Armenia

- 5,000 years of mining
- World-class deposits of molybdenum, copper and gold
- Excellent technical expertise
- Favourable business environment
- Attractive legal basis for mining and exploration
- Significant potential for new investments

Mining Journal
SPECIAL PUBLICATION

Contents

This supplement is sponsored by the Ministry of Trade and Economic Development of the Republic of Armenia within the framework of efforts to attract foreign investment into the mining sector, and to demonstrate the favourable conditions that exist for doing business in Armenia, particularly in the mining sector.

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The cover shows the 1st century Garni temple built by King Tiridates

Mining developments regain momentum

A message from the Minister of Trade and Economic Development

IT IS my honour to draw to your attention to this *Mining Journal* special supplement, which focuses on the current state and development perspectives of the mining industry in the Republic of Armenia

Armenia's industrial-scale metal production began in the early 19th century with the opening of the Alaverdy and Kapan copper mines. Following that, the country's economy began to focus more closely on mining in the early 1950s with the development of the Zangezur Copper Molybdenum Combine, which operates the world-class Kajaran deposit (among the ten biggest in the world), and which produces around 3% of the world's annual molybdenum output.

Several decades of sustainable development within the industry were interrupted by the dissolution of the Soviet Union, coupled with the decline in commodity prices on the world's metal markets. Armenia's minerals sector also faced other challenges in terms of its development, being hindered by factors such as its geographical location and unhelpful conditions for transporting its products to the world market.

The industry was also crippled technologically, and this, together with a poor legal and regulatory framework that lagged behind world best practice, provided the main challenges when the government began its efforts to attract foreign investment for Armenia's mining companies.

The chain of reform-orientated work that began in early 2000 with the revision of the regulatory framework, then continued with the liberalisation of contractual mechanisms and the restructuring of the major mining companies. This was achieved through a series of international tenders for the privatisation of these combines. In the meantime, Armenia received the Outstanding Achievement Award at the 'Mines and Money' conference in London in 2003 for the way in which it had introduced the current, highly competitive investment environment for the minerals sector.

Today, Armenia's mining sector presents a completely different picture, a situation that has not just resulted from better market prices for metals. Different issues are now on the agenda for the government and the industry's management alike. Country image-building, portraying Armenia as being a place with favourable conditions for doing business generally and for the mining sector in particular, is the key pillar in our efforts to attract foreign investment for numerous promising business opportunities.

And, of course, we have activities planned within the framework of this year's 'Mines and Money' conference, as we know that this type of event can contribute greatly to Armenia's aims in this area. I would therefore like to take this opportunity to invite you to the Special Country Focus Seminar on November 22 at 4.30pm, as well as to the Armenian exhibit, which will also serve as a meeting point for those who are interested in doing mining business with Armenian companies. Needless to say, all members of the Armenian delegation, which consists of senior government officials, top mining-company managers and prominent experts in the field, including myself, will be at your disposal on both days of the event, should you wish to contact us.

I look forward to seeing all of you in London at 'Mines and Money'.

With regards
Karen Chshmarityan
Minister of Trade and Economic Development of the Republic of Armenia

A cultural, commercial and geographical crossroads

SITUATED on the southern side of the Caucasus massif, Armenia lies at the crossroads of Europe and Asia. A landlocked country situated between the Black and Caspian Seas, it is bordered by Turkey to the west, Georgia to the north, Azerbaijan to the east and southwest, and Iran to the southeast.

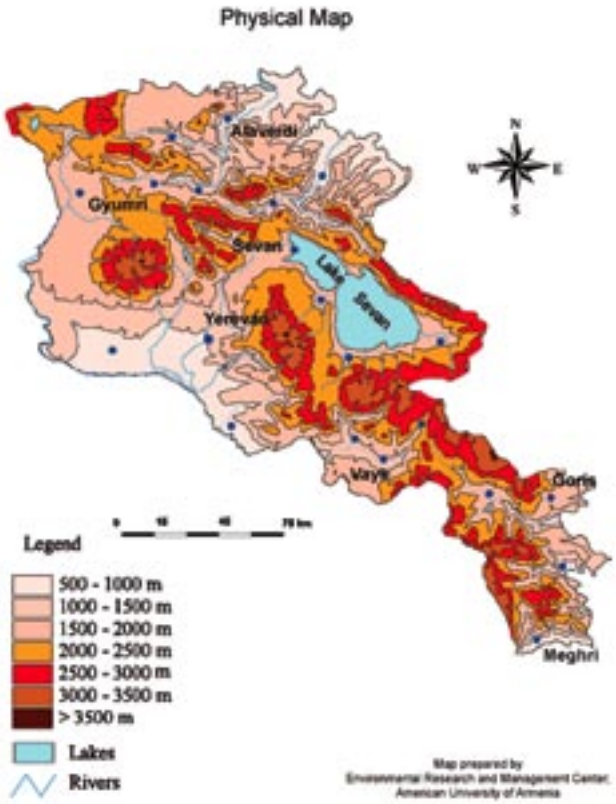
Armenia first emerged into history around 800 BC as part of the Kingdom of Urartu or Van, which flourished in the Caucasus and eastern Asia Minor until 600 BC. After the destruction of the Seleucid Empire, the first Armenian state was founded in 190 BC. At its zenith, from 95-65 BC, Armenia extended its rule over the entire Caucasus and the area that is now eastern Turkey, Syria and Lebanon.

For a time, Armenia was the strongest state in the Roman East. It became part of the Roman Empire in 64 BC, later adopting a Western political, philosophical and religious orientation.

In 301 AD, Armenia became the first nation to adopt Christianity as a state religion, establishing a church that still exists independently of both the Roman Catholic and the Eastern Orthodox churches. During its later political eclipses, Armenia depended on the church to preserve and protect its unique identity. From around 1100-1350, the focus of Armenian nationalism moved south, and the Armenian Kingdom of Cilicia, which had close ties to European Crusader states, flourished in southeast Asia Minor until conquered by Muslim states.

Mt Aragats: the highest peak in Armenia at 4,090 m

Between the 4th and 19th centuries, Armenia was conquered and ruled by Persians, Byzantines, Arabs, Mongols and Turks, among others. For a brief period from 1918-20, it was an independent republic. In late 1920, however, a communist regime came to power following an invasion by Russia's Red Army. In 1922 Armenia became part of the Trans-Caucasian Soviet Socialist Republic, and in 1936 it became the Armenian Soviet Socialist Republic. Armenia declared its independence from the Soviet Union on September 21, 1991.



Armenia has a highland continental climate with hot summers and cold winters. In terms of land utilisation, the countryside comprises 37.2% mountain terrain, 29.8% pasture, 21% arable land and 12% woodland. The country's highest peak is Mt Aragats, at 4,090 m.

Mineral resources include iron, molybdenum, gold, lead, silver, clay and limestone, as well as semi-precious and ornamental stones.

