Climate Change Needs Humanity's Cognizance

Dr. Mansi Yuvendar Chaudhary

Assistant Professor, Department of Chemistry,
Rajdhani College, University of Delhi

The world is undergoing crucial challenges. Environmental dilapidation alleviated poverty, universal security concerns are a few such encounters that the 21st century has faced. More important than these challenges is the problem of 'climate change', which is not only a scientific concern but is now comprised of distressed geography, economics, politics, sociology, and health. With the advent of the industrial revolution, greenhouse gases (GHGs) have become precarious pollutants. The concentration of methane and carbon dioxide in the atmosphere has raised manifold within the last million years. More carbon has been put into the atmosphere than that was emitted in thousands of years.

As science is based on workable methodologies, we need to understand climate change from the discernments of science. The role of greenhouse gases along with anthropogenic activities in climatic variations and global warming is well proven. The presence of these gases in the atmosphere and their adverse effects on climate has been measured in laboratories and atmospheric measurements have also been carried out. Both studies reveal the same result that these gases absorb heat and warm the atmosphere. Rising sea level and a significant rise in global temperatures is other proof of climate change. The effects of natural climate changes, e.g., volcanic outbursts and sunspots are essential to understand the pattern of altering temperature over the last 150 years. Increased depth of the permafrost layer, its decreasing area along with retreating sea-ice in the Arctic and mountain glaciers in the continents, all indicate climate change. Extreme weather events observed in the last 100 years are somehow the result of climate change. According to a recent study, climate change has gone nuclear. The nuclear waste and noxious pathogens of the cold war era have been found to be lying in the permafrost of the Arctic region. These venomous wastes are surfacing as the ice is melting rapidly. As the area is warming 3 times more than the average global rate, it is expected that two-thirds of the Arctic's permafrost will be lost by 2100. As the permafrost thaws, the bacteria and other microorganisms are getting mixed with the melt-water and creating new antibiotic-resistant strains of viruses, ultimately harming the life on earth.

Incapability to predict the impending effects of climate change is one big challenge for humankind. People have adapted to extreme temperature conditions from Inuits of Alaska to Bedouins and Tuaregs tribes of Sahara. Every civilization has a surviving range of weather with which it can deal which incorporates all deviations in weather with a few extremes. These extremes could be observed as 'One in 100-year' events that exceed the ability of that civilization to cope with such events.

The table below highlights the evidence of how massive destructions have taken place in nature due to climate change.

When	Where	What
Between 1979 and 2012	Arctic Sea	Ice-Extent has decreased at the rate of 3.5 to 4.1 per cent per decade, that means a loss of between 0.45 to 0.51 million sq. km. per decade Summer ice minimum has decreased even more by between 9.4 to 13.6 per cent per decade, which is equivalent to 0.73 to 1.07 million sq. km. per decade
Between 1979 and 2012	Antarctic Sea	sea ice extent has increased at a rate between 1.2 to 1.8 per cent per decade, which represents a growth of between 0.13 to 0.20 million km2 per decade
1900's	Permafrost Region	3°C warming in Alaska and 2°C warming in northern European/Russia down to at least a metre over the last 50 years, showing that the active layer has become deeper The maximum area covered by seasonal permafrost has decreased by 7 per cent in the Northern Hemisphere since 1900, with a decrease in the spring of up to 15 per cent. This increasingly dynamic cryosphere will amplify the natural hazards for people, structures, and communication links
	Alaska	Damage to buildings roads and pipelines Non-ice sheet glaciers are in retreat. The amount of total snowfall and ice cover particularly in the Northern Hemisphere has great reduced
	Tornio river in Finland	spring thaw of the frozen river now occurs a month earlier
	China, Italy, England, Korea, Bangladesh, Venezuela, and Mozambique	massive storms and subsequent floods have hit
2000, 2007 and in 2013/14	England	Floods and Storms occurred, which were classified to have been occurring in 'once in 200 years
2013/2014	Britain	Winter was wettest six months since 18th century
August 2008	Britain	Wettest Month on Record Birds nesting observed 12±4 days earlier than 35 years previously
	England	Insect species—including bees and termites—that need warm weather to survive are moving northward, and some have already reached England by crossing the Channel from France.
2003 2010 2012 2009 and 2014	Europe Russia USA Australia	The frequency of heat waves has increased More storms are occurring in the Northern Hemisphere.
1950-1990		Between the 1950s and 1990s, the average wave height increased from 2.5 m to 3.5 m, an increase of 40 per cent. Storm intensity is the major determinant of wave height
After 1950	North Atlantic Ocean	Increased Storm Activity
1950-1990	Mid-Latitudes	Winter Extra-Tropical Cyclones with significant rises in Pacific and Atlantic sectors observed after 1970

So, once in the 100-year event may become one in a 25-year event. A factor worth considering is that the adapting range of the society is flexible and therefore it will be able to cope with adjustable standards if apposite regulations may be designed by climate scientists. Not only scientists, but the contribution of each and every human being is necessary to bring about a halt to the activities causing climate change. The challenge lies in building a society, which is resilient and flexible in adapting to the lifestyle which may lead to a better future. The lack of awareness and education among society regarding climate change is an issue. Regardless of the impacts of climate change, global warming, pollution, and other similar issues, humankind is still living leisurely. The exponential increase in pollution in past years is the consequence of man not taking the charge of the planet at the individual level. Many environmental protection plans are just on paper, videos or memes on social media are just floating in the air, whereas groundwork is nil. Even after identifying the core problem, there is a failure in our actions. This is already high time that we realize the extent of this problem and start acting in a positive direction. A major change to lower the effects of climate change is Afforestation. Plant more and more trees. Be it small or big. Celebrate birthdays, anniversaries, or any other special occasions of life by planting saplings. Indian Government, in its recent budget, has allocated funds towards renewable energy, energy efficiency, electric mobility, and green bonds. These Funds will be used for projects to help reduce carbon intensity. Another 19,500 cr additional allocation has been made for manufacturing high-efficiency solar modules. Such projects will encourage shifting to renewable sources of energy. Implementing Carbon Tax will be a crucial step to slow down activities leading to environmental harm. Reduce, Reuse and Recycle. Convert waste material at home and at workplaces into compost. Reduce water wastage at home. Try walking or cycling to work instead of commuting by car or cab. Use public transport as much as possible. Read, Learn and Accept that the climate is changing for nothing and no one’s good. Re-wilding our forests and reconnecting people to nature may reverse climate change and solve the ecological crisis to a significant extent. As mentioned by Margaret Mead “Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has”, so a one step in the direction of environment concern will be equivalent to a leap for a better future tomorrow.