Communicating the Vision?

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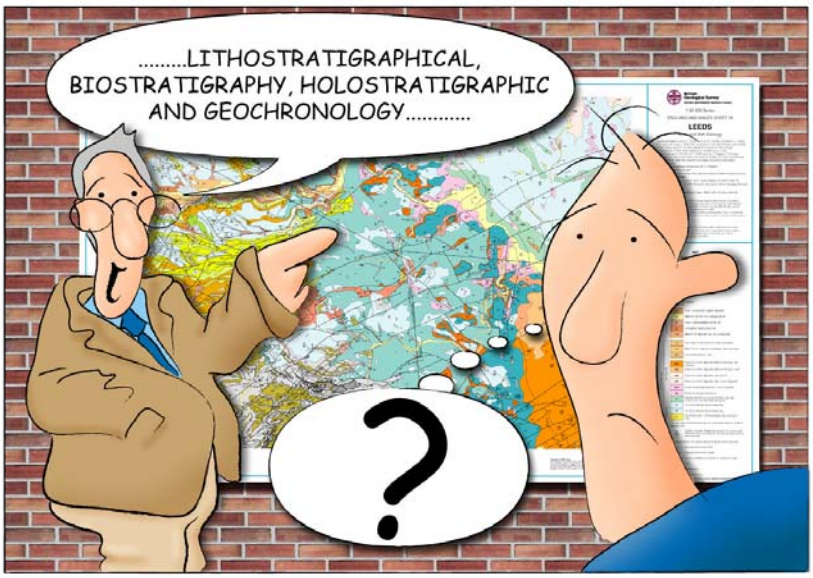
Vision? The title is intentionally ambiguous. One part of this abstract will look critically at how we geoscientists communicate our view of the earth and its processes and perhaps more importantly, communicate the value and *relevance* of our work, to those who need to know. The second part will examine, from the perspective of a small island, what lies ahead for Geological Surveys and the delivery of geoscience information.

The reality? At the beginning of the 21st century, at a time when "the environment" has the highest of profiles, geoscience should be occupying a prominent role. But it is not. It is a sad fact that the importance of geology to the environment, and to human health, property and assets is **not** well understood outside the geological profession. We geoscientists, and the geological surveys and research and academic institutions we work for must accept a substantial part of the responsibility for this lack of understanding and for the failure to persuade potential users to exploit our geoscience knowledge base. The output of our work continues to be dominated by complex, technical, and academic maps and reports. The quality of this science is not in question, but too often the science remains obscure, remote and inaccessible to the end-user. For too many of us the scientific paper or geological map is the end, and not the means to the end – there is little or no attempt to communicate the value of this science to those outside our profession. Is it surprising then, that the importance of geology to society and the environment is not obvious to the public, to governments and to commerce?



But wait a minute, I can hear you say, things have changed; we've got sophisticated new computers with GIS and 3-D modelling software, and we can devise all sorts of colourful coverages, dynamic databases and mutating models, and we can put them on the world wide web for all to appreciate! Fine, I will respond, but how convinced are you that those outside our profession can understand our message any better? A digital geological map or model remains what it is, a highly complex and technical product, and an awful lot less than 0.5% of society have the expertise or training to interpret it. If we genuinely want to be relevant then we have to find ways to communicate with those who inhabit the world beyond the sophisticated, but limited, circles of the geoscience cognoscenti.

The evidence? Having made some sweeping assertions, perhaps I ought to provide some evidence. For that I will focus on my own backyard. Examples from the United Kingdom (a

relatively geologically stable country) show the majority of politicians and planners seemingly unaware of, for instance, the swelling and shrinking properties of clay, or the dissolution of gypsum. So they permit housing development that is inappropriate in terms of both location and design. Buildings, roads, and car parks have been constructed over unstable ground causing death, injury, and damage. The importance of including geoscience knowledge in the prediction of radon-affected areas (radon is the second biggest cause of lung cancer in the UK) is only just being fully appreciated. In the UK a lawyer would be deemed as professionally negligent if they did not obtain a report into possible coal mining beneath a property prior to purchase. But at the moment there is no compulsion to seek out information on similarly damaging natural underground voids and yet the case is equally compelling. The estimate of insured losses due to natural geological instability in Great Britain runs into 100s of millions of dollars per year. This, in a country where the industrial revolution was founded on coal and minerals, where William Smith was born, and where the Geological Survey has been in existence for 169 years!

