Amity Journal of Energy & Environment Studies
2017, Volume 3, Number 1

Climate Change and Its Hazardous Effects on Society

Deepanshu Choudhary* **Vaishali Jain****

"Climate change" refers to any long-term change in Earth's climate of a region or city. This includes warming, cooling and change besides temperature. Climate change caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions.The average temperature on the surface of the planet has increased 1.7°F since 1880, which may not seem like much but this heat is roughly equal to 40,000 atomic bombs exploding across the planet every single day. Future generations are in big trouble, as it will gradually become warmer and warmer, resulting a longer period of drought in world. If the climate continuous to be increase at such alarming rate, then the climate disaster would be so severe that the entire world could not be able to control or stabilise them. It would result in extinction of several specified species, melting of ice cabs- leaving most of the coastal cities of the world, several feet under water. Over the next decades, it is predicted that billions of people, particularly those in developing countries, face shortages of water and food and greater risks to health and life as a result of climate change. Concerted global action is needed to enable developing countries to adapt to the effects of climate change that are happening now and will worsen in the future.

In this paper we are going to talk about the hazardous impact of climate change, some are already occurring for example, sea level are rising, and snow and ice cover is decreasing. Rainfall patterns and growing seasons are changing.

Keywords: climate change, human activities, glaciers, deforestation, vegetation, carbon dioxide, renewable energy

INTRODUCTION

"No challenge poses a greater threat to future generations than climate change."

- President Obama

Climate change which has brought permanent alterations to earths geological, biological and ecological systems in a big way. These changes have led to the emergence of large-scale environmental hazards to the life on earth , like extreme weather conditions , increased danger of wildland fires loss of biodiversity systems and numerous infectious disease.

As per the data of The world health organization (WHO) estimates that 160,000 deaths, Climatic changes in Siberia, for instance, are expected to improve food production and local economic activity, at least in the short to medium term. Numerous studies suggest, however, that the current and future impacts of climate change on human society are and will continue to be overwhelmingly negative. We cannot deny the fact that the majority of the adverse effects of climate change are experienced by poor and low-income communities around the world, who have much higher levels of vulnerability to environmental determinants of health, wealth and other factors, and much lower levels of capacity available for coping with environmental change. A report on the global human impact of climate change published by the Global humanitarian forum in 2009, estimated more than 300,000 deaths and about $125 billion in economic losses each year, and indicating that most climate change induced mortality is due to worsening floods and droughts in developing countries .

LITERATURE REVIEW

Climate change is more than global warming. The rise in average temperature is only one indicator of broader changes also translating into extreme temperatures, drought, flooding, storms, etc.Climate change is a physical process, but because of the dependency of human on the availability and quality of natural resources any changes in the physical characteristics of the environment will be reflected by cumulative, interacting social and economic impacts.The transport sector is moderately vulnerable to climate

