The Pioneer

Of natural disasters and climate change

Friday, 25 September 2015 | RK Pachauri

The sharp rise in extreme weather events, like the floods in Uttarakhand and Jammu & Kashmir, cannot just be attributed to human factors. Climate change has in fact increased the number and severity of natural disasters

Albert Einstein said, “Problems cannot be solved at the level of awareness that created them”. In other words, if ignorance or the absence of knowledge leads to the creation of a problem, then we need relevant new knowledge to be able to solve it. Any continuation of living in ignorance will only compound the nature of the problem, and render it more intractable.

With the increase in climate-related extreme events, one wonders whether the Indian society is acting like an ostrich, and burying its head in the sand, blissfully ignoring the growing threats ahead. It was Indian economist, Raj Krishna, who said that the Government is “knowledge proof”. Actually, this statement would apply to various sections of the Indian society, and not merely to the Government.

In the past few years, we have witnessed a series of extreme weather events and while Government agencies and the public have organised themselves to deal with the recurrence of disasters, we remain woefully ill-equipped to deal with the growing frequency and intensity of such events.

In 2011, the Intergovernmental Panel on Climate Change published a landmark report entitled, Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (Special Report on Extreme Events). This report, which is based on the contributions of thousands of scientists around the globe, not only provided a detailed assessment of climate-related extreme events and disasters, but also provided projections of what we are going to face in the near future. Four important findings of SREX merit attention:

First, it is likely that the frequency of heavy precipitation or the proportion of total rainfall from heavy falls will increase in the 21st century over many areas of the globe. This is particularly the case in places located at high latitudes and tropical regions and in winter in the northern mid-latitudes. Heavy rainfalls associated with tropical cyclones are likely to increase with continued warming.

Second, it is very likely that the length, frequency, and/or intensity of warm spells or heat waves will increase over most of the land areas. Based on certain emissions scenarios, a one-in-20-year hottest day

is likely to become a one-in-two-year event by the end of the 21st century in most regions, except in the high latitudes of the northern hemisphere, where it is likely to become a one-in-five-year event.

Third, it is very likely that mean sea level rise will contribute to upward trends in extreme coastal high water levels in the future.

Fourth, there evidences that droughts will intensify in the 21st century in some seasons and areas, due to reduced precipitation and/or increased evapotranspiration.

While any single event cannot scientifically be attributed to human-induced climate change, the trend that we see now and the aggregation of these extreme events suggest that these are linked with climate change.

Since the world is not making serious efforts to control greenhouse gas emissions, it is inevitable that the frequency and intensity of these events will grow in the future, with grave implications and consequences for India. The developing countries are by far the most vulnerable in this regard.

During the period from 1970 to 2008, over 95 per cent of deaths occurred from natural disasters in the developing countries. Mountainous regions like Uttarakhand and Jammu & Kashmir are the most vulnerable to such events, and the future threatens to carry even greater risks.

The Government and the civil society need to respond to these impending threats on an urgent basis. In fact, all the States need to benefit from knowledge that can be generated by running global models on climate change, suitably downscaled, to get projections of future climate change impacts on sub-regions of each State.

local bodies should be strengthened to ensure that they act on a timely basis to minimise risks to life and property. In the Himalayan region as well as in the coastal areas, enforcement of zoning regulations would should be implemented strictly.

Sadly, the buildings that collapsed in the 2013 Uttarakhand floods were built several stories high on the flood plains of rivers which were increasingly prone to flooding as a consequence of more frequent and more intense extreme precipitation events. Building such structures represents criminal activity.

In fact, for much too long, we have paid no heed to the pattern of mal-development being pursued in the Himalayan region. This needs urgent and determined correction.

SREX also reviews the terrible disaster that occurred in Mumbai in 2005 after the city recorded the highest ever rainfall (944 mm) in a 24-hour period. Poor urban drainage systems are often blocked with garbage and waste material, leading to accumulation of water in the event of heavy rainfall. This is a serious problem which can be remedied if local bodies understand the gravity of risk that the society will have to face with increased intensity and frequency of extreme precipitation events.

As for the plight of farmers affected by drought conditions and heavy and unseasonal rain, a far more comprehensive and location-specific approach is essential, including urgent research and development on developing drought resistant crops, creation of effective crop insurance systems and local capacity to deal with extreme precipitation events.

It is time that we as a nation take steps to tap knowledge for generating projections of climate change impacts in different parts of the country, and plan suitable adaptation measures without delay. Not to do so would carry grave risks for the Indian society, particularly for the poorest of the poor.

Comparisons with China serve no purpose, and are generally not valid, given the differences in the two societies and systems of governance. But we need to learn from the level of excellence attained by the China Meteorological Administration, which not only has developed sophisticated skills in global climate modelling, but has also set up an extremely effective information dissemination system on weather and climate for the country as a whole and a 24X7 television system. Even a country like Guatemala has a real time round the clock disaster management and protection system, which relies on a continuous flow of information in a two-way arrangement, which ensures timely warning and action.

India should upgrade its institutions adequately to assess projected threats from the impacts of climate change and ensure timely relief and protection of life and property. The excellent manner in which the last cyclone in Orissa was handled by the Government and the civil society should convince us of the benefits of an enlightened risk management approach to deal with climate-related disaster events. let us generate and utilise knowledge at every level to prepare ourselves for a far more risk-prone future.

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