

ON THE ROAD TO QALAMKAR: THE BLOCK SELLER OF KABUL

C. MITCHELL AND A. BENHAM

British Geological Survey, Keyworth, Nottingham, NG12 5GG.

ABSTRACT

In 2004 the British Geological Survey (BGS) embarked on a 3-year DfID (Department for International Development) funded institutional strengthening project at the Afghanistan Geological Survey. This project was designed to support the Afghan mineral industry through training and investment promotion. The BGS has supported the marble sector through investment promotion activities including the 'Marbles of Afghanistan' brochure and the Afghanistan Marble Promotion Showcase in Dubai, September 2007.

The marble industry is the largest and most commercially active part of the Afghan minerals sector and the Association of Marble and Granite Processors of Afghanistan (AMGPA) indicates that there are at least 130 factories producing marble across the country. Marble blocks in Afghanistan are usually produced alongside construction aggregate. Extraction is often carried out using gunpowder from surplus munitions, although more modern technology is beginning to be introduced. Most marble is exported as rough-hewn blocks to Pakistan from where it is re-imported back into Afghanistan as 'Pakistani-made marble' at a mark-up of approximately 5:1.

The key requirements for improving the Afghan marble industry are investment in capital equipment and technical training. Plenty of organisations are ready to assist (although the use of an acronym dictionary is needed!). This paper gives an overview of the Afghan Marble Sector, describes the work carried out by the project to assist and promote the marble industry, and indicates progress made since 2004.

Mitchell, C. and Benham, A. 2010. On the road to Qalamkar: the block seller of Kabul.

Pp. 87-91 in Scott, P.W. and Walton, G. (Eds) Proceedings of the 15th Extractive Industry Geology Conference.

EIG Conferences Ltd, 186pp.

e-mail: cjmi@bgs.ac.uk or abenham@bgs.ac.uk

INTRODUCTION

Afghanistan is a land of mountains and desert plains situated at the western end of the Himalaya range. It is landlocked and is bordered by Iran to the west, Turkmenistan, Uzbekistan and Tajikistan to the north and northeast, Pakistan to the east and south, and by China in the extreme northeast by the Wakhan Corridor. It is an ethnically and linguistically mixed country with a population of about 28.5 million, mainly comprising Pashtuns and Tajiks.

Since the fall of the Taleban in 2001 significant progress has been achieved in the country helped by the injection of over US\$8 billion of international assistance. Afghanistan has seen improvements in the agricultural and service sectors as well as the re-establishment of market institutions. Despite a lack of infrastructure, few skilled workers and poor security, the government is keen to revive other parts of the economy such as the natural resources sector.

Afghanistan possesses a wealth of mineral resources that remain largely undeveloped, including precious, base and rare-metals, precious and semi-precious stones, coal, oil and gas and industrial minerals. Afghanistan is well located for exporting these minerals to the rapidly

growing markets in China, the Indian sub-continent and the Persian Gulf. It is hoped that development of the country's mineral resources will generate revenue to help revive the economy and further rehabilitate the country.

EARLY DAYS AT THE AFGHANISTAN GEOLOGICAL SURVEY

Like all government institutions in the country, the Afghanistan Geological Survey (AGS) was severely weakened by decades of conflict during which there was no investment, skills development or active work programmes. Rehabilitation of the AGS and Ministry of Mines (MoM) was seen as a high priority in the strategy to promote and support the minerals sector. With this in mind the BGS was commissioned by DfID to undertake institutional strengthening of the AGS. The BGS began work on the three-year project in Kabul in October 2004. This project focussed on training, cataloguing and creating databases of legacy geological and mineralogical information, promotion of the non-energy minerals sector, and creation of a Mines Cadastre unit.

