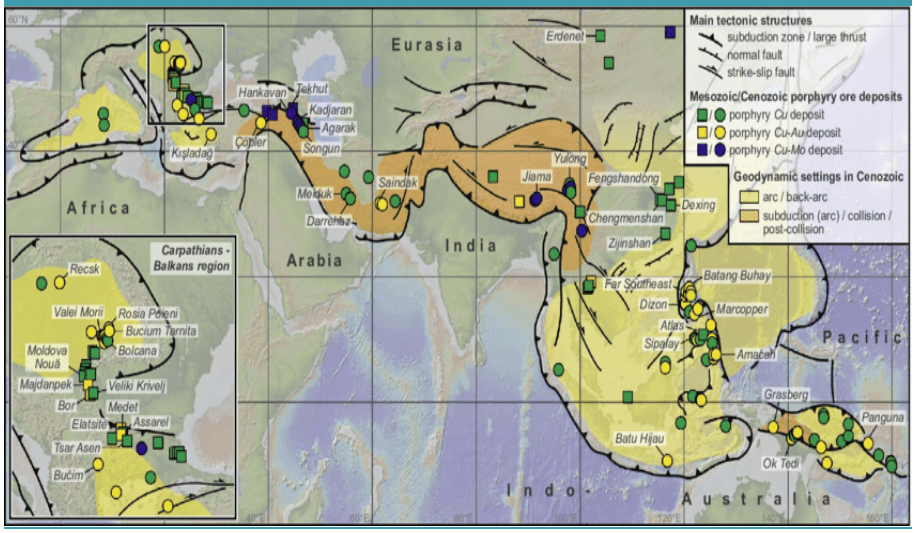
The major mines within the TTB contain porphyry copper and/or hydrothermal gold deposits, which are some of the largest sources of these metals worldwide. In many cases, they are sources of other base metals – silver and molybdenum. In his paper, *Tectonic, magmatic and metallogenic evolution of the Tethyan orogen: From subduction to collision*, Jeremy P. Richards, from the University of Alberta, noted that copper-molybdenum-gold porphyry deposits are the most common on the TTB:

"This paper reviews the tectonic, magmatic, and metallogenic history of the Tethyan orogen from the Carpathians to Indochina. Focus is placed on the formation of porphyry Cu±Mo±Au deposits, as being the most characteristic mineral deposit type formed during both subduction and collisional processes in this region…They are found throughout the orogen, but some sections are particularly well-endowed, including the Carpathians–Balkans–Rhodopes, eastern Turkey–Lesser Caucasus–NW Iran, SE Iran–SW Pakistan, southern Tibet, and SE Tibet– Indochina".

Large number of copper-gold-molybdenum deposits across TTB

It is noteworthy, from Richards' analysis, that he highlights the Lesser Caucasus as being one region of the TTB that is "particularly well endowed" with copper-gold-molybdenum porphyry deposits. The following chart shows their distribution across the TTB from southern Europe to south-east Asia.

Tethyan Tectonic Belt copper-gold-molybdenum deposits



Source: 3D Subduction dynamics, Menant et al, 2018

Cluster of major copper-gold deposits in Turkey-Azerbaijan-Georgia-Iran region

Narrowing the focus to the Turkey-Azerbaijan-Georgia-Iran section of the TTB shows how a cluster of major copper and gold deposits, both porphyry and epithermal, are located close to Gedabek (and Ordubad).

Major copper and gold deposits in Turkey-Azerbaijan-Georgia-Iran section

Figure 3-2: Mineral deposits in the Middle East portion of the Tethyan belt (Source: Anglo Asian Mining)

Source: AAZ

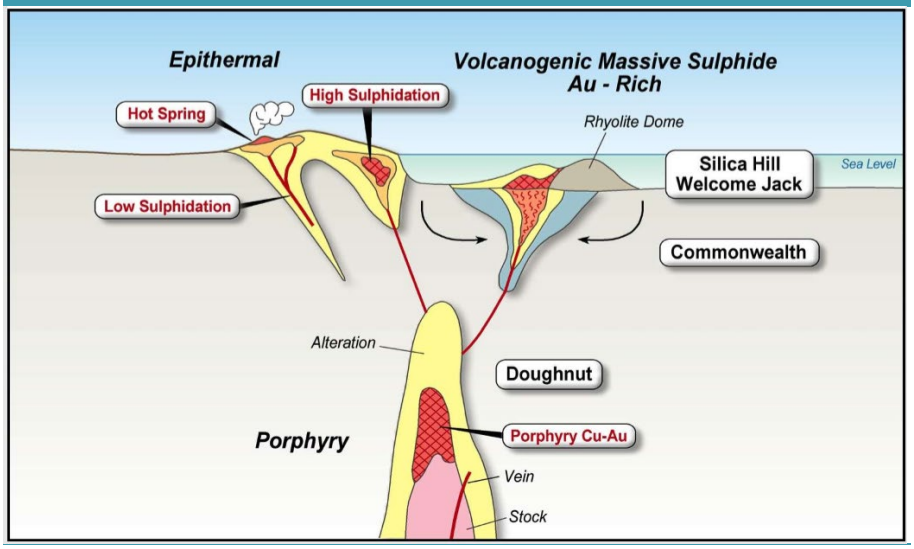
Epithermal-porphyry mineralisation in Gedabek contract area

The Gedabek contract area is located within the large Gedabek-Garadag volcanic-plutonic system. The mineralisation is characterised by a complex internal structure indicative of repeated tectonic movement and multi-cycle magmatic activity. In our opinion, the original Gedabek open pit, which has been classified as both porphyry and high sulphidation-epithermal, the nearby low-sulphidation epithermal mineralisation at Gadir and evidence of porphyry are likely to be indicative of a much larger mineral system.

HS/LS-sulphidation likely in upper part, with porphyry mineralisation at depth

The high-sulphidation (HS) and low-sulphidation (LS) epithermal mineralisation are probably in the upper part of a system, linked at depth with porphyry mineralisation, in a similar way to the illustration below by Impact Minerals (ignore references to its deposits).

Diagram of epithermal and porphyry system



Source: Impact Minerals

ZTEM survey supports our thesis

AAZ undertook an airborne geophysical (ZTEM) survey at Gedabek. The ZTEM system is suited to identifying targets for porphyry copper-gold and epithermal copper-gold-silver exploration. The key elements from the airborne survey were:

- It covered the entire contract area, covering 3,385 linear kilometres.
- Almost all of the geological alteration (change in rock composition, owing to hydrothermal liquids) is in a northerly direction (in line with the north-south strike), with more evidence in its northern part – in the direction of the Xarxar and Garadag contract areas.
- The geophysical anomalies and signatures identified 31 new drilling targets, six of which were consistent with porphyry systems.

AAZ believes that there is a large porphyry system at Gedabek

The results potentially indicated the existence of a large mineralised system in the Gedabek contract area, which is connected to a porphyry system at depth – although more work is needed to understand the porphyry structure laterally and vertically. It was clear from the May 2020 "Strategic Update" that AAZ's management team believes that Gedabek is based on a porphyry system:

"Gedabek is highly prospective with the potential to host a large porphyry system. Porphyry evaluation is planned for three years from 2021 to identify a mineral deposit suitable for mine development by 2024. A porphyry ore body could potentially provide sufficient ore to extend production into at least the mid-2030s".

We believe that large mineralised systems are likely present at Garadag/Xarxar, Kyzlbulag/Demirli and Ordubad

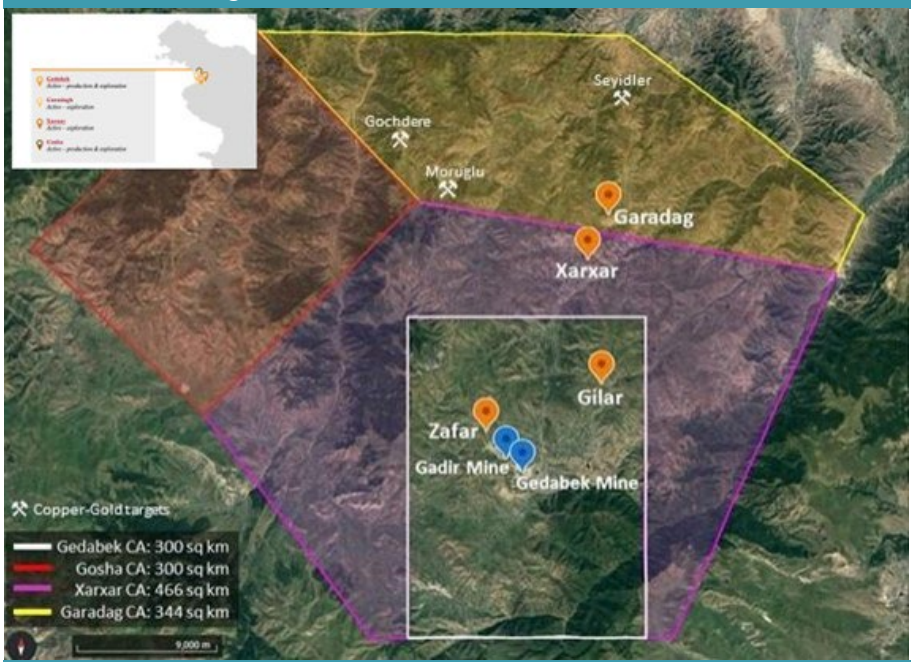
It is important to highlight that the Gilar and Zafar copper-gold-zinc projects will be the fifth and sixth mines to be opened within the Gedabek contract area. In chronological order, they follow the Gedabek open-pit, and the Ugur and Gedabek underground mines. Going forward, it is our view that Garadag/Xarxar, Kyzlbulag/Demirli and Ordubad will be shown to contain major epithermal-porphyry copper-gold mineral systems, able to be exploited via multiple deposits.

Xarxar and Garadag contract areas

Infilling the territory between Gedabek and Gosha

The award of the new Xarxar and Garadag contract areas extends the Gedabek contract area to the west, north and east, infilling the territory between Gedabek and Gosha. This creates a contiguous territory within AAZ's portfolio totalling 1,408 sq km, of which the new concessions add 808 sq km.

Xarxar and Garadag contract areas border Gedabek and Gosha



Source: AAZ

The two new contract areas contain:

- Xarxar – a copper deposit in the upper part of a porphyry; and
- Garadag – a copper and molybdenum porphyry deposit.

Both are accessible from the main road that runs from Gedabek to Shamkir.

Xarxar, Garadag and Gedabek part of same mineral system?

AAZ believes that Xarxar and Garadag are part of the same mineral system as Gedabek. However, the mineral system is potentially larger, and may include all or part of the Gedabek and Gosha contract areas. If so, it is likely that the Gilar and the Avshancli target – both located near the northern boundary of the Gedabek contract area – are also part of this system. Indeed, Gilar, Avshancli, Xarxar and Garadag are situated within a 10 sq km area. The development of deposits in these areas might offer synergies in terms of extraction, processing and logistics. AAZ has noted:

"Coordinated development across the properties will be advantageous as the Company invests to exploit these substantial resources".

