

Environmental Information Systems



Decision support for planners

Research consortium: The BGS, University of Nottingham, Centre for Ecology and Hydrology (Monkswood and Edinburgh), Centre for Ecology and Hydrology (Wallingford)

Flooding of new properties, poor air quality along transport corridors, and pollution incidents are issues frequently reported in the national press. When these events occur, they often raise public concerns and prompt questions about the ability of the planning system to properly regulate development and allocate land in the public interest. To do this, planners must be provided with the most appropriate and accessible environmental information to ensure a consistent and sustainable approach to environmental planning.

The Environmental Information Systems Project is a three-year, co-funded research programme aimed at improving access to environmental information in urban land-use planning. It is jointly funded by the Natural Environment Research Council, through its Urban Regeneration and the Environment programme, and the Department for Transport, Local Government and the Regions. The research is being carried out by a consortium consisting of the BGS, the Centre for Hydrology and Ecology, and the University of Nottingham.

QUESTION:
How can we develop wildlife corridors?



Harpalus affinis



Pterostichus madidus



Elaphrus riparius

C Wardle, BGS © NERC



QUESTION:
Is the proposed development affected by ground conditions that require further investigation?

The Crooked House pub, Gornal, near Dudley. An example of subsidence caused by shallow undermining for coal in the 19th century.

The remit is to design and build a demonstration decision-support system to deliver environmental information in a format that will meet the requirements of local authority planners. The system is being developed initially to support decision making in seven key environmental areas. These relate to:

- the impact of unstable ground on construction;
- the distribution of contaminated land;
- the vulnerability of groundwater and surface water to pollution;
- flood risk;
- air quality;
- ecological conservation/enhancement of biodiversity; and
- conservation of cultural and natural heritage.

C Adkin, BGS © NERC

The system will provide decision aids (including supporting databases, model applications, and metadata links) to guide urban regeneration on a ‘fit-for-purpose’ basis. The modular design (*top right*) will provide maximum flexibility to allow update and expansion as new EU directives (such as those covering noise and water catchment modelling) are introduced into the regulatory system.

“... planners must be provided with the most appropriate and accessible environmental information ...”

To ensure that the decision aids properly reflect working practices, the work is being carried out in collaboration with local authorities in Wales (Swansea), Scotland (Glasgow) and the West Midlands (Telford and Wrekin, Wolverhampton). Face-to-face interviews with officers involved in development control, environmental health, and policy planning have provided information on planning procedures, which is currently being mapped into decision flow charts (*centre right*). These will then form the basis for designing the functional specification of the system.