The BGS industrial minerals team started their work in Kabul in January 2005. Winters in Afghanistan are notoriously harsh, and the lack of heating and windows in many parts of the AGS buildings at that time made working conditions difficult. Relationships with the AGS staff were typically forged whilst sitting around wood burning stoves drinking green tea and trying to keep warm; Two AGS geologists were among the first to work with the industrial minerals team. As with many of the AGS staff, their last real work was with the Soviet mineral exploration teams in the 1980s and they were looking forward to working with the BGS. They were subsequently attached to the BGS project as 'counterparts', and provided invaluable local knowledge and advice whilst the team travelled around the Kabul area.

As part of the industrial minerals work, an informal market survey was undertaken. This was necessary to find out what was being produced and used within the Greater Kabul area; it became immediately apparent that one of the most urgent requirements is reconstruction. The devastation caused by years of conflict following the withdrawal of the Soviet forces in 1989 had left ruined buildings throughout Kabul. Post-conflict reconstruction and development has created a strong demand for construction minerals not only in Kabul, but also throughout Afghanistan, especially in the major urban centres of Mazar-i-Sharif, Herat and Jalalabad. The booming construction market is dominated by military and donor-funded projects such as the USAID-funded road from Kabul to Kandahar. There are also numerous commercial and residential construction projects such as new hotels, shopping malls, smaller retail outlets and private housing. The construction minerals used in Afghanistan are natural sand and gravel, crushed rock aggregate, dimension stone, cement raw materials and clay for brick manufacture.

The focus of the industrial minerals component was to help the AGS in its work on the construction material resources of Afghanistan. Subsequent visits concentrated on establishing a construction materials laboratory at the AGS and the creation of two construction materials teams. During the next two years, the construction material resources of the Greater Kabul area were identified, visited, sampled and used in laboratory training.

MINERALS PROMOTION

The arrival of Soviet forces in 1979 effectively cut off Afghanistan from the outside world and consequently few people outside of the country are aware of its mineral resources. It was therefore decided that a series of brochures would be needed to publicise the mineral resources of Afghanistan to the international community.

The first brochures focussed on metallic minerals (gold, copper and the Aynak copper deposit) since these were likely to attract the most interest from potential investors. The success of these led to a further four: the Hajigak iron deposit, rare-metals, gemstones and marble. These brochures were distributed at worldwide conferences and also made available for free download on the AGS website, www.bgs.ac.uk/afghanminerals.

Prior to the production of the marble brochure a market survey was conducted to determine the variety and distribution of marble resources in the country. Since

field visits outside of the Kabul area were impractical due to security concerns, visits to Kabul-based marble factories and shops were arranged. Marble, like many commodities in Kabul, is only traded in certain areas of the city; these areas contain many marble shops within a short distance of each other. It was therefore relatively simple to obtain a large selection of Afghan marbles and to find out where these were being produced.

The marble brochure produced by BGS took a slightly different format to the others in the series, as the audience it was intended for was also different. It concentrated on images of Afghan marble; producers are more likely to be interested in seeing the variety of marble rather than reading about the formation of the deposits. High quality photographs were taken of each Afghan marble sample collected in Kabul and these were included in the brochure to illustrate the huge variety of textures and colours that occur in the country.

MARBLE IN AFGHANISTAN

Afghanistan has some of the most complex and varied geology in the world. The oldest rocks are Archean and they are succeeded by rocks from the Proterozoic and Phanerozoic up to the present day (Figure 1). The country also has a long, complex tectonic history, partly related to its position at the western end of the Himalayas. This diverse geological foundation has resulted in a significant mineral heritage with over 1400 mineral occurrences recorded to date. Historical mining concentrated mostly on precious stone production, with some of the oldest known mines in the world believed to have been established in Afghanistan to produce lapis lazuli for the Egyptian Pharaohs. More recent exploration in the 1960s and 70s resulted in the discovery of significant resources of metallic minerals, including copper, iron and gold, and non-metallic minerals, including halite, talc and mica. The bedrock geology of Afghanistan can be thought of as a jigsaw of crustal blocks separated by fault zones, each with a different geological history and mineral prospectivity. This jigsaw has been put together by a series of tectonic events dating from the Jurassic.

