A prologue to building disaster resilient society: methods and approaches

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The theme of the 41st annual conference of the Institute of Indian Geographers (IIG) is Building Disaster Resilient Society: Methods and Approaches. Dictionary meaning of Disaster is a sudden accident or natural catastrophe that causes great damage or loss of life and/or it is an event or fact that has unfortunate consequences. Resilient means capability to withstand shock without permanent deformation or rupture. Resilient also means tending to recover from or adjust easily to misfortune or change that entails as consequence or catastrophe.

A catastrophe could be natural or manmade. For both types and events (misfortune), society is to be trained, equipped, and sensitized to withstand the shocks and enabled to face the challenges, minimize the damage to people and property and to recover from such shocks/misfortune.

Natural Disasters

Our past experience shows that India is vulnerable to almost all types of natural disasters like cyclone, storms, draughts, earthquakes, floods, forest-fires, avalanches, landsides, tsunamis, desertification, and the like. It is estimated that 65% of India's land is prone to earthquakes, 70% of cultivated area is prone to drought, 5% of the area subjected to floods and the list goes on. The hovering clouds of global warming and climate change add to the already alarming situation in the subcontinent. According to a UN based research group 'Climate Central', India is the 3rd most threatened country (after China and Bangladesh) globally which is likely to be severely affected by flooding caused by sea level rise by 2050. A snapshot of how much coastal Indian cities and states may be vulnerable to flooding by 2050, indicates that Surat in Gujarat; Mumbai in Maharashtra; Kolkata in West Bengal; Alappuzha and Kottayam in Kerala; Chennai, Tiruvallur and Kanchipuram in Tamil Nadu and communities all along the coastal zone of Odisha fall within the risk zone of annual coastal floods affecting several hundred million people who have made coastal zone their abode and sources of livelihood (Report from Times of India, New Delhi, Gurgaon Edition, Thursday October 31, 2019). On top, most of them are the commercial and Industrial hubs of the country. The present global level statistics gives a picture of brightening degradation of the atmosphere, land and oceans. Some key changes include the following: population has increased several folds since 1980. 50% of land surface is transformed to non-agricultural use or waste, more than 50% of fresh water is depleted. Along the coastal and marine boundaries, 50% mangroves have

been removed and wetlands have shrunk by half. Among marine fisheries, 22% of the recognized marine resources are depleted. Extinction rate of marine and terrestrial ecosystem is increasing rapidly. Recently, more than 1100 scientists (11258) from 53 countries (including 69 scientists from India) have made a forecast of Climate

Emergency not in distant-future based on scientific analysis of data available for the past 40 years on a number of parameters available. The data covers information on indicators like energy use, surface temperature, land clearing, deforestation, polar ice-mass, population growth, fertility rate, gross domestic product, carbon emission etc. In order to save the planet, these scientists suggested to use energy more efficiently, stabilize global population, use ethical approach like longer education for girls, eat plants and less of meat, reduce food wastage, shift economic goals away from GDP growth (Gyan Prakash Sharma, University of Delhi and Ripple and Christopher Wolf from Oregon State University (OSU) –project leaders suggest urgent need for action towards saving the planet).

Human disasters

Disasters are not only natural but also manmade. Globally and locally, the world has witnessed a series of events like wars, terrorism, violence, assaults etc. India has been affected by all. Right from 10th century, our history is replete with such events and their effects are for all of us to see. We in India did not believe in expansion of our territory with the threat of sword. Instead, we sent angels of peace abroad and thereby built up a vast socio-cultural influence zone extending to West, North, South, and Southeast Asia. Our priority had been on Development and

Vasudhaiva Kutumbakam (The whole world is a single family). But one cannot shut one's eyes to the bitter experience India has undergone till date which have caused moral social and economic degradation of the masses rendering them in the process, illiterate, poverty stricken and unskilled by the dawn of the 20th century. We are struggling to come out of that dismal situation and have done considerably well by now. However, there is rapid growth in population adding to the stock of people in the productive age group (popularly known as demographic dividend), rise in the number of unskilled workers, consistency in the proportion of people living below the poverty line, unemployment etc., which pose challenges if not controlled with an urgency that it deserves.

