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NATIONAL GEOCHEMICAL MAPPING AND ITS IMPACT ON ENVIRONMENTAL APPRAISAL

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Abstract

Based on the outcome of the historical developments in geochemical exploration from local to regional and then to national scales, the National Geochemical Mapping (NGCM) Programme in India was initiated in line with the recommendation of International Geological Correlation Programme (IGCP), where in commonly available representative sample media were collected in a standardized manner.The success of the programme is based on continuity of data across different types of landscape with tight quality control at every stage of the process having lowest possible detection limits for all the defined elements.

The geochemical maps generated will help in establishing the chemical attributes of crustal surface materials which provides vital data for general geology of the area with potential of mineral exploration. The data will also help in preparing the soil fertility map of the area. Keeping in view the detection limits of various elements the environmental appraisal as well as health related features of the area can be properly analyzed.

An area of 3.28 million sq km of the country's landmass spreading over 5065 topo-sheets (1:50,000 scale) is covered with hard rock, soft rock and alluvial sediments. The Geological Survey of India has taken up the NGCM Project in a big way, since the last decade and till now about 6% landmass (~ 2, 10,877.6 sq km) spreading over 300 top sheets has been covered systematically under the programme. 68 elements of high priority list has been taken up in the first phase of the programme, Geo-environmental data base generated would be of great help in preparing the EIA and EMP documents for any development programme to be taken up in future. Furthermore, it has been found that deficiency or excessiveness of 20 elements are associated with various diseases. Based on the data produced till now some Follow-up Projects have also been started.

Keywords: National geochemical mapping (NGCM), Crustal surface, Geochemical maps, Geo-environmental data, Quality control.