iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** XII **Month of publication:** December 2022

DOI: https://doi.org/10.22214/ijraset.2022.48047

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue XII Dec 2022- Available at www.ijraset.com

A Need of Critical Science, Technology and Management to Control the Natural Disasters

Dr. Vikas Kumar
Associate Professor, S.D. College of Engineering & Technology, Muzaffarnagar (U.P)

I. INTRODUCTION

Natural disasters, which are sudden and many time massive misfortune of affected humane societies by the processes of natural environment have caused greater loss of men and materials since 1990's than the combined loss of two world wars. This fact has attracted the attention of scientists, governments and societies towards disasters globally. Indian sciences, governments and societies have also been recently aware of them and making infantile attempts to mitigate the harmful impact of disasters with added size caused by man –made disasters. As India grows rapidly in science and technology, economy, managements and population size in near future, the role of science, technology and management in politics and public policy has to be increased significantly in order to mitigate the impact of disasters. This in fact is making science (and also technology and management) a critical science which is related to society and its problems. The debate about the role of science in relation to society and its problems grew largely in 1970's and a group of scientists agreed that a major part of science in the future should be 'critical science' that is a socially critical science which stresses the role of science in politics and public policy J.R.Ravetz's book *Scientific Knowledge and its Social Problems* (1971) is a typical case of scholars who believed in making major part of the future science a critical science. Contemporary Indian circumstances and facts call the greater need of making Indian science, technology and management critical, playing clear and determined role in Indian politics and public policy.

II. WHY ROLE IN POLITICS AND PUBLIC POLICY

Inclusive growth and development of any society is now an accepted belief for sustainability. Slums and civilization as well as massive rural poverty and urban affluence can not go together. In India, taking care of those living in slums and poor hinterlands of rural areas is a necessary prerequisite for development and progress, else their backwardness becomes a huge stress on progress decelerating its pace. Controlling crimes originating in large slums in Mumbai or Delhi is a huge stress on police administration which would otherwise contribute in maintaining law and order so conducive for progress. The problem in the 'Red Belt' of India, which is sometimes perceived bigger than the problem of terrorism, at least in part, is the result of ignoring inclusive growth- a growth that does not ignore those sections of society which are left behind or put on the margins mainly because of socio-political and economic order made by political decision and public policy . It is time to realize and believe that like the truth of social-Darwinism (Herbert Spencer), social- ecosystem also is a reality comprising mutually sustaining sections of society and none of them can be ignored for holistic socio-economic development. And if any one section is ignored, it is not without a price that society has to pay in different forms. Fragmented political vote in electoral politics of today's Indian democracy may be viewed as one such price that the country has been paying in the recent past in the form of paralysis in decision-making and governance by a coalition government in Delhi. Cost accounting of this loss would run into billions of rupees and declined rates of growth. Neglected societies perceive regional parties and their leaders as their well- wishers loosing national perspective although. There are many more arguments for inclusive growth and science, technology and management disciplines therefore, can't afford to avoid playing a role that would focus on social relevance of their work. Today's science, technology and management has to move a step further to outline the social implications of their research. In fact they must identify the problems for their study which have direct bearing on contemporary socio-economic problems. Widespread poverty, unemployment, literacy and education , food security and malnutrition , unhygienic living condition, urban housing, gender issues, problems of marginalised sections of society, underdeveloped regions, environmental degradation and pollution, stagnating manufacturing, caste and religion related conflicts, over-population, increasing disparities in incomes, widespread corruption , emerging dangers of armed conflict, boarder issues, stability and consolidation of India democracy, pathetic condition of civil rights may, for example, be some of the socio-economic problems needing attraction of the attention of scholars working in the disciplines of science, technology and management. All of them have scope for contributing towards solving these national problems of contemporary India.

©IJRASET: All Rights are Reserved

There already exists an element of critical science, technology and management in India but that element is insignificant and nascent to be sufficient to meet the contemporary needs. There are examples of natural and social sciences adressing contemporary problems. Appropriate technology meeting the needs of Indian problems are not totally absent. Social Responsibility in corporate management has started being talked about and occasionally being given importance. However, there are seriously emerging conflicts between aggressive industrialization-urbanisation and peasants in the countryside as in case of Singur, (W. Bengal) ; between mining giants and native tribal societies as in Bokaro (Chhatisgarh) ; between Birhor tribes and a steel and power plant receiving coal from their native area; between the deprived tribal-landless labourers- peasants and the establishment in Red Belt in the mid-eastern poverty belt across India running north-south; religion- caste-based conflict as in Muzaffarnagar and adjoining districts; between Indian union and its provinces and between centripetal and centrifugal forces operating within the Union of India.