Xarxar and Garadag contracts should prove transformative for AAZ

The award of the Xarxar and Garadag contract areas should prove transformative for AAZ. Our valuation of the project (Copper 1 – Xarxar and Garadag) exceeds our Baseline Gedabek valuation of the company's existing mines, along with the Gilar and Zafar projects.

Soviet resource estimate almost 320,000 tonnes of copper

The 1992 Soviet estimate for Garadag consisted of C1 and C2 classifications for resources – which are broadly comparable with "Indicated" and "Inferred" categories under western standards. In aggregate, the C1 and C2 resource estimate amounts to almost 320,000 tonnes of copper, with an average ore grade of 0.64%.

Garadag Soviet resource estimate

	Ore (mt)	Grade (%)	Copper (kt)
Category 1	25.35	0.65%	168.0
Category 2	23.69	0.64%	150.7
Total	**49.04**	**0.64%**	**318.7**

Source: AAZ

In-situ value of copper almost $2.7bn

On 27 March 2023, AAZ announced that, based on its initial assessment of the exploration data, it had confirmed the potential to produce over 300,000 tonnes of copper. In terms of copper alone, the *in-situ* value of these resources is almost $2.7bn. Like Demirli (see below), the deposit is believed to contain molybdenum, although the magnitude and grade at Garadag are unknown.

Substantial exploration data now in AAZ's possession…

In terms of developing Xarxar and Garadag mines, a benefit was the announcement, on 18 August 2022, that AAZ had acquired the exploration data, associated studies and reports from the previous concession holder, AzerGold CJSC. AAZ agreed to pay $4.0m, of which $0.7m was for Xarxar data and $3.3m for Garadag data. The first $1.0m was payable immediately, with the remainder after three years, or on approval of each deposit's development plan, if earlier. The data cost, along with operating and capital costs, is deductible from AAZ's PSA in the calculation of profit production.

…including nearly 30,000 metres of drill core

The volume of data now in AZZ's possession regarding the deposits is substantial. For example, in terms of drill core and chemical assays, there is:

- Garadag – 23,454 metres of drill core and 9,645 chemical assays; and
- Xarxar – 4,923 metres of drill core and 805 chemical assays.

In relation to Garadag, the data in AAZ's possession contain an initial scoping study for mine development, including:

- a preliminary resource estimate;
- options for mine development, based on open-pit designs;
- potential mining schedules;
- outline metallurgical flow sheets; and
- baseline environmental and socio-economic assessments.

The company undertook a review to evaluate the best approach to developing these deposits. This included analysing ore grade distribution, whether the mines should be open-pit or underground, and the trade-off between different methods of processing.

Xarxar

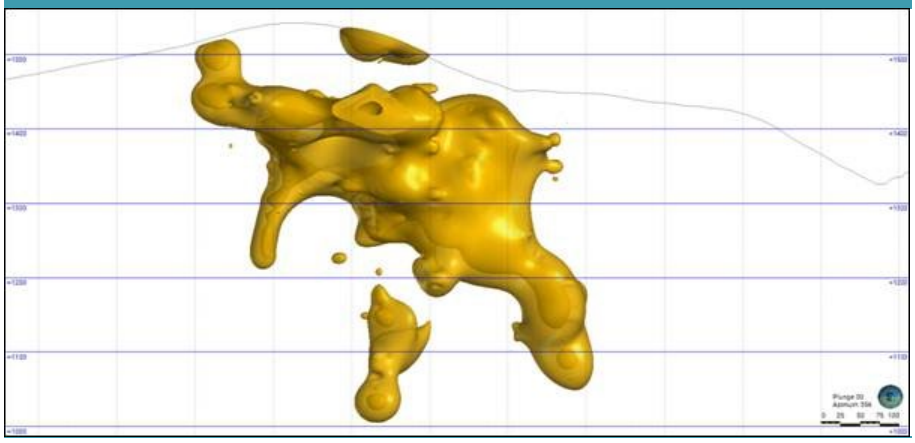
The Xarxar mine will be developed first…work advancing rapidly

Despite being the smaller of the two projects, AAZ will develop Xarxar first – with construction of the mine and associated processing facilities expected to begin in mid-2024. A new portal has been opened, and a tunnel is under construction. With no published resource estimate for Xarxar, AAZ immediately initiated its own drilling programme to complement earlier exploration work, after taking control of the new concessions in July 2022. So far, 19 drill holes have been completed, with more in progress – which is in addition to 23 holes drilled in the Soviet era and 15 by AzerGold CJSC.

Section through 3D model of ore body

On 13 March 2023, the company published its initial exploration model of the mineralisation contained in a zone that is roughly 500 metres east-west by 290 metres north-south. A section through the 3D model is shown below. The mineralisation is primarily copper in oxides and secondary sulphides.

Xarxar initial mineralisation model



Source: AAZ

Open-pit mine likely

On the basis of exploration work, AAZ believes that there is the potential for an open-pit mine, which would be lower-cost, with access to greater ore tonnages. The majority of mineralisation begins at a depth of 25-115 metres, and extends to a depth of more than 500 metres. An open-pit mine study is in progress.

A working resource estimate

AAZ's internal target has been to establish a resource in the range of 18.0m-21.0m tonnes of ore, with a grade of around 0.45% copper. It is based on previous and AAZ's exploration and modelling work. We believe that the internal resource model is based on a combination of categories equivalent to Measured, Indicated and Inferred. From discussions with AAZ, we have assumed the following resource estimate used in the Copper 1 – Xarxar and Garadag model.

Xarxar resource estimate

	Ore (mt)	Grade (%)	Copper (kt)
Measured, Indicated & Inferred equiv.	21.00	0.46%	96.60
Total	**21.00**	**0.46%**	**96.60**

Source: Hardman & Co Research

As noted earlier, our Copper 1 – Xarxar and Garadag model assumes that the Xarxar mine begins operating in late 2025, with full production of 3.0m tonnes p.a. of ore.

Garadag

For Garadag, AAZ working off comparable resource estimate to 1992

AAZ's aim with Garadag has been to establish a resource estimate comparable, in terms of contained copper, with the 318,700 tonnes from 1992.

Garadag resource estimate, 1992

	Ore (mt)	Grade (%)	Copper (kt)
Category C1	25.35	0.65%	168.0
Category C2	23.69	0.64%	150.7
Total C1+C2	**49.04**	**0.64%**	**318.7**

Source: Hardman & Co Research

Initial assessment confirms over 300,000 tonnes of copper

AAZ is in possession of a substantial volume of exploration data (including nearly five times more drilling than at Xarxar), a published resource estimate and a preliminary mine plan. On 27 March 2023, the company announced that an initial assessment of historical data relating to the Garadag deposit had confirmed its potential to produce at least 300,000 tonnes of copper.

It should be emphasised that this has not been prepared according to the Joint Ore Reserve Committee (JORC) standard, although a resource estimate based on the JORC code is planned for publication in mid-2024. According to AAZ Vice President, Stephen Westhead:

"While only a preliminary assessment, we are incredibly excited by Garadag's development potential, and believe it can produce between 20,000 to 25,000 tonnes of copper per annum. We are currently conducting further validation processes…including producing a JORC-compliant mineral resource estimate".

Our estimates for annual production and resources…

Our estimate of "steady state" annual production for Garadag – assuming 85% recovery and the minimum 12.75% GoA production share – is 25,438 tonnes, which is at the top end of AAZ's production target. This is based on the following resource estimate for Garadag:

Garadag – Hardman & Co resource estimate vs. 1992

	Ore (mt)	Grade (%)	Copper (kt)
Measured, Indicated & Inferred equiv.	64.13	0.49%	314.3
Total	**64.13**	**0.49%**	**314.3**
1992 estimate total	*49.04*	*0.64%*	*318.7*

Source: AAZ

…are in line with AAZ's internal estimates

In its 27 March 2023 announcement, AAZ noted that its current internal resource estimate, based on data received from AzerGold CJSC, showed an Indicated and Inferred resource estimate of 66.3m tonnes of ore and 324,688 tonnes of copper at 0.49%. The company noted that this incorporated "geostatistical methods according to JORC guidelines", but required further work to "satisfy the JORC Standard requirements". We, therefore, feel reasonably confident with the assumptions we have made for Garadag in our Copper 1 – Xarxar and Garadag model.

Bigger potential at Garadag

We should note that the potential for Garadag could be larger. AAZ has carried out further modelling of the ore body with different cut-off grades. A 0.30% copper cut-off grade could correlate with a resource of more than 800,000 tonnes of copper.

Garadag – AAZ modelling with different cut-offs

Cut-off (Cu %)	Ore (mt)	Grade (Cu %)	Copper (kt)
0.10	728.1	0.25%%	1,820.2
0.20	406.6	0.33%	1,341.8
0.30	191.1	0.43%	821.6
0.40	88.8	0.54%	479.4
0.50	43.7	0.64%	284.1

Source: AAZ

The current target for commissioning the Garadag mine is 2027, with a ramp-up to full production in 2027/28. The internal target is for production of around 7.0m tonnes p.a. of ore, more than twice as large as the projected Xarxar output.

Decision on processing facility

AAZ is planning to build a processing facility to service both mines. This will represent a major investment for AAZ, whether it decides to go with the less expensive biological heap leaching route, followed by solvent extraction-

electrowinning ("SX-EW") or, more likely, flotation and a large tailings dam. The capacity of the tailings dam will need to be approximately 10.0m tonnes p.a. to accommodate the aggregate output of both mines.

We assume AAZ will chose flotation route

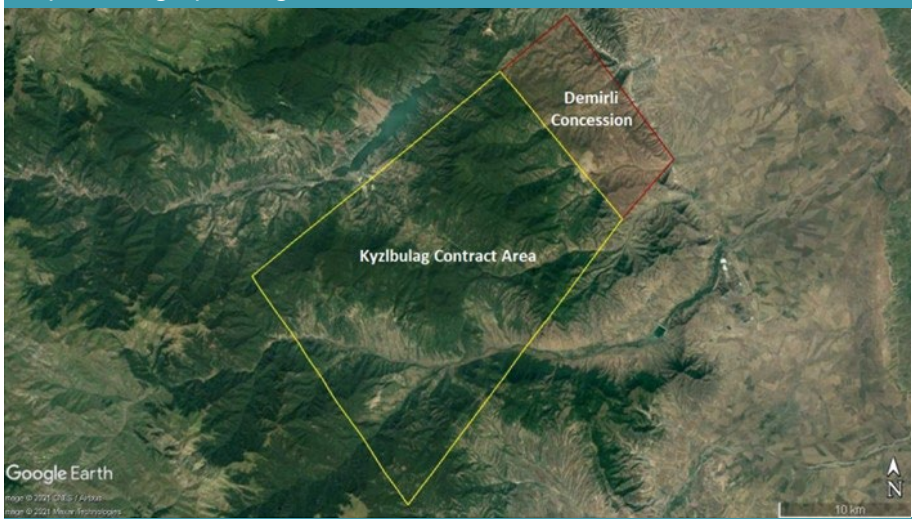
AAZ has estimated that the overall cost of the processing facility is likely to be around $140m if the company chooses the flotation route. This would probably be somewhat more than double the biological leaching followed by the SX-EW route. However, it offers significantly higher metal recoveries of around 85.0%, versus around 60.0% for the latter. In our model, we have assumed that AAZ chooses the flotation route. Our Copper 1 – Xarxar and Garadag model assumes a total cost for the processing facility and mine of $190m.

