

# Armenia

## Positive outlook for mineral sector growth

The smallest of the three countries that comprise the Caucasus, Armenia lies at the cultural crossroads between Europe and Central Asia. Trade routes, including parts of the Great Silk Road, have passed through this area for millennia, while the region's mining history dates back at least 5,000 years. Historical sources suggest that the Sumerians obtained copper from the area east of Lake Van (in present-day Turkey) at that time, later developing the metallurgy of bronze. Industrial-scale metal production began in modern-day Armenia in 1846 with the opening of the Kapan copper mine, still being worked today for copper and other base metals, albeit under different ownership.

During the second half of the 20<sup>th</sup> Century, Armenia's mines supplied much of the Soviet Union's molybdenum and perlite, while at the other end of the scale, volcanic tuff is the facing stone of choice for a significant proportion of the country's buildings, from domestic to official architecture. However, the disintegration of the Soviet Union at the start of the 1990s led to the virtual collapse of the Armenian economy, as markets for its centrally planned industrial output disappeared, and it is only recently that a clear growth trend in industrial output has been re-established. Foreign direct investment, both from Russia and other European countries, and from sources linked to Armenian expatriate communities in other parts of the world, has been a key factor in this process.



*Although in neighbouring Turkey, Mount Ararat dominates the Yerevan skyline*

### Contents

Armenia past and present	2
Alaverdi - risen from the ashes	3
Mining - a cornerstone of national development	3
Armenia's geology and mineral resources	4
The mining industry today	5
Ararat Gold - now fully foreign-owned	6
Resource information and administration	7
Armenia's business environment	7
The JICA project	8

Armenia's mineral resources reflect the country's complex underlying geology, which in turn has resulted from crustal movements connected with the impact of the major Arabian and Eurasian plates. This process, for which direct evidence can be seen in the form of the Caucasus mountains between Georgia and southern Russia, and through the regular occurrence of earthquakes in the region, is continuing. The country's metalliferous resources are all associated with past vulcanism or intrusive activity, as are its significant deposits of non-metallic minerals such as perlite and dimension stone.

The Armenian government recognises that redevelopment of the country's minerals sector can provide a foundation for further economic growth. Its privatisation plans include returning Armenia's existing mining operations to private ownership, whilst promoting the development of deposits whose existence was proved during Soviet-era exploration but which did not meet production criteria at that time. The country's mining law has recently been revised, and passed through parliament in early 2003, while a new concession law is also in effect, clarifying the rights and responsibilities of both mineral-sector administrators and exploration and mining companies alike.





## Key Facts About Armenia

**Area:**

29,800 km<sup>2</sup>

**Population:**

3.3 million

**Capital:**

Yerevan (1.3 million)

**Climate:**

Highland continental

**Highest point:**

Mt Aragats (4,090 m)

**Dominant religion:**

Armenian Orthodox

**President:**

Mr Robert Kocharian

**Parliamentary system:**

Unicameral democracy

**Most recent elections:**

2003

**Legal system:**

Civil law

**GDP:**

US\$11.2 billion (2001)

**Mining contribution to GDP:**

2.7% (2001)

**Principal imports:**

Energy, rough diamonds, foodstuffs

**Principal exports:**

Processed diamonds, brandy, agricultural products, copper and molybdenum concentrates

**Leading trading partners:**

Russia, Iran, Belgium, USA

**Currency**

Dram (ARD)

**Exchange rates (June 2003):**

US\$1 = ARD 585

€1 = ARD 690

**Visa requirements:**

All countries except CIS

**International dialling code:** +374

This Mineral Sector Investment Focus on Armenia has been funded by the Japan International Cooperation Agency (JICA), which is currently supporting a major review of the country's mining sector, and the preparation of a mining master plan for Armenia. The aim of this publication is to provide information to companies and organisations worldwide on the investment opportunities that may exist in Armenia's minerals sector, together with the business environment in the country.

## Armenia, past and present

In terms of surface area, Armenia is slightly smaller than Belgium. Landlocked, the country has national borders with Turkey to the west, Georgia to the north, Azerbaijan to the east and southwest, and Iran to the south. At the present time, Armenia's borders with both Turkey and Azerbaijan are closed, and the country is reliant on access through Georgia and Iran for its trade links.

