

Eco-Critical Narratives of Climate Change and Global Warming

Dr. Simi Varghese

Associate Professor

Dept of Communication & Journalism

Prajyoti Niketan College, Pudukad, Thrissur – 680301, Kerala, India

Abstract

The greatest global challenge confronting humanity in this era is the issue of Global Warming. This grave issue which results in average increase in earth's surface air and the oceans needs to be resolved as soon as possible. This threatens the existence of the universe and endangers the future of the earth. This unbridled issue brings forth floods, famines, heat waves, tornadoes and twisters in every part of the world. Earth is surrounded by atmospheric gases. Troposphere is the nearest layer and it comprises 78 per cent Nitrogen, 21 per cent Oxygen and one percent Argon. The outermost layer of earth is Exosphere which brims with 100 per cent Hydrogen gas. Plants inhale Carbondioxide from the atmosphere and through photosynthesis contribute Oxygen to atmosphere. Likewise, the animal world inhales Oxygen and exhales Carbondioxide to atmosphere. Globally, when the level of Carbondioxide absorbed by plants and the Carbondioxide expelled by the animals become unbalanced, the additional Carbondioxide gets accumulated in the earth's surface or gets retained in the atmosphere. Temperature is the measurement of vibrational energy. Green House gases like Carbondioxide, Methane, Water vapour, Nitrogen oxides etc are essential for nurturing the atmospheric energy to maintain life. The paper tries to unravel the harmful impact of global warming and how the laxity of green house gases accelerate the atmospheric temperature to 33 degree celsius.

(Key words: Global Warming, Troposphere, Exosphere, Green House gases)

Introduction

The earth and the plants in ocean and earth absorbs carbondioxide. Ocean is the greatest reservoir of carbon. Rocks too in its deepest trenches store carbon. This accumulation of carbon in rocks happen through billions of decades. When Coal, Natural Gas and Petroleum gets burned, Methane and other hydrocarbons get transformed into Carbondioxide and releases heat energy. In fossil fuels the presence of carbon is almost 3500 gigaton while in atmosphere it is 760 gigaton. Increase in global temperature will result in rising of sea levels with change in the amount and pattern of precipitation and the expansion of the subtropical desert regions. This will result in Arctic shrinkage, Arctic methane release, shrinkage of the Amazon rain forest, increase in extreme weather events, changes in agricultural yields, glacier retreat, extinctions of species and changes in the range of disease vectors.

Gas Hydrates

The greatest threat lying below the oceans and permafrost is the gas hydrates. Being a blend of water and methane, it is stored in a solid form at very high pressures and very low temperatures. These gas hydrates comprising water molecules bind individual molecules of methane and other gases. Methane gas evolves from the organic matter found deep in the ocean beds and soil beneath permafrost. The unstable gas hydrate resources will destabilize at a slight increase in temperature and a decrease in pressure. This results in the expulsion of enormous amounts of methane into the atmosphere. This powerful green house gas stronger than carbondioxide releases more gas hydrates. Even today, geologists and scientists have no idea regarding the amount of methane stored in gas hydrates. Rough estimates peg it as 1000 and 10,000 gigatons of gas hydrates, an enormous range as there is only 180 gigatonnes of carbondioxide in the atmosphere now.

Climate Change

Truly, humans can withstand different varieties of climates. Climate changes in the past had far reaching impact on humanity. About 4300 years before, classical civilizations had met with their untimely demise- the Indus Valley civilization in India, the Akkadian Empire in Mesopotamia, Early Bronze age societies of Anatolia, Hongshan culture of China to name a few. The collapse of these civilizations bears ample testimony to the society's helplessness to adapt to the varying climatic conditions. Globally, scientists foresee huge upheavals in climate changes over the next 100 years. They have the premonition that the Greenland/Antarctic could melt raising sea level and the burning of Amazon rain forest destroying biodiversity at an alarming rate.

Kyoto Protocol

The Protocol was signed on December 11, 1997. Altogether 84 signatories were included in this Kyoto Protocol to the United Nations Framework Convention on Climate Change. This was made in Kyoto, Japan and hence the name. This officially came into existence on February 16, 2005. The Plan envisions that the countries which adopt the Kyoto Protocol have to reduce Carbon dioxide emitted into the air and other green house gases that pollute the atmosphere. About 29 countries have not yet adopted the Protocol. Countries like the US, Australia, Croatia and Kazakhstan have signed the treaty but not ratified it. US and Australia grouse that India and China behave as if the Protocol doesn't apply to them. US and Australia argue that the change in the use of green house gases will result in losing their people's jobs. Carbon dioxide, Methane, Nitrous Oxide, Fgases and Sulphur Hexafluoride comprise the six main green house gases named as Kyoto Basket.

