

Groundwater abstraction

Reports on the sustainable management of groundwater

Brian Adams, *Wallingford*

A recent study, 'Low Flows, Groundwater and Wetland Interactions' carried out by the BGS and the Institute of Hydrology was funded jointly by the Environment Agency, UK Water Industry Research (UKWIR) Ltd and the NERC. It was initiated in response to three main factors.

- The UK Groundwater Forum in its document 'Groundwater in the UK: A Strategic Study' had identified the understanding of valley bottom hydrogeology as a top priority issue for research.
- A number of agencies were highlighting issues concerning low flows, wetland degradation and damage to habitats in publications such as 'High and Dry', 'Loosing Interest 1995' and 'Impact of Water Abstraction on Wetland SSSIs'.
- There was a need for a consistent national framework for decision making on groundwater, river and wetland management to assist collaboration between the Environment Agency and water users, such as water companies, power generators and farmers.

The purpose of the study was to establish a framework for the sustainable management of groundwater sources/resources based on current best practice rather than carry out any new research. Thus a consultation exercise was carried out with both stakeholders and those having expertise in this area. This involved three workshops, one with Environment Agency staff, one with UK water industry staff and one with other

key governmental and non-governmental organisations. In parallel to this, staff from the BGS and the Institute of Hydrology prepared a number of papers on relevant topics. The results of these two exercises were synthesised into a draft report, which was circulated to all consultees and discussed at a final workshop. The result of the process was a three-part report.

There is substantial evidence and additional perception that many rivers and wetlands in England and Wales have been significantly degraded. Clearly, high rates of groundwater abstraction can be shown to have had detrimental effects in many areas. However, other pressures such as channelisation, sedimentation, reduced rainfall or groundwater recharge, poor site management or land use change can be contributing factors. Many of the pressures have external causes such as European agricultural policy influencing land use change or climate change affecting rainfall patterns.

By first considering the key issues involved (Part 1 of the report) it was then possible to develop a framework for the sustainable management of groundwater resources based on current knowledge and best practice within the context of existing legislation (Part 2 of the report). It removes the subjective approach, which can lead to different decisions being made. Until now, no such framework existed. It is recognised that for the management approach to be fully successful, the basic scientific information needs to be of the highest possible quality. Therefore, for some of the techniques or approaches suggested, an

absence of data or lack of knowledge will require further environmental monitoring or research respectively before they can be effectively implemented. Thus the report also highlights gaps in knowledge and so directs the focus for future research and development (Part 3).

The three parts of the report have been bound separately as it is expected that they may be used separately, with the framework document (Part 2) probably being the most widely used.



Three parts of the report 'Low Flows, Groundwater and Wetland Interactions'. Cover photos by Mike Acreman, Institute of Hydrology.