Historically, Armenia and neighbouring Georgia are long-established Christian countries, in contrast to surrounding nations. National boundaries have changed over time, with Armenia's current frontiers having been established during the Soviet era. However, this exercise created on-going problems for the region through the inclusion of large ethnic minority populations in various areas; thus a substantial Armenian community was incorporated into the Nagorno-Karabakh district of Azerbaijan, while the Azeri province of Naxçivan lies to the west of southern Armenia, isolated from the rest of its country. Armenia and Azerbaijan went to war over Nagorno-Karabakh in the early 1990s, and today Armenia effectively occupies around 15% of Azerbaijan's territory, including the disputed province.

The principal contributors to Armenia's GDP are agriculture (25% in 2001) and industry (20.2%), with non-ferrous metal production - mainly copper, molybdenum and gold - providing around 2.7% of GDP. GDP as a whole grew by 9.6% in 2001 and by 12.9% in 2002, while the value of exports increased by 49% in 2002, albeit from a low base level. Diamond processing has been one of the fastest growth areas within the industrial sector, with uncut diamonds being imported from Russia and other producers, and exported worldwide. The country became a member of the World Trade Organisation in early 2003. Its major trading partners include the CIS for agricultural products and Europe for textiles, while all its energy needs, aside from its

own hydro-generated power, are imported from the CIS.

Armenia is essentially a highland country, with less than 10% of its land surface at an elevation lower than 1,000 m. In the north, high plateaux are intersected by steep valleys cut into the volcanic terrane, while further south, the countryside opens into high plains. Natural drainage is towards Georgia in the north and towards the Caspian Sea over much of the rest of the country, while Lake Sevan - the world's third-largest alpine lake - occupies a substantial part of northeastern Armenia. The climate is continental.

On the political front, Armenia's first post-independence president, Levon Ter-Petrosian, was replaced by the current head of state, Robert Kocharian, part-way through his second term in office. General elections were last contested in early 2003, leading to a parliament with a considerable majority for the country's prime minister, despite the large number of individual parties that stood for election. The parliament is now predominantly business-orientated, right of centre with a small, hard-line opposition grouping.

While Armenia hosts a population of around 3.3 million, emigration means that the total is continuing to decrease. Significant numbers of Armenians have left for economic reasons in recent years, adding to the large diaspora that is centred on countries such as the United States, France, Lebanon and the CIS countries. Of particular concern is the continuing 'brain-drain' of talented young people. However, Armenian communities overseas provide substantial financial support to the country, both in terms of individual remittances and in investing in the country's development. Perhaps the largest single supporter in this context has been the Lincy Foundation, established by the Armenian-American Kirk Kekorian, which alone has provided US\$100 million in no-interest loans for establishing new business ventures, and US\$150 million in funding for infrastructure reconstruction projects both in the capital, Yerevan, and in the rest of Armenia.

## Security

Armenia enjoys a relatively good general level of security, although the UK Foreign Office advises visitors to the country to avoid the border area with Azerbaijan on account of the unresolved territorial dispute over Nagorno-Karabakh. Crime remains at a relatively low level compared to some other developing-economy countries.

## Alaverdi: risen from the ashes

Up to 1989, the Alaverdi smelter in northern Armenia produced up to 55,000 t/y of copper metal, employing around 4,000 people. Smelting at this location dated from the 1770s and, with a few brief interruptions, had continued to that time. However, in 1989 the plant was dismantled, ostensibly for environmental reasons. Not only did this create massive unemployment in the town of Alaverdi, but there was also a major knock-on effect on Armenia's copper mines.

In the mid-1990s, the plant's remaining management team began planning on how to restart smelting using the reverberatory furnace and converter that remained on site. The rebuilt equipment produced its first blister copper in 1996, and in 1997, Manes & Vallex - a company based in Switzerland and Liechtenstein - bought the assets of the earlier state-owned company, so providing new financial backing. The company changed its name to Armenian Copper Programme (ACP) in 2002.

According to ACP's chairman, Dr Valery Medzhlumyan, the company had a turnover of US\$11-12 million in 2002 on an output of 7,200 t of copper, and expects to increase this to US\$25 million by 2004. ACP also has plans to install a new 40,000 t/y flash smelter at Alaverdi, so reducing the plant's environmental



impact whilst producing higher-grade copper metal, sulphuric acid, copper sulphate and precious metals. To provide the initial feed for its smelter, ACP has reopened the old Alaverdi copper mine, 3 km from the plant, and is currently evaluating other resources

in the region, including the Teghout copper-molybdenum deposit.

