

The middle of the last century saw the discovery of the language of the genes, the elucidation of the structure of the DNA molecule by Watson and Crick. The molecular and cellular legacy of functional proteins in a living cell is mostly unknown until now and we need to understand the structural and functional basis of languages of every molecule of a living cell. And the template of a gene has only four alphabets. A – adenine, T – thymine, C – cytosine and G – guanine, and it is arranged so uniquely that it controls millions of events in a cell.

The French language helped Jacob and Monod to think of the regulation of genes. The Indian subcontinent is unique because it has a diverse population and many languages. During the Vedic period, people used different languages; however in course of time Sanskrit came to be the medium for communication for many people.

Latin is the language used by biologists in naming living organisms and fossils. Other languages such as German, Russian, French, Japanese, Chinese, etc. are languages for

communication in their respective nations and great inventors and discoverers, perhaps, thought of using their own language. As a matter of fact human social development came from the achievements of thousands of years of a long chain of thinkers in many aspects; the language has played a pivotal role to activate and execute them.

To understand how the human minds think, perhaps one may note that logic is the regulated expression of thoughts and that perhaps gets initiated with the language of thinking<sup>1-3</sup>. The phenomena behind thought processes in the human brain might be conceptualized as coordinated perception followed by its translation into a language and it is a quick process. A man cannot think without a language. The question arises therefore whether great discoveries and inventions need a separate kind of language? How does the brain do what it does – its activation with language of thinking? The functions of the human brain<sup>4,5</sup> and detailed molecular inceptions still remain in the juvenile stage, and those making contributions in science – possibly think using their own language

which they possess from the very beginning of their lives. A new avenue for understanding is thus perhaps to examine how language helps in thinking<sup>6</sup>. Out of thousands of languages, which language helps supra sensible thinking is an open question and the answer to this riddle will help in choice of an appropriate language for learning by future generations.

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## Need for development of a model for natural hazards and disaster management

India is prone to a variety of natural calamities such as cyclones, floods, earthquakes, land slides, droughts, etc. besides many types of man-made disasters. Increasing population and economic activities have brought more people and areas under the risk of these disasters.

The policies and strategies for disaster management and mitigation presently are focused on 'Crisis Management' and therefore long-term aspects of disaster reduction are almost ignored. Neither a definite policy nor appropriate models for disaster management and development for the disaster-prone areas of the country have been evolved. Whereas short-term measures like relief and rehabilitation are undertaken, little has been done to undertake preventive and protective measures on a long-term basis to mitigate impact of disasters.

Added to this, in spite of considerable efforts by government and non-government agencies, persistence of superstitious beliefs indicates the ineffectiveness of our education/extensional education. To overcome different hurdles we have to basically evolve a definite policy and create appropriate models for disaster management and development with a long-term perspective. This is possible by creating a well-organized scientific database system which not only helps in improving preparedness but also provides decision options in disaster management. People living in California, USA are fully aware that they are living in an earthquake-prone zone and the San Andreas fault is an active fault zone capable of producing high magnitude earthquakes. Whereas not even the educated are aware that the Himalayan belt is highly seismic, Cambay rift and surroundings,

parts of Narmada–Son lineament, segments of Eastern Ghat Mobile Belt and zones along and closer to Western Ghats are in seismically (micro to moderate level) active zones. Because of this, the common man reacts invariably in an unbalanced manner creating a type of chaos during and after a disaster. Awareness to prepare the community to plan for probable eventuality is extremely essential to lessen the effect of disasters. In this respect one can take note of various developments and behavioural aspects prior to, during and after the recently occurred natural disasters, namely the super cyclone that hit Orissa, the earthquakes in Latur (Maharashtra), Chamoli (Himalayan foothills region), Jabalpur (Narmada–Son lineament), Bhavnagar (Cambay rift zone), and Western Maharashtra and the very recent floods in Assam and Hyderabad.