Kyzlbulag and Demirli areas

Contract areas are adjacent

The restored Kyzlbulag contract area is located in the Karabakh region, with the new Demirli contract area extending AAZ's concession by about 10km to the northeast. The latter is small in area compared with other contract areas, being only 74 sq km.

Map showing Kyzlbulag and Demirli contract areas



Source: AAZ

The two new contract areas include:

- Kyzlbulag – several former mines, including one believed to have produced significant amounts of gold, and many deposits/targets; and
- Demirli – a copper/molybdenum mine, which is believed to have substantial reserves, and a processing plant that is thought to be intact.

Former gold-copper mine suggests presence of mineral system at Kyzlbulag

AAZ has commented on having found indications that up to 35,000 oz p.a. of gold were extracted from the Kyzlbulag gold-copper mine, before closure. It suggests the presence of a gold-copper mineral system. However, the conditions of the former mines and exploration upside relating to known deposits/targets are unclear.

Demirli mine and processing plant could be highly significant for AAZ

The initial priority is to assess the Demirli property ("Kashen" in Armenian), and the condition of the mine and the processing plant, as this may be highly significant for AAZ shareholders. Media reports state that the mine began operating in 2013 and the processing plant in December 2015. AAZ believes that the processing plant is intact, although it is not currently operating, in the wake of the Armenian withdrawal.

Media reports on scale of Demirli mining and processing operations

AAZ carries a report on its website from *Azatutyun* media in Armenia from 5 January 2016. It estimates that the deposit contains an estimated 275,000 tonnes of copper and 3,200 tonnes of molybdenum, and that $130m was invested in the processing plant. The report, entitled *New Mining Complex Inaugurated in Karabakh*, notes:

"An Armenian mining giant has built a new copper and molybdenum ore processing plant in Nagorno-Karabakh as part of the biggest business project implemented in the territory in more than a decade. Vallex Group inaugurated the modern plant late last month shortly after launching open-pit mining operations at the nearby Kashen deposit…containing an estimated 275,000 metric tons of copper and 3,200 tons of molybdenum. The company claims to have invested $130m in the new facilities currently employing more than 1,400 people."

The report attributes a comment to the former owner, Vallex Group (see below), that:

"the Kashen deposit contains about 56 million tonnes of ore".

It also attributes a comment to the Karabakh Prime Minister that the deposit's reserves were sufficient to:

"keep the new mining complex in operation for at least 25 years".

Reports suggest annual revenue of approximately $96.0m p.a. at current copper and molybdenum prices

Based on 56m tonnes of ore over 25 years, i.e. just over 2.0mt per year, the Demirli mine and processing plant are capable of producing approximately 11,000 tonnes p.a. of copper, with a grade of 0.49%, and 128 tonnes p.a. of molybdenum. This amounts to annualised revenue of $96.0m at current copper and molybdenum prices.

Azerbaijan's foreign ministry also noted a $130m investment in Demirli…

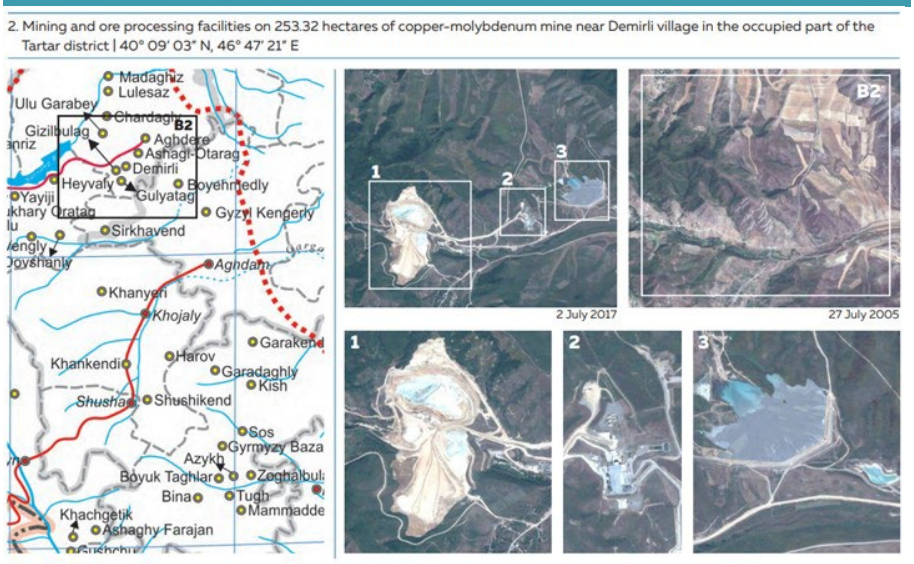
A 2019 report by the Ministry of Foreign Affairs of the Republic of Azerbaijan, *Illegal Economic And Other Activities In The Occupied Territories Of Azerbaijan*, highlighted some of the foreign interests that contributed to the mine's financing:

"The Vallex Group CJSC has invested some $130 million in exploitation of the mine that became operational in 2015…The company employs some 1,400 workers, including mining engineers from Armenia, Russia, Republic of South Africa and elsewhere. At least one of the reported sources of the investment for this project is VTB Bank (France) SA and VTB Bank (Armenia), which are part of Russia-based VTB Group. According to Base Metals CJSC Financial Statements for 2013, in 2011, a loan agreement for $25 million and in 2013, a loan agreement for $11 million were signed, respectively, with VTB Bank (France) SA and VTB Bank (Armenia)".

…along with showing "before and after" photographs of mining operations

Contained in the report were "before and after" photographs of the Demirli area in 2017 and in 2005, before commissioning of the mining and processing operations.

Before and after photographs of mining operations



Source: Ministry of Foreign Affairs of the Republic of Azerbaijan

Processing plant's initial capacity of 1.7m tonnes p.a.

The report noted that the plan for the first 10 years of the processing plant's operation was to produce 17mt of ore:

"According to the programme, about 17 million tons of ore will be processed in this mine during the coming 10 years. Armenia supplies energy to the exploitation of the mine through "Sotk-Karvachar-Aterk" high-voltage power grid, which was built specifically for this purpose".

With plans to double capacity

It also noted a plan to double processing capacity:

"A factory was built nearby to process ore with annual capacity of up to 1.8 million tons, and in the near future it is planned to be expanded to process some 3.5 million tons of ore".

A different media report suggests a higher level of 14,000-15,000 tons p.a. of copper

The Azeri Non-Government Organisation (NGO) "To Healthy Life" published an article on its website (*ecolifeinfo.az*) on 21 January 2021, entitled *On the development of mining deposits in Karabakh*. It stated that production at the Demirli mine began in May 2013 and stated the same ore reserves number of 56m tonnes. However, it quoted a higher figure of "14-15,000 tons" for annual copper production (note: Base Metals is the operating subsidiary of Vallex Group):

"According to the latest data from Base Metals, proven ore reserves of the Demirli field are estimated at 56 million tons. In this regard, a mining processing plant with a capacity of 1.75 million tons to 3.5 million tons of ore per year was built in Tartar. This means annual copper production of 14-15,000 tons worth more than $ 100 million".

Below is a photograph of the inauguration ceremony at the processing plant, which is said to have taken place on 26 December 2015.

Demirli processing plant inauguration ceremony

Source: Azatutyun

Another photograph of the processing plant was published in a December 2020 article on the Armenia-based Hetq Online investigative journalist website.

Demirli processing plant

Source: Hetq

The article noted that the Artsakh (Armenian name for Karabakh) government was likely to lose "one of its biggest taxpayers", with the region returning to Azeri control, suggesting that Demirli was making significant profits.

Two reports suggesting that total investment at Demirli is $250m, nearly twice figure cited elsewhere

An article from *eurasia.net* on 27 January 2021 suggested that that Base Metals invested as much as $250m in the mining complex as a whole:

"Vallex claimed, in July 2020, that it had invested $250 million in the site, which employed almost 1,500 people".

The Hetq Online article also noted the $250m figure for total investment:

"Vallex, in a July 2020 public relations video, said it had invested US$250 million in the Kashen mining complex, providing 1,450 jobs".

Near-term outlook complicated by Russian peacekeepers…until 2025?

The near-term outlook for Demirli is complicated by the presence of Russian peacekeepers in Karabakh. Under the ceasefire agreement, this is currently expected to be the case until November 2025, unless alternative arrangements can be agreed. AAZ believes that the mine and processing plant are in good condition and are thought to have been operating as recently as 28 December 2022, when activity was suspended.

Demirli operations suspended after blockade of Lachin corridor

The suspension followed Azerbaijan's blockade of the road – known as the Lachin corridor – connecting Karabakh to Armenia on 12 December 2022. A large group of Azerbaijan citizens was reported to have blocked the road in protest at illegal mining on Azerbaijani territory. One of the demands of the protesters was that the Russian peacekeeping forces permitted representatives of Azerbaijani government agencies to monitor the mines in the territory. There are thought to be as many as 160 deposits in territories formerly occupied by Armenia.

Gedabek contract area

Gedabek open-pit and underground mines

Gedabek open pit

Open pit producing since 2009

The Gedabek open pit is AAZ's flagship mine, and has been producing gold (initially), silver and copper since 2009. It is located at the site of a former Siemens mine, which operated from 1864 to 1917. Siemens' focus was on mining the sulphide copper orebodies lying beneath the Misdag mountain, which overlooks Gedabek village.