The aim, Dr Medzhlumyan noted, is for ACP to be in a position to supply around 60% of its smelter feed from its own mining operations, with the remainder of its demand being supplied by concentrates bought in from domestic sources and from scrap. The smelter's location means that transport costs preclude sourcing concentrates from further afield except, perhaps, from neighbouring Georgia.

Alaverdi's current blister copper output is sold to refineries in Germany and Bulgaria, but the company's intention is to create an integrated production unit, from mining to wire manufacture, using state-of-the-art technology. Assuming that it can secure adequate concentrate supplies, it will be investing US\$30 million in its new flash smelter, with the aim of having this operational in two-to-three years.

In early 2003, ACP signed contracts with both the Zangezur JSC, operator of the Kajaran mine, and Metal Prince Ltd's Akhtala operations for the supply of copper concentrates, and received a US\$3 million loan from the European Bank for Reconstruction and Development for working capital to enable the company to secure its raw materials supplies and improve operational efficiency.

For more information on ACP, visit the company's website, [www.copper.am](http://www.copper.am)

## Mining - a cornerstone of national development

The Armenian government has ambitious development plans which, if successful, will result in the country reaching accession standard for European Union membership by 2010, and achieving 'middle income' status by 2015. To do so will require a doubling of *per capita* GDP from the current level of US\$3,000, with the double-digit growth expected for 2003 and 2004 helping to reach this target.

Following the collapse of much of Armenia's former industrial base, mining and diamond processing have acquired a proportionately more significant role in the economy over the past ten years. The government is now targeting investments that will add further value to this sector, and the recent reopening by the Armenian Copper Programme of its Alaverdi copper smelter (see

above), albeit at reduced capacity, represents a first step along this road.

As the head of the mining unit at Armenia's Ministry of Trade and Economic Development, Artur Ashughyan, noted in an interview earlier this year, the government's aim is to create a structure for the industry in which the private sector can operate effectively. In this context, the Ministry has been given the task of creating a Mining Agency that will bring together functions that were previously dispersed amongst various government departments. In addition, he said, the government's privatisation programme has been bringing new investment into the sector, such that there has been a four-fold increase in its productive potential since 1999.

Of the major state-owned mining enterprises, only two - the Zangezur and Agarak joint-stock companies (JSCs), both of which are copper-molybdenum producers - remain to be privatised, a process that the government hopes to complete by the end of 2003. Elsewhere, private-sector

involvement in mining has resulted in the further evaluation of several smaller-scale deposits that had been deemed unworkable under Soviet production criteria, but which can now support viable operations.

The constraints applied by the old Soviet legal system in relation to investment and the development of mining projects have been superseded, Mr Ashughyan continued, by the adoption of the country's new mining law. Drafted with assistance provided under the European Union's TACIS programme, the new law incorporates 'Western' concepts in relation to the administration of the minerals sector for the first time in a former Soviet Union country. Including stabilisation and concession contracts to protect licence holders' rights, it also outlines provisions for royalty payments and the holding of foreign-currency accounts. The country's new concession law, which provides more detail on specific conditions for licensing, royalties and other issues relating to exploration and mining, is also in force.



Nonetheless, Mr Ashughyan conceded, major issues such as the relatively high cost of transport and energy in Armenia still exist, and some headway has yet to be achieved, for example, in reducing the complexity of customs procedures with Iran and Georgia through inter-governmental agreements. In other areas, such as the law on foreign investment, which was enacted in 1994, there has already been significant progress. Designed to kick-start the flow of foreign investment into Armenia, the law provides guarantees, tax breaks and other incentives, more details of which are included in the section on mineral-sector administration on page 7

with this regional-scale faulting, thus providing an indicator of potential target areas for future exploration.

be accreted within the regional structure, is the Peri-Araks sub-zone, which 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. There are two main areas of copper mineralisation; the Alaverdi district in the north of the country, and the Siunuk district in the far south, close to the borders with Iran and Azerbaijan. Of Palaeogene age, the country's copper-bearing porphyry deposits are relatively low-grade and contain less gold than comparable ore bodies in, for example, the Pacific Rim.