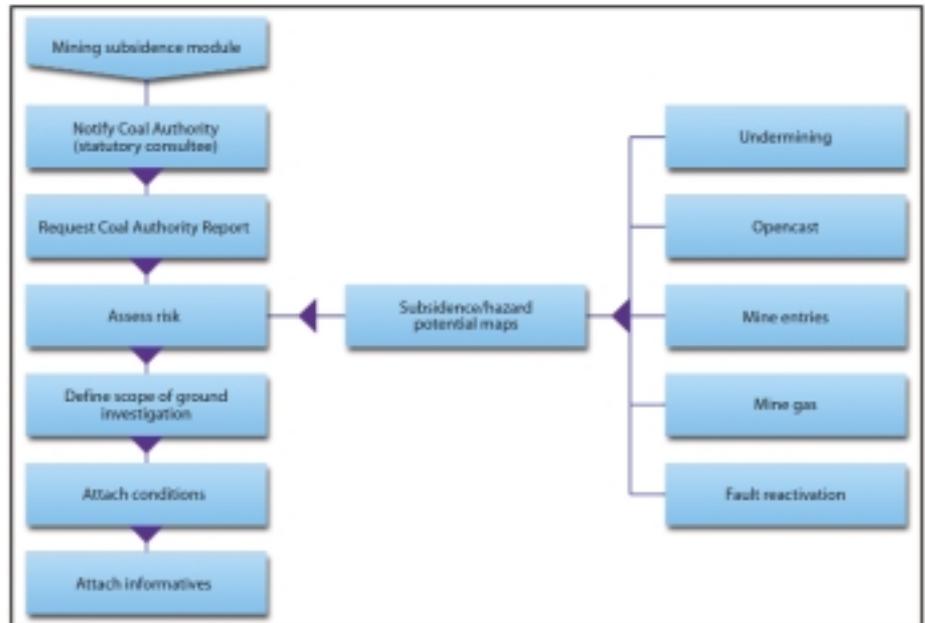
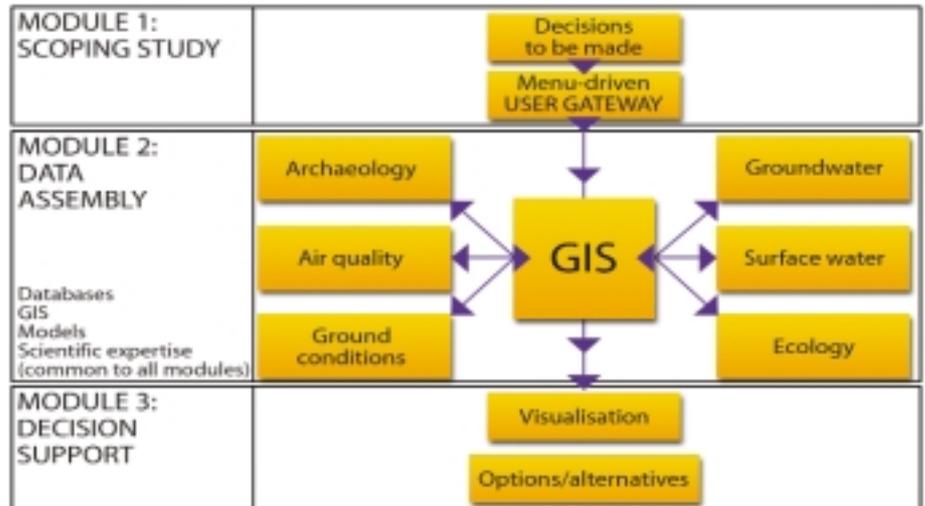
Access to the system will be through a web-based Geographic Information System. Tools will be included to assist local authority officers in dealing with a range of duties, including:

- pre-application assessment;
- development control; and
- strategic planning.

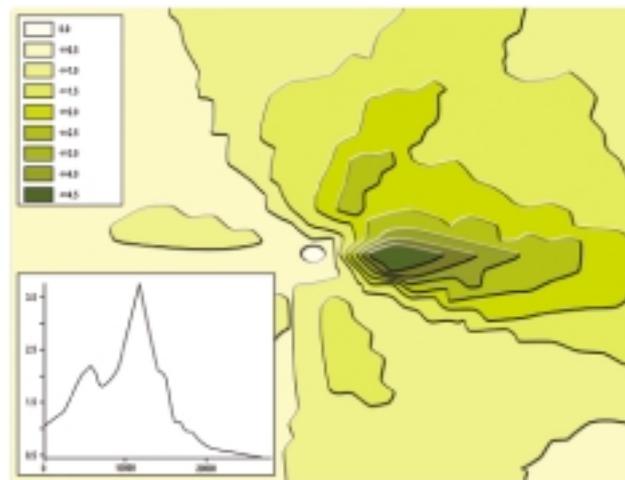
The system may also include functionality that will assist in resolving potential environmental conflicts. For example, how best do we deal with the demands of flood protection, yet preserve our wetlands? Some typical examples of the environmental issues that might be addressed using the system are illustrated (*facing page and bottom right*).

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Design of the Environmental Information System: modular approach (top), decision flow chart (above).



QUESTION:
Is the proposed development likely to lead to unacceptable levels of air pollution?

Typical annual deposition of sulphur from a power station.