salts (> 4.7 g/l) as reported by Singh *et al.*, may be due to the sudden upliftment of the stagnant marshy bed leading to higher concentration of chlorides and salts. Geologically, there is no basis to expect any potable water in this region at present.

The lineament map of the area as shown in figure 3 *a* and *b* by Singh *et al.*, is very vivid and self-explanatory of the patterns before and after the 2001 earthquake. The lineaments after the earthquake not only cover a wider area but their density is also more, particularly around Bhuj. As suggested by the authors, this lineament map based on the remote sensing data should be used for planning of buildings in the earthquake-prone areas. In this connection it is to be noted that major cities like Bhuj have a large population and several buildings. Hence it will be futile to expect the local residents to evacuate their ancestral homes and business places, in spite of educating them on the 'inbuilt' dangers and chances of expecting one more earthquake in this region.

1. Wadia, D. N., *The Geology of India*, Macmillan and Co., London, 1949, pp. 33–34.

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Heading GSI

The editorial 'Earth science, earthquake and aftershocks' (*Curr. Sci.*, 2001, **80**, 317–318) has nicely explained the status of earth science in the Indian set-up. Geology is taught in more than 50 universities at the master's level and also at two IITs, namely Bombay and Kharagpur. A geological map is the basic and fundamental tool in almost all spheres of life, for example, in town planning, landfill sites, crop management, forestry, environmental appraisal, groundwater resource, construction of road and tunnel and major projects like dam, power plants, etc. Landslide and earthquake studies are impossible without geological maps. The entire country has been mapped on 1 : 50,000 scale by the Geological Survey of India (GSI). It is an outstanding performance by any geological organization. Unfortunately, geoscience was always accorded shabby treatment by fellow disciplines and by the government. On the fiftieth anniversary of the Indian Republic, the Government of India constituted a 38-member committee to formulate a National Science Policy under the chairmanship of A. P. J. Abdul Kalam, Principal Scientific Advisor to the Government of India. Unfortunately, none of the members was from earth science community. The charter of GSI, the 150-year-old organization was codified and approved by the Parliament in 1973. GSI is entrusted with the preparation of geological, geophysical and geochemical maps of the entire country and also to explore and assess the mineral resources and undertake studies and research in all sub-disciplines of earth science, methods and techniques of exploration and sensing. It includes the mobilization of the country's resources of personnel and equipment in the field of geology and coordinating their activities to the best advantage during a national emergency. GSI has a strength of more than two thousand geoscientists (1800 geologists, 400 geophysicists and 300 geochemists). A molecular biology laboratory cannot be headed by an astrophysicist, an economist cannot be the Head of National Physical Laboratory. But even an administrator or a vehicle engineer or a driller or a chemist can head the GSI. This is unfortunate and suicidal for earth science.

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NEWS

Brainstorming for arriving at a consensus on India's S&T Policy–2001. Has the policy reached the finishing line?

The press release of the Ministry of Science and Technology (S&T), dated 10 September 2001 was headlined 'New bold S&T Policy–2001 (STP–2001)'. It comes subsequent to a full-day closeted session of about 60 scientists, technocrats and social scientists, representing 'the who-is-who of India's S&T'. However, the same evening, on the occasion of the Shanti Swarup Bhatnagar Award's ceremony, the Hon'ble Minister for S&T, Human Resource Development and Ocean Development, Murli Manohar Joshi alluded to the 'exhilarating discussions on the "first" draft of STP–2001' in his speech. The country's eminent scientists, it so appears, are still locked in a debate on the 'first draft'. This is a long drawn out time period for revisiting the Technology Policy statement of 1983, a good two decades past, and the Scientific Policy Resolution of 1958, in context of a fast changing global S&T scenario. The Minister further added, 'We hope to announce a new policy soon'.