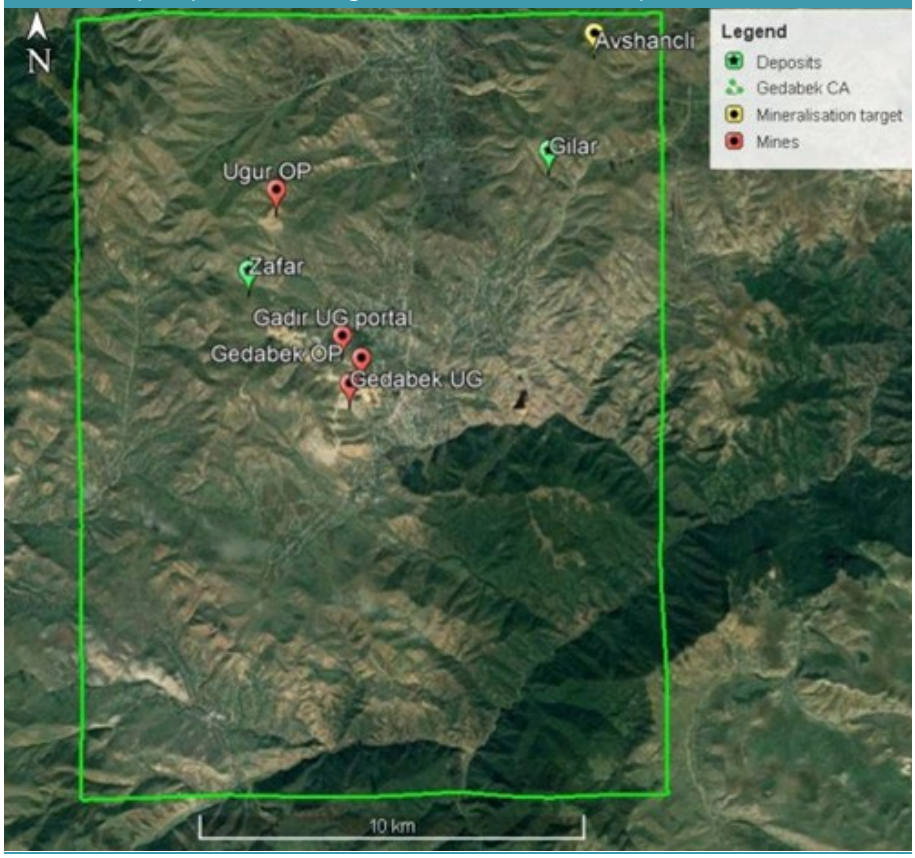
Epithermal system with likelihood of large porphyry at depth

The gold-copper-silver mineralisation has a north-south strike of c.1,300 metres, covering a total area of about 1 sq km. In geological terms, this is classified as an HS epithermal system, although the company believes that there is a large porphyry system at depth, feeding into the epithermal system. However, it is thought that the depth of the porphyry system declines as it goes north towards the perimeter of the Gedabek contract area and into the adjacent Xarxar and Garadag contract areas. If so, this could be very positive for large-scale exploitation of these deposits.

A series of mines, deposits and targets in the northern part of the contract area

The satellite picture below shows the location of the Gedabek open pit and nearby underground mine, and the now exhausted Ugur open pit. Also shown are the locations of the Zafar and Gilar deposits, and the Avshancli target in the northeast.

Gedabek open-pit and underground mines, and nearby assets

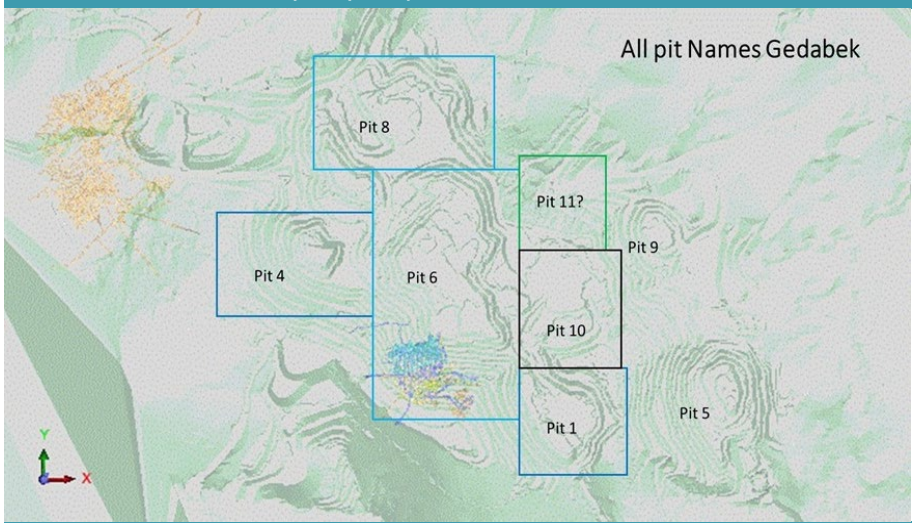


Source: AAZ

Eight open pits, as ore with higher gold grades has been mined out

The highest gold grades have generally been located in the oxidation zone, and often close to the surface in the central and southern zones of the deposit. As AAZ has exploited the mine by going deeper and laterally with eight additional open pits, gold grades have trended downwards, and copper grades have increased.

Gedabek schematic of open-pit layout



Source: AAZ

As gold grades have declined, AAZ has mined ore with higher grades of copper

The northern zone typically has mixed gold and copper mineralisation, with the higher-grade copper ore located in the east. Zinc-bearing minerals have been found around the west of the ore body, but have not been targeted so far. This could change following the upcoming commissioning of Zafar (see below), located in the northwest of the contract area for which provision is being made to process zinc-containing ores.

Exploration has focused on extending mine life

AAZ's strategy is focused on prolonging the open pit's life. In order to do this, a significant amount of exploration work has been undertaken, beginning in 2018, to better understand the ore body. This has included:

- exploring the strike extension of the mineralisation;
- assessing the southerly extension of copper mineralisation on the periphery of the open pit; and
- drilling the down-dip extension and accessing the ore body from underground – which also resulted in the opening of the Gedabek underground mine (see below).

AAZ has estimated remaining reserves/resources at open pit

In early 2023, AAZ estimated the remaining resources in the Gedabek open pit to enable it to plan for future mine production. This included a recently drilled extension to the mineralisation and nearby resources, currently classified as "Inferred", which the company believes are potentially exploitable:

- remaining Measured and Indicated resources in the open pit estimated on 1 January 2023;
- new open-pit extension estimated on 1 February 2023; and
- Inferred resources adjacent to pit borders.

The resources amount to almost 67,000 oz of gold and more than 20,000 tonnes of copper, and are summarised in the table below by AAZ's expected method of extraction (please note: ROM = run of mine). Of the total gold reserves, 94.1% are classified as Measured & Indicated.

Gedabek block – estimate of mineable gold and copper (January 2023)					
	Tonnes (t)	Gold (k oz)	Gold (g/t)	Copper (t)	Copper (%)
Agitation leaching	337,875	20,744	1.91	560	0.17%
Flotation	3,796,326	16,281	0.13	18,621	0.49%
HL crushed	266,160	7,983	0.93	348	0.13%
HL ROM	1,448,225	21,933	0.47	1,356	0.09%
Total	**8.347**	**66,941**	**0.36**	**20,885**	**0.36%**

Source: AAZ, Hardman & Co estimates

Our production estimates (see above) assume that 25,500 oz. of gold and 6,000 tonnes of copper from these resources are mined during 2023-24. The remainder may be exploited at a later data – for example when Gilar and Zafar are exhausted.

Stockpiles in addition to resources

In addition to the mine reserves, there is a small stockpile of mined ore and a substantial stockpile of previously heap leached ore, both crushed and ROM. We have incorporated these into our production estimates for 2023-31. Part of the reclaimed heap leach ore, with gold grades of at least 1.2g/tonne, is likely to be suitable for agitation leaching.

Gedabek block – stockpiles of extractable gold and copper (January 2023)					
	Tonnes (t)	Gold (k oz)	Gold (g/t)	Copper (t)	Copper (%)
Stockpile	554,585	6,194	0.35	2,174	0.42%
Reclaimed HL	1,393,896	38,093	0.85	n/a	n/a
Total	**1,948,481**	**44,287**		**2,174**	

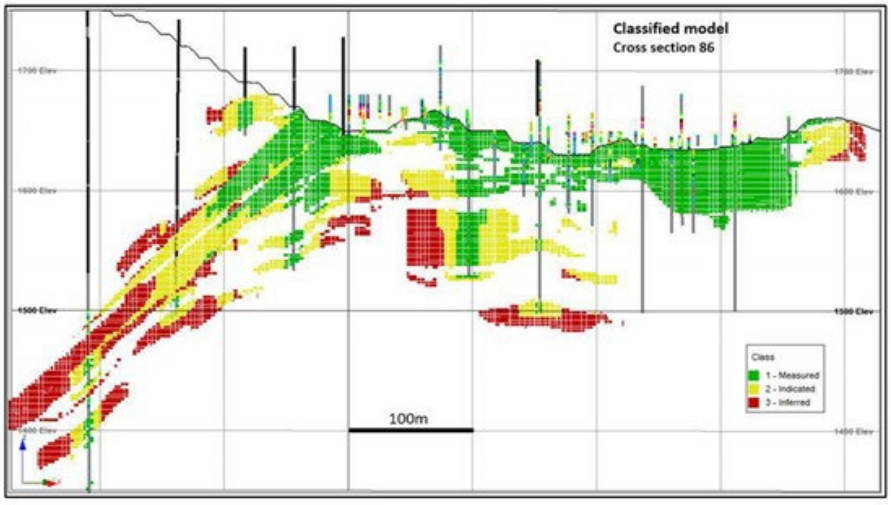
Source: AAZ, Hardman & Co estimates

Gedabek underground

Down-dipping mineralisation behind backwall of open pit

The Gedabek underground mine is located beneath the open pit, and was brought onstream in 2020. The resource model for the open pit showed the mineralisation dipping below the backwall. A decision needed to be made about whether to access the down-dip mineralisation from the open pit floor or underground.

Gedabek open-pit and underground resource model



Source: AAZ

Gadir linked to Gedabek underground via tunnel

In 2017, AAZ began constructing a tunnel from the Gadir underground mine towards a location about 100-120 metres beneath the backwall of the Gedabek open pit. The tunnel's purpose was threefold:

- to determine whether there was sufficient mineralisation to justify an underground mine beneath the Gedabek open pit;
- to assess the future potential for the Gadir mine, which would be integrated with a potential underground mine beneath the open pit; and
- to explore the geological relationship between Gadir and Gedabek mineralisation.

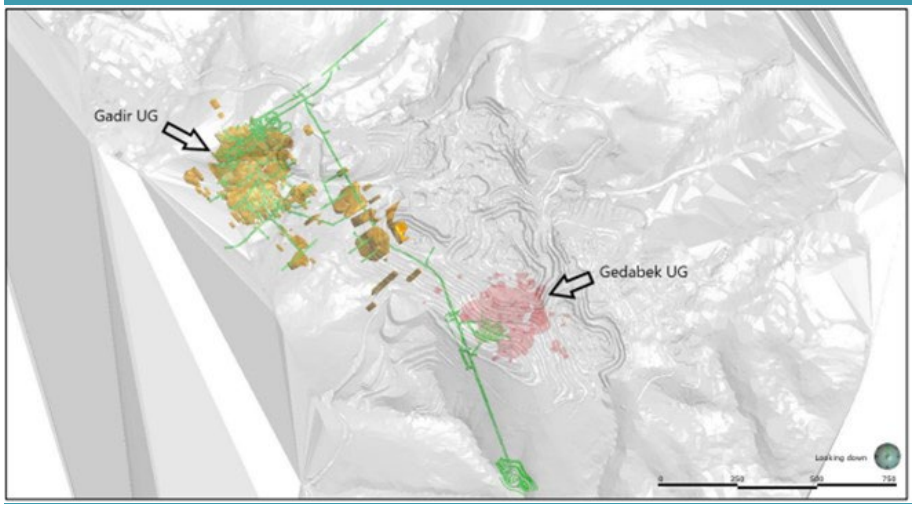
Underground mine was fast-tracked into production in 2020

It was subsequently decided that an underground mining operation would be viable. The company initially targeted a resource estimate by mid-2021, and first production around two years after that. In a similar way to the nearby (now exhausted) Ugur mine, AAZ worked off an internal resource estimate, instead of producing a JORC resource, and was able to fast-track the development and commissioning of Gedabek underground with first production in 4Q'20.