## Armenia's geology and mineral resources

Armenia lies within a tectonically active zone, at the point of incidence of the Arabian and Eurasian 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: the Greater Caucasus, Transcaucasus and Lesser Caucasus, which in turn are comprised of sub-terraces that accreted together at various stages since Middle Cenozoic times. Armenia lies principally within the Lesser Caucasus terrane, which extends into both Georgia and Azerbaijan, thus ensuring continuity in the distribution of its mineral potential across current national boundaries. It would appear that in most cases, 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, whilst the southern edge remained passive.

The general WNW-ESE trend of these zones is reflected in the direction taken by a number of major faults that can be traced across much of the country. Economic copper, molybdenum and gold mineralisation has been found associated

While covering much of 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, the 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, consisting 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, noted above, there are small-scale chromite and gold occurrences, while the Kapan sub-zone hosts vein-type copper and volcanogenic polymetallic sulphide deposits.

Younger again, and further south and west, the Ankaban-Zangezour 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. Last, and the most recent of the sub-zones to

The Alaverdi district contains the Alaverdi and Shamloukh copper-pyrite vein-type deposits, the Akhtala polymetallic vein-type deposit and the Teghout copper-molybdenum porphyry. Of these, Teghout is still under evaluation, but the others have been worked in the past, and are currently either under redevelopment or are already back in production.

The southern ore field hosts the Kajaran and Ararak copper-molybdenum porphyries, both of which are in production, and the Aygedzor and Lichk porphyries, which remain undeveloped. In addition, the Kapan vein-type deposits have been worked since the mid-1800s, while 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% copper. The undeveloped



*The processing plant at Kajaran, where the orebody contains 60% of Armenia's copper*

Teghout deposit contains a further 1.6 Mt of copper at a grade of 0.35%, while Agarak contains 206,000 t of copper at 0.46% and Kapan - a vein-type deposit, not a porphyry - is higher grade at 0.99% copper, and has reserves estimated to total 209,000 t of copper.

Gold occurrences are widespread throughout Armenia, consisting 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 Sotk (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 as being worthwhile during evaluations carried out at the time.

Current estimates of the national gold resource inventory stand at around 190 t in quartz vein deposits, and a further 117 t in polymetallic zones, with a further 72 t contained 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 Sotk and 15.9 g/t at Megradzor (both vein-type).

Other opportunities 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. The country was the largest producer of perlite in the former Soviet Union, and has some 300 Mt of undeveloped iron-ore resources.

## The mining industry today

Copper, molybdenum and gold are the principal metals currently produced in Armenia, with a small amount of zinc, lead and silver output from the Kapan polymetallic operation in the south of the country. Of the current generation of mines, copper mining began in the northern Alaverdi district in the 1770s, and Kapan was brought into production in 1846, but it was over 100 years before the next major operation - the Kajaran copper-molybdenum mine - came on stream. This was followed in 1963 by Agarak (copper-molybdenum) and by Shahumyan (polymetallic) in 1992.

The Kajaran mine, operated by the state-owned Zangezur JSC, has a capacity of 18,000 t/y of copper and 4,000 t/y of molybdenum in concentrates. Following the discovery of the porphyry deposit in 1925, exploration continued until 1949, and the mine opened two years later. Covering an area of 1,500 by 3,500 m, chalcopryrite, pyrite and molybdenite stockwork mineralisation occurs in an Eocene-age quartz monzonite intrusive body, with an overall

resource estimated at some 1,700 Mt grading 0.27% copper and 0.055% molybdenum. The regional Debakly Fault is an obvious control for the mineralisation, as it is with other porphyry-type deposits in southern Armenia. Planned output has been increasing in recent years, from 6.8 Mt of ore in 2000 to 8.5 Mt in 2002, although this is still less than the operation's nameplate capacity.

Also located in the south of Armenia, the smaller Agarak copper-molybdenum mine was able to ramp up production in 2000 following a period during the 1990s in which it struggled to survive. Having lost its market for copper concentrates with the closure of the Alaverdi smelter in 1989, the operation ran at part-capacity for a number of years until reaching an assistance agreement with the neighbouring Kajaran operation. Having produced around 3 Mt/y of ore in the 1980s, by 2001 its output had reached nearly 1.9 Mt, from a mere 300,000 t two years before. State-owned through the Agarak JSC, the mine has resources of 38.5 Mt grading 0.38% copper and 0.025% molybdenum, although unevaluated mineralisation continues beneath the current open-pit floor.