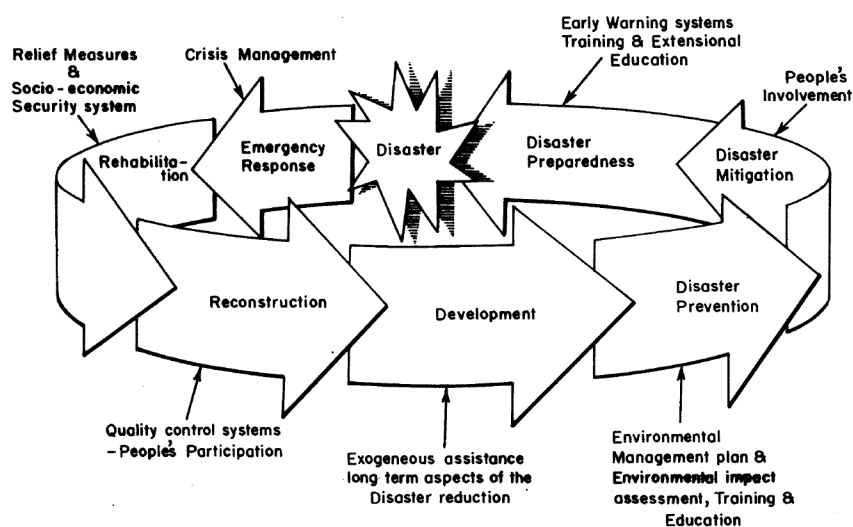


Figure 1. Disaster continuum model (Adapted from Thomson<sup>1</sup>, and revised).

I am of the opinion that to achieve anything that is long lasting and effective, we should properly educate the various groups and communities in a committed way through a systematic and planned training. Such a well-planned preparation helps those who implement the disaster management plan to be fully posted about the subtle nuances of the plan and be made aware of the tasks each would be expected to perform (including the common man). People should not only be made aware

but also be involved in managing disasters. In this respect it is appropriate to implement the suggestions made by the disaster management team of the US (ref. 1). The disaster continuum model (Figure 1) clearly brings into focus the importance of the involvement of various groups for not only planning disaster preparedness programmes but also in meeting various post-disaster reconstruction and developmental activities. Something tangible can be achieved if organized training is imparted by select

expert groups associated with both the national research organizations and planning and management centres.

Since the very genesis of any natural hazard is not fully understood, this very aspect turns out into a major bottleneck in taking up any developmental programmes or predisaster plans. An expert in remote sensing has to provide inputs to a specialist in earthquake studies or a specialist in floods and droughts and vice versa. As a first step, earth system scientists have to understand the interaction between the lithosphere, atmosphere, hydrosphere, cryosphere and biosphere through integrated interdisciplinary studies as they have social and economic implications. As on today no effort is made in our country in this direction. At a later stage, a close interaction between resource persons associated with training and earth system could hopefully lead to development of an 'effective model' that could address various problems associated with natural hazards and disaster management.

1. Thomson, P., Special Report by Disaster Management Centre, University of Wisconsin-Madison, WI 53706, USA, 1987, pp. 1-123.

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## NEWS

### Mapping the biognomy of India – the plants

'Biodiversity' is the buzzword today. This is being seriously discussed in India at it should and ought to be. It implies variety of life on Earth, of both plant and animal origin. Recently, 'The Biological Diversity Bill, 2000' has been referred to the Parliamentary Standing Committee on Science and Technology, Environment & Forests, for examination and report. The Bill seeks to provide for conservation of biological diversity, sustainable use and

equitable sharing of India's biological resources.

India stands tenth in 25 most plant-rich countries of the world. Plant richness means greater uniqueness of species present. According to one estimate, there are about 15,000 unique species of higher plants distributed all over India. But without proper census, this number is subject to serious debate. In fact, it is the need of this hour to actually put a figure on the exact number of unique

species of higher plants available in India. It is relevant to note here that India has been described as one of 12 mega-diversity countries possessing a rich measure of all living organisms when biodiversity is viewed as a whole. The greater the multiversity of species, greater is the contribution to biodiversity. There are 25 clearly defined areas in the world called 'hot-spots' which support about 50,000 endemic plant species, comprising 20% of the world's