

## SOCIETAL VALUE OF GEOLOGIC MAPS

Till recently it was generally assumed that geologic maps are required only by Government Organisations that explore for minerals and groundwater and certain private organisations engaged in the exploitation of minerals. Since a decade or two the scenario has changed considerably after the advent of numerous private organisations and private individuals (consultants) seriously engaged in advising the State, City and private establishments, in a number of their projects involving the interpretation of the nature, lie and utility of surface and subsurface geologic materials. Sensing this, a team of the United States Geological Survey (USGS) has made an economic analysis of the Survey's National Geologic Mapping Program (Societal Value of Geologic Maps, 1993, USGS Circular 1111, R. L. Bernknopf *et al.* 53 p). This deals with (i) geologic maps and their use as a fundamental data base, (ii) a rigorous benefit-cost model for valuing geologic map information, and (iii) the economic issues associated with determining whether or not a geologic map is a public good.

For us in India where there is no immediate likelihood of private organisations undertaking geological mapping, some of the analysis made may be of only academic interest. But what is most interesting is the detailed study made on the advantages and cost-benefits of updated geologic information through maps. This is illustrated by two examples, namely, (i) waste disposal site selection and (ii) siting interstate-type highway. Detailed estimate is given as to the financial loss avoided due to the use of updated geologic maps (as basic information) in one case and evaluating slope failures and consequent losses if additional geologic information is not utilised. Mention is also made to the threat to the society in the pollution of water resources because of faulty planning and construction of highways, based on insufficient geologic information. These examples should be an eye-opener to us indicating the need for updating and publishing geologic maps of at least those areas that exhibit symptoms of possible economic growth.

The United States Congress which passed the Organic Act of 1879 (43 U.S.C. 31(a)) made it clear to the USGS that the earth science information should be widely made available and clearly recognised that no social benefit accrued from restricted access to geologic information. What is noteworthy is the foresight and interest of the framers of the Act to specially prescribe certain actions for the purpose of dissemination of geologic information through maps.

"The Director . . . is authorized . . . to dispose of the . . . geologic maps . . . at such prices and under such regulations as may from time to time fixed by him . . . and a number of copies of each map . . . shall be distributed *gratuitously* among foreign governments and departments of our own government to literary and scientific associations, and to . . . educational institutions and libraries . . . (p. 8)."

In other words they also made provision for the easy and free access of the maps produced for the upcoming generation of earth scientists.

All other users of the USGS geologic map information in other government departments (Federal and State) coordinate their activities with USGS and put forward their specialised requirements, when needed. It is, however, made very clear that USGS is not expected to systematically produce site-specific earth information. This is left to the State Agencies and Private Organisations. The idea seems to be that general information is public good and specific information is private good.

This is a publication that should be perused through by planners in the Geological Surveys of the Central and State governments of the country, besides specialised agencies for whom geological mapping is a minor part of their program of work. It may be hoped that as a consequence useful information may start flowing to all those needing it, from different organisations in our country.

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