Unilateral Perspective

Gauging the gravity of the situation, many countries have proposed to drastically reduce carbon emissions. The UK government has promulgated a national law that prompts the UK government to reduce the carbon emissions to 60 per cent by 2050. To achieve this pro-active objective, they have formed a Climate Change Committee to monitor and advise governments on this alarming state of affairs. In 2008 October, they have raised their target to 80 per cent. This speaks volumes of the international independent responsibility and leadership. Californian State has made 60 per cent reduction by 2050 as a law. California often comes up with progressive laws which later gets accepted as their Federal laws. If countries like the US accept this Californian model, huge carbon emissions will drastically nosedive. Global warming can be reduced only by religiously following the global agreements to cut green house gas emissions. Scientists firmly believe that a reduction between 60 per cent and 80 per cent prevents the evil impact of global warming. On the other hand, the drastic cut in fossil-fuel use will affect the global economy hampering the progress of the developing world. Therefore the situation demands more economical and technological solutions to this impasse.

Global Solutions

Climate change is unavoidable. In the next 30 years, more countries will experience its negative impact. Adapting to the situation and mitigation seem to be the solutions to this devastating imbroglio. The unpredictability of the situation unravels the gravity of global warming. The earlier we initiate the processes, the better and safer we are. The infrastructural changes can take more than 40 years to get implemented. Changing land-use patterns will also take years to get normalised. The natural restoration will also be time consuming. An excellent example for this judicious farsight is the Thames Barrier which secures London from severe flooding. This came as a panacea to the 1953 flooding, but became fully functional after 31 years in 1984. Another issue is the money to be invested for adaptation. It's a global phenomenon that people do not want to invest more by paying taxes to protect themselves as they wish to thrive for today. Another solution is to form a climate change impact assessment by every single government. In the UK they have formed UK Climate Impact Programme revealing the possible impact of climate change in UK in the next 100 years. Moreover, countries have to become more energy-efficient.

Future Vision

The climate of the earth is predetermined by a variety of factors. Policy makers, scientists, and community leaders highlight the human-induced elements in climate change. Intergovernmental Panel on Climate Change (IPCC) and the efforts of the World Climate Programme and the Global Climate Observing System together educate us to get a balanced perspective on the causes and consequences of climate change and global warming. Sea level is expected to rise 18 to 59 cm by the end of the 21st century. The Arctic melting may bring more water to the North Atlantic to disrupt the Gulf Stream which destabilise or hinder the thermohaline circulation. Sea levels rise due to thermal expansion and melting of glaciers and ice sheets. Warming of the ocean surface will lead to enhanced temperature stratification. Sweeping changes also occur in ocean circulation. Globally, glaciers are expected to have an average volume loss of 60 per cent until 2050.

The developing world

It's a pertinent question to be answered regarding Post 2012 Agreement when the Kyoto Protocol comes to an end. The developing world has to follow the principle of contraction and convergence. Truly, the largest emitters of green house gases should contract their rate of emissions. In the US, each person emits 10 times more carbon than a person in China. To ensure global equality, the emission rate should be the same for every person. Farsighted policy makers should visualise a zero-carbon budget for every country. Some progressive countries can even think about a negative carbon economy also by exporting alternative or renewable energy resources. Global carbon trading can also be made part of the international agreement on climate change. This will bring forth money from the developed to the developing world. Consequently, a more equitable distribution of wealth and resources can be envisioned through out the world producing new markets, new products and new consumers. This in turn boosts world economy without key nations or blocks dictating terms to the rest of the nations.

Since the industrial revolution in the 18th century, green house gas content in the atmosphere is on the rise. Repercussions surface in different ways in different parts of the universe. Oceans respond to the changestaking decades. But trees and plants can alter their structure in weeks (change in the colour of leaves etc). Warming impacts the severity of floods, droughts, heat waves and storms. The rise in sealevel will make the coastal cities and towns vulnerable. Global biodiversity and the well being of billions of people will be on the rampage.