The country is also rich in natural mineral waters, with hundreds of natural sources throughout the country. There are ten natural lakes, five canyons and numerous springs and streams. With an area of 1,400 km^2, Lake Sevan is the world's largest highland freshwater lake.

Armenia relies mainly on aviation links to connect it with the rest of the world, and on land connections through Georgia and Iran. The nearest sea port is at Poti in Georgia, through which Armenia gets access to the countries of the Black Sea region.

Armenia has a well-developed road network, serving all areas of the country's economy, with a road density of 3,360 km per 1,000 km^2. The network consists of 7,700 km of interstate, inter-republican (regional) and local roads. More than US$100 million has recently been invested in the reconstruction of the country's transport infrastructure with the assistance of the World Bank, the European Union's Transport Corridor Europe Central Asia, the United Nations, and the Armenian diaspora.

Expanding the country's economic base

ARMENIA is the second most-densely populated of the former Soviet republics. Up until independence, the country's economy was based largely on industry – chemicals, electronic products, machinery, processed food, synthetic rubber and textiles – and was highly dependent on outside resources. Agriculture accounted for only 20% of the net material product and 10% of overall employment before the break-up of the Soviet Union in 1991.

The vast majority of the country's energy is produced using imported fuel. Russia remains the principal source of natural gas and nuclear fuel (for Armenia's sole nuclear power plant); the main domestic energy source is hydroelectricity.

Like other newly independent states of the former Soviet Union, Armenia's economy suffers from the

Noravank monastery near Amaghu in Yeghegnadzor district was founded by Bishop Hovhannes in 1205

legacy of a centrally-planned economy and the breakdown of former Soviet trading patterns. In addition, the effects of the 1988 earthquake, which killed more than 25,000 people and made 500,000 homeless, are still being felt.

The closure of both the Azerbaijani and Turkish borders has been a major hindrance to economic development, because of Armenia's dependence on outside supplies of energy and most raw materials. With land routes through Azerbaijan and Turkey closed, Armenia has to rely on inadequate and unreliable routes through Georgia and Iran. In 1992-93, the country's gross domestic product (GDP) fell by nearly 60% from its 1989 level, and the national currency, the dram, suffered hyperinflation for the first few years after its introduction in 1993.

Nevertheless, the Armenian Government has been able to carry out wide-ranging economic reforms that have paid off in terms of dramatically lower inflation and steady growth. Armenia has registered strong economic growth since 1995, building on the turnaround that began the year before, and inflation has been negligible for the past several years.

New sectors, such as precious-stone processing and jewellery manufacture, information and communication technology, and even tourism, are beginning to supplement more traditional sectors of the economy, such as agriculture.

This steady economic progress has earned Armenia increasing support from the major international institutions. The International Monetary Fund, World Bank and European Bank for Reconstruction and Development, as well as other international financial institutions and foreign countries, have made substantial grants and loans available, with the total amount loaned to Armenia since 1993 exceeding US$1.1 billion. These loans are aimed at reducing the budget deficit, stabilising the local currency, developing private businesses, the energy, agricultural, food-processing, transport and health and education sectors, and continuing rehabilitation work in the earthquake zone.

Continued progress will depend on the government's ability to strengthen its macroeconomic management, including increasing revenue collection, further improving the investment climate, and making strides against corruption.

Investment drives GDP growth

ARMENIA'S recent performance has been impressive on many fronts, and the country now has one of the fastest-growing economies in the world. Annual GDP growth has averaged double-digit levels over the past three years, including 10.1% in 2004, so that over the past ten years Armenia's GDP has more than doubled.

According to the CIS Statistical Committee, Armenian GDP in 2003 exceeded the pre-independence level by 8%. By comparison, in neighbouring Georgia, GDP was 42% below its pre-independence level. In addition, Armenian consumer price inflation is mild, despite an increase to 7% last year, a rise that was caused mainly by a jump in agricultural producer prices.

Rapid GDP growth has been driven by the accelerating expansion of fixed capital investment. Gross fixed investment has increased markedly in Armenia over the past five years, both in absolute terms and relative to GDP. In 2003, the gross fixed investment-to-GDP ratio reached 24%. This is above the benchmarks for both the region and Armenia's income group, as well as that achieved in Georgia, and is comparable to the level of investment in high-performing Croatia, for example.

The principal challenge for Armenia is to sustain these high growth rates in order to continue reducing its high levels of poverty and unemployment, and to maintain good performance on health, education and the other social indicators necessary for a competitive workforce. Although foreign transfers currently play a major role in maintaining strong growth, Armenia needs to diversify its sources of financing and reduce the role of foreign aid in sustaining economic expansion.

Comparative sectoral contributions

THE unprecedented double-digit economic growth rate of the past four to five years (around 12% as an annual average) was maintained in 2004, with GDP growing by 10.1% to US$3,549 million. Unlike previous years, when growth tended to reflect achievements in only certain sectors of the economy, growth last year was more broadly based.

During 2001-03, the major factors were increased foreign investment, primarily in the construction sector, and higher exports, whereas economic growth in 2004 was generated mainly by the agricultural and service sectors, as well as by locally-funded construction activities.

Taken as a year-on-year comparison with 2003, the value added in the construction sector increased by 13.4% in 2004, representing around 2.1% of the country's GDP growth. Both public and private-sector investment contributed to the growth in construction, and the buoyancy of the sector also had a positive impact on the demand for, and production of, construction materials.

By contrast, the contribution of the industrial sector to GDP growth was insignificant last year, at

The town of Meghri in southeast Armenia

just 0.4%. This largely reflected the decline of the diamond-processing industry. Meanwhile, production volumes grew by 54% in the chemicals industry, by 8.7% in mining, and by 9.9% in the production and distribution of electricity, gas and water.

The value added in the agriculture sector in 2004 increased by 14%, being attributed mainly to a 20% increase in the output of farm products and an 8% increase in cattle breeding. In addition, the impact of the service sector on GDP growth was significant, with a 4.3% contribution.

By sector, construction contributed 15.3% of GDP, agriculture 22.5%, services 34.1% and industry 19.7%. Per capita GDP in nominal terms amounted to US$1,104, a significant increase from the US$873 recorded in 2003.

Exports increased by 4.3% in 2004 and imports grew by 5.6%. Both exports and imports were affected significantly by the decline in diamond-cutting. The appreciation of the local currency against the US dollar also had an impact.

Although the value of exports of non-precious metals benefited from high world commodity prices, a significant increase in fuel imports (attributed to the high level of investment activity in the economy) made an important contribution to the growth in imports overall.

Foreign investment rose by 33% in 2004, to US$305.6 million, with foreign direct investment (FDI) increasing by 47.7% to US$226.7 million. Some US$70 million of the FDI reported was attracted through privatisation deals. The mining sector's share of FDI inflow was 17.4%, being mainly attributable to payments for shares in Armenia's largest mining company, Zangezur Copper Molybdenum Combine.