Marble occurs throughout Afghanistan and is currently produced in Badakhshan, Balkh, Bamyan, Helmand, Herat, Kabul, Kandahar, Logar, Faryab, Wardak, Nangarhar, Paktia, Parwan and Samangan. Although the size of the industry is not well known, AMGPA estimates that there are at least 130 factories and quarries in the country currently producing or extracting marble.

The best quality marbles are of Proterozoic age and consist of metamorphosed limestones, either massive or bioclastic, that have a large variety of colours including black, pink, brown and white. Afghan marbles are also texturally variable and can be variegated, brecciated or banded. They also commonly contain anastomosing or pygmatic veins of quartz or calcite.

Another important type of stone is "onyx marble". Onyx is a banded variety of chalcedony, a cryptocrystalline form of quartz. The Afghan onyx may be a variety of aragonite (calcium carbonate) called travertine, however, the traditional name of onyx remains in use to this day. Afghan onyx is valued for its colour banding ranging from white to yellow, green or brown.

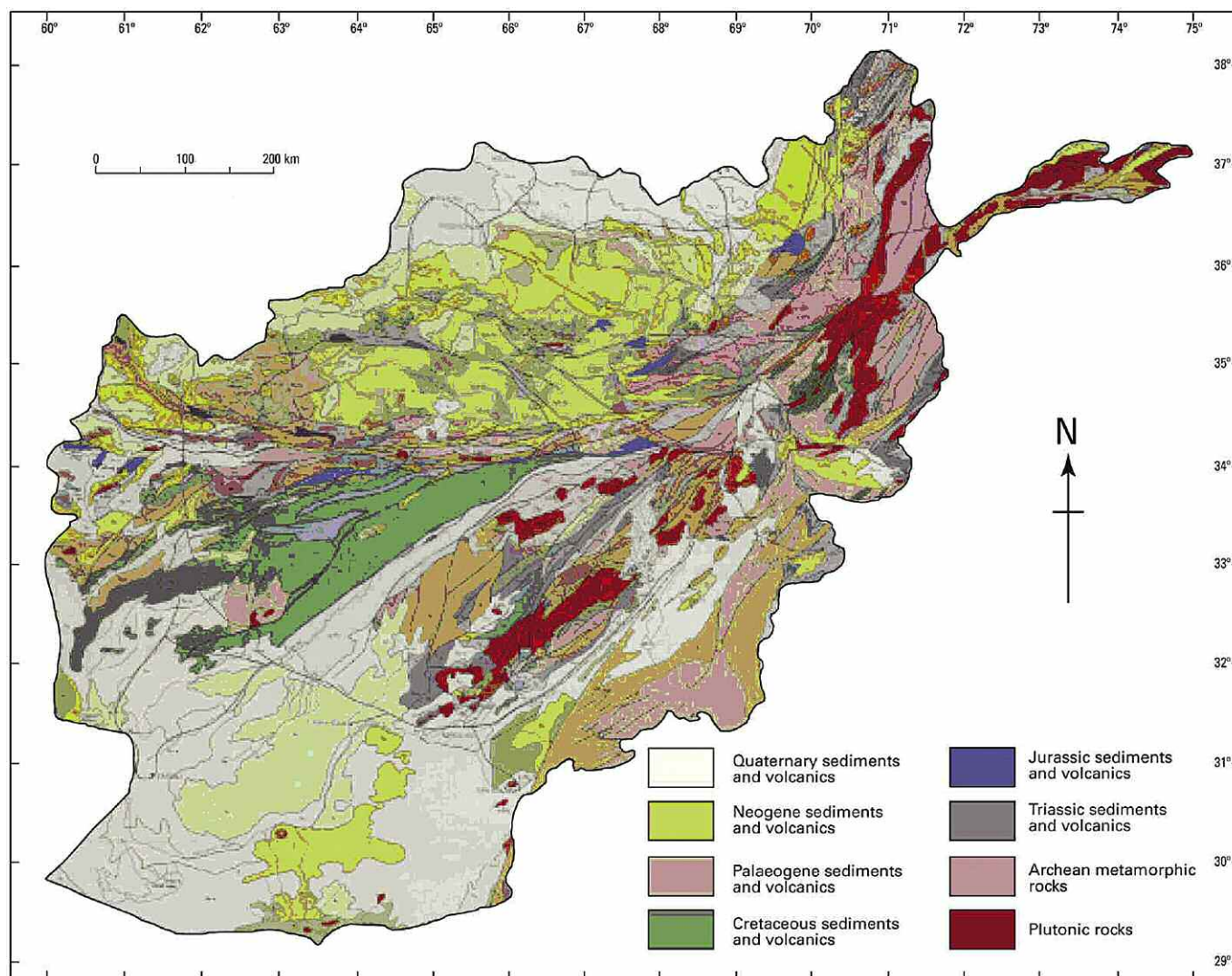


Figure 1. Simplified geological map of Afghanistan.

Afghan onyx is quarried in several provinces including Bamyan, Helmand and Faryab (Figure 2).

Some of the provinces that produce marble include:

Kabul Province. Proterozoic marble is quarried at Ghazak, Hazare Baghal, Kariz-Amir, Pul-e-Charkhi, Qalamkar, and Tara Kheel. The Kariz-Amir marble occurs 40 km north of Kabul and consists of granular white, rarely grey-yellow marble. The Ghazak marble ('Ghazak Black') is a popular fine-grained black marble that occurs 32 km east of Kabul.