* *MBA Student Amity Business School, Noida*

change and variation, with concerns focusing around ferry services and road maintenance. Karki and Garg (1997) attempts quantitative assessment of alkaloid chemistry (a subgroup of organic chemistry) research in India as viewed through Chemical Abstracts, focusing on world versus citations of India's work. Alkaloid chemistry research performed in India is found to be fairly collaborative and part of main stream science.Arunachalam and Umarani (1998) evaluated agricultural research in India; the research was based on CAB Abstracts 1998, indexing 11,855 publications from India, including 10,412 journal articles, from more than 1280 institutions, also gives an idea of endogenous research capacity.Fish research in India has been examined by Jayashree and Arunachalam (2000), about 460 papers, roughly 5.5% of the world output, came from India every year, of which 82% are journal articles. About 61% of publications are contributed by government laboratories in low impact and low visibility journals and academic institutions in journals of medium impact. According to Stanhill (2001) number of climate change science research total around 7000 and is doubling every 11 years. The annual rate of publication per author and number of authors per paper in climate change science is at 1.75 and 2.5 respectively. Arunachalam and Gunasekaran (2002) undertaken diabetes research in India and China, during 1990–1999, indexed in PubMed, Science Citation Index (SCI) and Biochemistry and Biophysics Citation Index (BBCI). They identified institutions carrying out diabetes research, and these two countries account for 26% of the prevalence of diabetes, they contribute less than 2% of the world's research. Materials science research in India was analyzed by Mohan, Gupta &Dhawan (2003) for a period of five years (1995-1999), based on a study of papers published by Indian scientists in collaboration with foreign researchers, as covered in Material Science Citation Index (MSCI), most of the work involved bilateral rather than multilateral collaboration.Gunasekaran (2006) explored Chemical science research in India, data collected from Chemistry Citation Index in 2002. Roughly, 4.5% of the global R&D output in chemical sciences was contributed by Indian in 2002, about 16% of the papers had international collaboration.Kademani et al, (2006) attempts to highlight quantitatively the growth of world literature on thorium in terms of publication output as per Science Citation Index (1982–2004). During 1982–2004 a total of 3987 papers published, average number of publications was 173.The spurt in the literature output was in 1991–2004, while 94 countries involved in this field of research.Dhawan and Gupta (2007)examined the broad characteristics of India's physics publications output, based on contributions by Indian institutions as indexed in INPSEC-Physicsin 2016. The study found that India's physics related contribution is significantly high (86 per cent) of which 26.4 per cent was in high-impact journals.Gupta, Kshitij, and Verma (2014) have studied computer science output of India during 1999–2008 and reported India's rank of 13th position in the world on computer science literature output.

CLIMATE CHANGE IS RESULT OF HUMAN ACTIVITIES?

Scientists know that the recent cause on climate change is largely due to human activities from an understanding of basic physics, comparing observations with models, and fingerprinting.

Since the mid-1800s, scientists have known that CO2 is one of the main greenhouse gases of importance to Earth's energy balance. Direct measurements of CO2 in the atmosphere and in air trapped in ice show that atmospheric CO2 increased by about 40% from 1800 to 2012. Measurements of different forms of carbon reveal that this increase is due to human activities. Other greenhouse gases (notably methane and nitrous oxide) are also increasing as a consequence of human activities. The observed global surface temperature rise since 1900 is consistent with detailed calculations of the impacts of the observed increase in atmospheric CO2 (and other human-induced changes) on Earth's energy balance.

Scientists studying the rapid rise in global temperatures during the late twentieth century say that natural variability cannot account for what is happening now. The main culprit is emissions of carbon dioxide and other greenhouse gases from human activities, primarily the burning of fossil fuels such as coal and oil. Other human sources of these gases include deforestation, agriculture and industrial processes. Scientists refer to what has been happening in the earth's atmosphere over the past century as the "enhanced greenhouse effect." By pumping man-made greenhouse gases into the atmosphere, humans are altering the process by which naturally occurring greenhouse gases trap the sun's heat before it can be released back into space.

HAZARDOUS EFFECTS OF CLIMATE CHANGE

Detailed researches of climatic events of the past 150 years have revealed that the temperatures have risen all over the globe, with the warming occurring in two phases. The first phase was from 1919 to 1940, with an average temperature gain of 0.35°C, and the second phase was from 1970 to the present, exhibiting temperature gains of 0.55°C. Records show that the past 25 years have been the warmest time of the past 5 centuries. The global warming has resulted in the warming of the oceans, rising of the sea levels, melting of glaciers, and diminished snow cover in the Northern Hemisphere.

Glaciers are considered among the most sensitive indicators of climate change. Their size is determined by a mass balance between Snow Input and Melt Output. As temperatures warm, glaciers retreat unless snow precipitation increases to make up for the additional melt; the converse is also true.