Business environment, investment policy and incentives

ACCORDING to the World Bank's annual report, *Doing Business in 2006: Creating Jobs,* the Republic of Armenia is in 46th place in the world rankings in terms of the ease of doing business. The 'Ease of Doing Business Index', which ranks economies from 1 to 155, is calculated as the ranking on the simple average of country percentile rankings on each of ten topics covered by *Doing Business in 2006.*

Other indicators are also quite positive for Armenia, especially in comparison with other countries of the same income level. For example, the cost of starting a business is 7% of per capita gross national income, more than five times lower than the average cost reported for lower-middle-income countries.

International organisations consider that Armenia's investment and trade policies are the most open in the CIS. Foreign companies are encouraged to invest and are entitled by law to the same treatment as local companies; moreover, they have certain advantages.

The country's investment climate is continuously improving with a strong government commitment to attracting foreign direct investment (FDI), including refining the legislative framework. The Law on Foreign Investment, adopted in July 1994, regulates foreign investment in Armenia. It provides guarantees to foreign investors and protects investors from changes in business-related laws for five years.

Foreign investments in Armenia cannot be nationalised or alienated. Expropriation may be allowed only as an extreme measure in the case of an emergency declared in accordance with the legislation of the Republic of Armenia, and may be applied only upon the decision of a court and with full compensation. Investors must also be compensated for any damage or loss of profit resulting from illegal actions by state bodies or officials. Compensation would be paid at current market prices or prices determined by independent auditors, either in the currency invested or in any other currency mutually agreed upon by the parties.

Foreign investors can make investments in Armenia through the establishment of fully foreign-owned companies (including representatives, affiliates and branches), the purchase of existing companies and securities, or the establishment of joint ventures. The company registration process takes about a week.

There are no limitations on the volume and type of foreign ownership, the number of foreign employees or access to financial sources. Neither are there any restrictions on the conversion or repatriation of capital and earnings, including branch profits, dividends, interest, royalties or management/technical-service fees. There are no limits on hard-currency imports, and while cash exports are limited to US$10,000 or its equivalent, there are no limitations on wire transfers. Funds may be converted and transferred through all domestic banks.

A liberal trade regime

A MEMBER of the World Trade Organisation since February 2003, Armenia has one of the world's most open tariff regimes, with a simple two-band import-tariff structure on goods classified pursuant to the international Harmonised Commodity Description and Coding System (at 0% and 10% in *ad valorem* terms and levied on cif values). There are no taxes on exports, and no quantitative trade restrictions. Import, export and domestic production licences are required only for health, security and environmental reasons.

No customs tariffs are levied on goods imported temporarily under customs control and under an appropriate customs regime. Foreigners who temporarily enter Armenia can bring one vehicle with its trailer duty-free, on the condition that it must be taken with them when they leave. If the foreigner does not re-export the car, all proper duties must be paid.

Commercial disputes may be settled either in state courts or through alternative dispute-resolution mechanisms. Commercial or property-related disputes may be settled out of court through institutional or *ad hoc* panels of experts (for example, chambers of commerce or bank associations). Armenian courts are independent.

Armenia is a signatory to the international convention on investment disputes and is a member of the International Center for Investment Disputes Settlement.

Geology and mineral resources

ARMENIA lies within a tectonically active zone, at the point of incidence of the Arabian and Eurasian tectonic plates. The continuing northwards movement of the Arabian Plate, and its impact with the southern flank of the Eurasian Plate, has resulted in the creation of the Caucasus Mountains at the region's northern border, with general structural trends throughout the region corresponding to the direction of these geotectonic forces.

The Caucasus region as a whole can be divided geologically into three principal terranes: Greater Caucasus, Transcaucasus and Lesser Caucasus, which in turn comprise sub-terranes that accreted together at various stages since Middle Cenozoic times. Armenia lies principally within the Lesser Caucasus, which extends into both Georgia and Azerbaijan, thus ensuring continuity in the distribution of its mineral potential across current national boundaries. In most cases, it would appear that sub-terrane accretion took place before major terrane units were bonded on to the Eurasian Plate with, at all times, the active front being at the north end of the mobile belt, while the southern edge remained passive.

The general WNW-ESE trend of these zones is reflected in the direction of a number of major faults that can be traced across much of the country. Economic copper, molybdenum and gold mineralisation has been found to be associated with this regional-scale faulting, thus providing an indicator of potential target areas for future exploration.

Within Armenia, the Lesser Caucasus is divided into two parts by the Sevan-Akera ophiolitic zone, a narrow strip containing ultrabasic intrusive rocks of Cretaceous-Eocene age. Outcropping mainly along the north shore of Lake Sevan, this zone can be traced further to the northwest, although for much of this distance it is hidden beneath volcano-sedimentary rocks related to the extensive vulcanism that subsequently affected the region.

The Lesser Caucasus can be divided into five metallogenic zones. The northernmost, the Somheto-Karabakh sub-zone, which consists mainly of rocks of Jurassic and Cretaceous age, hosts skarn deposits, porphyry copper and vein-type deposits associated with Late Cretaceous to Palaeogene intrusives. In the Sevan-Akera sub-zone, there are small-scale chromite and gold occurrences, and the Kapan sub-zone hosts vein-type copper and volcanogenic polymetallic sulphide deposits.

Younger again, and further south and west, the Ankaban-Zangezur sub-zone contains the country's principal copper-molybdenum porphyry deposits associated with Tertiary intrusives, together with vein systems containing both silver-gold and polymetallic mineralisation. The most recent of the sub-zones to be accreted within the regional structure, the Peri-Araks sub-zone, is known to host at least one small-scale copper-lead-zinc-mercury deposit.

Taken on a commodity-by-commodity basis, Armenia's copper resources are hosted in three types of deposit: porphyries (with molybdenum and some gold), pyritic vein-type deposits and polymetallic orebodies. Two main areas of copper mineralisation occur; the Alaverdy district in the north of the country and the Siunik district in the far south, close to the border with Iran and Azerbaijan. Of Palaeogene age, the country's copper-bearing porphyry deposits are relatively low-grade and contain less gold than comparable orebodies in, for example, the Pacific Rim.

The Alaverdy district contains the Alaverdy and Shamloukh copper-pyrite vein-type deposits, the Akhtala polymetallic vein-type deposit and the Teghout copper-molybdenum porphyry. The southern ore field hosts the Kajaran and Agarak copper-molybdenum porphyries, both of which are in production, and the Aygedzor and Lichk porphyries. In addition, the Kapan vein-type deposits have been worked since the mid-1800s; the nearby Shahumyan polymetallic orebody has been developed more recently.