The Kapan mining complex, which was bought by the Swiss-registered company, Deno, in late 2002, consists of two separate mineralisation systems - Central and Shahumyan - containing vein-type copper and polymetallic vein deposits respectively. A number of discreet orebodies within the Central ore zone formed the basis for industrial-scale production up to 1992, when Shahumyan was brought on stream. Aside from some open-pitting at the Central mine, both operations are worked by non-mechanised sub-level and shrinkage stoping. Reserves of 2.3 Mt grading 1.05% copper are estimated for the Central mine, with a further 12.3 Mt grading 0.56% copper, plus lead, zinc, gold and silver hosted in around 60 steeply dipping veins at Shahumyan. The operation has the capacity to

*The Kapan copper mine has been in production since 1846*





## Ararat Gold - now fully foreign-owned

For a long time the town of Ararat, 40 km southeast of Yerevan, hosted one of the Soviet Union's principal gold-recovery plants, taking its feed from deposits both in Armenia and elsewhere. By the mid-1990s, the plant had created a tailings resource of around 12 Mt grading 1 g/t gold.

In 1996, the Canadian company, First Dynasty Mines, formed a joint venture with the state gold-production company, Armzoloto, covering the retreatment of this tailings resource, a partnership that was extended two years later to cover the production of new ore for treatment at the Ararat plant as well. First Dynasty spent an initial US\$14 million on a feasibility study and on constructing a new gold recovery plant there.

In 2001, the Indian resources company, Sterlite Industries, bought First Dynasty Mines, and followed this a year later by the acquisition of the Armenian government's holding in the Ararat Gold Recovery Company joint venture. According to a director of Ararat Gold, Mr Vardan Vardanyan, the initial investment decisions were based on Soviet-era data that were later found to be flawed - not, he said, in terms of the basic geological information, but in the analyses that had been derived from it. In consequence, the company carried out a thorough review of the existing

data, and prepared a revised business plan for its operations.

By mid-2003, Ararat Gold had treated over 11 Mt of the tailings resource, and aimed to complete the operation by the year-end. It has also reopened the Sotk and Meghradzor hard-rock mines, previous producers that had been on care-and-maintenance since the early 1990s. Sotk lies close to the country's eastern border with Azerbaijan, 260 km from the Ararat plant, while Meghradzor is north of Yerevan, 120 km away, so the company relies on the Armenian rail system for its transport.

Ararat Gold produced 10,300 oz of gold in 2002, and was planning the same level for 2003. Large-scale stripping in the open pit at Sotk should lead to an expansion of output there to around 1 Mt/y at 5.3 g/t gold, with a further 80,000 t of ore from the higher-grade underground workings at Meghradzor.

Meanwhile, the company is continuing exploration on vein structures within and outside the existing Sotk pit, using its own drill rig operated by experienced contract staff. It has also retained the international consulting company, SRK, to advise on its exploration and development plans, and is using remote sensing imagery to identify additional target areas.



*Carpet-making and fine gold jewellery are traditional crafts in Armenia*

produce 3,700 t/y of copper and 6,000 t/y of zinc in concentrates, plus gold and silver.

In the north of the country, the Akhtala copper complex was privatised in 2001, with Nevis-registered Metal Prince Ltd, owned by a group of expatriate Armenians, having invested an initial US\$1.5 million in the operation. Having operated between 1967 and 1989, the Shamlugh mine and Akhtala concentrator were affected by the closure of the Alaverdi smelter, and lay idle during the 1990s. The initial investment has increased the grade of copper concentrate from the operation to a marketable 24%, and the company plans to spend a further US\$10 million in developing the Akhtala and Armanis polymetallic deposits, as well as constructing a new concentrator near Stepanavan and increasing the capacity of the existing Akhtala plant.

Details of both the Alaverdi copper smelter and Ararat Gold Recovery Co.'s operations are contained in the separate feature panels on page 3 and above.

In industrial minerals, the US-based producer, Dicalite, acquired the country's leading perlite operation, Aragats-Perlite, in 1998, with the right to extract over 1 Mt/y of raw material. Armenia has traditionally supplied both European and neighbouring markets, and Dicalite has the right to export 24 Mt of perlite during its 22-year licence period.