Logar Province. Proterozoic marble is quarried in Awbazak, Dehnow and Mohammad Agha. Awbazak marble is bioclastic and brown in colour, Dehnow marble is brecciated and brown in colour (Figure 3), and Mohammad Agha marble is black and white in colour.

Wardak Province. The Proterozoic Maydan marble, otherwise known as Wardak Grey (Figure 4), occurs near Maydan Shar and consists of grey and dark grey marble 'beds' up to 450 m thick, interbedded with schist. The 'Maydan Marble Mines' are well known, with five working areas in a 10–12 km outcrop that has been worked for the past 40 years.

Badakhshan Province. The Silurian-Devonian Bini-Kama marble consists of medium and coarsely crystalline marble. The resource is estimated to be 1300 million tonnes.

Herat Province. The Proterozoic Chesht-i-Sharif marble occurs 120 km east of Herat city and consists of a finely crystalline marble white to a light green in colour.

Nangarhar Province. The Proterozoic Khogiani marble occurs 35 km south-west of Jalalabad and consists of a white marble known as 'Afghan White'.

Afghan marble is generally of high quality. The Chesht-i-Sharif and Khogiani marbles are currently worked for dimension stone and have been favourably compared to Carrara marble, an Italian marble recognised to be one of the best quality in the world.

Afghanistan has massive resources of dimension stone and consequently has the potential to supply Middle Eastern and Asian markets with an almost unlimited supply of marble. However, the Afghan marble industry has suffered from a chronic lack of investment and poor access to international markets over the past few decades.



Figure 2. Helmand green onyx, Helmand Province.

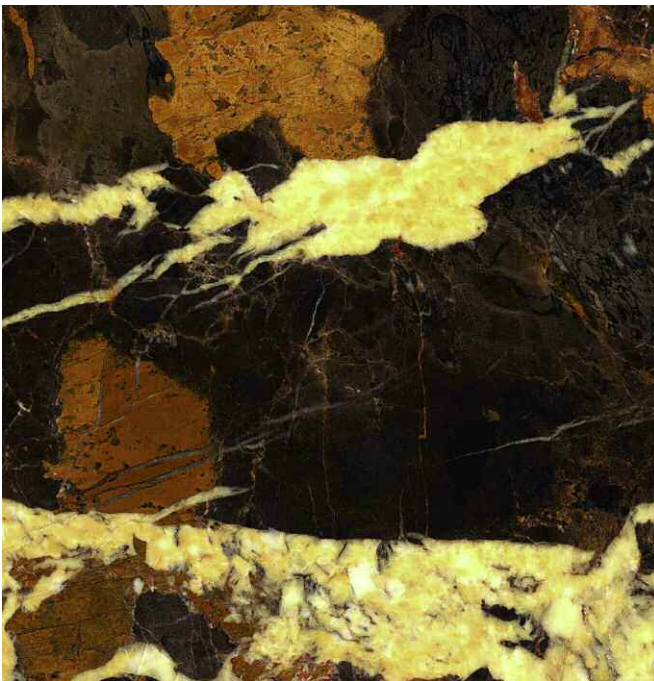


Figure 3. Debnaw marble, Logar Province.