In terms of resources, Kajaran contains around 60% of the country's copper, with a resource estimated at 4.3 Mt of copper metal at a grade of 0.27% Cu. The undeveloped Teghout deposit contains a further 1.6 Mt of copper at a grade of 0.35%, and Agarak contains 206,000 t of copper in ore averaging 0.46% Cu. Kapan – a vein-type deposit, not a porphyry – is higher grade at 0.99% Cu, and has reserves estimated to contain 209,000 t of copper.

Gold occurrences are widespread throughout Armenia, and consist of two principal types: quartz veins containing both gold and silver, found mainly in the north of the country, and gold-bearing polymetallic deposits, which occur mainly in the south. Most gold vein deposits, with the exception of Zod (to the east of Lake Sevan), are relatively small-scale, and are associated with Palaeogene-Neogene volcanic activity. Southern Armenian polymetallic deposits are also of Palaeogene age, but are associated with intrusive activity rather than vulcanism.

According to current information, the geological setting in which most of Armenia's gold occurrences are found makes it unlikely that larger deposits remain to be discovered, although it has to be borne in mind that Soviet-era exploration here focused almost exclusively on large-scale mineralisation, and that even medium-sized deposits may not have been considered worthwhile in evaluations carried out at that time.

Current estimates of the national gold resource inventory stand at around 190 t in quartz vein deposits, and 117 t in polymetallic zones, with a further 72 t in porphyry-type deposits in association with copper and molybdenum. Typical gold grades range from 2.5 g/t at Shahumyan (polymetallic) to 8 g/t at Zod and 15.9 g/t at Meghradzor (both vein-type).

Other opportunities for investors exist in deposits of industrial minerals, including dimension stone, and in mineral-water resources, for which both domestic and regional markets exist, with a number of currently untapped sources. Armenia was the largest producer of perlite in the former Soviet Union. It also has some 300 Mt of undeveloped iron-ore resources.

Today's mining industry

ARMENIA has significant deposits of copper, molybdenum and gold, as well as smaller deposits of zinc, lead and silver. Some copper-molybdenum and polymetallic ore deposits are rich in elements such as bismuth, tellurium, selenium, gallium, indium, thallium, rhenium and germanium. Armenia also has significant deposits of construction materials, such as granite, basalt, travertine, gypsum, diatomaceous earth, limestone and raw materials for cement production.

There are currently 17 major mining and metallurgical companies in operation, mainly concentrated in two provinces, most of them either extracting and processing copper and molybdenum ores, or extracting gold from tailings. The production of aluminium foil began quite recently, based on raw materials imported from Russia. The total value of metal and minerals production in 2004 was US$180 million, or approximately 5% of GDP.

The legal framework for mineral-sector administration

THE Armenian Government is reforming the administration of the country's minerals sector with revisions to the legislative framework that govern the sector. The process of drafting a new Concession Law and new Mining Code began in 2001, with the involvement of international expertise. The new legislation was adopted in late 2002, with Armenia winning an Outstanding Achievement Award at the inaugural 'Mines and Money' conference in London the following year for its success in creating this greatly improved investment environment.

The Concession Law prescribes the following types of licences:

Prospecting licence: This entitles the holder to carry out sub-surface prospecting operations, and is granted for a period not exceeding three years.

Special prospecting licence: This also entitles the holder to carry out sub-surface prospecting operations, and is granted for a period of more than three but not exceeding five years. It entitles the holder to conclude, upon application, a stabilising contract as established by the Concession Law.

Mining licence: This entitles the holder to carry out mining operations and is granted for a period not exceeding 12 years.

Special mining licence: Also entitling the holder to carry out mining operations, this is granted for a period of more than 12 years but not exceeding 25 years, and entitles the holder to conclude, upon application, a concession contract as stipulated by the Concession Law.

A **concession contract** is a written agreement between the Republic of Armenia and the special mining licensee that regulates the parties' obligations as established by the Concession Law. A concession contract comes into force simultaneously with the corresponding special mining licence and is valid for the whole period that the licence remains in force.

A **stabilisation contract**, meanwhile, is a written agreement between the Republic of Armenia and a special prospecting licensee that regulates the parties' obligations as established by the Concession Law. If a stabilisation contract is concluded, the special prospecting licensee, if desired, is provided with protection and reimbursement for additional costs in compliance with the procedures set by the Concession Law. A stabilisation contract comes into force simultaneously with the corresponding special prospecting licence and is valid for no more than 12 years from the start of mining the mineral.

Holders of mining licences and special mining licences are required to pay royalties of 1% of the aggregate net-back value of sales of metallic minerals, together with an additional royalty. This is levied at an incremental rate of 0.1% up to a maximum of 0.8% where an operation's profitability index exceeds 25%.

The profitability index is calculated by the simple formula (R–C)/R, where R is the aggregate net-back value of the sales of extracted metallic minerals in any royalty-payment period, and C represents the operating costs incurred during mineral extraction within the same period.

Views of Republic Square in Yerevan

ACP: reviving copper smelting

ACP

ARMENIA'S copper resources are sufficient to support mining at current rates for another 300 years, allowing the country to continue a tradition of copper production that was established more than 6,000 years ago. Armenian Copper Programme (ACP), a closed joint stock company, is one of the key players in the country's copper industry, operating the only copper smelter in the entire region, and thus positioned to process most of the concentrate produced in Armenia.

Armenian Copper Programme (formerly Manes yev Vallex) started operating in 1997, with the acquisition of the remains of what had once been a metallurgical giant – the Alaverdy copper smelter. After its shutdown in 1989, the smelter went through a process of decommissioning that lasted several years and resulted in the destruction of most of the vital production units and supporting infrastructure. Despite that, the new owners subsequently managed to resume smelting operations there, using a newly commissioned reverberatory furnace.

However, the operation faced some major problems during its first few years, largely related to delays in refunding value-added tax to the company, and in ensuring stable supplies of primary raw materials. It was not until 2003 that the smelter managed to achieve full production-capacity utilisation, which in turn allowed the company to report a profit for the year, compared with its previous losses.

This turnaround resulted mainly because at the beginning of 2003, after extensive negotiations with the European Bank for Reconstruction and Development, ACP secured a working-capital financing facility from the bank, enabling the company to meet its payment obligations against deliveries from its main supplier, Zangezur Copper Molybdenum Combine (ZCMC). The success of this facility led to it being extended by another year in 2004, with the EBRD later syndicating part of the increased loan to Raiffeisen Zentralbank (RZB) in response to a request from ACP to attract co-financiers to the project.

At the moment, discussions are continuing with both the EBRD and RZB to expand the facility beyond mere working-capital financing, with preliminary agreement having been reached to include a longer-term environmental-improvement component in the new project now being negotiated.

The company's performance has been further boosted by the launch of a greenfield copper-gold mining project by an affiliated company, Base Metals Ltd. Increasing tonnages of copper-gold concentrates have meant that the supply of raw materials for the Alaverdy copper smelter has been secured, at the same time increasing the value of its product with higher gold grades in the feed material.

