17 Dissemination of geoscience data: societal implications

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17.1 Introduction

Data and information may be suspect and politically contentious, at least occasionally. Lack of information may permit, in some eyes even justify, refraining from action. It may well be the case that decision makers tend to shy away from taking decisions because of the fear of adverse public reaction that their decisions might evoke; they may even prefer not to be confronted with information!

The worst situation arises when efforts are made to prevent unbiased information entering an otherwise biased debate. This may be illustrated by the following two examples drawn from the Netherlands.

Every ten years a national census is conducted to facilitate appropriate planning and policy formulation. Participation is compulsory and refusal to compile a return met with fines. The 1961 census resulted in two persons out of 11 million refusing. The following decade saw public debate on the role of the government and the issue of privacy, as a consequence of which 0.2% of the population refused to participate in the 1971 census. As the 1981 census approached, the government learned from opinion polls that at least 17% would refuse to participate. Subsequently the census was cancelled for 1991; a 2001 census was not even considered.

The consequence is a lack of reliable data concerning the composition of Dutch society since 1971 and any indication of trends. The result has been a dramatic increase in mistaken policy and misjudgements in political decision making. This was dramatically demonstrated when the El-Al Boeing crashed in Amsterdam in 1992; the actual population in the destroyed houses proved to be completely different from that which had been registered. Data collection through the use of a census had been declared politically incorrect and the consequent lack of data meant that the Amsterdam municipal archives could not be updated and thus planning was likely to have been inappropriate.

A second case concerns the public debate in the early 1990s relating to data collection for safety assessment studies to consider permanent storage of nuclear waste. On condition that no new data would be collected, the Dutch Ministry of Economic Affairs commissioned geological studies to establish the underground conditions of potential waste disposal sites in salt domes. Opponents of such stor-
age feared that just the availability of new data might weaken their case, and that new data might lead to the conclusion that some of the salt domes could technically and/or environmentally be suitable for this purpose. The powerful green lobby in that time did not want to take that risk and successfully negotiated the restriction that no new geological data be collected for this purpose.

The general concept considers that, as long as there is no certainty about something, then there can be political freedom to take whatever action is deemed 'best'. In other words: availability of reliable data would constrain the political process or the options available to specific interest groups.

17.2 Data as a treasure

The current Dutch digital database for shallow boreholes alone holds some 400,000 borehole descriptions, worth more than 1 billion EURO. If this could be extended over the entire EU, the combined databases containing raw geodata would easily exceed a value of 25 billion EURO. This amount would be at least 100 times higher if the costs of all oil and gas boreholes and seismic surveys were to be included.

In general, the value of this treasure is not sufficiently well understood or appreciated, even by the government bodies who have funded the geoscience data acquisition programmes. Many Geological Surveys have assigned geodata management a high level of priority. Nevertheless they generally lack the means to allocate sufficient staff to this activity. Geoscientists certainly appreciate the relevance of quality assured geoscience data, but they are not well placed to do the job on their own. Neither would they like to see the costs required to be subtracted from their operational budgets!

Geodata is the key to revealing the third, downward, dimension; this increases in relevance day by day. Land value in urban areas continues to show a steep upward trend, leading to increased interest in developing subsurface facilities. Society is increasingly prepared to invest the higher sums of money required for development of underground space. However, the subsurface is still too often seen as a 'black box', even by engineers. To many, the subsurface is an unknown situation, containing unforeseen surprises and unpleasant discontinuities.

Those best placed to provide a reliable characterisation of the subsurface are the geoscientists. But in order to execute that task they need to have access to reliable geodata. The subsurface is a complex body, yet has formed as a result of natural processes that can be elucidated by appropriate investigation. However, any data acquired is just a sample of the complex subsurface reality. Thus the more data, the better its spread and quality, the more reliable will be the simulation of the reality.

The desirable end result is a 3D visualisation of the subsurface reality in a form that can be shown to colleagues, clients and the public (Figures 17.1 and 17.2). Such images require a thorough understanding of the subsurface, but their derivation can be made completely transparent. However, the geoscientist knows that what is displayed by (often bright and colourful) images may nevertheless be far