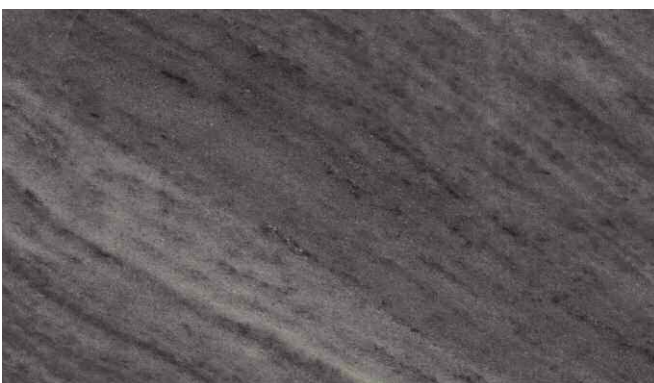


Figure 4. Wardak grey marble, Wardak Province.

THE BLOCK SELLER OF KABUL

In the autumn of 2006, the BGS industrial minerals team started to plan the ‘Afghanistan Marble Promotion Showcase’; an event that would bring together potential investors with Afghan marble producers. Over the next 12 months, the preparations brought the team into contact with many organisations that had an interest in the Afghan marble industry. The team had already worked with OTF (‘On The Frontier’), a development agency, on a marble industry workshop for the AGS, and this agency, which subsequently changed its name to the Export Promotion Agency of Afghanistan (EPAA), acted as the main contact point with the Afghan marble industry. Another Non Government Organisation (NGO) that was supportive of the event and that made use of BGS minerals promotion outputs was the Afghanistan Investment Support Agency (AISA). In addition to EPAA and AISA, other organisations that expressed interest in the event included the Afghanistan International Chamber of Commerce (AICC) and the USAID-funded Afghanistan Small and Medium-scale Enterprise Development (ASMED). Whilst speaking with the various organisations contact was made with the Association of Marble and Granite Producers of Afghanistan (AMGPA) and its president and CEO, Amrullah Nazari - the block seller of Kabul.

Amrullah Nazari is the embodiment of the Afghan marble industry and a wealthy entrepreneur. He is the president of the AMGPA, a former Northern Alliance commander, a marble quarry and a factory owner. He also publishes his own newspapers, including one called ‘Marmara’, Dari for ‘Marble’, and hopes that one day he will become president of Afghanistan. Amrullah took a great interest in the event and ensured that the key industry representatives took part.

The Afghanistan Marble Promotion Showcase took place in Dubai in September 2007 at the headquarters of the Dubai Chamber of Commerce & Industries (DCCI). The meeting was intended to host a small exhibition of Afghan marble to promote the variety of textures and colours available. However, the AMGPA actually arrived with over four tonnes of polished marble tiles, fireplaces and sculptures. This presented a logistical challenge and the industrial minerals team spent an evening transferring the display items from the basement, in approximately 40°C heat, to the 15th floor of the DCCI. The formal part of the event was followed by visits to marble producers in Dubai, including the Ascon Marble Company and Cararra Middle East Company. Overall, the event resulted in over 100 companies from the UAE making contact with the Afghan marble producers and many business deals were initiated.

WHAT NEEDS TO BE DONE NEXT?