That the company was able to develop this new mining project successfully reflected both the experience of ACP's engineering and construction personnel and the essential contribution made by the Mining and Metallurgy Institute, now part of the same group of companies. The institute undertook the design and led the construction of all of the current mining projects and enterprises in Armenia, as well as several others in neighbouring countries.

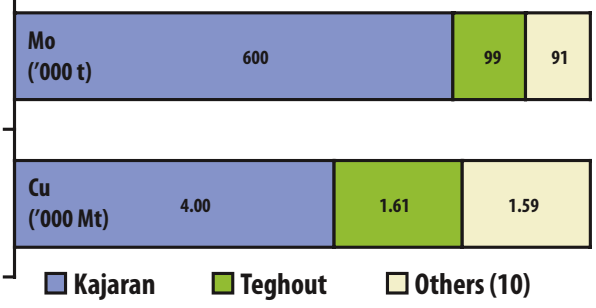
With the added expertise of the institute after its privatisation in 2003, ACP and its affiliates now have a unique capacity within the region to carry out geological exploration over potential areas of interest, identify mineral resources and reserves, prepare technical prefeasibility studies, design open-pit or underground mines and processing plants, and to undertake the construction of all the production units and supporting infrastructure needed for new developments. Thus, ACP and its affiliates are now key contributors to the development of the mining and metallurgy sectors in Armenia, with a combined staff of about 2,000.

ACP provides full transparency in its operations, irrespective of current legislative requirements or common business practice. All its financial statements are regularly audited by an independent auditor (KPMG Armenia has been the company's auditor for a number of years), and are publicly available on its corporate website.

The gradual expansion of its business has enabled ACP to strengthen its relations with its most important partners, both suppliers and customers. Ever since the resumption of operations at the Alaverdy copper smelter, the main concentrate supplier has been ZCMC, which produces over two-thirds of Armenia's copper. With the recent privatisation of ZCMC, the largest mining company in Armenia, there is renewed impetus towards further co-operation between the main copper miner and the country's only copper smelter.

On the sales side, ACP's principal customer has been Norddeutche Affinerie AG, the largest integrated European copper producer. Blister copper is sold to Norddeutche Affinerie with direct annual or biennial off-take agreements that cover most of the company's planned production.

Copper and molybdenum reserves in Armenia



EXPLORATION AND DEVELOPMENT PROJECTS

ACP and its affiliates are exploring a number of prospects and deposits in Armenia to identify the most viable mining projects, the company's aim being to develop its mining activities in the country as well as to provide the Alaverdy smelter with a sufficient volume of feed to support an expansion in its capacity.

The projects now under evaluation include several relatively small ones, requiring correspondingly low levels of investment and thus presenting a good opportunity for entry by a potential partner. Nonetheless, ACP's main target within its portfolio of mining projects is the development of one of the largest deposits in Armenia – the Teghout copper-molybdenum deposit, for which the company holds a 25-year mining licence. In terms of its resources, the Teghout deposit is second only to Kajaran, the focus for ZCMC's operations.

The Teghout deposit's reserves were approved during the Soviet era in accordance with all the standards and procedures then in effect, with most of the Soviet geological and other data being posted on the project website (www.teghout.com). Nonetheless, the company realised that attracting large-scale financing from Western banks and investors would require a reassessment of the deposit's reserve potential. In order to complete this task, ACP invited the Canadian engineering consultancy, Strathcona Mineral Services, to advise on any further work that would be needed, and since the Strathcona's last visit in late 2004, ACP has completed initial work on ten drillholes. Accounting for about 1,800 m in total, all of these have twinned old drillholes to check the reliability of the Soviet-era drilling data.

In order to assure the veracity of the newly-collected data, ACP's sample-preparation laboratory and the assay laboratory at the Mining and Metallurgy Institute have both been modernised. The results obtained thus far from the drilling programme indicate the presence of a supergene zone of considerable width, resulting in an overall improvement in the project's potential viability. This basically warrants the continuation of further work at Teghout to prepare a prefeasibility study and, provided its findings are positive, to move ahead to a full feasibility study.

Drilling at Teghout resumed in August this year with new, modern drilling rigs supplied by Atlas Copco, to satisfy all of the requirements that Strathcona defined. In line with the company's recommendation, the drilling encompasses twin-drilling ten holes in the central part of the deposit for a total of 2,500 m, and 6,500 m of in-fill drilling in the western part of the deposit in 26 holes. This compares with about 45,000 m drilled in 143 holes that were included in the reserve calculations carried out earlier, with some 10,000 core samples taken and assayed over 20 years up to 1991.

The information available to date has resulted in ACP considering a phased approach to developing the deposit. In this case, the first stage would consist of mining in the supergene zone, with operations then being expanded into mining in the so-called 'little open pit'. This would cover about a quarter of the deposit's reserves, located in its upper levels.

Both ACP's management and shareholders are confident the company has sufficient capacity for successful implementation of the Teghout project once its feasibility has been proven.

This confidence is backed, not only by the combined technical capacity of the affiliated companies, but also by ACP's successful track record with major Western banks (including the EBRD and RZB) and, most importantly, Armenia's generally favourable business environment and mining regulations.

ZCMC: before and after privatisation






ZANGEZUR Copper Molybdenum Combine (ZCMC) is located in the southeastern part of Armenia, with its operations focused on the Kajaran copper-molybdenum deposit. The deposit comprises a thick network of veins and disseminated mineralisation in hydrothermally-altered monzonites. This forms an elongated stockwork that extends for 3.5 km along its principal axis, orientated in a roughly northwesterly direction, with a width of about 1.5 km. The mineralisation ranges in depth from 50 m to over 500 m, and is controlled by barren porphyry dykes. The principal ore minerals are molybdenite and chalcopyrite.

Sequential exploration during the Soviet era involved 168,300 m of drilling in a total of 645 holes, the ore deposit and the surrounding area being drilled on a 100 x 100 m grid. The reserve estimate then calculated in the B and C1 categories totalled 1,600 Mt of ore, containing 620,000 t of molybdenum, 4.1 Mt of copper, 46 t of gold and 2,600 t of silver.

Initial construction of the mining operation at Karajan was completed in 1952, with all of the production prior to 1958 coming from underground. In 1960, the operation switched entirely to open-pit mining, with today's pit having dimensions of 2 x 2.5 km and reaching a depth of 400 m.

ZCMC's development has occurred in three stages. The first involved the construction of the Karajan operation, the start of production at a rate of 1.5 Mt/y, and the continuing expansion of production through re-equipping to a capacity of 9.2 Mt/y by 1989. During this time, the government invested considerable amounts in the company's operations which, because of Karajan's unique resources, contributed the lion's share of the Soviet Union's metallurgical demand for molybdenum.