Fossil fuels are an amazing invention. The standard of living of the developed world depends on cost-effective and safe fossil fuels. Our duty is to substitute these fuels with renewable or alternative energy sources. The unprecedented and rapid advancement in countries like India and China will accelerate the power needs of humanity. Countries should be advised to adopt

a less carbon-intensive energy sector. Excessive dependence of countries on gas and oil will be over due to great demand and dwindling energy resources. Alternative energy resources have to be banked on for the increasing power needs of countries. Biomass energy/fuels, Geothermal power, hydro energy, nuclear fission, nuclear fusion, solar heating, solar energy, wave energy and wind energy are some of the renewable/alternative energy resources.

Ten per cent of the world's energy supply is from biomass energy. In countries like Iceland and Kenya, geothermal power is used to heat water which is an excellent carbon-free source of energy. Majority of the energy comes from big dam projects. Hydroelectric power is also an important source of energy. Nuclear fission generates five per cent of the global energy source. But nuclear power in negative hands can result in the manufacturing of destructive nuclear weapons. Solar heat plants have been effectively used by countries like California even in 1980s and now many countries have followed suit. Solar photovoltaic (solar panels) also is an alternative energy resource. Wave power and wind power are also effectively used by many countries.

Conclusion

Today one third of the world's population resides within 60 miles of a coastline. Most of the world's largest cities are located on a coast. Devastating climatic conditions can result in mass displacement and mass migration. Scarcity of food and water will become a global phenomenon. Ecological wars will be a common occurrence between countries. More than three billion people in the world become water-stressed. Joanna Depledge from University College, London opined that the Kyoto Protocol discussions hitherto conducted had been effective. She opines that multilateral discussions have to be pro-active and progressive. All tendencies to stall and stagnate discussions have to be prevented at any cost. Strategies have to be eked out to enhance the efficacy of decisions and negotiations. Policy makers envision a new carbon-low world for tomorrow. An international political solution taking into account the opinions of the developing countries is the need of the hour. The poor countries also have a right to live with the same standards of the West. International carbon trading is highlighted as a solution as money will flow from richer countries to the poorer world. Strict new global environment laws will come into existence. Cost-effective methods will be adopted in space exploitation. With high quality urban design, cities get transformed across the world. The threat of global warming ultimately will lead to a more equitable distribution of wealth across the world. The global economy will also be growing faster and stronger. It is high time we redesigned the global community with cool solutions to soothen the much hotter world.

References

1. J. Adams, Risk, UCL Press. 1995
2. B. Lomborg, The Skeptical Environmentalist: Measuring the Real State of The World, Cambridge University Press. 2001
3. R C L Wilson, S A Drury and J L Chapman, The Great Ice Age: Climate Change and Life, Routledge. 2003
4. Chauhan, Rajendra, Global Warming, Saurabh Publishing House. 2010
5. Ronald, Bailey, ed. Earth Report 2000: Revisiting the True State of the Planet. McGraw-Hill. New York. 2000
6. Spencer, R Weart. The Discovery of Global Warming, Harvard University Press. 2003
7. Nigel Arnell, Global Warming, River Flows and Water Resources, Chichester, Wiley, England. 1996
8. Leo Johnson, A Layman's Guide to Understanding the Global Warming Hoax, Red Anvil Press. 2008
9. Paul G Harris, Global Warming and East Asia: The Domestic and International Politics of Climate Change. Routledge, London. 2003
10. Matthew Paterson, Global Warming and Global Politics, Routledge, London. 1996
11. Dean Edwin Abrahamson, The Challenge of Global Warming, Island Press. 1989
12. John J Berger, Beating the Heat: Why and How We Must Combat Global Warming. Berkeley Hills Books. Berkeley, CA. 2000
13. B McGuire, Seven Years to Save the Planet: The Questions and Answers, Weidenfeld and Nicholson, 2008.
14. J Winterson, The Stone Gods, Hamish Hamilton. 2007
15. J Griffiths, WILD- An Elemental Journey, Penguin Books. 2008
16. K Evans, Funny Weather, Myriad Editions. 2006
17. M Lynas, Six Degrees: Our Future On A Hotter Planet, Fourth Estate. 2007
18. R Henson, The Rough Guide to Climate Change, Rough Guides. 2006