Gadir linked to Gedabek underground via tunnel

The Gedabek and Gadir underground mines are connected via one continuous underground network of tunnels (shown by the green lines in the schematic below) – accessible from both the Gadir and Gedabek portals.

Gedabek underground linked to Gadir



Source: AAZ

The high-grade gold ore has typically fed into the agitation leaching plant. However, this is now in decline, and some of the blocks adjacent to this ore are close to historical tunnelling from the Siemens' era, which could create instability if this ore were mined. This has made estimating future production potential and mine planning more complex.

Mineable resources exclude material vulnerable to Siemens tunnelling

Using underground geophysics under way, the company has estimated the remaining gold resources in the Gedabek underground mine on 1 January 2023 as shown below. Copper is present only in trace levels, and the majority of resources are classified as Indicated, along with a small amount of Inferred. These resources exclude material that might be dangerous to extract, owing to the Siemens workings.

Gedabek underground – mineable resource estimate

	Tonnes (t)	Gold (k oz)	Gold (g/t)	Copper (t)	Copper (%)
Indicated	304,300	17,164	1.75	110	0.04%
Inferred	19,406	1,173	1.88	12	0.06%
Total	**323,706**	**18,337**	**1.76**	**122**	**0.04%**

Source: AAZ, Hardman & Co estimates

Gadir

Gadir is 1km away from the Gedabek open pit

The Gadir underground mine is located in the Gedabek contract area, with the portal being approximately 1km northwest of the Gedabek open pit. It is one of only two underground mines in Azerbaijan, the other being AAZ's Gosha mine.

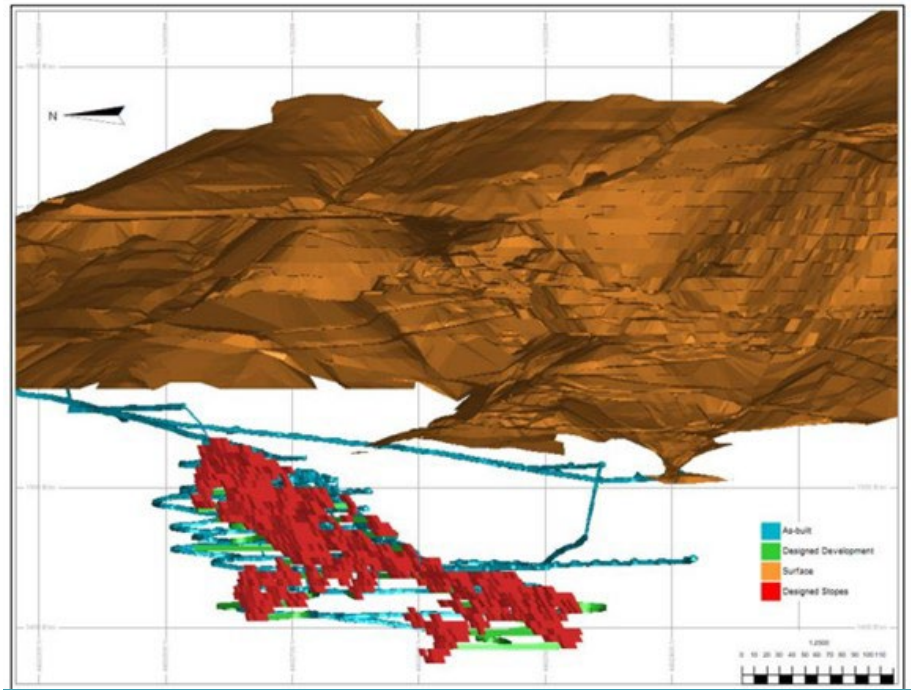
Epithermal deposit came onstream in 2015

Gadir was commissioned in 2015 to exploit an LS epithermal-type gold-silver-copper deposit. Drilling identified vertically stacked, shallow-dipping lenses with a height of about 150 metres, with the ore hosted in narrow veins. Further drilling, both laterally and down-dip, extended the footprint of the ore body.

Model of the ore body

A model of the ore body and the mine operations is shown in the graphic below.

Gadir ore body and mine operations



Source: AAZ

High-grade gold mine, although grades are declining

The mineralisation is primarily gold, with a grade that has exceeded 2.0g/tonne. It is now in decline, and was 1.30g/tonne in 2022. Silver is a by-product, as is copper in trace amounts. The ore from the Gadir underground mine is currently processed by three processing methods at Gedabek, heap leaching of crushed and ROM ore, agitation leaching and flotation. However, owing to its higher gold grades, Gadir ore has generally been processed by agitation leaching to maximise gold recovery.

Unexploited "copper zone"

Further tunnelling and geophysics were undertaken to determine how long a mine life can be extended. The remaining mineable resources determined by AAZ are all in the Measured category. These consist of resources in the part of the ore body that has been exploited historically, where copper is present in trace levels, in addition to an upper level "copper zone". The copper zone is relatively close to the surface, and grades nearly 0.70% copper. We expect to see the first copper from the Gadir mine this year.

Mineable resource includes remainder of existing ore body and "copper zone"

The Measured resources for Gadir, as of 1 January 2023, in the different parts of the ore body are as follows.

Gadir underground – mineable resource estimate

	Tonnes (t)	Gold (k oz)	Gold (g/t)	Copper (t)	Copper (%)
Existing	178,000	10,931	1.91	125	0.07%
Copper zone	47,460	4,005	2.62	326	0.69%
Total	**225,460**	**14,936**	**1.76**	**451**	**0.20%**

Source: AAZ, Hardman & Co estimates

Potential to mine zinc

In our production model, we have assumed that 8,000 ounces of this gold are extracted during 2023-25. Like the Gedabek open-pit and underground mines, the remainder may be exploited at a later data – for example, when Gilar and Zafar are exhausted. We should note that there is potential to extract zinc at Gadir. As the mine is being developed at depth, the zinc content of the ore is increasing. This could tie in with the commissioning of the Zafar mine and the recently announced expansion of the processing facility (see below) to extract zinc from Zafar's ore.

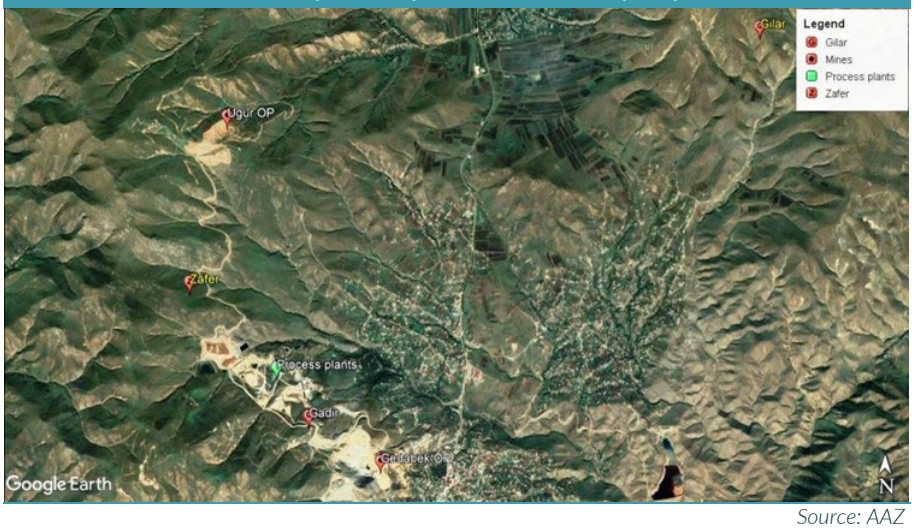
We can now move on from AAZ's legacy mines in the Gedabek contract area to its development projects, Gilar and Zafar.

Gilar

Gold-copper-zinc deposit

The Gilar gold-copper-zinc deposit is located approximately 7km northwest of the Gedabek open pit in the Gedabek contract area. Its discovery in 3Q'19 followed geological mapping and surface sampling on the margins of ZTEM anomalies.

Location of Gilar vis-à-vis process plants, Gedabek open pit and Zafar



Source: AAZ

Quartz and hydrothermal mineralisation

The mineralisation is gold-dominant and begins at a depth of around 300 metres. It is northwest to southeast trending, and hosted in two styles:

- gold in quartz veins; and
- hydrothermal gold-copper.

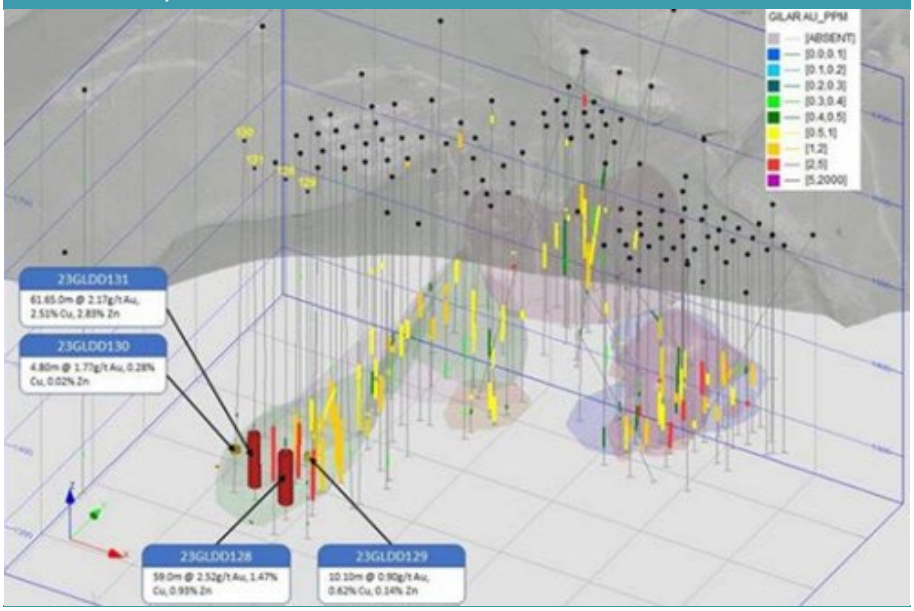
The quartz veins contain pyrite, chalcopyrite and minor amounts of covellite and sphalerite as the main sulphide minerals. The hydrothermal gold-copper mineralisation is confined to the southern area of the deposit.

Mineralisation plunges to the southwest

Gilar has seen extensive drilling and bulk sampling. A total of 37 surface core drill holes were completed in 2021, for a total length of 14,165 metres, and a further in 2022, for approximately 10,000 metres. The 2022 and early 2023 drilling showed

a mineralised zone down plunge to the southwest of the main body of continuous mineralisation.