*Local and imported produce on sale in Yerevan*

## Resource information and administration

Armenia's new mining and concession laws were enacted by the country's parliament in early 2003, and the regulatory framework relating to these remains under development. The Department of Mineral Resources within the Ministry of Nature Protection is responsible for administering the sector, including the issuing of licences and monitoring both exploration and production operations to ensure compliance with licence conditions. Over 300 licences are currently valid, mainly covering the production of industrial minerals, while in terms of metal-mining, a number of foreign-funded Armenian ventures hold licences over gold prospects.

Geological information is held in the national Geological Fund, the level of data held relating to the amount of work that has been carried out in the past. For example, no nationwide geochemical survey has been completed, although there has been considerable ground-based geophysical coverage. The website on Armenia's mineral resources that is being developed under the JICA programme will provide access to existing resource information. The concession law requires payment to be made to obtain data under some circumstances, and consideration must be taken of the fact that much of the material is still in archive format, mainly in Russian.

Separate licences cover the exploration and production phases of a project, with an automatic right of transfer to a production licence following successful exploration. Licence holders must submit work programmes for approval by the Ministry, and licences can be withdrawn if minimum work requirements are not met, or where there is unauthorised deviation from agreed work programmes.

In addition to minerals-sector administration, the Ministry of Nature Protection also has responsibility for environmental matters. The new mining code contains requirements for the rehabilitation of areas affected by mining operations, together with the duty of companies to set aside financial guarantees to cover this.

Income tax for businesses is levied at 15%, with a further 8% social security charge. The value-added tax rate is 20%, with VAT being refunded for exports. Locally administered taxes include those covering land and water usage. The current law on foreign investment, which applies until 2007, provides some incentives for investments of over US\$1 million. These include a two-year tax holiday, a 50% tax rate

for the following five years and relief from any export taxes. The law also supplies guarantees for investors in terms of the free repatriation of funds after Armenian taxes have been paid, and on investment security.

## Armenia's business environment

Having received substantial inflows of foreign capital over recent years, not only from countries such as Russia, the largest single source, but also from Armenian communities overseas, Armenia is becoming more accustomed to accommodating investment interest from foreign companies. None the less, it is important to remember that the country regained its independence only 12 years ago, and the process of rebuilding both its economy and its administrative structures will continue for some time to come.

Armenia's unresolved territorial dispute with Azerbaijan means that the border between the two countries remains closed, as does its frontier with Turkey. The country is thus dependent on rail and road links with Georgia, and the road to Iran for its foreign trade, while energy supplies are largely obtained by pipeline from Russia. The rail system operates in the north of the country. Yerevan airport services international routes to various centres in Europe and to Moscow. The phone system has been privatised but remains a monopoly, with limited cell-phone coverage.

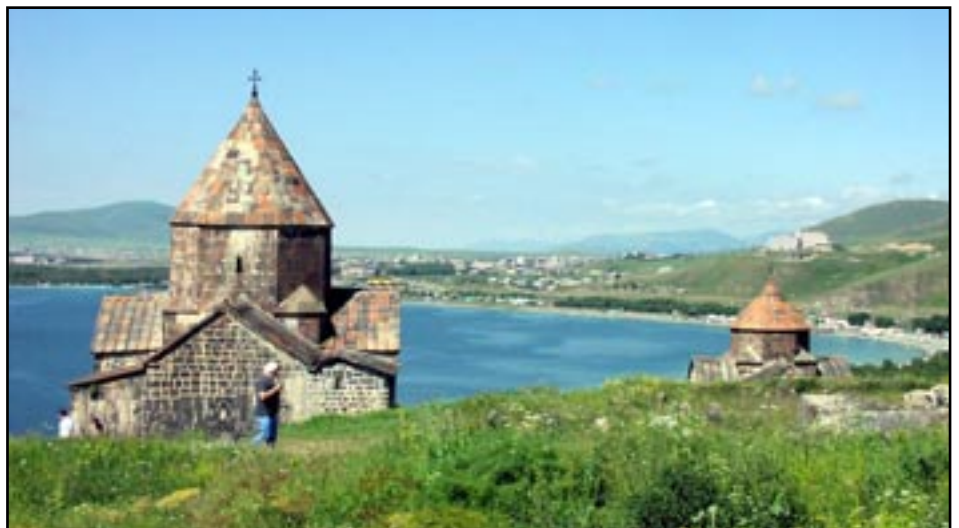
Most business-orientated services are centred on Yerevan, which is home to one-third of the country's people and hence attracts a significant proportion of its infrastructural and economic development investment. The banking sector has recently been bolstered by support from the EBRD, while the Lincy Foundation's assistance