Influx of population to the urban areas, rapid urbanization leading to urban unemployment, underemployment, slum formation, shortage of infrastructure: electricity, water, sewage and drainage facility on the one hand and lack of transport, health and education facilities on the other, have led to discontentment among the public that is reflected in the occasional outbursts in the form of agitation and violence- the basic instruments of Disaster. Our smart cities are choked with people and cars and vehicles with undaunted speed. All our efforts to raise the level of cleanliness, to provide an orderly Urban and Rural environment have met with limited success. In addition, we have bacterial-disaster causing all kinds of infection and unknown case of flu, swine flu, allergies putting human lives at a great discomfort. They pose a challenge to the scientists and medical professionals.

God has endowed both nature and man with extraordinary powers of creation and destruction. But the irony of the fate is

whatever is created by nature, if destroyed by man, cannot be recreated by man ipso facto. If we destroy a mountain or a ridge, can we recreate it? Similarly, whatever is built by humans, if destroyed by nature cannot be recreated by nature in the same form. If a town is destroyed due to volcanic eruption, earthquake or by some other natural disaster, can it be built by nature ipso-facto? Obviously, though both nature and humans are gifted with the power of creation and destruction, there is a Lakshman Rekha (a strict convention or a rule, never to be broken) in between and the powers cannot be crossed without consequences. Keeping such limitation in mind, we need to set a code of conduct for ourselves to build a disaster resilient society and set an ethical environmental approach-both natural and human; an approach which shall reduce the conflict between human and nature, human and human and enable the society face any onslaught of natural disaster or human induced holocaust.

Concern for ethics and environment

The concerns for ethics and environment in India can be traced back to pre-historical days. During the Vedic age, moral religious and scriptural norms of conduct were laid down for human and environmental relationship. Human beings and nature were considered as the two most beautiful creations of God complementary to each other; nature as the storehouse of treasures and the human beings to synergize the nature for its own growth and development. Our past background does speak of a harmonious living of human beings and nature in time and space. For example: the period of Hindu rulers in ancient India was a period when the norms laid down in the scriptures were respected and followed rigorously. During this period. All the five elements of nature (fire, water, air, earth and sky) were worshipped and symbolized with the gods and the goddesses. Nature occupied a position much superior to human beings as the former overawed the latter with its majestic sprawl.

This is also the period when rivers were considered sacred (like the Ganges, the Saraswati) and have since then been used for their holy water, festivals, pilgrimages etc. Several species of plants and animals were used as surrogates or godly symbols and worshipped accordingly by the humans: Tulsi, Barh, Neem, Pipal were worshipped for their medicinal value, for securing medicinal cure, providing supernatural knowledge. Lord Buddha seems to have received enlightenment under the Bodhi tree [sacred fig (Ficus religiosa) under which the Buddha sat when he attained Enlightenment]. Like plants, animals too had their place of worship in human mind. Cow was worshipped as mother, being the provider of milk for humanity; bull (nandi) was domesticated and worshipped as lord Shiva's favourite: special enclaves in the forest areas were reserved as "Dewta' or the places for gods. No resources, including forests, could be exploited from there.

The medieval period, according to some was the period of invasions and foreign rulers in India when the symbiotic relationship established between man and the environment thus far, was unscrupulously demolished. New equations emerged. It was a period of exploitation of natural resources for the demands of the rich and the powerful. However, the environment survived due to the scant technology and limited population growth.

During the modern period, under the colonial rule, a new set of permutation -

combinations of interaction with the environmental emerged. It was a period of exploitation of natural resources essentially to boost the economy of colonizing nations. In the process, some forced development took place within the country which facilitated exploitation of the nature. Thus emerged new environmental ethics suits the needs of colonial powers.

In the post-independent period, with the national plans of economic development on the one hand and enormous rise in population on the other coupled with global concern for the environment and sustainable development, there has emerged a mixed bag of ethics towards the environment.

