Geologic Mapping for Environmental Purposes

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Prepared for the
Engineering Geology Division of
The Geological Society of America

THE GEOLOGICAL SOCIETY OF AMERICA
ENGINEERING GEOLOGY CASE HISTORIES NO. 10
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The rapid increase in the development of land, the exploitation of minerals, and the related accelerated environmental impacts have caused an explosion of demand for information that can be used as a guide to land use decision-making.

"Environmental Geology Mapping" was the topic of an engineering geology symposium at the 1972 annual meeting of The Geological Society of America; natural resources planning and the roles and interrelations of geology and geologists, planning and planners were considered and discussed. This book presents the coverage of those subjects because of their continuing timeliness and the need for a reminder that we must provide data that are relevant and usable for interdisciplinary considerations in natural resources planning. The authors express their ideas on how to translate professionally the traditional, basic earth-science data into forms that are adaptable to interdisciplinary solutions of environmental problems. They unanimously state that this conversion of data has to result in a viable input for decision-making, and it must also stand the scrutiny of the real world; that is, it must receive public endorsement and support.

We conclude that current planning practices are inadequate in predicting the effect of specific technological projects or specific social activities or policies on the natural environment. Presently, large sums of money are being spent on environmental assessment and resource planning. Whether this expenditure of time and money is justified depends upon how effective the natural science and selected engineering data are in the land use decision-making.

The development of the land and all the ramifications that contribute to the environmental impact will continue whether or not good geonatural resource decisions are reached. The existing social-political system demands that the final product not only be completed as growth requires but also that all impact, good or bad, be carefully assessed and considered to determine the least-effect approach from among the alternatives. With the increasingly constrictive requirements of an environmental impact statement on most public works and regulated private utilities, it is imperative that future highways, housing, and other land and resource developments be planned and built with the quality of the environment considered and evaluated in an operating framework that guarantees the best possible developmental and environmental results.

Despite all this concern over the effective uses of natural resources data input, we re-emphasize that at the policy-making level (state and federal land use policy and planning assistance acts) there is need for much more knowledge and skills than the natural and physical sciences can contribute. The ability of geologists to fit into environmental planning, not only in their professional capacity but also in a policy-making capacity, is questioned. Hopefully, an enlightened geological educator and professional practice leadership will emerge and grow and eventually prove that there is a tremendous potential in using geology input to aid in solving our developmental-environmental problems.

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