Visits to marble quarries and factories in Kabul have shown that the technology used by the Afghans to produce their stone is obsolete. The industry lacks proper equipment, has little technical knowledge and uses poor extraction methods, which together often degrade the value of the marble. Extraction is typically carried out by blasting using ‘black powder’, often obtained from military munitions, which causes micro fracturing and results in high levels of wastage during quarrying and processing. The result is a relatively poor

quality polished marble with a comparatively high unit cost of production. Some operators are now re-investing in modern marble cutting equipment to improve production, particularly of larger slabs and blocks that attract a higher price premium.

Modern marble producers use diamond coated wire saws to cut huge blocks from quarries. Wire saws produce less than 10% waste and produce blocks weighing 250 tonnes or more. These blocks are then further processed by multiblade cutters that are able simultaneously to cut 50 slabs that are 2-3 cm thick. The slabs are then used for tiles, cladding, countertops and tables. Afghan marble products are limited to the size of the block that is produced from the initial blasting. Since it is impossible to predict the size of the blocks obtained by blasting it is difficult to maintain a constant production of specific items. The slabs cut from blocks in Afghanistan are much smaller than their foreign competitors and are usually only able to be used for tiles and cladding. If larger blocks were available these would command a premium of 15% over the smaller slabs.

Another issue that needs to be addressed is the loss of revenue to the Afghans caused by the export of raw, unprocessed marble. Marble is frequently exported to countries like Pakistan for as little as \$40 per tonne where it is cut and processed before being reclassified as Pakistani marble and re-exported for a premium price. Marble exported to relatively wealthy countries like China, Italy and the US can reach over \$500 per tonne; this additional money does not reach the Afghan producers. Afghan marble is also commonly re-imported after processing because the country does not have the capability of the high-quality polishing and finish that modern construction projects expect.

There is an urgent need for investment in the Afghan marble sector. Wire saws and multiblade cutters would allow larger blocks to be produced and would allow the Afghans to produce more consistent products for larger construction projects. The use of this equipment would also prevent further sterilisation of resources. Modern polishing equipment also needs to be purchased so that the Afghans can produce polished marble on their own without having to export raw marble to Pakistan.

Afghan marble producers are currently unable effectively to market their products to the international community. From the discussions with marble consumers in the Middle East, it is clear that there is a considerable market for marble for use in construction projects. There is also a desire amongst some to support fellow Islamic countries and help them by taking on long-term orders. However, few people outside of Afghanistan are aware of the potential resources in the country due to a lack of advertising. It is therefore essential that further publicity be sought by the Afghans to promote their resources to the international community.

The BGS have produced a review of the industrial minerals of Afghanistan (Industrial Minerals, June 2008). It is hoped that this, along with the Marbles of Afghanistan brochure, will help attract interest in the mineral resources of Afghanistan from the international community. Development of mineral resources will enable the country to secure an important alternative source of revenue to that derived from poppy cultivation, which is responsible for 90% of the world's opium supply.

CONCLUSIONS

On account of its extensive and varied mineral resources, Afghanistan has the potential to become a significant producer and exporter of minerals in the region. After years of turmoil and civil war, the country is now starting to develop these resources. Major redevelopment projects are placing large demands on the minerals industry, which is struggling to keep pace. This has led to an increase in temporary, informal mineral operations. Afghanistan now needs investment and legislation to ensure appropriate sustainable development of its mineral resources and to avoid leaving a legacy of environmental damage. Further information on the mineral resources of Afghanistan is available on the website: www.bgs.ac.uk/afghanminerals.

ACKNOWLEDGEMENTS

The authors acknowledge the contribution of the staff of the Afghanistan Geological Survey (AGS) during their work in Afghanistan namely AGS President Abdul Wasy and the AGS industrial minerals team (Khalilullah, Abdul Hossain, Abdul Azim, Mohammed Taher, Shazia, Alia, Mohammed Aajan, Anisa and Shalia). They also acknowledge the contribution of BGS colleagues, Michael Watts and Andrew Bloodworth, and John Eyre (Wardell Armstrong) over their many visits to Afghanistan including a marble workshop in Kabul in 2006. This paper is published by permission of the Director, British Geological Survey (NERC).