In recent years that Survey, the British Geological Survey (BGS), has been trying to address this "communication problem". It is devoting an increasing proportion of its resources to doing science and developing products and services that attempt to meet the needs of a wider user base. Beware, another contentious statement is on its way - my belief is that this improved "customer focus" is also inextricably linked to the BGS funding situation. BGS has to compete with others for 50% of its income and our desire to want to be around for a few more years to continue to be able to do our survey and research work certainly focuses our minds on our clients' needs. The consequence has been that, in the last decade, we have witnessed an expansion in the range of products that try to meet the requirements of those who do have a real need to use geological information, but who do not possess a degree in geoscience. Most of these products have taken full advantage of the Information Technology revolution. They include site-specific reports that can be delivered via the web through simple entry of one's zip- or post-code; spreadsheets of hazard information for insurance companies (not a geological map in sight!); and last but not least, reports and maps that are explained in plain straightforward language (with no geo-jargon to be seen).

Please do not misunderstand me; I am not challenging the absolute necessity of high quality geological survey and research and the maps and models that result directly from it. But if we aspire to be relevant, then just delivering high quality science in this form means that the job is only half done. We have to reach out and get our message across. We have, as the Irish author W.B. Yeats once said, to think like wise men but communicate in the language of the people.

A view from a small island. Geological Surveys around the world are facing the same range of "challenges" (threats or opportunities depending on one's viewpoint) and looking hard at themselves and their role in society. Those comfortable times are long gone when Surveys could contemplate with certainty well funded, long-term field mapping programmes, or have the freedom to open up a new area of curiosity-driven research. Now we must contend with pressures arising from new and pervasive national and international government policy, greater expectations from industry and society, increasing competition from commerce, rapid developments in information technology, and last but not least, considerable uncertainty about our funding. Against this background Surveys are trying to develop strategies to ensure that they continue to be relevant - and thus continue to exist! But predicting how the next few years unfold is not easy. One thing is certain however; the data and information assets that Geological Surveys hold will play a key role in the coming years. The strategies for managing, developing, and delivering those information assets are thus critical.

In early 2002 BGS agreed to a corporate Information Strategy. That Strategy contained a vision of where BGS wanted to be in 5 years time. To some the vision appeared to just motherhood and apple pie – clichéd words that seem to be the hallmark of all vision statements - but the Strategy marked a fundamental shift. BGS had accepted that it was every bit as much a professional information organisation as it was a survey and research one. And as an information organisation it aspired to operate more maturely, to innovate and develop, and to reach out and communicate.

Realising the aspirations. Operating more maturely meant taking some things rather more seriously than the Survey had done to date; for instance:

- Quality – making the accuracy (and inaccuracy !) and precision of our data clear
- Consistency – developing, agreeing and using national and international standards for the geosciences
- Managing the data responsibly – the data we hold is just as important as the new research we want to do
- Coverage – national Geological Surveys should produce national datasets (and not a collection of disparate research projects)

We agreed we would resource and accelerate research at the interface of geoscience and information technology. Thus programmes on 3/4 dimensional modelling, digital field data capture, integrated digital workflows, and web services would be given priority and moved from developmental to operational mode as quickly as possible. Crucially, in order to realise these ambitions, we agreed we would follow a corporate, consistent, asset-based approach to information management. We would strive to make more and better quality information available in digital form and improve external on-line access to it. Thus, we need to improve internal systems and workflows and invest in IT infrastructure **and** enhance our Information Systems skill base. Last but not least, we would put significantly more resource into disseminating our work and its value, to the widest possible range of users.

Nobody said it would be easy. Such a strategy faces a range of questions/obstacles, most of which will be familiar to any person working in the geoscience information arena. How will we balance the funding needed for information management and delivery against geological survey/research aims? How would we change the culture on corporate data management and raise awareness of the strategic value of data (and thus the value of holding it corporately)? We needed to change the skills mix in the organisation and in particular, identifying staff who want to be involved in data management is a monumental task. Where would we find the resources to fund the IT infrastructure in order to keep pace with data volumes and sophistication? Could we find a better way of defining what the internal and external users really want? New products are expensive to develop and then roll out – yet another demand on a static/declining budget. Do we charge for data or not (here the conflicting UK Government and European Union policy and legislation on access to Public Sector data do not help!). And if we take our new, easily accessible products into the real world (i.e., outside the geoscience circle), won't we be sued when we are in error - liability is a big potential issue when people begin to use your data for real.

Operating outside the comfort zone may be painful, but it's rarely dull…….

This abstract is based in part on an article recently submitted to the IUGS journal "Episodes".