Gilar ore body and drill holes in cross-section

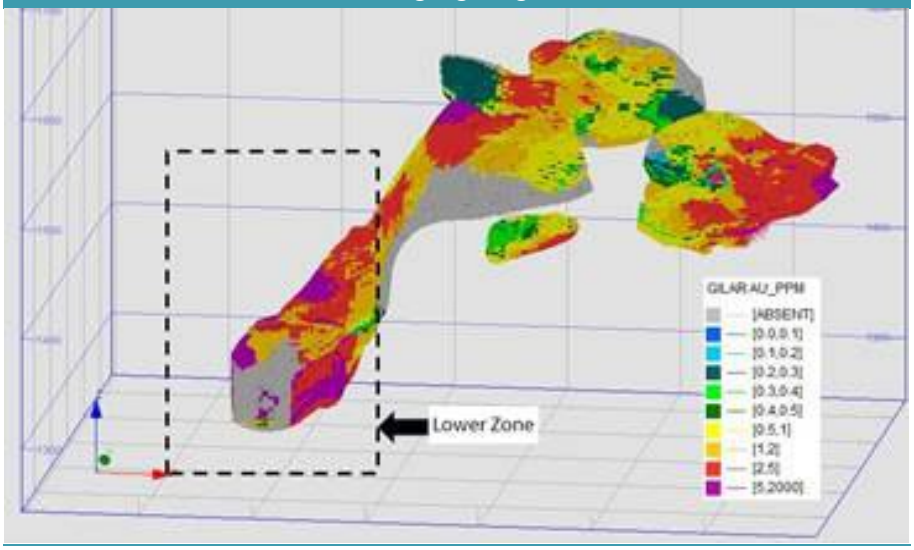


Source: AAZ

Thickest mineralisation with high ore grades in deepest zone in southwest

Exploration data were modelled in three dimensions, and an analysis of the samples was fast-tracked through the company's laboratory. Drilling results, published on 8 December 2022, confirmed continuous gold and copper mineralisation in six zones. The deepest drilling showed a continuous mineralisation zone more than 60 metres thick, with grades of 2.02g/tonne gold, 1.58% copper and 1.58% zinc.

Gilar mineralisation block model highlighting lower zone



Source: AAZ

Non-JORC resource estimate based on Measured, Indicated and Inferred resource classifications

Less than two weeks after these drilling results, AAZ released a preliminary non-JORC maiden mineral resource estimate for Gilar. While the resource estimate is non-JORC-compliant, it was compiled by an external consultant using JORC guidelines. Consequently, the normal classifications of Measured and Indicated and Inferred resources have been replaced by Class 1+2 and Class 3, respectively. The estimate showed 3.90m tonnes of ore, of which 2.41m tonnes were Class 1+2, with

94,500 oz of gold (1.22g/tonne), 14,800 tonnes of copper (0.62%) and 15,900 tonnes of zinc (0.66%).

Recent drilling confirmed good gold, copper and zinc grades

The company announced further drilling results from Gilar on 24 January 2023. These confirmed and extended the lower zone, with 68.35 metres of continuous gold and copper mineralisation. One drill hole intersected 3.0g/tonne gold, 5.4% copper and 2.0% zinc over 33.3 metres. AAZ noted that this should increase the preliminary resource in due course. The updated resource estimate, based on an additional 13 drill holes, was published on 21 March 2023. It was estimated using JORC guidelines, but is not JORC-validated as yet (which is expected after the completion of the exploration programme). It more than doubled the Class 1+2 gold, copper and zinc resource versus the previous estimate.

Gedabek open pit – mineral resources & reserves

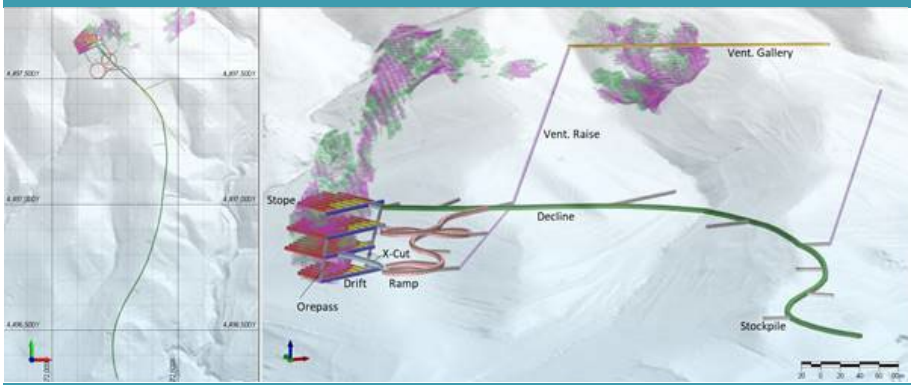
	Tonnes (mt)	Gold (k oz)	Gold (g/t)	Copper (t)	Copper (%)	Zinc (t)	Zinc (%)
Class 1+2	3.93	192,929	1.53	36,687	0.93%	37,009	0.94%
Total	**3.93**	**192,929**	**1.53**	**36,687**	**0.93%**	**37,009**	**0.94%**
Class 3	1.71	56,155	1.02	9,778	0.57%	11,777	0.69%
Total resources	**5.64**	**249,083**	**1,37**	**46,466**	**0.82%**	**48,786**	**0.87%**

Source: AAZ

Deep zone will be targeted first in the mine plan

The lower zone will be the initial target of the mine plan, and is open to the southwest. This is illustrated in the schematic mine plan below. AAZ estimates that the lower zone contains around 2.1m tonnes of ore, 128,615 oz of gold, 27,003 tonnes of copper and 25,623 tonnes of zinc, amounting to approximately 67%, 74% and 69% of the Class 1+2 resources of the three metals.

Gilar schematic mine plan



Source: AAZ

With AAZ focusing primarily on the lower zone of mineralisation, our production estimates for the mine are confined to this part of the ore body in our AAZ model for the time being. While we have increased our production estimates for gold to reflect the updated resource estimate for 23 March 2023, we have not altered our copper and zinc estimates, as we expect that flotation capacity for processing these metals (especially copper) will be constrained.

Tunnelling in progress

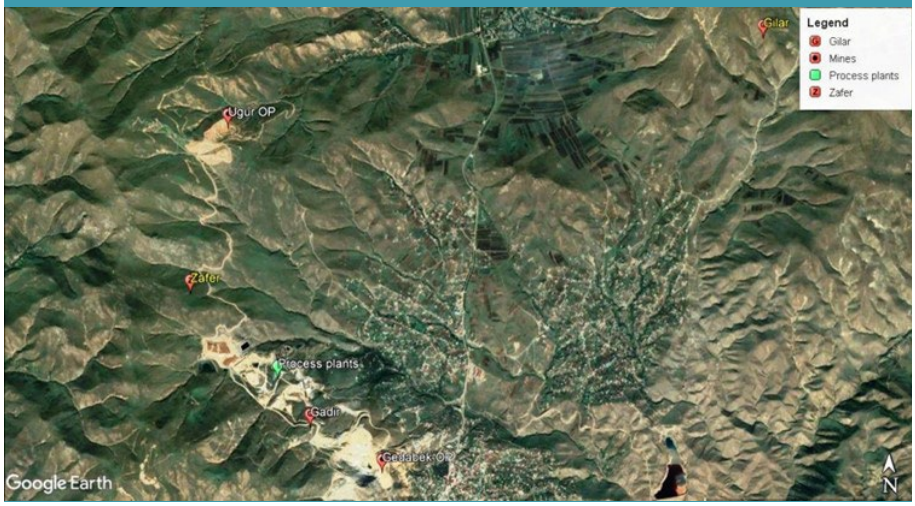
Owing to the depth of drilling, which currently extends down to approximately 450 metres, an exploration tunnel has been constructed that can also be used for production. This will be more efficient than further surface drilling. Completion of the portal was announced on 18 January 2023, and, in contrast to Zafar, only one tunnel will be bored into the deeper part of the ore body, followed by an adit to the upper part.

Zafar

Zafar located near to Gedabek processing operations

The Zafar polymetallic deposit, containing copper, zinc and gold, was discovered by fieldwork in late 2018 and confirmed by the 2019 ZTEM programme. The location is advantageous with regard to existing operations, being only slightly over 3.0km northwest of the existing Gedabek processing plant. These locations can be seen in the aerial photograph below. The location of Gilar is marked by the red circle in the top right-hand corner of the map, next to the legend. The process plants and Gedabek open-pit mine are shown in the lower left-hand side of the map, with Zafar to the northwest of the process plants.

Location of Gilar vis-à-vis process plants, Gedabek open pit and Zafar



Source: AAZ

The discovery was announced in January 2021, following the drilling of 12 holes over 7,675 metres. Drilling and geophysical work identified three mineralised zones, and the most significant drill intersect was 0.5% copper and 0.7g/tonne of gold over 113 metres. The maximum grades from these drill holes were impressive, with 6.0% copper, 14.6% zinc and 12.4g/tonne for gold.

AAZ has explored this area extensively

The exploration area is located along the regional Gedabek-Shekarbek fault system. Aside from the gold-copper Gedabek open-pit/underground mines, Shekarbek is another target area known to host copper mineralisation. The geology of the area is structurally complex, owing to faulting from repeated tectonic movement and multi-cyclic magmatic activity. However, AAZ believes it has a good understanding of this. The mineralisation is associated mainly with a northwest to southeast trending geological structure.

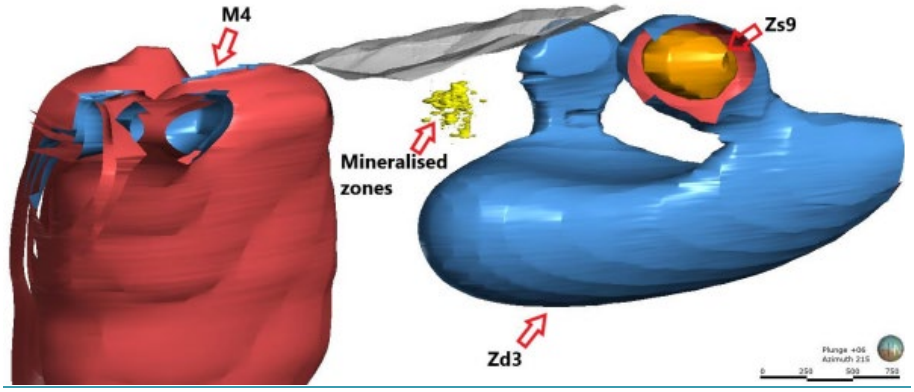
Major drilling programme in 2021...

Having identified its potential, AAZ undertook a large-scale drilling programme at Zafar during 2021, completing 75 core drill holes with a total length of 36,432 metres. The highlight was drill hole 21GED59, which encountered massive sulphide mineralisation with a thickness of 132.6 metres, with copper, zinc and gold grades of 0.85%, 1.35% and 0.58 g/tonne, respectively.

...which led to the maiden resource estimate

A maiden JORC resource, dated 31 May 2021, was published in August that year. Exploration work showed that the mineralisation is approximately 1.5km in length. The mineralised zones are located on the margins of various electromagnetic anomalies, namely the M4 (porphyry anomaly), Zd3 (deep anomaly) and Zs9 (shallow anomaly) ZTEM anomalies. In the chart below, the anomalies are shown in red and blue, with the mineralisation located between them in yellow.

