

## **Strategizing the collaborative project of NCE in Geology and DGMM on Regional Geochemical Exploration for precious metals in southern part of Khyber Pakhtunkhwa**

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Recently a project agreement has been signed between National Centre of Excellence in Geology (NCEG), University of Peshawar and Directorate General of Mines and Minerals (DGMM), Mineral Department, Khyber Pakhtunkhwa for conducting the Regional Geochemical Exploration for precious metals in the southern parts of Khyber Pakhtunkhwa. This project will be funded by the Government of Khyber Pakhtunkhwa and will be completed in five phases in thirty months. The NCEG is an international level teaching and research institute which has been pursuing its goals in a very efficient manner since its inception. Besides teaching and research the faculty and staff of this Centre is involved in carrying out national and international level projects, consultancies and entrepreneurships in the field of Earth and Environmental Sciences. This Centre has the best library shelved with thousands of books and hundreds of national and international journals. Its state of the art laboratories are equipped with sophisticated instruments required for research in the field of Earth, Environmental and Geospatial Sciences.

Keeping in view the capabilities of the NCEG, the collection of representative samples in the field, their analyses, data acquisition and interpretation will be carried out under this project by the faculty and staff of the NCEG in consultation with the experts from DGMM. This project will be completed in two phases. The first one will be the Orientation and the second one will be the Geochemical Exploration Phase. The first phase will include 1) the base map compilation, 2) drainage basin classification, 3) compilation of geological maps, and 4) mineralogical and geochemical database compilation. These studies will be based on using a variety of Satellite Remote sensing Imaging Systems (Landsat ETM, ASTER, SPOT 5 etc.) and compilation of published data on geological maps, economic minerals and geochemistry. The second phase of the project will include 1) the preparation of drainage cells/basin maps (10-50 km<sup>2</sup>) on a scale of 1:50,000, 2) collection of appropriate panned concentrates and fine-fractions (-80#) of the stream sediments, 3) petrographic and mineralogical studies of panned concentrates, 4) chemical analysis and processing of the samples, and 5) Data compilation and interpretation. During this study the data will be interpreted and synthesized through geostatistical and GIS analysis techniques. The ArcGIS platform will yield a systematic database comprising several thematic layers for planning and designing the mineral exploration required in the project. The petrographic, mineralogical and geochemical data obtained during this study will be compiled and integrated with the geology and known mineral occurrences. In this way various features will be correlated with Remote Sensing data and a model for strategizing the detailed exploration and exploitation of mineral occurrences will be established.