Theme: Earth, Ocean, Atmospheric & Environmental Sciences

In Geophysics Point of Ground Water and Mineral Exploration Development of the Telangana State.

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In principle, Drinkwater supply has two sources Surface and subsurface water. The amount of surface water courses, however. Shows heavy variations in time and their quality may also change frequently. Therefore only the subsurface aquifers can be considered as stable and long-term potential Drinkwater resources for the next century.

In basins filled up with young (Quaternary) sediments the main task of water prospecting is to find porous water-bearing layers. Therefore geoelectric methods play leading role in solving problems of this kind.

Groundwater prospecting and environmental protection are discussed in one and the same paper because in many cases the two tasks are very similar from geophysical point of view: Porous and impermeable formations should be distinguished. Many (but not all) contaminants spread namely by means of groundwater; either solved in it or floating on it. Other environmental problems (e.g. void detection) are also mentioned. Various tasks will be discussed.

Simple tasks which can easily be solved with the help of conventional method(s)

* cases where integrated application of different (mostly geoelectric) geophysical methods is necessary;

* A wide variety of cases where the use of a specially developed method, the so called engineering geophysical sounding will be demonstrated (applied together with other geophysical methods);

If different methods are applied at the same site, the most favourable case is when the measured or interpreted parameters exhibit various distributions and the differences can be explained by reasonable geological reasons.

Mineral exploration and development are investigative activities prior to mining. The rewards of successful exploration and development can be large, if a mineral deposit is discovered, evaluated, and developed into a mine. For a mining company, successful

exploration and development lead to increased profits. For a local community or nation, successful mineral exploration and development can lead to jobs often well paying that otherwise would not exist; to new infrastructure, such as roads and electric power supplies, that are catalysts for broader, regional economic development; and to increased government revenues that, in turn, can be invested in social priorities such as education, health care, and poverty alleviation.

But mineral exploration and development carry with them risks, as well. For local communities and governments, the risks come from the possibility that there will be significant external (or spill over) effects from mining for example, environmental degradation or strains on local communities and social services when there is an influx of new people into a booming mining town. These spill over's may outweigh the benefits from mining if most jobs go to outsiders, environmental degradation or community disruptions are large, tax revenues accrue to national governments and are not returned sufficiently to local communities, or governments spend mining revenues unwisely.

Key words: Groundwater, environmental protection, ground penetrating radar, seismic tomography. Mineral exploration