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Buchbesprechung

Mineral Resources' Extraction, Environmental Protection and Land-Use Planning in the Industrial and Developing Countries. P. Arndt, G. W. Lüttig (eds.). E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u. Obermiller), Stuttgart 1987, 337 pp., 108 figs., 24 tables, 2 folders, (ISBN 3-510-65132-4), DM 98.00, US \$ 62.80

This volume is a report on an international seminar held in October 1985 in Berlin (West) and Bisingen (FRG), organized by the Carl-Duisberg-Gesellschaft (CDG) in cooperation with the IUGS Subcommission on Maps of Environmental Geology (SC-MEG) and the German UNESCO Commission with financial support from the German Federal Ministry for Economic Cooperation.

The book contains 44 contributions from 17 countries, i.e., two countries in Africa, four in Asia, two in Latin America, seven in Western Europe, and two in Eastern Europe. Thus, the book gives a representative view of the state of environmental geology and related problems in a wide range of different countries.

Chapter 1 describes the activities and aims of the organizing institutions, the CDG, the German Commission for UNESCO, and the SC-MEG.

Chapter 2 contains general contributions dealing with the aspects of paleoecological development, the clash of interests between demand for mineral resources on one hand and environmental protection on the other, and the proper management of the environment. The authors lay emphasis on well-balanced land-use planning and stress the geoscientist's responsibility and expertise in the fields of mineral resources' development and waste disposal. A geoscientist is well prepared for this kind of work when he also has knowledge of related disciplines and the ability to put over his point of view in a way that is intelligible to nongeologists such as politicians and administrators.

Two topics are covered by Chapter 3 i.e., the use of groundwater resources in developing countries and the extraction of marine mineral resources in coastal areas, their impact on the environment and implications for planning. The paper on marine mineral extraction devotes much space to mineral extraction processes and collector systems of the future.

Chapter 4 contains 13 contributions from industrialized countries. Four papers consider environmental protection and regional planning in the Federal Republic of Germany with emphasis on the current situation in Lower Saxony, which obviously is relatively advanced in this sector. Each region specializes – as far as possible – on those fields in which it has specific development potentials. The examples given refer mainly to priority areas for mineral extraction and water resources. An account is given of the Geoscientific Maps of the Natural Environment Potential (GMNEP) making use of examples. It is shown how conflicts between different interests can be settled or even avoided by planning.

The contribution from the Netherlands demonstrates the close relationship that exists between environmental and Quaternary geology.

In Norway, experience with land-use planning maps shows that plots from computer-processable geodata files are less expensive and time-consuming than hand-drawn maps. In particular, updating and adjustment to new requirements are easier.

The environmental map system of the University of Cantabria, Spain, is described with an analytical and synthetic approach together with the advantages of each.

In Czechoslovakia, activities in this field are guided by a state environmental program. A project initiated within this program by the Geological Survey, entitled "Geological and Derived Maps of Environment and Resources", is illustrated with examples of maps.

Two contributions from Denmark deal with a constructional-raw-materials exploitation plan (for sand, gravel, and stone), which also involves restoration of the workings, including aftercare and land use.

Two papers on the USSR consider land-use planning aimed at gaining economic benefits but at the same time causing minimum harm to the environment. Another paper deals with the methodology of studying and predicting the state of the so-called geological environment.

Within this chapter there is also an Algerian example on water supply which demonstrates the necessity of a multidisciplinary approach. However, one feels that this article would have been better placed in the next chapter.

Chapter 5 contains reports from developing countries starting with a study of the geopotential of Togo and an account of attempts at land-use planning there.

A Moroccan example is used to demonstrate how to compile a habitability map. A short description is given of the activities of the Arab Center for Studies of Arid Zones and Dry Lands in Syria.

A contribution from India on geoscientific maps in land-use planning contains case studies on rural and urban areas. Reports from SE Asia (Thailand and Indonesia) show that the authorities there are concerned about environmental issues. In Thailand an Engineering and Environmental Geology Research Unit has been established within the Department of Mineral Resources, and Indonesia's Directorate General of Geology and Mineral Resources already has a Directorate of Environmental Geology.

Finally, there are two short contributions from South America. A paper on land-use planning in Columbia recognizes the need for coordination and technical assistance in this field. The other paper deals with land-use planning in Uruguay and also considers the interactions of economic, financial, and commercial factors.

In Chapter 6 G. Lüttig, the co-editor, presents a summary of the symposium; he stresses topics such as mineral, groundwater, and soil resources management, types of geopotential maps and their acceptance, and the putting over of the problems of environmental geology to the public. He pleads for a widely based scientific training, active participation of geoscientists, and an easily understandable language (the experts and the decision makers must develop a common language).

In summary, this volume provides useful information on the state of the art in environmental geology in industrialized as well as developing countries and also describes the different approaches to the various problems and attempts to solve them. It would be unfair to compare the individual papers in this book with each other since they reflect different backgrounds and different expertise levels in this field. The common factor throughout is the desire to live in harmony with the environment and to learn from previous mistakes. The book helps to further our understanding of the interdependence between economic progress and care of the environment. Therefore, it can be recommended to anyone connected with the earth resources industries and the geosciences. The book is also certainly of use to students; however, few students will be able to afford it at US \$ 62.80.

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