

## BOOK REVIEWS

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### ENVIRONMENTAL PLANNING IN NEW ZEALAND,

P. A. Memon and H. C. Perkins (eds.)

*Published in 1993 by The Dunsmore Press Ltd, Palmerston North. 199 pp.*

The book sets out to describe and critically review planning in New Zealand, and goes on to foretell planning under the Resource Management Act. The book has eight chapters, each written by different authors on eight different sectors of New Zealand planning: the urban environment, transportation, water resources, mineral and energy resources, indigenous forests, rural and mountain land use, the coastal environment, and recreation and tourism. As with most edited books with different authors, the focus, style and effectiveness of each chapter varies.

When compared with the goals of the book, the chapters often fail to meet expectations. There is no clear definition of planning nor a clear separation between planning and management. The review of planning too often avoids the underlying causes of planning successes and failures. The analysis of the future of planning under the Resource Management Act is limited by the fact that the review of planning inadequately addresses the underlying interactions between planning and social forces.

The book is meant for use by post-graduates and advanced undergraduates in planning and by professional planners. The set of references in each chapter is broad, inclusive, and valuable to anyone wanting to learn about planning in New Zealand. As with many edited volumes, the index is not very useful. I think that people will find the list of references the most valuable part to the book.

The book's wide definition of "environmental" planning means that *Journal of Hydrology* readers are going to find only three of the eight chapters of particular interest. The water resources chapter by J. Ward and F. Scarf is disappointing since it deals more with management than planning, and because it contains little analysis of the relationship between society and plans. The coastal environment chapter by H. G. Rennie is generally good in its treatment of planning issues, but does get stuck into some details of recent dilemmas without putting them into a larger analytic framework. The rural and mountain land use chapter by K. F. O'Connor is excellent and meets the three goals for the book.

K.F. O'Connor addresses the most basic of planning issues in a straightforward manner and as with most good analyses leaves the reader asking new questions. Is planning distinct from management because planning involves a long-term vision or design? Must all plans be multi-sector integrated? Do plans react to society's needs or do they guide society towards a new future? Do plans reflect our society or do they shape our society?

O'Connor argues that planning failure has been a feature of public policy in New Zealand because people have had unrealistic expectations of planning outcomes. H. G. Rennie points to the case of fishery plans and management, and shows that intentions towards good planning have not been met. Legislators mandated plans, and yet plans have been delayed; management has simply developed without plans.

K. F. O'Connor argues that the planning aspect of the Town and Country Planning Act of 1977 was "a noble intention, necessary but insufficient". In both

cases it seems that the long-term planning aspects of legislation were swept aside while the management aspects developed independently. Perhaps to the extent that plans attempt to modify power structures within society by changing productive advantages, plans will be ignored. O'Connor concludes that "I cannot help but be impressed with the apparent power of secure landhold in any form of tenure, when allied with access to investment capital to triumph in land use over all manner of legislative, institutional or bureaucratic planning devices designed to achieve otherwise". The lesson that we should learn is to limit our expectations that planning can be used to change society.

If planning is limited in its ability to shape society, then perhaps planning can help to reflect society's needs. One historical response to the ineffectiveness of plans has been the development of technical services as a planning agent. From his analysis of soil conservation in New Zealand, K. F. O'Connor argues that soil conservation has been effective only when new techniques have benefited both the environment and the producer's pocketbook. In this vein, planning works as development and accepts the agenda of those who wield power, without trying to modify power structures. Still, development – or, with a clearer word, promotion – can only go so far in meeting the long-term needs of society and our relationship to the environment. The analysis below by O'Connor in relation to soil conservation applies to any form of planning that too closely mirrors the short-term interest of political power:

"There seems to have been a reluctance by both state and individual to invest in soil conservation unless this investment were also turned to productive advantage. It is as though society had borrowed from the dynamic stability of nature and found itself unable to repay the principal. Under stress, it borrows further in the hope of generating enough returns to keep up the interest payments."