Glaciers grow and shrink due both to natural variability and external forces. Variability in temperature, precipitation, and en-glacial and sub-glacial hydrology can strongly determine the evolution of a glacier in a particular season. Therefore, one must average over a decadal or longer time-scale and/or over many individual glaciers to smooth out the local short-term variability and obtain a glacier history that is related to climate. The two studies examined three neighbouring glaciers in West Antarctica that are melting and retreating at different rates. 'Smith', 'Pope' and 'Kohler' glaciers flow into the Dotson and Cross on ice shelves in the Amundsen Sea Embayment in West Antarctica, the part of the continent with the largest loss of ice mass.

A gradual increase in warmth in a region will lead to earlier flowering and fruiting times, driving a change in the timing of life cycles of dependent organisms. Conversely, cold will cause plant bio-cycles to lag. Larger, faster or more radical changes, however, may result in vegetation stress, rapid plant loss and desertification in certain circumstances.

It is expected that over the next 50 years, climate changes will have an effect on the diversity of forest genetic resources and thereby on the distribution of forest tree species and the composition of forests. Diversity of forest genetic resources enables the potential for a species (or a population) to adapt to climatic changes and related future challenges such as temperature changes, drought, pests, diseases and forest fire. However, species are not naturally capable to adapt in the pace of which the climate is changing and the increasing temperatures will most likely facilitate the spread of pests and diseases, creating an additional threat to forest trees and their populations.

OBJECTIVE

There are many studies, which have taken place on climate change till date. In this paper the focus is made on how Humans activities are responsible for the change in climate and what will be the outcomes of these changes on Human life. The objective of the study is to make people aware about their hazardous activities and how they can improve their activities to save this environment.

Data analysis and interpretations

How you we prevent climate change in the world

1. Power home with renewable energy.

   Choose a utility company that generates at least half its power from wind or solar and has been certified by Green-e Energy, an organization that vets renewable energy options. If that isn't possible for you, take a look at your electric bill; many utilities now list other ways to support renewable sources on their monthly statements and websites.

2. Weatherize

   Building heating and cooling are among the biggest uses of energy. Heating and air-conditioning account for almost half of home energy use. You can make your space more energy efficient by sealing drafts and ensuring it's adequately insulated. You can also claim federal tax credits for many energy-efficiency home improvements.

3. Invest in energy-efficient appliances.

   Since they were first implemented nationally in 1987, efficiency standards for dozens of appliances and products have kept 2.3 billion tons of carbon dioxide out of the air. That's about the same amount as the annual carbon pollution coughed up by nearly 440 million cars. When shopping for refrigerators, washing machines, and other appliances, look for the Energy Star label, it will tell you which are the most efficient.

4. Buy better bulbs.

   LED light bulbs use up to 80 percent less energy than conventional incandescent. They're also cheaper in the long run: A 10-watt LED that replaces your traditional 60-watt bulb will save you $125 over the light bulb's life.

5. Drive a fuel-efficient vehicle.

   Gas-smart cars, such as hybrids and fully electric vehicles, save fuel and money. And once all cars and light trucks meet 2025's clean car standards which mean averaging 54.5 miles per gallon, they'll be a mainstay.

6. Shrink your carbon profile.

   Carbon dioxide is the climate's worst enemy. It's released when oil, coal, and other fossil fuels are burned for energy—the energy we use to power our homes, cars, and smart phones. By using less of it, we can curb our own contribution to climate change while also saving money.

CONCLUSION

It is important that everyone take part and try to stop global warming and other effects on climate change. If the Earth's temperatures continue to rise in the future, living things on earth would become extinct due to the high temperatures. If humans contribute to control global warming, this world would be cooler and the high temperatures we currently have would decrease. If everybody as one take stand and try to end most of the climate changes that are occurring, this world would be a safer place to live on.

REFERENCES

Sathaye,J., Shukla, P. R., &Ravindranath, N. H. (2006). Climate change, sustainable development and India: Global and national concerns. Current Science, 90(3), 314-325. Retrieved from http://www.ias.ac.in/currsci/feb102006/314.pdf.

