

## **INTRODUCTION TO CONFERENCE**

The recently published National Spatial Strategy outlines a broad a strategic vision for the spatial development of Ireland over the next two decades. As a strategy it seeks to ensure that Ireland continues to develop economically, while ensuring a high quality of life for its people.

The Strategy identifies a number of Gateways, Hubs, County towns and other urban areas, which, with their surrounding rural areas provide opportunities to meet national, regional and local scale needs and contribute to the creation of a more prosperous and evenly developed Ireland.

Significant input from the geosciences at an early stage in the planning process will be required if this strategic vision is to be effectively implemented. In organising this conference the Institute of Geologists of Ireland (IGI), as the representative body for professional geoscientists working in Ireland, seeks to highlight the contribution that our profession will make.

The IGI considers that there are some basic issues, or underlying principles, that must be borne in mind in implementing a national policy. These include:

- Resource and environmental issues are long-term, requiring long-term investment and planning. Consequently, we must build a broadly based consensus, and ensure that robust and well financed public institutions exist to undertake the long-term mapping, surveying, monitoring, data base archiving, and fundamental research that are necessary to achieve sound environmental objectives.
- We must plan on the assumption of continued growth and on urbanisation, but work to minimise their adverse impact on the environment.
- Our environment is a complex interplay of factors affecting the availability, quality and use of water, air, soils, land, energy and minerals. Good geological information a key to understanding the system as a whole.
- For most people the important sustainability issues are not availability of minerals or oil, but access to clean air and water, good soils, adequate building materials, and a secure place to live.

The IGI is particularly concerned that, in order to achieve the sustainable development objectives of the Strategy, detailed consideration needs to be given to the presence and distribution of various natural resources. These include:

1. Aggregate
2. Groundwater
3. Other industrial mineral deposits
4. Metallic mineral deposits

Natural resources are of fixed location. Consequently their distribution should be assessed by appropriate surveys before development plans for an area are implemented. In particular, groundwater must be protected from contamination; aggregate cannot be quarried in built up areas. Both are essential to development and their low value to weight ratio makes it uneconomic to transport them over long distances. Development should also be avoided in areas of known deposits of other industrial minerals, and of metallic minerals, so as to allow their extraction.

The importance of some of these issues can be illustrated as follows: It takes 300 tonnes of rock aggregate to build the average house, and about 150,000 tonnes to build 1 kilometer of motorway. In the past decade the national requirement for aggregates has grown by over 300%, an increase of 3,000,000 tonnes per annum or the equivalent of 4 to 5 large quarries each year. For this material to be economically developed it must be located close to where it will be used.

Consequently each Gateway and Hub will need:

- To identify the location and extent of their aggregate resources.
- To study and plan for the future demand for aggregate.
- To limit housing, and other developments, in areas identified as resource areas.

Our groundwater is our most vital earth resource; it is also the most ubiquitous. However, less than 1% of the world's water is potentially available for human consumption. The bulk of that is hosted in aquifers in surficial sediments and rocks. The key challenges are:

- To ensure the conservation of present groundwater quality
- To improve the quality in some instances
- To assure future high-quality water supplies in ways that are physically sustainable and affordable.

The increasing urbanisation and industrialisation of the proposed Gateways and Hubs will, unless it is properly planned, have adverse impact on these groundwater resources. This at a time when we have an increasing need to develop those resources. In order to minimise these problems we need to accelerate the systematic study of our national groundwater aquifer system which is currently underway.

The disposal of waste is a clearly related issue. It is a fact of life that waste from agricultural, industrial, municipal and household activities will continue to be generated. This will need to be managed. The most like options are a combination of recycling, landfill and incineration. For proper planning, suitable lands must be identified and retained for such activities.

A high quality natural and built environment is another key objective of the Strategic Plan. If this is to be achieved then we will need to understand and take cognisance of

Land Use and Spatial Planning in Ireland

The Institute of Geologists of Ireland (IGI) Conference, Dublin, February 2003

some key features of the natural environment, and how these features impact on health and safety. Examples of such issues include:

1. Flooding
2. Land subsidence

We have seen examples in recent months of the significant impact that flooding can have on communities, both urban and rural, and of the cost to society in both financial terms and individual hardship. We need to understand that the geology of a river catchment determines the rate of run-off, and is therefore an important factor in flooding. This is particularly so where the predominant rock type is limestone, as is the case in much of Ireland.

Land subsidence and coastal erosion are other issues that can impact on developments such as roads, buildings, and services. They lead to extra costs, ground collapses, and injury risks to humans. Again we have seen recent examples of these problems. All of these aspects of the natural environment require knowledge of the underlying geology to identify problems.

Another issue, which I hope this conference will begin to address, is the issue of communication. As a profession our communication with our fellow professionals, such as planners, engineers and architects is, at best, uneven. There are a number of reasons for this. In some cases the needs of the client are not fully appreciated. In addition, technical jargon is often used, which is not understood. As a result the fundamental relevance of geology to the efficient exploitation of mineral deposits, to spatial planning and to infrastructural design has not been effectively communicated.

The geological community seeks to address these issues and looks forward to working with planners, engineers and architects to develop solutions to these and other problems so that the vision of the National Spatial Strategy can be achieved.

EurGeol John A Clifford PGeo, FIMMM, FAusIMM, CEng(UK).

President

Institute of Geologists of Ireland

Dublin Castle

February 26<sup>th</sup> 2003.