

## In this issue

### Public access to Indian Geographical Data

In late 1997 the Indian Academy of Sciences set up a *Panel on Scientific Data of Public Interest* to examine all issues concerning scientific data available in the country. The members of the Panel are R. Narasimha (Chairman), S. Dhawan, M. Gadgil, I. Nath, S. Shetye (Secretary). In early 1998 the Panel issued a public announcement outlining its concerns and inviting suggestions on how it might conduct its work (*Current Science*, 25 February 1998). The Panel also wrote to several individuals seeking their suggestions.

Based on the inputs received, the Panel decided to hold discussion meetings focusing first on particular types of data. For the first meeting in the series, geographical data was chosen. The choice was based on two considerations: (i) usefulness of the data in a number of areas – research, commerce, security; (ii) role of the data in newly emerging areas such as Geographical Information Systems (GIS) and remote sensing.

Geographical data also happen to mark modern India's first organized effort to collect scientific data. The Survey of India (SOI), the agency responsible for collecting, storing, and disseminating Indian geographical data, is the oldest among the country's present scientific organizations, having been founded well over two centuries ago. During this period SOI has collected a wealth of internationally respected information, and made the country one of the best mapped in the world.

In spite of this pioneering effort, citizens of independent India have been grumbling about the lack of public access to the data collected by SOI (see, for example, Srikantia, S. V., *J. Geol. Soc. India*, 1999, **53**, 367–371). The objective of the discussion meeting on *Public Access to*

*Indian Geographical Data*, held on 14–15 July 1999 at the Indian Academy of Sciences, was to examine where the country stands and where it would like to be with regard to gathering and dissemination of geographical data for the greatest national benefit. The meeting provided a platform for sharing and discussing the concerns and requirements of a wide variety of professionals: scientists, users of GIS, public administrators and lawyers. This special section includes an overview of the meeting and seven articles (pages 450–503) based on presentations made during the meeting.

The purpose of this note is to identify a problem that we feel is central not only to the issues regarding geographical data, but to the entire regime of public access to scientific data collected with public funds in the country. The meeting provided a venue to articulate the problem.

The deliberations during the meeting made four important points:

- ◆ India's collection of geographical data is substantial, and largely adequate to meet the needs of the country.
- ◆ The quality of the data is excellent.
- ◆ There are certain restrictions on access to the data, but there is considerable uncertainty, sometimes confusion, about what precisely the restrictions are.
- ◆ It is appreciated that some of these restrictions are necessary from the security angle, but there are others whose rationale is not clear, and still others which are patently unnecessary, and they hurt the interests of the country in general, and the scientific community in particular.

It is indeed a matter of pride that we possess such a wealth of geographi-

cal information about our land. This wealth has been created by the toil of the officers and men of the SOI during the last 230 years. The matter of concern now is that restrictions on access to this information may well make a large fraction of the data *irrelevant* in the near future, although they are currently more valuable than ever before. National policy makers should be seriously concerned.

It became clear at the meeting that scientists are generally very unhappy at the way that the availability of data generated at public expense is restricted. Even where access is in principle possible, the procedures involved are confusing and cumbersome, and many scientists often find it more convenient to use data banks more freely available elsewhere in the world.

In commerce, GIS has today emerged as an important tool with applications ranging from research to consumer product marketing. Geographical data form a critically important database for GIS packages, hence their high market value. What makes the data doubly valuable is that GIS is an important tool of Information Technology, which is emerging as one of the country's major sources for creating new wealth in the near future. During such times SOI's toposheets (maps with resolution of 1:50,000) should have been the resource to cash in on; such exploitation is, however, being hindered, because (1) almost 60% of the toposheets fall in the restricted category, and (2) private companies are not allowed to digitize information from SOI toposheets, even the unrestricted ones.

Very soon the data on toposheets might turn irrelevant for a large number of applications. Two new technologies – remote sensing, and image processing – are reaching a state of maturity where they can

produce maps that are good enough for these applications. With one-metre resolution remote sensing data from anywhere in the world now commercially available, we may soon have a situation whereby maps of areas within India could be more easily purchased from outside the country.

The regulations that restrict access to data from SOI stem from decisions made by the Ministry of Defence (MOD) out of concern for national security. However, the rationale behind the decisions has never been explained. In the existing system it is generally taken for granted that MOD can restrict data without explaining the rationale for such restrictions. The need for a scientific dialogue with the user community before imposing restrictions on data access has not been recognized. *This we believe is the central problem in the present regime of public access to scientific data.* The problem is not restricted to geographical data alone, but encompasses all data collected using public funds.

A large majority of the users of Indian scientific data feel that this tendency to ignore the user community within the country while restricting access to data on the

grounds of national security stems from two features of the system:

- ◆ The system either lacks the mechanism for or does not possess confidence in the technical analysis that should lead to decisions to restrict access to data. In this situation *playing safe* in the face of a fear of unanticipated uses of the data determines policy, at the expense of hard technical analysis.
- ◆ The agencies charged with the task of distribution of data have no incentive to encourage them, and the restrictions in force seem to serve only to hinder dissemination.

The solutions to these problems are in *more*, not *less*, technical analysis, and in encouraging the emerging band of entrepreneurs to exploit the wealth of data the country is fortunate to possess. We believe that there will be no qualitative change in the regime of public access to scientific data in the country unless this central problem, i.e. *lack of technical analysis to convince the user community of the need for restricting access to data collected with public funds*, is addressed effectively. We urge the

Government to follow a policy of conditional classification, rather than that of case-to-case clearance that is now the norm; i.e. *all data acquired at public expense should be conveniently accessible to the public, except where clearly understood security considerations demand that access be restricted.* Any other policy will, we believe, damage the national interest rather than protect it, by discouraging the creative exploitation of the data for scientific, commercial and cultural purposes. We urge the Department of Science & Technology to take up this issue at the highest levels of Government on behalf of the users of scientific data collected with public funds.

The problem defined above is not restricted to geographical data alone. It is however most urgent in this case, because the country may well end up converting a valuable national resource into irrelevant historical material, instead of using it to foster the growth of technologies that bear the promise of science that can reveal new truths, and of creating wealth for the country.

R. Narasimha  
S. R. Shetye