The 'draft' prepared by the Ministry of S&T formed the basis for discussion prior to the press release. While recognizing the need for 'integrating S&T' into one policy framework, it was also felt that India needed to evolve its own S&T policy that is 'deeply rooted in the Indian ethos of a holistic and interactive approach to human nature and development'. Requiring urgent attention were areas such as health, education, water sanitation, energy and employment, whilst drawing on the emerging technologies such as nano materials, genomics, MEM's, etc. The meeting also felt that S&T should serve as an instrument to bridge the divide between the urban and the rural, between agriculture, industry and services, and between genders. It was also felt that participation of women scientists, especially at policy levels needed to be enlarged.

The much neglected universities were now recognized by the participants of the meeting to be 'nurseries of S&T talent'. Concern was voiced on the 'decline in governance of the universities and a need expressed to re-integrate the universities into the mainstream of S&T development activity'. Other topics that came up for discussion were the promotion of the culture of innovation, product and technology development, science education and attracting youth to make a career in science. A lacuna was seen in areas outside space, defence and atomic energy where investment in R&D is abysmally low. Examples of such areas are the railways, road, shipping, etc. where safety and building-up of the country's infrastructure are very much at stake.

There was a commonality in thought that India would continue to maintain its strong democratic and spiritual traditions, for it to remain secure not only militarily but also socially and economically. In spite of a broad consensus on the framework, what appears to be a 'stumbling block' is the nitty-gritty of implementation, i.e. an action plan. However, highly placed sources in the Ministry have assured that with the appointment of two 'high-powered committees', the task ahead would be fulfilled in the 'next two months'. One point of direct interest to the S&T community is that this revised draft of the S&T Policy document and action plan would be placed on the World Wide Web to garner comments from all sections of the society. This, it is hoped will be in about three weeks from the 10th of September. The clock is ticking.

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RESEARCH NEWS

Dyslexia and intercultural comparisons

S. N. Balasubrahmanyam

I had raised two interconnected matters in a previous write-up in *Current Science*[1]. If intensive training in phonics does indeed improve the reading skills of dyslexics (as the experimental work Richards, *et al.*[2] had shown), would there be lesser incidence of the condition in certain population groups in India since those literate in the major Indian scripts receive intensive phonic training anyway? In what manner can statistics be collected in India so that inter-cultural comparisons can be made with data available in the West?

Possibilities of getting some answers may be forthcoming from recent, very interesting, developments in the investigation of dyslexia. The new lines of research have shown that dyslexia can, indeed, be recognized as a neurodevelopmental disorder with universal incidence but, because it can have variable and culture-specific manifestations, certain strategies for its mitigation can be effective.

In a paper presented at the Annual Meeting of the American Association for the Advancement of Science, G. Eden and T. Zeffiro of Georgetown University Medical Center, Washington DC, reported that brain scans reveal that people with dyslexia have a much lower level of activity in one part of the brain compared with people who do not suffer from that condition (summary in homepage of BBC News/San Francisco/Brain scan aid to dyslexics, 16 February 2001). Another part of the brain is seen as being 'plastic'. It could be taught to compensate for the other region's weakness through a programme of intense reading training. This can be taken as confirming, in a way, the results from the study by Richards *et al.*[2].

In a second development, an international team of investigators addressed the question of cultural diversity of the incidence of dyslexia, looking into its relative prevalence among English, French and Italian speakers[3]. It had been known that the condition is rare among speakers of Italian. By contrast, it is said to affect as many as one in six persons in the English-speaking world! (One estimate has it that between 5 and 15 per cent of Americans has some degree of dyslexia. The statement, 'dyslexia is a reading disorder found in about two per cent of school children in the West', appearing in ref. 1, is certainly very much off the mark, on two counts! Estimates vary because of a lack of an objective test. The soon-to-be-published results of Eden, from research supported by a grant from the International Dyslexia Association, may lead to an objective method for early screening for dyslexia using functional magnetic resonance imaging – fMRI.)

According to a comment in *Science*[4], English is said to consist of '... just 40 sounds, but these 'phonemes' can be spelled, by one count, in 1120 different ways. French spelling is almost as maddening. Italian speakers, in contrast,