PHASE 1
RIVER RESTORATION:

FEASIBILITY STUDY

The River Restoration Project

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Executive Summary

The River Restoration Project (RRP) aims to implement a series of demonstration projects within the UK that apply state-of the art techniques to river restoration. This report evaluates the feasibility of that demonstration phase.

For the RRP to succeed:

- the demonstration projects cannot afford to fail
- they must break new ground
- the knowledge gained from the demonstration project must be applicable to other rivers and help establish a baseline for it to be used elsewhere.
- valuable technical results must be disseminated to educate and stimulate the public as well as the scientific community.

These targets are considered below in the framework of the current state of restoration, the benefits and disbenefits of the potential techniques and the general constraints and opportunities to and for the project. This forms the basis of the feasibility of the demonstration phase.

The nature of river restoration.

River restoration is the complete structural and functional return to the pre-disturbance and self -regulating state. Rivers and their floodplains are prime candidates for restoration as their high intrinsic value (ecological, sociological and economic) has been compromised by systematic degradation.

What is the purpose of restoration?

The primary purpose of restoration is to conserve and promote nature although there are occasions when other reasons (eg. landscape and amenity value) help determine the need for action. With multi-functional requirements (such as flood defence), the partial return to a pre-disturbance state, referred to as rehabilitation, becomes the pragmatic alternative to restoration. Critical evaluation of benefits/disbenefits of the various techniques and measures are limited by a lack of post-project appraisal, although there is a strong suggestion that restoration has many ecological benefits as well as improving landscape and amenity value, water quality, hydrological regime and channel stability.

The basic requirements of river restoration.

Restoration (or rehabilitation) can only be undertaken within the holistic framework of catchment planning. The use of multi-disciplinary teams (ecologists, geomorphologists, hydrologists, engineers etc) and rigorous design within this planning framework are critical. Sympathetic land-use is essential, and although there are opportunities in Britain through bringing land out of arable production, the available schemes for financial subsidy are only loosely applicable to rivers. Perhaps more importantly, much land is privately owned and is often divided between many people within a river catchment making complete control of land use difficult.

Most techniques for restoration involve reinstating physical habitat, the loss of which is often perceived to be the primary limiting factor. However, water quality and quantity are also of

prime consideration, and although improving physical parameters may have a beneficial influence upon water quantity and quality, the latter should generally be addressed, before physical restorative measures are implemented.

Plan of action

The most appropriate course of action towards the reinstatement of a natural river regime is to exploit the potential for natural recovery. Where potential is high, recovery may be enhanced by reducing the appropriate stresses. This may simply require non-structural techniques, such as changes in land-use. Where natural recovery potential is low, more direct intervention and the use of structural techniques may be required. However, this should only be undertaken to the level at which recovery of natural form and function within a suitable time-scale is likely. The choice of structural techniques for bank stabilisation and instream modification is wide, but, as a general rule, only local natural materials should be used, supplemented by artificial materials only where absolutely necessary.

British Coal Opencast

The River Restoration Project gratefully acknowledges the important contribution made by British Coal Opencast in sponsoring this Feasibility Study, which brings together existing knowledge of river restoration and enhancement work both in the United Kingdom and abroad.

The restoration of riverine environments represents a significant challenge, and the contribution made by British Coal Opencast is an excellent example of their commitment to environmental improvement through better knowledge and practice which will be of benefit to both wildlife and those whose livelihood or recreation depends on rivers.

The Opencast sector of British Coal has produced quality coal for over half a century from the shallow deposits found in the traditional mining areas of England, Scotland and Wales. Prior to the mining process surface features of natural interest may be conserved, translocated, or even enhanced. On restoration new features may be introduced adding diversity of topography and wildlife in landscapes greatly affected by past mining, intensive farming or industrial processes. Opencast's technical skill in land rehabilitation is now recognised as the finest in the world in terms of quality and variety.

Opencast works with a range of statutory bodies, research establishments and conservation groups in pursuit of improved knowledge, including county wildlife trusts, the Wildfowl and Wetlands Trust, the RSPB, Hawk and Owl Trust, Badger protection groups and the successor bodies to the Nature Conservancy Council, English Nature, the Countryside Council for Wales and the Scottish Natural Heritage.

Many new nature reserves have been created following surface mining. Where opencast mining requires the diversion and subsequent re

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APPENDICES

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