Zafar mineralisation with ZTEM anomalies



Source: AAZ

Final JORC resource

The final JORC Mineral Resource for Zafar was published on 21 March 2022, confirming 6.8 million tonnes of mineralisation. This was slightly less than the maiden resource, owing to voids identified by angled drilling. More than 80% of the mineralisation is defined in the Measured and Indicated category. The resource amounts to 28,000 tonnes of copper, 73,000 oz of gold and a significant 36,000 tonnes of zinc, which AAZ has not previously targeted.

Zafar – mineral resources

	Tonnes (mt)	Gold (oz)	Gold (g/t)	Copper (t)	Copper (%)	Zinc (t)	Zinc (%)
Class 1+2	5.5	64,000	0.4	25,000	0.5%	32,000	0.6%
Total	**5.5**	**64,000**	**0.4**	**25,000**	**0.5%**	**32,000**	**0.6%**
Class 3	1.3	9,000	0.2	3,000	0.2%	3,000	0.3%
Total resources	**6.8**	**73,000**	**0.4**	**28,000**	**0.5%**	**35,000**	**0.6%**

Source: AAZ

Mineralisation concentrated in the upper section, with more exploration of the lower in future

The resource consists of upper and lower sections, with the majority of the mineralisation contained in the upper, which is more massive and continuous. This results in more efficient and cost-effective operations in the early stages of exploitation. Further drilling of the lower section will occur following the opening of the mine from underground.

Capital cost of Zafar c.$15.0m

The mine plan is well-advanced, and will initially target 2.0m tonnes of ore. Two declines will be tunnelled into the ore body, which will also aid ventilation in and out. The mining method chosen is semi-bulk extraction by sub-level caving. This begins at the top of the ore body, and works downwards at regular intervals. Tunnelling is advancing, the required mining fleet has been identified, and negotiations for its vendor financing are under way. The total capital cost of bringing Zafar into production will be approximately $15m.

New processing line will extract zinc

AAZ will construct a new flotation line at its existing Gedabek processing facility to produce zinc concentrate. Centrifugal flotation cells will be used, and the first of these is being trialled at Gedabek. First mine access is expected to begin in late 2023.

Gedabek's processing operations

Next phase of expansion under way

AAZ is embarking on the next phase of major expansion of its processing capabilities at Gedabek, which has been a key factor in shareholder value creation. Growth in mine production, and significant changes in ore composition, have been supported by investment to expand and upgrade processing capacity and infrastructure.

Four processing routes

With intense attention to detail, the ability to process ore has been systematically expanded and reconfigured in a microcosm of AAZ's broader strategic and operational approach to growing the business. The company currently operates four main processes:

- heap leaching of crushed and uncrushed ore, followed by ADR (Adsorption, Desorption, Refinery);
- SART (Sulphidization, Acidification, Recycling and Thickening);
- agitation leaching; and
- flotation.

Aerial photo of Gedabek's processing operations

Source: AAZ

Flexible processing capability

Ores from the mines in the Gedabek and Gosha contract areas can be blended to optimise feedstock for the processing plants. The throughput is monitored and can be altered every four hours, if desired. In more detail:

Heap leaching: the leach pad, Barren Leach Solution (BLS) pond and Pregnant Leach Solution (PLS) pond were completed in January 2009. The ADR was completed in mid-February 2009. With the commissioning of the Gedabek open-pit mine in May 2009, gold doré was produced through a simple two-step process of heap leaching crushed and uncrushed (Run of Mine) ore, followed by an ADR plant.

SART: to extract the copper and silver by-products from Gedabek's polymetallic ore, the SART plant was completed in September 2010, and the first copper and silver sales were made in 1Q'11. The feedstock for the SART plant is cyanide solution, following gold absorption in the ADR plant. Using reagents, the pH of the solution is changed, and copper is recovered from the solution in the form of a copper sulphide concentrate, also containing small amounts of silver. The concentrate typically contains 60%-70% copper and over 4,000 g/tonne of silver.

Agitation leaching: the agitation leaching plant was commissioned in 2013, at a cost of around $45m, to improve gold recovery rates. Recovery rates typically average about 70% from heap leaching, compared with over 90% from agitation leaching. Besides enhancing gold recovery, the motivation stemmed from the change in the density and structure of the ore, which was slowing down the leach rate. This was due partly to ore being mined in the transitional ore zone, i.e. where the shallower oxide ore mixes with deeper sulphide ore. It is designed primarily for high-grade (more than 1.2g/tonne of gold) ore, although it also treats spent ore from the heap leach process.

Flotation: the ability to treat copper-rich tailings from the agitation leaching plant – essentially using an in-line configuration of agitation leaching, followed by flotation – and the shift to mined ore with a higher copper-content, led to the construction of a $3.5m flotation plant. Feedstock is mixed with water, creating a slurry into which small air bubbles are introduced. Sulphide minerals attach to the air bubbles and form a froth, which is dewatered into concentrate.

Existing flotation plant

Source: AAZ

Flotation capacity doubled to meet higher copper production target and extract zinc…

On 22 November 2022, AAZ announced the doubling of capacity of its flotation plant, from 80-160 tonnes per hour. This was achieved rapidly by debottlenecking the existing facility, enabling the company to achieve its target of producing 4,100-4,300 tonnes of copper in 2023 (up from 2,516 tonnes in 2022). By the end of 3Q'23, the flexibility of the plant will be increased to enable it to capture zinc. The overall cost is in the region of $2.5-$3.0m.

…timed with commissioning of Gilar copper-zinc-gold mine

The new flotation capacity is timed to be available for the commissioning of the new Gilar copper-zinc-gold mine in 4Q'23. This investment represents a significant step in AAZ's strategic transformation from small-cap gold producer to a mid-tier copper (and other base metals) producer. The new flotation line will enable the production of an intermediate copper concentrate and a final zinc concentrate.

Agitation leaching operating on a campaign basis in 2023

With high-grade gold ore from the Gedabek open-pit and underground mines in decline, the agitation leaching plant will be operated on a "campaign" basis. The 1.4m tonnes of crushing and grinding capacity will be largely dedicated to providing feedstock for the expanded flotation plant to maximise copper production.

Gosha contract area

Gosha is similar in size and geology to Gedabek

The Gosha contract area, which hosts the Gosha underground gold mine, is located 50km to the northwest of the Gedabek contract area. Both contract areas are similar in size, at approximately 300 sq km, and are believed to have similar geology. AAZ believes that they are geologically similar, with both classified as HS epithermal systems.

High-grade mineralisation in range 2.0-3.0g/tonne

Gosha was subject to extensive exploration during the Soviet era, including more than 6km of underground exploration tunnels. AAZ undertook adit sampling and ore-grade comparisons that confirmed economic mineralisation. These helped in mapping a steeply dipping fault/fracture system. The Soviet data showed gold grades in excess of 3.0g/tonne, although AAZ estimated that the bulk of the deposit had gold grades of around 2.0g/tonne.

Two perpendicular ore zones

The initial strategy was to construct a high-grade, narrow-vein gold mine to exploit the first of two perpendicular mineralised zones that had been identified:

- north-trending Zone 13; and
- the larger east-west trending Zone 5.

Production began in the first quarter of 2014. The mine plan was based on a non-JORC-compliant gold resource estimate of about 40,000 oz, incorporating both mineralised zones. Ore mined at Gosha is transported by road to Gedabek for processing.

Intermittent production in recent years

Gosha's production has been intermittent in recent years. For example, after producing throughout 2017, production since has been confined to 4Q'18 and 4Q'19 and 1Q'20-3Q'20. With the mine located close to the Armenian border, the resumption of the conflict between Azerbaijan and Armenia in September 2020 led to a temporary cessation of operations.

New gold zone, with "bonanza" gold grades in two drill holes

A new discovery of high-grade gold mineralisation in the south of the Gosha mine area was announced in March 2021. Named the "Hasan zone", it is a sub-vertical gold vein hosted by quartz-pyrite-kaolin mineralisation. Several drill intersections during the second half of 2021 showed bonanza gold grades, as shown below.

Gosha – drilling results from Hasan zone

	Length (m)	Depth from (m)	Depth to (m)	Gold (g/t)	Silver (g/t)
Existing	3.20	65.80	69.40	53.42	5.00
Copper zone	0.50	66.80	67.30	229.50	5.00

Source: AAZ

Small-scale production expected in next few years

Hasan holds the potential for resuming production in the Gosha mine in the short term. At one point, the Hasan zone intersects Zone 5, and there should be operational synergies, as the vein is easily accessible from the existing underground tunnel network at Gosha. In the near term, we see Gosha having the potential to produce around 500-1,000 oz p.a. of gold.

28 targets identified

Like Gedabek, Gosha shows several differing styles of mineralisation, including vein gold and polymetallic mineralisation, as found at Asrikchay (see below). Exploration of the contract area as a whole is considered to be early-stage. Using the historical Soviet data and the findings from its own exploration, AAZ has created a new geology map for the Gosha contract area and the Gosha deposit. Based on this work, the company has identified 28 targets:

- 15 porphyry mineralisation targets; and
- 13 Au-Pb-Zn mineralisation targets.

The map below shows the Gosha contract area with the Gosha underground mine in the northern central area.

Gosha mine with Asrikchay and Gocdere targets

Source: AAZ

Two primary targets are Asrikchay and Gocdere

The map also shows two targets:

- Asrikchay – located 7km to the east of the Gosha mine, and is a polymetallic drill hole intersection; and
- Gocdere – located 15km to the southeast of the Gosha mine.

At Asrikchay, exploration drilling intersected 4.1 g/tonne gold, 112.2 g/tonne silver and 3.1% copper. Further work at this target has been designated as a priority.

Vejnaly contract area

Restored to AAZ

The Vejnaly contract area covers approximately 300 sq km. Located in the Zangilan region, in the southwest corner of Azerbaijan close to Iran, it was restored to AAZ with the Armenian ceasefire, and contains a gold-silver-copper deposit, discovered in the 1950s. AAZ acquired the contract area as part of the original PSA. There is an existing underground mine, and there are also processing facilities, although it is not clear when these were constructed, owing to the territory being occupied by Armenia from 1994-2020.

Resource estimate from Soviet era show bonanza gold grades

In geological terms, the deposit is believed to incorporate 25 quartz-sulphide veins containing gold, with silver and copper by-products. The deposit was approved for the State Balance of Mineral Resources in 1984. The resource estimate from the Soviet era showed C1 and C2 classifications – which broadly correspond to Indicated and Inferred resources under western standards, as shown in the table below.

