

R&D Guidebook

Guidebook of Applied Fluvial Geomorphology

Background to R&D project

Fluvial Geomorphology is: *“the study of sediment sources, fluxes and storage within the river catchment and channel over short, medium and longer timescales and of the resultant channel and floodplain morphology”* (Newson and Sear 1993).

In the UK, the application of geomorphological science and practice now forms a regular part of projects involving flood protection, fisheries, conservation, recreation, environmental protection and river restoration. The responsibilities to be placed upon the UK Environment Agency and other organisations concerned with river management by the EU Water Framework Directive to assess the status of, and pressures on, river morphology will ensure that the uptake of geomorphology continues and expands. In this context, the project produced a guidebook intended for use by individuals involved in any area of river engineering or management, (e.g. habitat improvement or flood management).

Results of R&D project

The guidebook produced by this project collates and summarises the results of geomorphological R&D projects performed for the Environment Agency and its predecessor the NRA during the 1990s. It includes the following;

- Concentrates content on channel form and change, sediment systems, catchment issues and example applications relevant to (and within the context of) the work of the Defra and the Environment Agency,
- Uses examples drawn from flood control projects, bank erosion problems, rehabilitation/restoration schemes and a range of site-specific applications of geomorphology, and
- Draws largely on experience gained in the 1990s through project-related fieldwork, analysis and input to the design process.

In selecting material for inclusion in the guidebook, the Principal Investigators not only sought advice from relevant individuals, but also drew on the results of information gathered as part of training in geomorphology provided by the Environment Agency to its staff and lead by the University of Newcastle.

R&D Outputs and their Use

A guidebook has been produced by the project for use by those who do not have a detailed knowledge of geomorphology but who need to understand and apply its principles in their work. The main purposes of the guidebook are thus to:

- Foster an understanding of geomorphology in the river environment;
- Stress the significance of considering geomorphological processes in river management applications;
- Give an overview of the different methods of incorporating geomorphological science into river engineering and management;
- Provide guidance on when to seek expert geomorphological advice and where to find it.

It does not contain detailed, step-by-step instructions on how to perform geomorphological analyses and investigations because material of this type cannot be found in the R&D performed during the 1990s that forms the basis for the book.

The principal use to which the Guidebook should be put are in-post training in the foundations and principles of applied fluvial geomorphology and routine applications of fluvial geomorphology by engineers and scientists engaged in work related to Flood Management (including Development Control Officers), Fisheries, Conservation, Ecology, Recreation, Hydrometry, Environmental Assessment, Landscape Architecture and Water Quality.

Environment Agency staff seeking further training in the principles and applications of geomorphology as presented in the guidebook should contact their training advisor or Jim Walker, National Geomorphologist (Conservation and Ecology).

This R&D Guidebook relates to R&D Project FD1914 and the following R&D output:

- **R&D Guidebook** - Guidebook of Applied Fluvial Geomorphology. Published December 2003

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The above outputs are available under the Processess Theme of the EA/Defra Joint R&D programme.

Digital copies of the Guidebook are available for down load at:

http://www2.defra.gov.uk/research/project_data/default.asp, enter FD1914 as search criteria.

Hard copies can be purchased from the EA's R&D Dissemination Centre, c/o WRc, Frankland Road, Blagrove, Swindon, Wiltshire SN5 8YF (Tel: (+44) 1793-865012; Fax: (+44) 1793-514562; email: publications@wrcplc.co.uk).

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