Some recent challenge to disaster and environment Crisis

The national capital region- Delhi- of India with its 'sanctum–sanctorum' witnessed extreme form of air pollution near Diwali during this year. This is commonly attributed to burning of parali (paddy residue) in Punjab and Haryana and a state of perfect calm – no wind movement to drift away the pollution. Schools had to be closed. People were advised to wear masks. In order to control/manage extreme pollution in the region restrictions on plying of private cars on the roads was imposed with odd and even number cars to ply on alternate days.

This year's monsoon season has witnessed a series of floods with their consequent damage, not only in the mountain regions of the Himalayas and the flood plains of the North India, but also in the well known commercial and populated cities of India like Pune, Mumbai, Kolkata and Patna. Such floods not only disrupted the life and activity of the people living therein but also affected their trans-India interaction.

Then there are accounts of man-made disasters perpetuated by certain elements which have put the society at great risk of violence, uncertainty and derailment. One of the worst forms of it manifests in acts of terrorism such as those witnessed at Pathankot, Mumbai, Parliament House in New Delhi; Such turmoil causes loss to human life, property, prosperity, risk to women, children, disabled and the aged, along with the soldiers who protect our country and the country-men.

Organizational response to disaster and environmental crisis

Efforts are simultaneously made for disaster mitigation and resilience no sooner the environmental crisis erupts initiatives are taken by the government, the NGOs and the international organizations to mitigate and take precautions against future onslaughts.

Chipko movement was one such movement by the public to curb deforestation. Grassroots voluntary organizations act as regulators to build public awareness through cultural venues like folk-plays, puppet shows, public march, social meetings etc. Silent Valley Hydroelectric plant in Kerala, Oil Refinery at Mathura, Union Carbide tragedy at Bhopal are some of the issues highlighted by the NGOs to take corrective measures by the public and the state.

The setting up of the Department of Environment and later its up-gradation to the Ministry Environment and Forest in 1985 shows the government's concern towards environmental conservation, preservation and disaster mitigation. At the international level, the formation of United Nations after the Second World War was one of the major step to control further damage to word community on account of war and terrorism.

The 21st century first rose to minimum development goals and then to sustainable development goals (SDG) to transform the world, to create an equal, just and secure world for people, planet and prosperity by 2030. The 17 goals and 169 targets aim to achieve the end of poverty and hunger, and ensure healthy lives and promote wellbeing of all; provide water, sanitation and energy to all; provide employment, infrastructure, sustainable consumption and production patterns. The SDGs also stipulate safe, resilient and sustainable cities. In the natural environment resources, the SDGs aim to conserve and sustainably use the ocean, sea and marine resources; protect, promote and restore the use of terrestrial ecosystem; manage forest, combat desertification, halt biodiversity loss and land degradation.

All these efforts to protect the environment, for disaster mitigation and resilience cannot be achieved without public participation and global partnership. Thus the SDG goals aim to strengthen the means of implementation and revitalize the global partnership for sustainable development. If we are able to achieve these goals, we shall be safely heading towards a disaster resilient society.

Summing Up

Several methods and approaches have been experimented (at the micro and macro levels) in time and space, based on the nature of disaster/s for building up a disaster resilient society. Some of them include:

- efforts towards disaster mitigation and disaster control;

- disaster forecast and appropriate steps to control untoward damage by moving people, property and activity away from the disaster –prone region;

- physical, financial, medical and infrastructure assistance to the disaster affected community for rehabilitation;

- harness inter community cooperation and assistance;

- setting up of inter-regional and international cooperation, goals and targets, and timeframe to achieve them with infrastructural and financial collaboration.

- make efforts to bring in political stability at different levels to minimize the occurrence of disasters and their impact.

We expect that proceedings of this conference of geographers would reflect upon some of the determinants and consequences of the methods and approaches being followed at the local, regional, national and international level for disaster mitigation and disaster resilience. The conference should highlight the challenges being faced in the process to stabilize the disaster-affected and disaster-prone communities. It should also be able to suggest alternatives to maximize the welfare of society through disaster resilience and disaster mitigation approaches.

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