With a comparatively low production cost, reflecting the low stripping ratio (0.42-0.44 m^3/t) in the pit, and the operation's proximity to major infrastructure such as the rail network, there is good potential for further development at Karajan, and a feasibility study has been carried out for increasing ore-processing capacity to 20 Mt/y.

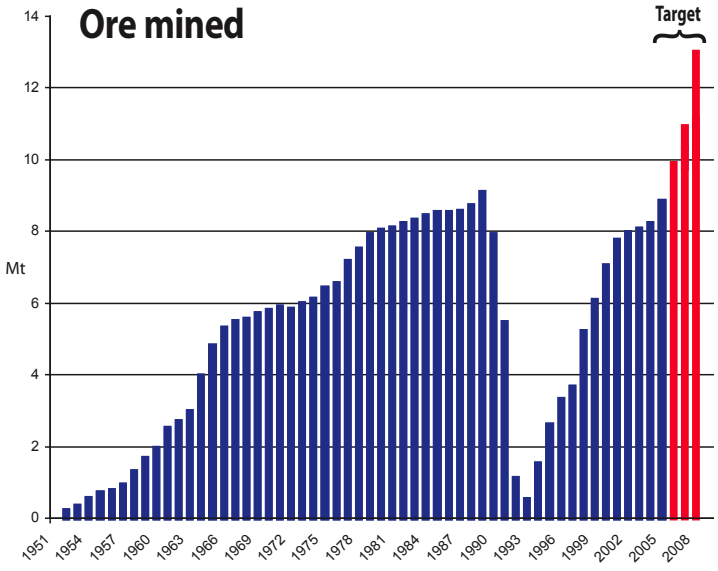
By 1989, the re-equipping of the basic production operations was almost complete, the pit having been equipped with new EKG-5 and EKG-8 excavators and a fleet of 40 110 t-capacity BelAZ trucks. SBSh-250 blasthole drills were introduced, and an explosives-production plant was built. The ore-transport system from the mine to the concentrator was changed, the inefficient ropeway then in use being replaced by belt conveyors with intermediate three-stage crushing of the ore. The ore feed to the plant is now crushed to minus 20 mm.

In the concentrator itself, 16 m^3 flotation cells were tested and installed, adding to the existing 3.2 m^3-capacity cells. However, the major shortcoming of the entire re-equipment process, which still applies today, has been the low level of automation of control and the whole production-management process. Despite having an adequate production capacity, the plant remains highly labour-intensive.

The second stage of ZCMC's development concerned the production-rehabilitation process after the collapse of the Soviet Union. The operation produced virtually nothing during 1992-93, all contacts with its former external partners and its suppliers of materials, machinery and spare parts having been lost.

Nonetheless, ZCMC soon managed to re-establish initial contacts with foreign partners, and production gradually resumed, with output increasing by between 10% and 20% annually during the mid-1990s. One of the main features of this stage was that it did not take too long to organise the production of many essential consumables and equipment within Armenia, using local expertise. This approach was necessitated by the huge problems being experienced at that time in importing goods from abroad and their high cost at a time of unprecedentedly low world prices for non-ferrous metals.

There was also a major lack of financial investment for maintenance and production development, principally because the enterprise was still under state ownership and any profits were used to meet state needs. It thus became urgent to attract major investment from foreign companies by privatising ZCMC, with the aim of developing its production still further.



The third stage of the company's development began on January 1, 2005, after its successful privatisation, with a US$200 million investment programme having already been agreed with the Armenian Government. Since the March quarter of this year, ZCMC has started re-equipping both its mining and processing operations, with a new truck fleet and 25 m^3 flotation cells, which have already been procured and installed. The current aim is to process 9.54 Mt this year, and to increase Karajan's ore-processing capacity by 50% to 12.5-13 Mt/y by 2008.

AGRC: Armenia's leading gold producer

ARARAT Gold Recovery Co LLC (AGRC) is a 100% subsidiary of Sterlite Gold Ltd - a Canadian company whose strategy is to find, acquire, develop and operate gold mines in Asia and the former Soviet Union. Sterlite Gold's strategic focus shifted to Asia in 1995 in response to recent major international political and economic shifts. Countries that had previously not allowed foreign companies to participate in their gold-mining industries began encouraging foreign investment. In addition, many of these countries had never been explored with modern technology, and their existing mines were generally undercapitalised and, therefore, high cost. These facts, combined with Asia's favourable geology for gold deposits, convinced Sterlite Gold to focus on projects in Asia.

AGRC, a company registered to do business in the Republic of Armenia, mines two gold deposits, Zod and Meghradzor, and operates a gold-processing plant at Ararat. Sterlite acquired full ownership its Armenian properties in February 2002 through the privatisation process.

Gold production began at the new Ararat plant in February 1998, with an output that was initially forecast at 30,000 oz/y at a cash cost of US$200/oz. This US$12 million facility is believed to have been the first gold plant to be constructed in the former Soviet Union by a Western company that was completed on budget. The plant produced 102,960 oz of gold equivalent in calendar 2002, and 59,345 oz in 2003.

The Ararat concentrator lies some 60 km south of Yerevan, close to the border with Turkey at an elevation of 900 m. The plant currently treats ore from both Zod and Meghradzor, and is connected to the Zod mine, 235 km away, by part of the state-owned railway system. Around 300 people are employed at the Ararat facility, which was constructed in 1976 to treat ore from Zod and the surrounding region. It then had a design capacity of 1 Mt/y, and by 1997 had produced some 12 Mt of tailings.

In 1997, a CIL plant was constructed at the concentrator to treat this tailings stockpile. This exercise has now been completed, although a limited quantity of tailings from post-1997 mining remains to be treated. Although these are very low grade, treatment may continue up to the end of 2005.

The Zod mine, in the Vardenis region of eastern Armenia, was first operated under the previous Soviet regime, and then for a period under Armenian control. Mining began in 1976 with a total of 7.2 Mt of ore having been transported to Ararat for treatment. Production involved both open-pit and underground methods, but all production activity ceased at the mine in 1996, before AGRC's involvement began.

The main facilities today are located at an elevation of 2,200 m, and the current mining operations extend to an altitude of 2,500m. The mine is approximately 11 km from the town of Zod, where most of the mine staff and personnel live. It is some 180 km by road east of Yerevan, a journey that can be driven in about three hours. Some 550 people currently work at Zod.

Meghradzor is in the Hrazdan region, some 50 km north of Yerevan, and has a workforce of about 300 people. An underground mine, Meghradzor first operated between 1986 and 1997. Production recommenced in 2001 with an ore output of around 100,000 t/y.

A major feasibility study on the combined Zod-Meghradzor-Ararat facility was completed in 1998 by a joint venture between Kilborn-SNC and CMPS. This defined a viable resource at Zod and suggested the development of a 160,000 oz/y open-pit mine there. However, a combination of corporate changes and technical variations meant that production did not restart there immediately.

