

Laboratories in Afghanistan

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The British Geological Survey (BGS) has been working in Afghanistan for almost three years now, funded by the Department for International Development (DfID) to provide 'Institutional Strengthening' to the Afghanistan Geological Survey (AGS). During the course of this project, the AGS buildings in Kabul were transformed through a refurbishment funded by USAID, enabling donor organisations (e.g. DfID-BGS) to implement technology and skills transfer programmes. One of the objectives of the BGS project was to install a basic laboratories capability and a team of BGS staff currently provides a comprehensive back-to-work training programme for laboratory staff.

Initial training priorities for the laboratories were focussed on improving the computer literacy and English language of the AGS staff. A suite of laboratories was designed, including: sample preparation, industrial minerals, thin section, petrography/palaeontology, gem analysis and chemistry. Set-up of the laboratories was phased, progressing from sample preparation and industrial minerals evaluation to chemistry.

Sample preparation is the heart of any suite of laboratories and often contains the most straightforward of equipment for training. This laboratory was a good place to re-establish some basic principles, such as record keeping, tracking of samples, contamination and health and safety. The first group of 12 trainees was split into two teams to undertake a survey of construction materials in the Greater Kabul area. They were trained in the sample collection, logging of locality information, labelling of samples prior to sample preparation and subsequent physical properties tests in the Industrial Minerals laboratory. The AGS teams took responsibility for this survey in the periods between visits from BGS staff. The survey findings will form part of a database of construction materials outlets/ sources in Greater Kabul. This experience was valuable in preparing for the installation of other laboratories; the AGS staff became more motivated and their technical, I.T. and language skills improved with practice. It also became apparent that the transfer of responsibility for equipment maintenance and use had to be fairly rapid to ensure work continued between visits of BGS trainers.

The BGS team was involved in the set-up and training of AGS staff for other laboratories as they became operational. Thin Section staff were initially employed in the restoration and logging of thin section and microfossil slides, many of which were produced in the 1960's and which they salvaged from the wreckage of the building. This provided the trainees to practice their I.T. skills until the arrival of thin section equipment. The Afghans were eager to start practical work and with minimal guidance were able to produce thin sections to a reasonable quality for petrographic analysis. They quickly took to the use of modern equipment and demonstrated good technical ability from previous experience gained when the AGS was under Soviet control. The Afghans were trained to produce thin sections from a variety of local rock materials, including the monitoring of quality control using local and BGS petrographic experts. The very first section (Proterozoic garnet mica schist from central Kabul) to be made in the AGS for about 20 years was proudly completed in March this year.

Gradually systems of work are being introduced as the laboratories come on-stream, enabling future local administration of work within the laboratories. These include a sample registration database; technical test work and evaluation of data; health and safety advice and risk assessment; and training records for individual staff to ensure the safe use of equipment by individuals.

The approach taken in the development of the AGS laboratories has been pragmatic; reliable technologies have been used to cope with the difficult conditions such as the unstable power supply, scarcity of spare parts and consumables. Also, advice has been given to the AGS and potential donors to broaden the future capability of the laboratories, as and when there is an improvement in the basic infrastructure and skills and access to additional funds.

Ultimately, the future of the laboratories at the AGS depends on the collaboration between local staff and donor organisations to sustain the substantial progress made so far. The AGS is eager to regain its laboratory capabilities and actively participate in the promotion of Afghanistan's mineral resources to local and international mining companies. The development of the country's rich mineral potential will help boost the economy providing employment and revenues that could help create a more stable future for Afghanistan.

Photographs of AGS:



AGS Annex building – laboratories (under refurbishment Feb 2006)



Disposed chemicals from Soviet era



Sample Preparation laboratory under refurbishment



Refurbished Annex building (June 2006)



AGS employee using Jaw Crusher in Sample Preparation



AGS employee using Jaw Crusher in Sample Preparation



Industrial Minerals team – particle size distribution

Following photographs are of the Thin Section laboratory.



Cutting of rock material



Bonding of cut rocks to slides.



Cutting of Thin Sections.



Polishing of Thin Sections