*The Alaverdi smelter has received a US\$3 million loan from the EBRD*

has also helped local banking to become better established. However, there is no facility yet for raising venture capital on local markets, so companies wishing to finance exploration or minerals-sector development projects will need to do so from established centres elsewhere. Armenia still largely relies on a cash-based economy with, for example, credit-card acceptance still confined to larger Yerevan hotels. The number of ATMs is increasing, with the international HSBC group providing this facility, amongst others.

Armenia has brought its accounting practices closely into line with International Accounting Standards (IAS), with a staged schedule for implementation in various sectors of the economy.



*Churches above Lake Sevan - typical of Armenia's long-established ecclesiastical architecture*





*A Government building on Republic Square, Yerevan*

The international accounting firm KPMG has established an office in the country.

In terms of services specifically for the minerals sector, Armenia has a considerable pool of trained geologists and engineers, many of whom have been unable to find appropriate employment since the country's independence. In consequence, their skills may have become outdated although their professional competence is good. In this context, for example, Ararat Gold is using Armenian staff for its exploration, having both provided training in current practice and brought in new equipment for them to use. Laboratory facilities are adequate for general analyses, but until standards required by the World Trade Organisation are put in place, foreign labs will be needed for high-accuracy analyses.

In a recent interview in Yerevan, the vice-minister at the Ministry of Nature Protection, Mr Grigor Sanoyan, listed a number of positive aspects for investing in Armenia's minerals sector. The country's mining, concession and foreign investment laws provide good security, he said, while Armenia hosts a range of mineral resources of international interest. There is also the potential for re-processing waste materials from previous operations, and recovering commodities that were previously ignored. In addition, he went on, staffing costs are low in comparison to other countries, while the general level of technical training has been high. "The government", he concluded, "is keen to attract investment into exploration and mining, and companies can be confident of receiving any assistance that they may need."



## The JICA project

The Japan International Cooperation Agency (JICA), the Japanese Government's foreign aid agency, has been funding the development of a master plan for reviving Armenia's mining sector.

Work on the two-year project began in 2002. As well as providing a background of relevant information in relation to topics such as the country's geological potential, legal and fiscal structures relating to mining and foreign investment, and a detailed review of the potential for the redevelopment of one of Armenia's major mines, the master plan sets out a series of recommendations relating to improving the country's investment climate as a means of attracting foreign funding for mineral-sector exploration and development. Also included in the work package is the installation of a GIS system for minerals-sector

administration, and the design of a website that provides specific information about Armenia, its mineral resources, mining-sector administration and other areas of interest to international exploration and mining companies.

JICA is responsible for the technical cooperation aspect of Japan's Overseas Development Assistance programmes. Technical cooperation is aimed at the transfer of technology and knowledge that can serve the socio-economic development of developing countries.

JICA carries out a variety of programmes to support the nation-building of developing countries through such technical cooperation. JICA has about 1,200 staff members working both in Japan and at its more than 50 overseas offices.

For more information on JICA's activities visit its website at [www.jica.go.jp](http://www.jica.go.jp)



Norwest Corporation is a company of mining and energy consultants with a 24-year track record, with nine offices around the world. Norwest covers a full spectrum of mining- and energy-related services including geology, feasibility studies, mine design, mine management, fuel-supply contracts advice, environmental issues, market research, mine closure, etc. You can find more about the company on our website, or contact any of our local offices for a brochure.

This **Norwest Mineral Sector Investment Focus** has been published by the London office of Norwest Corporation, which also provides market research and investor-relations services to clients in the mining, energy and financial sectors. Norwest's editors express special thanks to MINDECO's staff, who helped in obtaining information for this publication.

Vancouver \ Calgary \ Salt Lake City \ Denver \ Ashland \ London \ Calcutta \ Jakarta \ Brisbane [www.norwestcorp.com](http://www.norwestcorp.com)