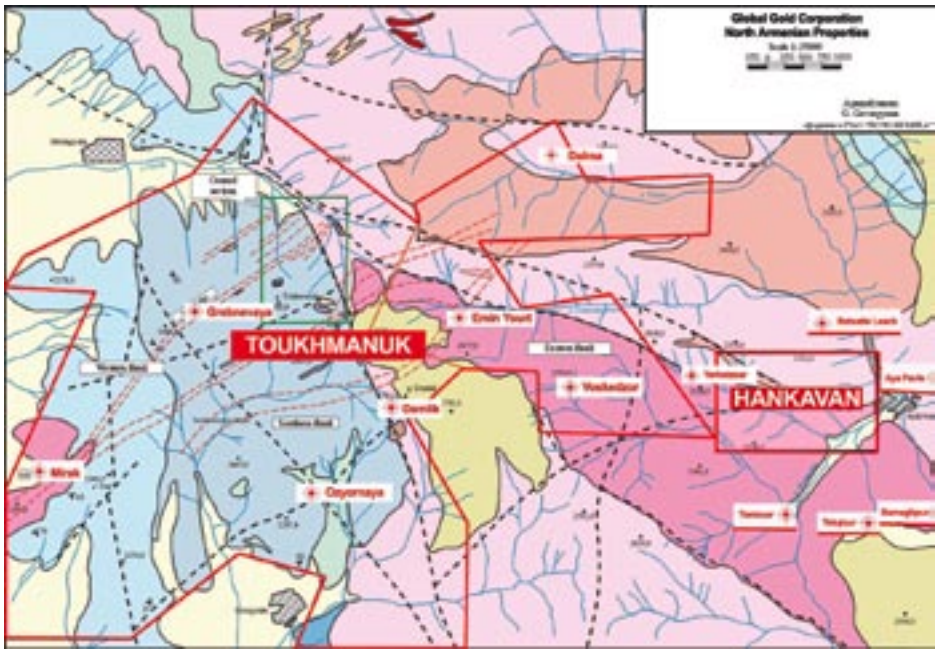
In 2002, a small-scale operation began, designated the Test Pit, with all the ore mined being transported by rail to Ararat. This operation was deemed a success and production from a Phase II pit began in mid-2003. This Phase II pit was planned to mine around 2 Mt of ore at a grade of 5.2 g/t gold, and at the time it was anticipated that production from this pit would be completed by early 2005.

However some significant inconsistencies were subsequently detected in the geological data, indicating that both the tonnage and grade of ore from this Phase II pit would be less than expected. As a result, and in order to maintain its overall gold production as high as possible, Sterlite has been forced to deepen the pit faster than was originally planned.

The company has recently completed a major diamond-drilling programme to prove up a major block of inferred resources below and to the west of the current reserves. Based on the results of this drilling programme, which are quite encouraging, a new feasibility study has been prepared for a major expansion into a Phase III pit, together with an environment impact assessment. AGRC is currently in the process of obtaining the necessary government approvals and authorisations for implementation of the Phase III project.

Below: four views of the Zod operation

Global Gold expands its operations



US-BASED Global Gold Corp recently acquired the Toukhmanuk (which means 'dark child') gold property and processing plant adjacent to its Hankavan ('mine town') property and related exploration sites, thereby establishing a major presence in the major mineralised belt in north-central Armenia. Replete with ancient workings, this area was explored systematically during the Soviet era for gold, copper and molybdenum.

Based in Greenwich, Connecticut, Global Gold has been active in Armenia for over ten years, with its focus on this belt of mineralisation adding to its presence in the country. Planned upgrades to the existing plant and mining operations at Toukhmanuk mean that Global should be complementing its exploration programme in the region with gold production in the near future.

Global acquired Hankavan in December 2003, and is currently carrying out a drilling programme to confirm the exploration previously undertaken by State Committee of Reserves (GKZ), and to focus on a skarn zone that is thought to have higher gold grades than the rest of the property.

The historical GKZ feasibility work projected a 115 Mt orebody containing 60,000 t of molybdenum at an average grade of 0.054%, 125,000 t of copper at an average grade of 0.57% and over 1.1 Moz of gold at 1.42 g/t, all in the C1 and C2 categories. Recognising the potential of this region, Global has also expanded its exploration activities to six other, smaller licence areas in and around Hankavan.

The company acquired the Toukhmanuk licence area in August 2005. As with all of its Armenian properties, the acquisition was made through its subsidiary, Global Gold Mining LLC. Specifically, Global acquired 51% of the Armenian company, Mego-Gold LLC, and will pay for and acquire the remaining 49% within two years.

The Toukhmanuk resource has been estimated at 3.3 Mt averaging 6 g/t Au and 15 g/t Ag, containing over 700,000 oz of gold and over 1.7 Moz of silver. In addition to the central property, the acquisition includes a 200,000 t/y-capacity plant (which is now being upgraded) and the Damlik, Mirak, Grebnevaya, Ozyornaya, Emin Yourt, Voskedzor and Dalma exploration sites.

"One of our top goals is to confirm these resources in accordance with Western standards, at the same time as we are exploring for new reserves in this region" said Global Gold's chairman, Drury J Gallagher, and the company's president, Van Z Krikorian. "We are also integrating the initial production from Toukhmanuk into our exploration work, which is working well to develop the property. Based on our years of in-country experience, we have great confidence in Armenia, both in its mining potential and in the people with whom we work.

"We are fortunate to have a strategic shareholder in Firebird Management, which has endorsed this strategy as well as our respect for maintaining an ethical as well as environmentally and socially responsible operation in the country, and now we are welcoming others who share that vision. We are also happy to be in partnership with Iberian Resources on properties in southern Armenia, and expect to pursue new projects in Armenia along with our business in Chile."

Global Gold first entered the Armenian mining industry through a joint venture with the government to develop the Zod and Meghradzor mines, as well as to reprocess the 12 Mt of tailings that had accumulated at the Ararat plant by 1995. Global partnered with First Dynasty Mines Ltd on that project, with the first gold exports from the new plant being achieved in May 1998.

Global no longer has a stake in First Dynasty, which was eventually taken over and renamed Sterlite Gold Ltd, except for a 20% right to participate in any exploration projects undertaken directly or indirectly by Sterlite Gold or its successors before the end of 2009. This 20% participation right was initially limited to exploration other than at Zod and Meghradzor, but the parties' initial agreement was amended in 1998 to remove all limitations.

