

ANNOTATED BIBLIOGRAPHY ON ECOLOGICAL  
ASPECTS OF REGIONAL DEVELOPMENT

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The attached bibliography on ecological aspects of regional development was prepared as a background document for the SCOPE (International Council of Scientific Unions, Scientific Committee on Problems of the Environment) Workshop on Impact Studies in the Environment. It is directed at regional administrators responsible for environmental impact assessment, and seeks to provide them with a critical, digestible introduction to the relevant ecological literature.

The comments and suggestions of Drs. Gilberto Gallopin, David Goodall, C.S. Holling, John Jeffers, and John Steele are gratefully acknowledged.

## I. OVERVIEW

The following two books are recommended as starting points for additional reading on ecological aspects of regional development.

R.F. Dasmann, J.P. Milton, and P.H. Freeman. 1973. Ecological principles for economic development. J. Wiley & Sons, Ltd. London. 252 pp.

This excellent book was commissioned by IUCN and the Conservation Foundation "to provide ecological guidelines for use by development planners and decision makers and ... to explore the pertinent interrelationships between economic development, conservation, and ecology." It furnishes chapters and good bibliographies on general ecological considerations; development of humid tropical lands; development of pastoral lands; development of tourism; agriculture development projects; and river basin development projects.

M.T. Farvan and J.P. Milton (eds.). 1972. The careless technology: ecology and international development. Natural History Press, Doubleday and Co. New York, NY, USA.

A set of case studies and discussion from a 1968 Airlie House Conference on The Ecological Aspects of International Development, designed as a companion volume for Dasmann.

Economic aspects of regional development impact are stressed in:

W. Isard et al. 1972. Ecologic-economic analysis for regional development. The Free Press, New York.

In addition, the following can be consulted for a definition of terms:

The Institute of Ecology (TIE). 1973. An ecological glossary for engineers and resource managers. The Institute of Ecology (608 N. Park St., Madison, Wisconsin 53706, USA). 50 pp.

## II. GENERAL ECOLOGY

Any one of the following three books will provide a solid grounding in the fundamentals of ecology:

- E.P. Odum. 1971. Fundamentals of ecology. 3rd ed. Saunders. Philadelphia.
- E.J. Kormondy. 1969. Concepts of ecology. Prentice Hall. Englewood Cliffs, NJ.
- P. Colinvaux. 1973. Introduction to ecology. J. Wiley & Sons, Inc. New York.

## III. PARTICULAR BIOMES

More detailed studies pertaining to particular biomes are referred to in the works already cited. Additional works include the following:

### (A) Humid Tropical Ecosystems

- A. Gomez-Pompa et al. 1972. The tropical rain forest; a nonrenewable resource. Science 177: 762-765.
- P.W. Richards. 1973. The tropical rainforest. Scientific American 229:58-67.
- H. Walter. 1973. Ecology of tropical and subtropical vegetation. Van Nostrand-Reinhold Co.

### (B) Forests and Woodlands

- F.H. Bormann et al. 1968. Nutrient loss accelerated by clear-cutting of a forest ecosystem. Science 159: 882-884.
- D.D. Munro. 1973. Forest growth models -- a prognosis. Proc. Conference of Subject Group S6.02. IUFRO. Vancouver, Canada.
- D.E. Reichle (ed.). 1970. Analysis of temperate forest ecosystems. Springer Verlag, Berlin.

(c) Agricultural Systems

J.B. Dent and J.R. Anderson. 1971. Systems analysis in agricultural management. J. Wiley & Sons. New York

J.W. Birch. 1971. Farming systems as resource systems. Working Paper No. 2, Dept. of Geography, University of Leeds, England.

(D) Freshwater Systems

SCOPE. 1972. Man-made lakes as modified ecosystems. SCOPE Report 2. International Council of Scientific Unions, Paris.

National Academy of Sciences. 1969. Eutrophication: causes, consequences, correctives. National Acad. Sci. (USA), Washington, DC.

W.T. Edmondson. 1971. Fresh water pollution. (in) W.W. Murdoch (ed). Environment, resources, pollution, and society. Sinauer Assoc. Inc.; Stamford, Connecticut. USA.

R. Dorfman et al. 1973. Models for regional water quality management. Harvard Univ. Press. Cambridge, MA. USA.

(E) Marine and Estuary Systems

T.R. Parsons and M. Takahashi. 1973. Biological oceanographic processes. Pergamon Press, Oxford. 186 pp.

A very good survey for those needing more detailed, technical information.

H.U. Sverdrup, N.W. Johnson and R.H. Fleming. 1946. The oceans, their physics, chemistry and general biology. Prentice-Hall, New York. 1087 pp.

This is the classic textbook, reissued in 1970.

R.V. Tait. 1968. Elements of marine ecology. Butterworths, London. 314 pp.

A useful shorter general introduction.

(F) Grasslands, Deserts, and Arid Lands

C.R.W. Spedding. 1971. Grassland ecology. Clarendon Press, Oxford.

M. Evenari et al. 1971. Negev: the challenge of a desert. Harvard Univ. Press, Cambridge, MA.

I. Noy-Meir. 1973. Desert ecosystems. I. Environment and producers. Ann. Rev. Ecol. Syst. 4: 25-52.

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IV. SIMULATION AND MODELLING IN THE ANALYSIS OF RESOURCE AND ENVIRONMENTAL PROBLEMS

The following two articles provide critical appraisals of the tools available, specifying their limitations and potential for application to real world problems. The latter contains some good case studies and a fine bibliography of applied systems analysis.

J.N.R. Jeffers. 1973. Systems modelling and analysis in resource management. Journal of Environmental Management, 1:13-28.

G.J. Paulik. 1972. Digital simulation modelling in resource management and the training of applied ecologists. In B.C. Patten (ed.). Systems analysis and simulation in ecology. Vol. II. Academic Press. New York. pp. 373-418.

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The following papers describe a workshop approach which has been used successfully to integrate expertise from various fields in the analysis of environmental systems.

C.J. Walters. 1973. An interdisciplinary approach to development of watershed simulation models. Available from the Institute of Resource Ecology, University of British Columbia, Vancouver, Canada.

C.S. Holling and A.D. Chambers. 1973. Resource science: the nurture of an infant. BioScience 23 (1):13-20.

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Finally, there have been two outstanding efforts to carry out post-hoc assessments of completed modelling activities. These should be required reading for anyone contemplating a major resource modelling program.

B.W. Mar and W.T. Newell. 1973. Assessment of selected RANN environmental modelling efforts. National Science Foundation, Washington, DC, USA.

G.D. Brewer. 1973. Politicians, bureaucrats, and the consultant: a critique of urban problem solving. Basic Books, Inc. New York.

A. Wildavsky. 1973. Consumer report (a book review of G.D. Brewer, op. cit.). Science 182:1335-1338.

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