

VALUING ENVIRONMENTAL BENEFITS - DEVELOPMENTS IN ENGLAND AND WALES

John M Tyson, Environment Protection Manager

North West Water, Dawson House, Liverpool Road, Warrington WA3 5LW, UK

David H Newsome, Professor, Foundation for Water Research,

Liston Road, Marlow, Bucks SL7 1FD, UK

Problem Description

Achievement of improvements in receiving water quality normally involves significant investment (both capital and operational costs) to secure a higher level of performance from new and/or existing assets. In contrast to the costs of improving the quality of surface water, the monetary value of the resulting benefits is far more difficult to estimate as the benefits do not typically accrue in the form of readily measurable financial flows. The project was initiated to meet a need to establish target qualities for the aquatic environment of England and Wales in a way which would secure sustainable environmental quality and benefits at a cost which water charge payers are willing/able to afford.

Project Details

The aim of the 3 year project was to develop and publish a Benefit Assessment Manual which would provide operational and planning staff within the water industry and associated regulatory agencies with a means to evaluate the benefits arising from improvements in surface water quality. The Manual was published by the FWR in December 1996 and has been recognised as a major step forward in moving environmental economics from theory into practice.

The Manual, as shown by Figure 1, provides a structured approach to evaluating benefits. The Preliminary Assessment (Part 1) uses default values listed in the Manual to provide a first, approximate estimate of benefits. Most studies will require a Desktop Assessment (Part 2 or 3) based on available site-specific data followed by an Overall Appraisal (Part 4) in which the information generated in Parts 2 and 3 is incorporated into a Present Value framework in order to apply appropriate Decision Rules. Part 4 concludes by identifying whether new fieldwork is necessary and, if so, what form it should take. Part 5 sets out detailed guidance on the different types of fieldwork that may be required. Part 6 summarises the main findings of the appraisal in a consistent format and the worksheets used at the different stages of the methodology constitute Part 7.

The basis of assessment is a proposed improvement in water quality related to a range of key uses associated or potentially associated with the receiving water. The manual identifies nine such uses for rivers and eight for estuaries and coastal waters. Not all uses will be relevant to any particular case but one use category will normally be included in all cases. This is the so-called 'non-use' category which reflects the preference for the existence of a clean environment (in this case surface waters) even though the particular resource may not be utilised by all individuals. It can be

considered to be the value we put on the environment we leave to our children.

Three decision types are addressed by the Manual:

1. Whether or not to undertake a single project.
2. Which of a number of mutually exclusive projects to undertake.
3. Which of a number of mutually compatible revenue competing projects to undertake.

Achievements

The methodology set out in the Manual has been tested in four case studies of rivers and two of estuaries. These studies have shown that the procedures are clear and capable of being used by non-economists. It is evident, from the case studies, that there is a need for more data to increase confidence in the assessment of the monetary value of improved water quality. A remaining question is the validity of transferring such data between regions and between countries.

At the time of writing the procedures have not been used in normal operational practice but it is very likely that they will be used widely in the development of the investment programmes for the water industry in England and Wales for the period 2000-2010.

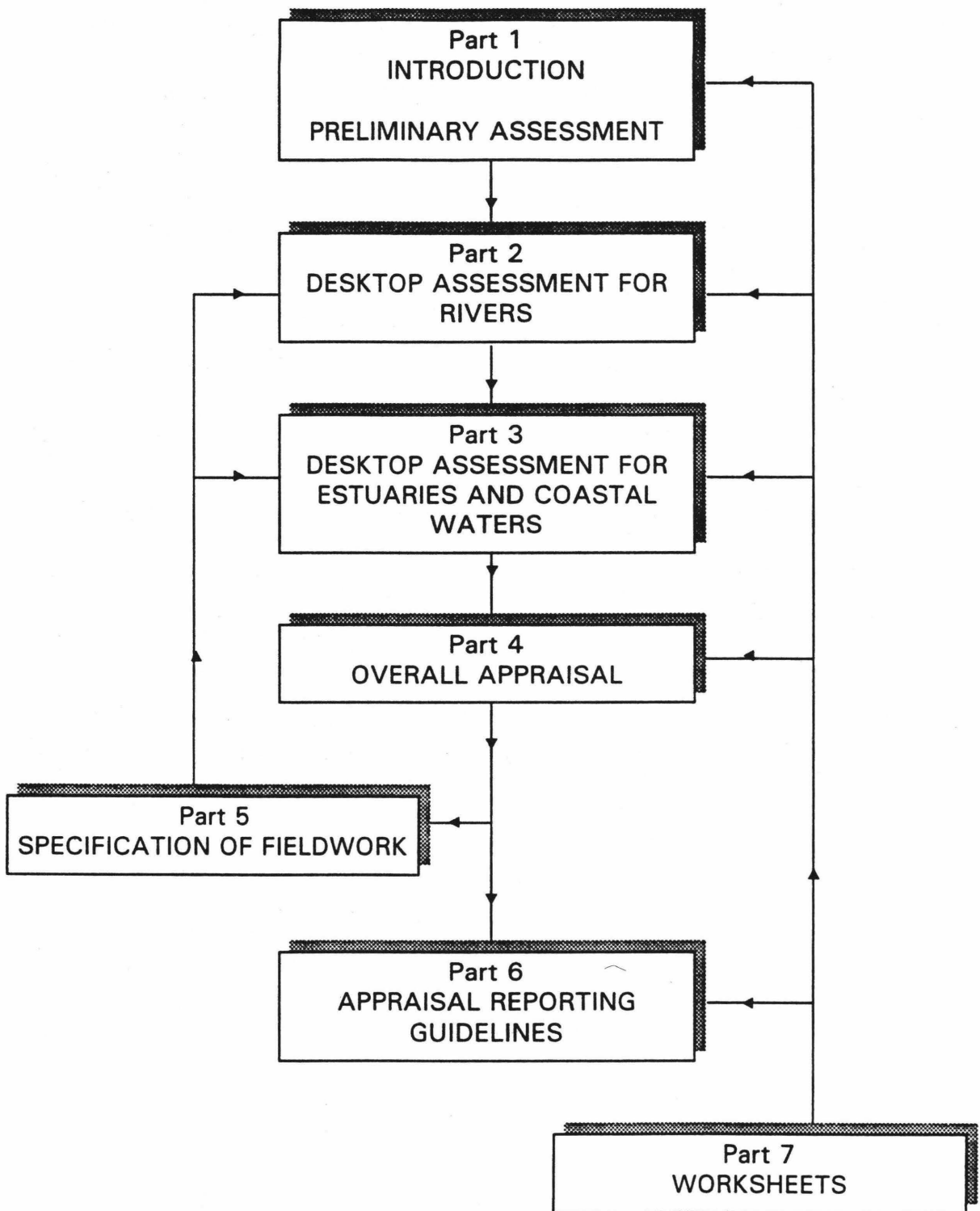


Figure 1 Benefit Assessment Procedure