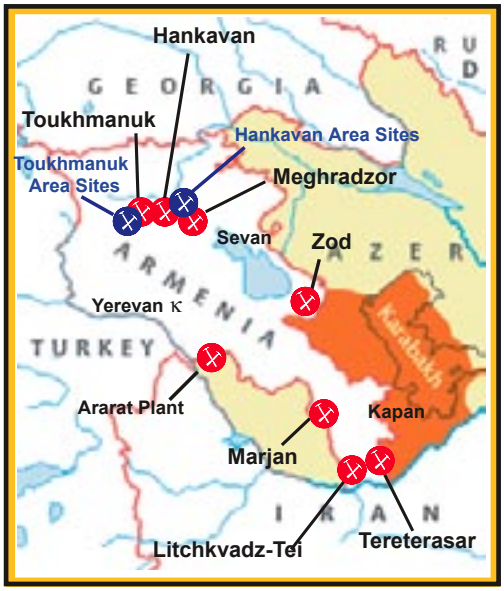
Since 1995, Global's representative in Armenia has been Ashot Boghossian, an attorney and former English teacher with substantial experience of the Armenian legal and regulatory framework for foreign investment, and specifically for mining. Mr Boghossian is now Global Gold Mining's regional director, having worked on projects in other Eurasian countries as well as in Armenia.

On the technical side, Global's director of mining and exploration is an Australian, Simon Cleghorn. He came to Armenia in 1997 to work on the Zod and Meghradzor joint venture, became fluent in the language, and has since settled there. Global's senior geologist is Genrikh Mkrtchyan, a prominent member of Armenia's exploration community. The director of business operations is Frank Pastorino, an MBA with mining-company experience and a former US Peace Corps volunteer, who is also fluent in Armenian.

In August, Global Gold and Iberian Resources Ltd formed a joint venture to develop the Litchkvadz-Tei and Tereterasar deposits, which are roughly 5 km apart in southern Armenia. Iberian will own 80% of this enterprise, and development is proceeding on track. These gold-copper-silver properties are situated among several significant past and currently producing mines, such as the Kajaran, Agarak and Kapan copper mines. Litchkvadz-Tei and Terterasar were also extensively explored (to a depth of 300 m) during the Soviet years through open-cuts, underground workings and extensive drilling to establish C1 and C2-category gold-resource estimates in the 700,000 oz range.

At present, Global also owns the licence for, and is exploring, the Marjan gold-polymetallic property, north of Litchkvadz-Tei and Tereterasar, but still in southern Armenia. GKZ C2-category estimates identified the potential there at 3.5 Mt averaging 3.39 g/t Au and over 70 g/t Ag, with copper, lead and zinc.

To summarise, Global Gold is expanding both in its focus on the north-central Armenian belt with Toukhmanuk, Hankavan and its associated exploration sites, and throughout the country where it feels it can add value. Its resources have expanded substantially in the last year and, with its excellent experience in the country, the company reports that the future looks bright.



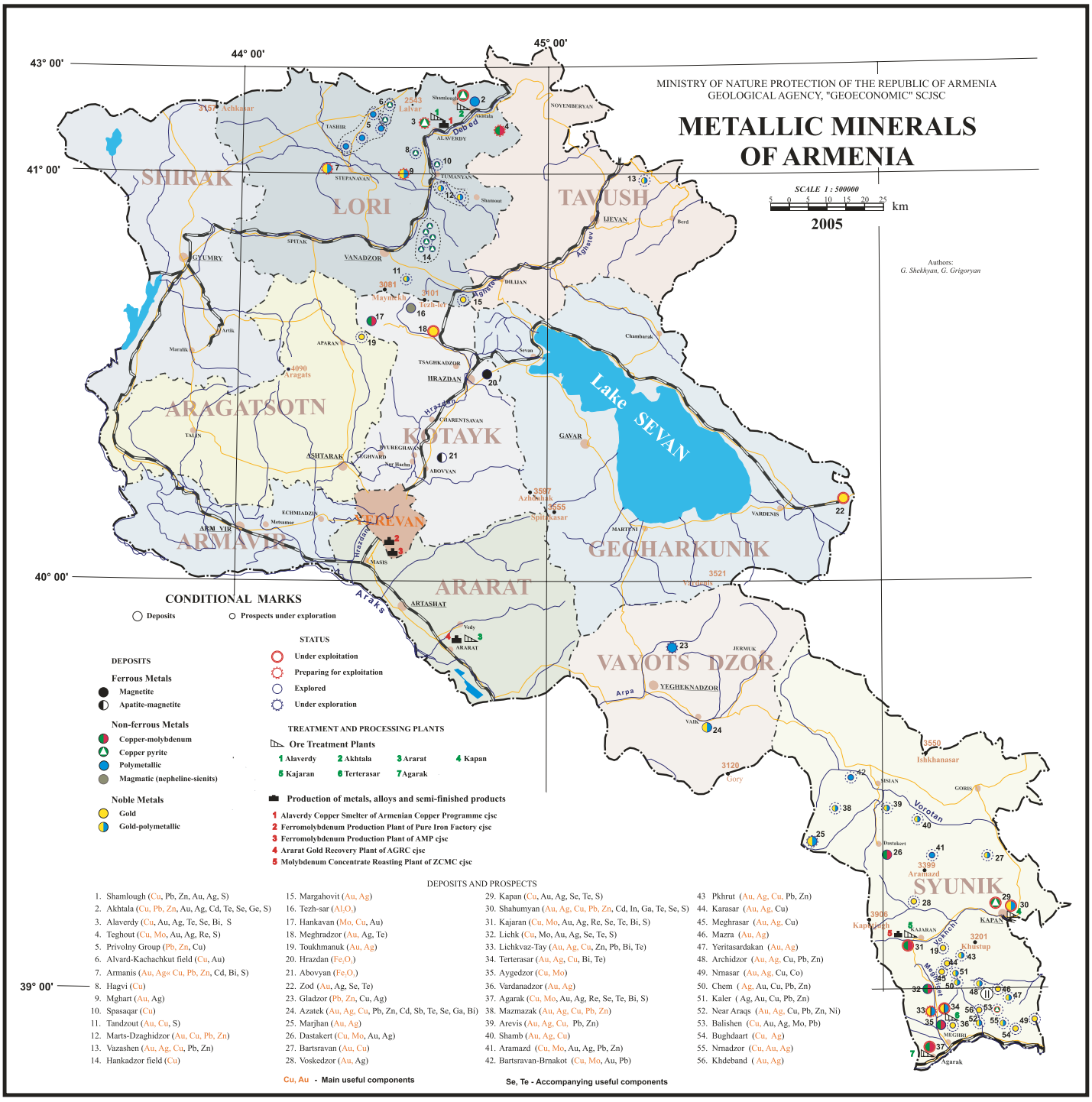
Armenia Properties

Additional Hankavan Area Exploration Sites

- Sarnaghpyur
- Tetujour
- Tsetscar
- Yekatasar
- Batsatie Leach
- Aya Pavle

Additional Toukhmanuk Area Exploration Sites

- Voskedzor
- Grebnevaya
- Damlik
- Mirak
- Emin Yourt
- Ozyornaya
- Dalma



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