Cockle-shell construction: designing a geological laboratory for The Gambia

Gambia is the smallest country in mainland Africa where it is situated on the west coast surrounded by Senegal. It is a developing country where three quarters of the population live on less than one US dollar a day and depend on subsistence farming for their livelihoods. International assistance focuses on supporting the national poverty reduction strategy which includes economic growth and enhancing the capacity and output of the productive sector.

The top priority of the Geological Department of The Gambia is the provision of information on mineral resources suitable for infrastructure development.

The main demand for construction material is in the Greater Banjul Area (GBA) especially in and around the communities of Bakau, Brikama, Brufut, Serrekunda and Sukuta. The Geological Department intends, with the assistance of the BGS, to establish a geological laboratory (GeoLab) that will provide technical information on the indigenous mineral resources. The most significant of these are silica sand, heavy mineral sand, kaolin, brick clay, laterite and cockle shells, which are limited to the Upper Tertiary and Quaternary sedimentary sequences.

BGS industrial minerals specialist, Clive Mitchell, has been working with the Geological Department in Banjul on a laboratory development plan. The

proposed GeoLab will have the capacity for the testing of brick and ceramic clay, building sand, cockle shells, construction aggregate, heavy mineral sand and imported mineral products. This laboratory will enable the use of indigenous mineral resources within The Gambia and will help to reduce the reliance on imported materials. This will conserve the foreign exchange reserves and in the longer term may even help to strengthen The Gambian export market for mineral products.

For further information please see http://nora.nerc.ac.uk/view/author/2827.html

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Soil mineralogy training for Bhutan

A team from the BGS Mineralogy and Petrology Facility led by Simon Kemp recently played host to Jamyang, Chief Chemist at the Soil and Plant Analytical Laboratory, Ministry of Agriculture, Bhutan. Jamyang attended the Keyworth laboratories for an intensive three-week BGS GeoSchool training programme entitled 'X-ray diffraction analysis of clay minerals'. The training was requested ahead of a proposed, large-scale investment in new X-ray diffraction and scanning electron microscope systems at the Soil and Plant Analytical Laboratory, the first such installations anywhere in Bhutan.

Although the course was principally based around sample preparation, X-ray diffraction analysis and interpretation of derived data, Jamyang was also introduced to the full range of mineralogical techniques available in the facility including optical and scanning electron microscopy, surface area, thermal analysis, heavy-mineral and particle-size analyses. Analysis of two Bhutanese soil samples carried out during the training course immediately offered explanations for their problematic behaviour and illustrated the benefit of mineralogical analysis to Bhutanese agriculture. Following discussions with BGS soil scientists, possible soil treatment scenarios were devised.

BGS has offered continued support and assistance to the Ministry of Agriculture and hopes to extend co-operation between the two organisations.

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