Vejnaly – mineral resources & reserves

	Tonnes (t)	Gold (oz)	Gold (g/t)	Silver (oz)	Silver (g/t)	Copper (t)	Copper (%)
Category C1	181,032	66,825	11.5	190,005	32.6	1,593.6	0.88%
Category C2	168,372	70,423	13.0	144,480	26.7	1,348.8	0.80%
Total resources	**349,404**	**137,248**	**12,2**	**334,485**	**29.8**	**2,942.4**	**0.84%**

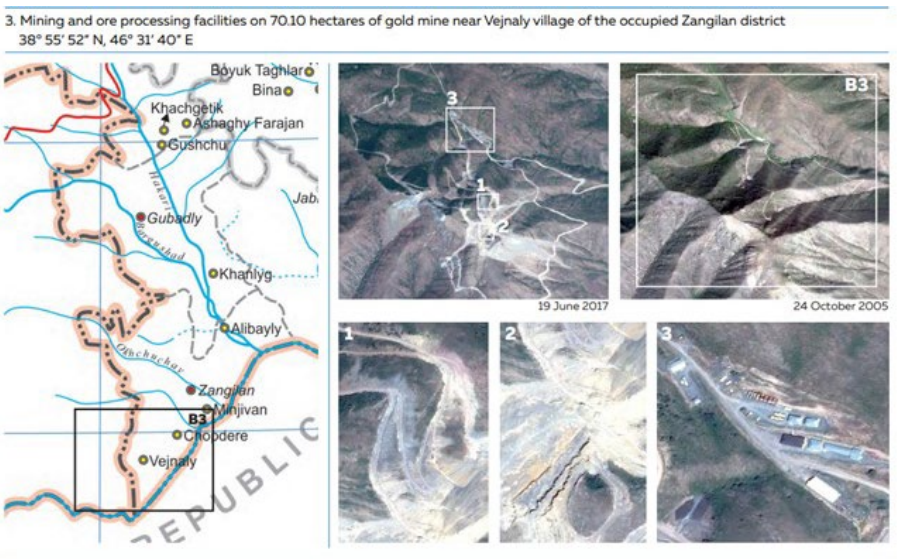
Source: ecolifeinfo.az

If this resource estimate were close to being accurate, it is clear that the Vejnaly deposit contained bonanza gold grades at some point.

Former owner being pursued by Azeri authorities

AAZ believes that this deposit was illegally exploited under Armenian control, and this is not surprising. Media reports suggest that it was operated by a company owned by a Swiss-Armenian, who is believed to be being pursued by the Azeri authorities for illegally operating the mine. The Foreign Ministry has published the following "before and after" aerial photographs showing the change to the landscape from 2005 to 2017.

Photograph of Vejnaly mining operations



Source: Ministry of Foreign Affairs of the Republic of Azerbaijan

Refurbishing former mining operations

Having retaken control of Vejnaly, the Azerbaijan National Agency for Mine Action (ANAMA) inspected the underground mine and certified the access as safe. AAZ refurbished the camp facility in early 2022, and began ramping up operations, such as:

- repairing and improving the road network;
- refurbishing and re-equipping the existing laboratory located on site; and
- underground geological mapping, which included 230 underground vein samples, 17 outcrop samples and 8 trench samples in 2022.

The sampling in 2022 is noteworthy, because it included six samples with assays ranging from 51-104 g/tonne of gold – once gain raising the possibility of bonanza gold grades contained in the deposit.

The photograph below shows Vejnaly's mining operations from the Armenian website *hetq.am*.

Photograph of Vejnaly's mining operations

Source: hetq.am

AAZ has categorised it as, primarily, an exploration play

AAZ sees Vejnaly as an exploration play, and announced the discovery of a new gold mineralisation zone in the northwest of the former mine in November 2022. The company began small-scale mining operations, and, in late 2022, an existing stockpile of ore was trucked to Gedabek for processing. The processing plant at Vejnaly will need extensive refurbishing to render it operational.

Supporting AAZ's efforts at Vejnaly is the GoA's plan for economic and infrastructure development of the Zangilan region, following the end of the hostilities. For example, the construction of an electrical substation and an airport has been completed.

Ordubad contract area

15 known deposits in Ordubad contract area

The Ordubad deposit covers an area of 462 sq km, and is located in the southeast corner of the Nakhchivan Autonomous Republic of Azerbaijan. Gold was first discovered at the Shakardara deposit during 1956-58. There are currently 15 known deposits at the Ordubad site, six of which had resource estimates that were classified during the Soviet era.

Resource estimates from Soviet era

The table below is from AAZ's Admission Document to the AIM market, and shows the gold and copper resource estimates for the six Ordubad deposits (as well as Gedabek and Gosha) under the USSR State Committee on Reserves.

Ordubad resource estimates from AAZ Admission Document

Deposit	*Category*	*Ore k t*	*Cu k t*	*Au k oz*[3]	*Au eq k oz 50% Cu discount*[4]
Shakardara (Ordubad)	P_2[2]	156,000	624	5,805	7,875
Misdag (Ordubad)	P_1	350,000	1,505	-	4,992
Shalala (Ordubad)	$C_2' + P_1$	20,600	103	-	342
Piyazbashi (Ordubad)	$C_2 + P_1$	890	-	189	189
Agyurt (Ordubad)	$C_2 + P_1$	1,130	14	246	294
Diakhchay (Ordubad)	$C_2 + P_1$	14,400	63	-	210
Gosha	$C_2 + P_1$	2,750	-	424	424
Gedabek	$C_2 + P_1$	19,200	69	1,026	1,255
Subtotals		564,976	2,378	7,690	15,581
Upside potential (further detailed at Para 5.10 of the CPR)			10,000	45,000	78,105
Totals			12,378	52,690	93,686

Source: Anglo Asian Mining

Comparison with western classification

At the time, the company's mining consultant commented that about half of C2 resources under the Soviet classification would have qualified as Indicated resources under Western standards, with the remainder, and some P1 resources, qualifying as Inferred resources. P2 resources, it argued, would "generally have little quantitative significance", although, in Shakardara's case (owing to the sampling density), they might qualify as Inferred resources.

Ordubad was going to be location of AAZ's first mine

It was Ordubad, not Gedabek, that was AAZ's original focus for developing its first mine in the mid-2000s. A drilling programme, completed in March 2007, confirmed gold grades in veins at the Piyazbashi target, which were approximately equivalent to data compiled during the Soviet era. The company's then mining consultants, SRK Consulting, subsequently advised that Gedabek had the greater potential, and should be prioritised in terms of producing a feasibility study.

Exploration ramped up again in 2018

After a hiatus of about a decade, AAZ began to ramp up the exploration programme at Ordubad in 2018. This began with road clearing to reach exploration adits, and trenching to confirm gold and copper mineralisation, on both the surface and underground.

New targets in 2019 drilling programme

In 2019, the company began drilling programmes at new targets:

- Dirnis: a copper-silver vein target, which is further down the same valley as Shakardara;
- Keleki: a gold target, with mineralisation contained in quartz veins; and
- in addition to geochemical sampling at Destabashi and field mapping at Aylis, a target was identified by a satellite survey in 2018.

Dirnis and Keleki drilling results

Drilling results from both Dirnis and Keleki, published in 4Q'19, returned some very significant intersections.

Ordubad exploration – notable intersections in 2019

Drill hole	Depth (m)	Length (m)	Gold (g/t)	Copper (%)
DRDD06A	85.00	2.00	203.89	0.09%
DRDD09A	4.10	4.10	10.61	0.67%
DRDD09B	3.50	3.50	8.76	2.69%
	7.50	8.50	7.23	1.235
DRDD13A	41.40	0.40	0.03	4.51%
DRDD21	25.00	1.00	126.61	0.08%
KLDD03	20.00	0.80	158.80	0.08%
	86.50	1.00	86.06	0.04%
	142.50	0.70	249.17	0.15%
KLDD05	106.00	1.00	139.56	0.14%

Source: Anglo Asian Mining

2020 exploration programme

A new geological map for the Ordubad contract area, covering 244 sq km, is expected to be completed shortly, based on WorldView-3 satellite remote sensing. The 2020 exploration programme amounted to around 7,000 metres of drilling, focusing on copper and gold targets between Shakardara and Piyazbashi and Aylis and Dirnis. This work should help AAZ to assess whether the deposits in the Ordubad contract area are part of a bigger copper-gold porphyry system.

Developing the Ordubad system

AAZ's current thinking on Piyazbashi and Agyurt is that the deposits may not be large enough in isolation to warrant processing capacity and that their high elevation might be problematic. However, as part of a number of producing deposits with central processing, the economics could be favourable. Down in the valley from Piyazbashi and Agyurt is Shakardara, which has a relatively central position in terms of several of the deposits. Piyazbashi is northeast and Agyurt northwest of Shakardara, while Dirnis is to the south and Keleki to the southeast.

Shakardara could be centre of a copper-gold porphyry system

A thesis that AAZ is considering is that the heat source of the mineralised system, if one exists, is close to Shakardara. If so, it could be the centre of a copper-gold porphyry system, with quartz veining further out along its periphery.

In a statement *Overall Progress of Exploration Programme*, released in February 2020, AAZ noted, with regard to Ordubad:

"It is apparent that the copper and gold upside potential is significant…The region around Dirnis also has significant copper potential with malachite mineralisation extensive on surface. The recent discovery of the Aylis gold veins is thought to be part of the same mineralising "hub" demonstrating the extent of mineralisation and the near surface proximity highlighting the open pit potential of the area".

Upbeat comments from 2020

Although no specific mineral target has been identified for bringing into production, the *Strategy Update* from 21 May 2020 was unsurprisingly upbeat about Ordubad's prospects:

"The region is considered very prospective, hosting a large number of gold and copper mineral deposits. The current geological model being tested is that of the possibility of a large porphyry system. This is supported by the presence of operating porphyry mines in adjacent countries hosted within the same mineral belt. The NHM team, following their visit to Ordubad last year, stated that the potential indicators suggest that the geochemistry of the region is favourable for porphyry formations. A targeted programme to evaluate the highest priority assets to commence production in Ordubad will be the next stage of development".

COVID-19 restrictions severely limited geological fieldwork for much of 2020-22

The momentum at Ordubad was disrupted in 2020 by the pandemic, and no drilling was undertaken in the year. Trench work was carried out during the second half of 2020 on the Unus and Uchurdag gold vein systems. Core drilling and ground-based geophysics over prioritised target areas were planned for 2021. However, COVID-19 restrictions meant that very little geological field work was completed, and the situation remained broadly similar in 2022.

Exploration work poised to restart, with budget of up to $2.0m

In 2023, exploration activity at Ordubad is accelerating again. Indeed, a budget for substantial field work, including a drilling programme, is being prepared, which may amount to as much as $2.0m. Drilling commenced in March 2023.

Glossary

AISC	All-In Sustaining Cost
ADR	Adsorption, Desorption, Refinery
ANAMA	Azerbaijan National Agency for Mine Action
CET	Copper-equivalent tonnes
GEO	Gold-equivalent ounces
GoA	Government of Azerbaijan
HS	High-sulphide
ICSG	International Copper Study Group
ILZSG	International Lead and Zinc Study Group
JORC	Joint Ore Resource Committee
LME	London Metal Exchange
LS	Low-sulphide
NGO	Non-governmental organisation
PSA	Production Sharing Agreement
SART	Sulphidization, acidification, recycling and thickening
SX-EW	Solvent extraction-electrowinning
ZTEM	Z-axis Tipper Electromagnetic geophysics system

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