

JOURNAL OF HYDROLOGY

NEW ZEALAND

Published twice annually by the New Zealand Hydrological Society

Volume 9

1970

Number 1

EDITORIAL

Watershed Management

In August 1969 we held a symposium at Lincoln College which was significant in a number of ways. For one, it was the first symposium to be held in this country under the specific title of Watershed Management. For another, it was attended by one of the most comprehensive audiences to have come together in New Zealand to discuss a water topic. Engineers and soil conservators, hydrologists and geographers, ecologists and limnologists, meteorologists and soil scientists, farmers and economists—a variety of experts, each concerned with some aspect of the management of catchment resources, and all willing to contribute to a frank discussion of what watershed management means in the New Zealand scene.

There was, inevitably, some criticism of the phrase “watershed management”, on the grounds that the usage of the word watershed is incorrect in this context. Most of those present came to accept, however, that “watershed management” is a phrase which is both internationally accepted and directly applicable in the New Zealand scene. More important, most people came to realise that the key word is “management”, so that arguments about the precise meaning of “catchment” or “watershed” tend to become irrelevant.

The lead speaker, Mr W. A. Laycock of the U.S. Forest Service, gave a comprehensive outline of what watershed management means in the U.S.A. It became clear, as the symposium developed, that watershed management in New Zealand has some unique features—it perhaps means a more comprehensive field of activity in New Zealand than it does in North America, including for example a greater component of river control. In our environment, watershed management implies the integrated development and management of the natural resources of a catchment in order to optimize the production of water from the catchment. It is thus much broader in scope than soil conservation, since it is concerned with the management of water, soil, vegetation, animals and human activity. Its most significant features are its integrative and interdisciplinary aspects; it involves the co-operation and

co-ordination of many people from many disciplines, and its practitioners must be able to take a comprehensive view of the problems of the catchment and their interrelationships. Watershed management is not the exclusive field of the soil conservator, the river control engineer or the hydrologist; effective watershed management can only be achieved by team effort.

One must concede that many of New Zealand's water problems are already being tackled at an interdisciplinary level. Indeed, I have always been impressed by the variety of scientists and other professionals involved in water research in New Zealand and the extent to which water management and administration is undertaken by boards or committees representing a wide range of interests. What is lacking, perhaps, is an integrative theme, a community of purpose, a team spirit if you like, based on some common language and understanding. This, I believe, can be provided by the science of hydrology.

In this context it is worth recording that the old subject "soil conservation" no longer appears in the Lincoln College Calendar. It has been replaced by a broader subject called "watershed management"; those agricultural science students who wish to become what we used to call "soil conservators" will in future be encouraged to take as majors two related subjects, "watershed management" and "agricultural hydrology", together with papers in farm management and soils or ecology. These major subjects are the responsibility of the Agricultural Engineering Department, which has a very active graduate research programme in hydrology and trains both agricultural and civil engineers as well as watershed managers and agricultural hydrologists. At undergraduate level this has the major benefit of forcing students from a range of background disciplines to work, play and live together, learning to understand and respect each other's point of view and work together on team projects. In the future, such students will much more readily fit into interdisciplinary watershed management teams than most of us have been able to do in the past.

These students, whether they be engineers or agriculturists, must all take a basic course in hydrology. For hydrology is the core science of the water resources field, an essential part of the professional toolkit of anybody working in watershed management or water resources development. Whether he be an engineer, an ecologist, a forester or an economist, each member of a water resources team must have some understanding of basic hydrological concepts if he is to communicate with other members of the team and co-operate with them in working towards a common water management objective. In other words, hydrology provides the common language which makes interdisciplinary activity in water resources research, management or development a practical reality.

The New Zealand Hydrological Society, through its varied membership and its wide-ranging symposia, provides a unique and valuable stimulus for the development of this interdisciplinary approach amongst New Zealand engineers and scientists. Long may it prosper.

JOHN R. BURTON
Professor of Agricultural Engineering,
Lincoln College.