Parikh, J.K., & Parikh, K. (2002). Climate Change: India's Perceptions, Positions, Policies and Possibilities. OECD. Retrieved July 29, 2010, from http://www.oecd.org/dataoecd/22/16/1934784.pdf

Bonini, Sheila.,&Oppenheim, J M. (2010) The next environmental issue for business: McKinsey Global Survey results. Retrieved August 2, 2010, from https://www.mckinseyquarterly.com/Surveys/The_next_environmental_issue_for_business_McKinsey_Global_Survey_results_2651.

Report of the Ministry of Environment & Forests, Government of India "Climate Change and India: Towards Preparation of a Comprehensive Climate Change Assessment. http://moef.nic.in/downloads/others/Final_Book.pdf.

India:Addressing Energy Security and Climate Change. Report of Ministry of Environment & Forests, Government of India, October, 2007. Retrieved on July 25, 2010, fromhttp://envfor.nic.in/divisions/ccd/Addressing_CC_09-10-07.pdf.

Gupta, B.M., and Dhawan S.M., (2006) Measures of Progress of Science in India: An Analysis of the Publication Output in Science and Technology. Retrieved from http://psa.gov.in/writereaddata/11913286541_MPSI.pdf.

Karki., M. M. S. and Garg, K. C. (1997). Bibliometrics of Alkaloid Chemistry Research in India, Journal of Chemical Information and Computer Sciences. 1997(37), 157-161.

Arunachalam., S and Umarani, K. (2001). Mapping agricultural research in India: A profile based on CAB Abstracts 1998, Current Science, 81(8), 896-906.

Jayashree B., and Arunachalam, S. (2000). Mapping fish research in India. Current Science, 79(5), 613-620.

Stanhill, G. (2001). The Growth of Climate Change Science: A Scientometric Study. Climate Change, 48. 515-524.

Arunachalam., S. and Gunasekaran., S. (2002) Diabetes research in India and China today: From literature-based mapping to health-care Policy, Current Science, 82(9), 1086-1097.

Mohan, S., Gupta, B. M., &Dhawan, S. M., (2003). Materials Science Research and Development in India: A Scientometric Analysis of International Collaborative Output. DESIDOC Bulletin of Information Technology, 23(2), 11-23.

Gunasekaran, S., Batcha, M. S., and Sivaraman, P. (2006). Mapping chemical science research in India: A bibliometric study. Annals if Library and Information Studies. 53, 83-95.

Kademani, B. S., Kumar, Vijai.,Sagar, Anil & Kumar, Anil. (2006). World literature on thorium research: A scientometric study based on Science Citation Index. Scientometrics, 69(2) 347–364.

Dhawan, S. M., and Gupta. B. M. (2007) Physics Research in India: A Study of Institutional Performance based on Publications Output. DESIDOC Bulletin of Information Technology. 27(1) 55-67.

Gupta, B. M., Kshitij.,Avinash and Verma, Charu. (2010) Mapping of Indian computer science research output, 1999–2008. Scientometrics, 85(1). Forthcoming.

Climate Change and Resource Sustainability an Overview for Actuaries: Climate Change and Sustainability Committee. (August 2015).[1]

Climate Change and its Effects on Humans: state of the Gulf of Maine Report (June 2010).[2]

A Review of Academic Literature Related to Climate Change Impacts and Adaptation in Newfoundland and Labrador: Department of Geography, Memorial University. (March 2010).[3]

America's Climate Choices: Panel on Advancing the Science of Climate Change; National Research Council (2010)

Climate Change and its Impact on Agriculture: International Journal of Scientific and Research Publication (April 2014).

Climate Change- Impacts, Vulnerabilities and Adaptation in Developing Countries: United Nations Framework Convention on Climate Change. (March 2013).