These are a few examples of conflict and disharmony in the Indian social ecosystem threatening the age-old harmonious social fabric of India. But these problems are left to their own fate and to be made use of for partisan and selfish narrow motives by some ill-meaning political leaders and uninformed confused masses. Very little comes from the world of science, technology and management to enable masses to choose an informed path for resolving such conflicts. Critical science has to take up this responsibility with high priority and accord it as high place as research itself. Critical science has to evolve methods of taking relevant science, technology and management to the masses for enabling and strengthening them for resolving problems so grave in nature .

The task in Indian case, where masses are not only illiterate and the power of education is hardly realized, but also have to spend most of their time in earning a bread for them and family with very little leisure for contemplation and exchanging information, have a feudalistic mind-set where reason plays little role and influential persons in society cleverly mould public opinion and behavior, blind faith overpowers scepticism, masses still have medieval belief systems and readily reject the logic and reason so basal for scientific temperament of the people. However, with a serious emphasis and beginning, methods and system would eventually evolve to tackle apparently colossal problems of enriching masses with scientific information and scientific temper. This in turn must evolve in them logical perspective replacing emotional one and also respect for reasoning and accommodation of disagreement. These characteristics make the foundation of modern democracy. India needs strengthening and consolidation of her democracy by enriching masses with the power of science, technology and management skills.

Already exiting methods and systems of popularization of science and extension must be brought in focus by academicians. Education and its content and methods need be integrated at basic, secondary and tertiary levels, breaking their isolation. The content and its communication needs to be simple for understanding and burden of learning and testing could be reduced. As science could reach to masses by spoken words as compared to printed words in contempory India, it should travel by spoken media and not so much with print media. Print medium is confined to microscopic part of population. Electronic media is the strongest one, having access to the people of every part of the country. Radio and television systems may be promoted to play the role of carrying science and information by spoken word to the masses. The role may be brought into focus by regulations and policy formulation.

The science and technology to the everyday needs and problems of masses would attract their attention and the method of communicating has to be information contained in entertainment. No matter how small is the beginning; it has to be effective and self-promoting, increasing the interest of people in science and technology. This mission should be equally important constituent of academic persuits and research. It should percolate to all parts of society. In this, critical science becomes a movement apart from what it is at present.

III. NATURAL DISASTER MANAGEMENT

As the natural disaster management is still quite young in India, the 9th foundation day of NDMA-National Disaster Management Authority falling in October 2013, it is time to shape disaster management methods and skills in India. The people of India will hopefully learn to minimize the disaster impact, as science becomes part of their lives with the argued need of critical science.

One of the major jobs of Geography and Environmental Science has been to investigate the changing nature of man-environment relationship. The wisest conclusions of such studies, which are identical with conclusion from other fields of science, hold that for happy and sustainable human existence, man should sense the feelings of the ‘Mother Earth’ and should respect them while acting for his living. What was realized as ‘*Dharati Mata*’ in oriental wisdom and as ***Gaia*** (nurturing mother figure in Greek mythology from whom all sustenance on the earth was derived), has been of late realized by one of the most original British environmental scientist of our time, geochemist James Lovelock (1979) who is creator of the concept of ***Gaia*** and now widely known as ***Gaianism*** in environmental sciences.

Lovelock found that life upon mother earth is manipulated by living organisms which through their naturally coordinated interaction helps smooth out disturbances in the atmosphere, lithosphere and hydrosphere so that a complicated life-sustaining state is maintained on the earth's surface (Dikshit, 1999). So the mother earth is the best guide for man and he must understand her.

The best part of disaster management would be to live on the earth in such a way that disaster-impact is avoided. Even traditional wisdom with limited science and technology avoided natural disasters. If there is perceived compulsion of siting Kedarnath temple (Uttarakhand) on a stream-side, then its foundation and structure has to be made to bear thrust of landslip-loaded flood water. If Japanese have the compulsion of living on frequent earthquake shaken islands, they have to construct earthquake-resistent structures. Such traditional wisdom must be worth emulating and sharpened with more science and technology at modern generation's disposal. Identifying and mapping of natural disaster prone areas in India already exist and can further be made precise. All probable threats many be estimated and popularised among the concerned inhabitants. In recent Kedarnath disaster enough scientific reasons and explanations came forward post- disaster, but none was available before the disaster with probability of the event. In the zones of disaster, areas of human habitation may be studied for the probability of natural disaster. Identification of high probability spots and probable future disaster studies may be hired from scientific community.