How can planning be wielded so that it is neither a "noble intention" nor a business promotion exercise? The question must be answered now with the implementation of the Resource Management Act of 1992. This book clearly shows that concepts of "sustainable management", "effects-based management", and "integrated management", so much believed as keystones of the new legislation, have been part of earlier planning legislation and were ignored. The heavy reliance on plans in the Resource Management Act might be met with cynicism after a careful reading of this book – the new plans mandated by the new Act might collect dust like so many previous plans. If we aim to plan for "sustainable, integrated management", we need to accept a few limitations to the use of plans to achieve these objectives. First, the education, experience, and methods of policy makers will not change quickly. Second, as public servants adapt to changes in the legislation, the political forces on bureaucrats and the social forces acting on politicians might not have changed commensurably. Third, if the plans resulting from the Resource Management Act are to have an effect, then society must also commit additional resources to assure that they are properly developed, monitored, and enforced.

O'Connor argues that planning succeeds to the extent that it embodies a purpose that is widely accepted by society. Rather than say that planning is a platform for social change or say that planning is simply an extrapolation of the way society works, perhaps we would be wise to accept that society, legislation, and planning are co-adapting to our changing world. As long as they adapt along similar paths, plans can be effective. If plans become out of step with society, they are lost to the

ennobling dust. Planning under the Resource Management Act will provide an exciting opportunity to gauge the true environmental goals held by members of our society.

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## DYNAMICS OF GRAVEL-BED RIVERS

Billi, P., Hey, R.D., Thorne, C.D. and Tacconi, P. (Eds) 1992.

John Wiley & Sons Ltd, Chichester, 673 pages, ISBN 0-471-92976-X

Price, £ 153.00, US\$ 266.00.

Dynamics of Gravel-bed Rivers is the book stemming from the 1990 International Gravel-bed Rivers Workshop in Florence, Italy. This is the third of three volumes, published in 1982, 1987 and 1993 which form the proceedings of the International Gravel-bed Rivers Workshops held at Gregynog, Wales 1980; Pingree Park, Colorado 1985; and Poggio a Caiano, Florence 1990. The stated aim of the Florence workshop was to understand the dynamic adjustment of gravel-bed rivers and develop appropriate modelling techniques to forecast river response to changed environmental conditions at different space and time scales.

The book is 673 pages in length and comprises 33 papers and accompanying discussions, with contributions from 65 different authors. The book is divided into 17 sections consisting of an introduction followed by 16 different topics covered by couplets of papers. As a detailed review of all contributions is not possible, Table I summarises the content of the volume in terms of the main approaches used in the papers and the major topics covered. The three dominant modes of study include theoretical / modelling approaches, laboratory investigations and field studies.

The major topics are:

- a) Entrainment and sediment transport
- b) Bed material and bedform changes
- c) Channel dynamics on a reach scale
- d) Channel dynamics on a catchment scale

Obviously such an approach is generalising and some papers are difficult to classify. Several points are immediately apparent. Firstly, there is a clear bias towards field study when looking at the dynamics of gravel-bed rivers. Secondly, the coverage of the main topics, going from the small-scale (to the left of the table) to the large-scale, is fairly even. Thirdly, theory and laboratory studies tend to be biased towards smaller scale subjects such as sediment transport and bed material changes. The major deficiency is a lack of larger scale theoretical and laboratory studies of channel and catchment dynamics. Mobile-bed hydraulic models could partially fill this gap, and there is a growing literature which deals specifically with this area of research (e.g. Young and Davies, 1990. *Journal of Hydrology (N.Z.)* Vol 29, No.1, 75-92). The book lacks an introduction and conclusion. The "introduction" given by Newson on 'Geomorphic thresholds in gravel-bed rivers - refinement for an era of environmental change' is a stimulating keynote address but really bears little relation to the majority of papers that follow. Newson's paper focuses on a catchment scale while the majority of papers study smaller scales. The omission of a conclusion to the workshop is disappointing because this could have been used as a vehicle to promote the major message from

the workshop and justify themes for future workshops. I suspect that a conclusion is not easily written given that we are probably looking at a whole series of mini-workshops which results in a book with a rather vague structure.

Collectively the three International Workshops on gravel-bed rivers between 1982 and 1992 span a decade of research. Although the three workshops had different aims their content is similar. The first workshop "Gravel-bed rivers - Fluvial processes, engineering and management" had a broad theme which is reflected in the spread of papers on topics as diverse as bank erosion, hydraulics/resistance and ecological impacts. The second workshop "Sediment transport in gravel-bed rivers" and third workshop "Dynamics of gravel-bed rivers" were more focused and considered additional themes such as suspended sediment transport, the impact of mining, fisheries, downstream fining and historical channel change. Assuming that the papers presented at each of the workshops are a fair reflection of the approaches adopted in studying gravel-bed rivers it is interesting to compare the dominant trends. Figure 1 illustrates the general content of the three books in terms of the approaches used in studying braided gravel-bed rivers. The dominant mode of investigation has changed little over the decade and is still strongly biased to field studies. Not surprisingly a larger number of papers in the second 'sediment transport' workshop are concerned with theory, and combined theory/field and field/laboratory investigations. The third workshop is largely field orientated with laboratory studies of smaller scale sediment dynamics (e.g. bed material changes).