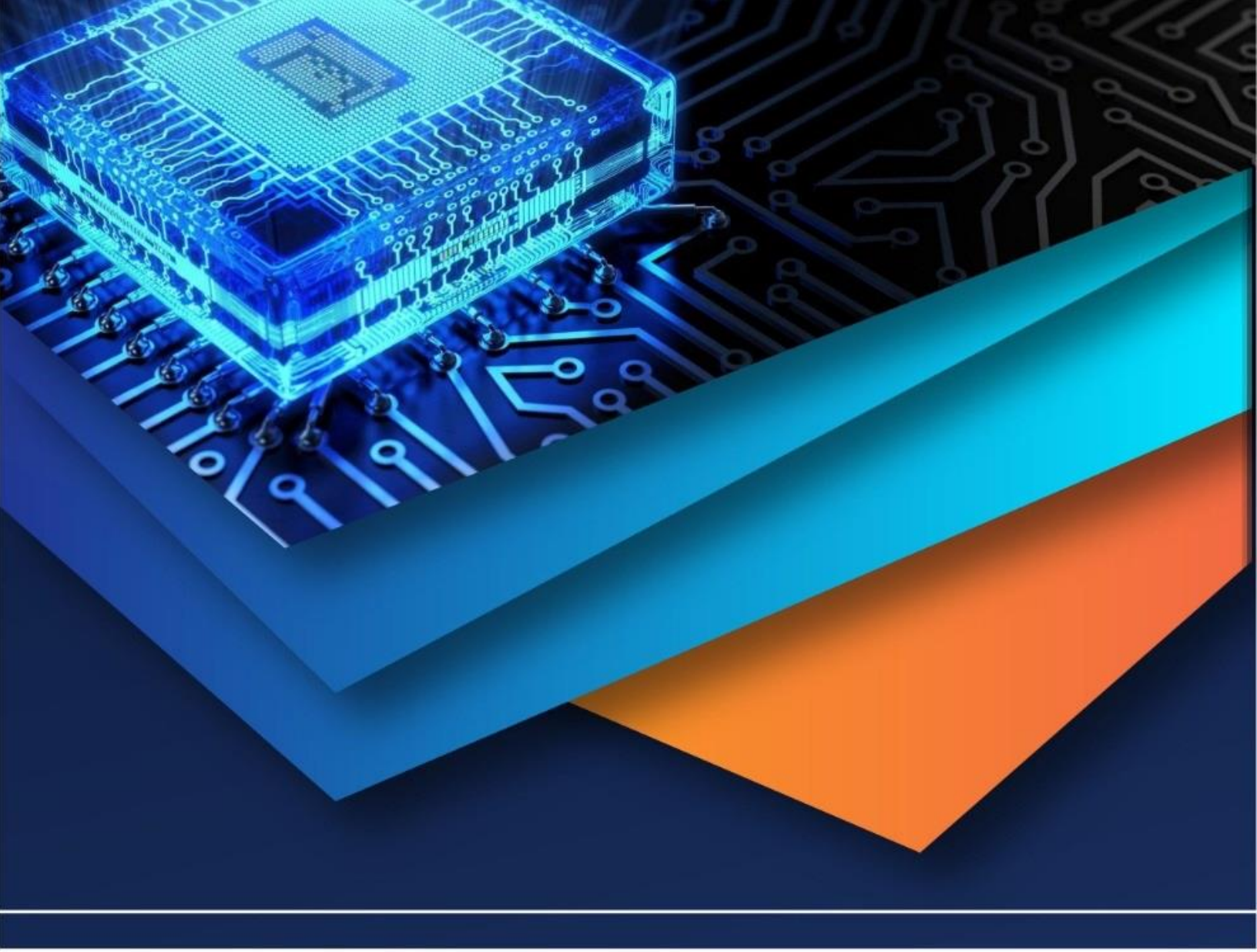
The studies of probability and intensity should be authoritative so that authentic word may be said in prediction and masses believe in such prediction due to the truth that is observed at the occurrence of a natural disaster. As the impact of a natural disaster is the outcome of multidisciplinary factors, the predictions should come from a team comprising of meteorologists, oceanographers, geomorphologists, geologists, engineers, medical professionals and so on depending on the disaster-inducing factors.

IV. CONCLUSION

This paper has attempted to reiterate with emphasis that science and technology in contemporary India need to gradually own the additional burden of making it relevant to society and its problems. It is for the scientific community and technologists to gradually reorient their endeavour towards social issues that are significant for society and appropriate for solving their problems. Utilization of science and technology cannot be left for political leaders and bureaucrats alone. Scientist and technologist now need to be pro-active so that society is benefited by their valuable work to the optimum extent. In this sense, science and technology assumes an additional dimention of social movement.

REFERENCES

[1] Dikshit, R.D. (1999) *Geographical thought: A Contextual History of Ideas*, New Delhi.
[2] Lovelock, J.(1979) *Gaia:A New Look at Life on Earth,* Oxford.
[3] Ravetz, J.R.(1971) ,*Scientific Knowledge and its Social Problems.*



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)