Contributions by New Zealand workers or about New Zealand gravel-bed rivers are few. Laronne and Duncan in their paper "Bedload transport paths and gravel bar formation" provide the only substantial reference to New Zealand (p.177-202). Their study of the Ashburton River, Canterbury in 1985 to 1986 compares an actively braided reach and a confined aggrading reach using magnetic tracers, aerial photography and cross-section surveys. The principal finding was that during small events, in the braided reach bed load moved within anabranches and diverged at barheads. However, in the confined reach the load moved parallel to

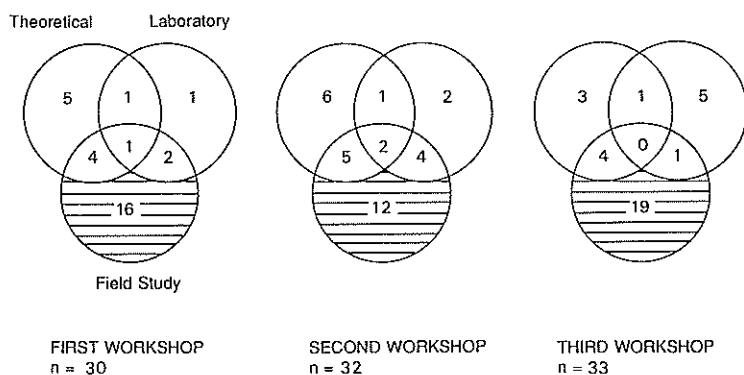


FIG. 1—Various approaches adopted in studying gravel-bed rivers as reflected by papers presented at the International Gravel-bed Rivers Workshops. The shaded areas in the diagram represent the dominant approach used at each of the workshops. Theory is a general category which refers to a set of original ideas or mathematical arguments.

the river banks and over bar planforms. The evidence indicated that even small events may produce quite large changes in braid morphology. A diagram from Laronne and Duncan's paper features on the cover of the book. Jaeggi in "Effect of engineering solutions on sediment transport" provides two photographs of the Rakaia River (Figures 30.1 and 30.2, p. 594-595) as examples of large natural braided gravel-bed rivers but does not discuss them. It seems unfortunate that studies of New Zealand braided gravel-bed rivers do not feature more prominently at these workshops.

Generally the book is well produced, although with such a large price-tag you would be forgiven for expecting gold-leaf and illustrations by grand masters. The book has a well organised text, good illustrations and reasonably reproduced photographs.

Errors in the text are few - which testifies to careful preparation of the volume by the editorial panel. However, the index is a combined geographical and subject index and at just over two pages is a poor effort with no attempt at cross-referencing of material.

Overall, this is another useful collection of papers in the Gravel-bed rivers workshop series. The book generally satisfies the stated aim of the workshop by providing a comprehensive view of the dynamics of gravel-bed rivers. The main value of the book, given its diverse content and extraordinary price, is as a reference book and is probably best sampled through inter-library loans, offprint requests to the authors and brief spells on the photocopier. At a price that requires a second mortgage this book is certainly beyond the pocket of most people and will surely be limited to the bookshelves of the richer libraries, workshop participants and book reviewers! It is surely time to ask the question '*has the academic publishing world gone mad?*'.

The fourth international gravel-bed rivers workshop will be in Oregon, USA in 1995 and will likely be based on the theme 'multidisciplinary approaches to gravel-bed river engineering'.

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TABLE 1—Summary of topics and approaches used in the papers in "Dynamics of Gravel-bed Rivers". Where a paper clearly falls into two categories the value of the paper has been split.

Nature of Study	Main Topic of Paper				Total
	Bed material and bedform changes	Entrainment and sediment transport	Channel Dynamics on a reach scale	Channel Dynamics on a catchment scale	
Theory/Modelling	1	2	2	1	6
Laboratory Study	3	2	1		6
Field Study	4	4	6.5	6.5	21
Total	8	8	9.5	7.5	33