

## Climate Change and Its Impact on Environment

**Sonam Singh**

D.Phil Research Scholar, Defence and Strategic Studies, University Of Allahabad India

### Abstract

Climate change is one of the major and serious problems for entire world and humanity. The high ratio of the climate change is one of the major concerns for the world organizations. This present article I had tried to highlight several problems and aspects related to the climate change. As we, all know in the contemporary world, the biggest challenge for the development of the nation states is the climate change. Every nation is dealing with the different type of disasters and problems arise By the effect of sudden and persistent change in climate, in this article I have mention different types of problems rebelled by the effect of the climate change. In the present paper, I have also point out different type of side effect aroused by the climate change, how it is affecting the different element of earth very negatively, how it is affecting different aspects of the human life and nature. Entire human kind is trying shot out this problem without effecting the development of the society and new life style of human. To protect entire human race they are trying hard to protect them self and for that they are engaged in different types of protection promotion programs and for that they are frequently running different originations and stepping it with different cops and projects. In this article, I have trying to figure out different programmers running by different national and international originations and tried to conclude with some suggestions.

**KEYWORDS-** climate change, global warming, cops, disaster, environment, atmosphere

### INTRODUCTION

A changing climate affects our health and wellbeing. The major public health organizations of the world have said that climate change is a critical public health issue. Climate change makes many existing diseases and conditions critical, but it may also help introduce new species into new regions. As the planet warms, oceans expand and the sea level rises, floods and droughts become more frequent and intense, and heat waves and hurricanes become more severe. The most vulnerable people - children, the elderly, the poor, and those with underlying health conditions are at increased risk for health effects from climate change.

Sustainability is essentially about maintaining Earth's ecological life-support systems. If these systems decline, human population wellbeing and health will be jeopardized. Technology can buy time, but nature's bottom-line accounting cannot be escaped. We must live within Earth's limits. The state of human population health is thus a central consideration in the transition towards sustainability.<sup>1</sup>

Climate change is one of a larger set of large-scale environmental changes occurring in today's world. These changes reflect, in various ways, the increasing human domination of the ecosphere, as human numbers continue their uncontrolled expansion and as human economic activities intensify. All of these changes - climate change,

stratospheric ozone depletion, biodiversity loss, worldwide land degradation, freshwater depletion, disruption of the elemental cycles of nitrogen and sulfur, and the global dissemination of persistent organic pollutants - have great consequences for the sustainability of ecological systems, for food production, for human economic activities and, via those and other pathways, for human population health.

Climate change brings the extreme weather conditions. These extreme weather events reflect massive and ongoing changes in our climate to which biologic systems on all continents are reacting. So concluded the United Nations Intergovernmental Panel on Climate Change,<sup>2</sup> a collaboration of more than 2000 scientists from 100 countries. The panel concluded that humans are playing a major role in causing these changes, largely through deforestation and the combustion of fossil fuels that produce heat-trapping gases such as carbon dioxide.

Since then we've learned considerably more. The pace of atmospheric warming and the accumulation of carbon dioxide are accelerating; polar and alpine ice is melting at rates not thought possible several years ago<sup>3</sup>, the deep ocean is heating up, and circumpolar winds are quickening, and warming in the lower atmosphere is retarding the repair of the protective "ozone shield" in the stratosphere. Moreover, ice cores that are drilled in Greenland indicate that the climate can change abruptly. Given the current rate of carbon dioxide buildup and the projected degree of global warming is increasing.

### **Climate Change Affecting the Weather**

We can see some of the health effects that may lie ahead if the increase in very extreme weather events continues.<sup>4</sup> Heat waves like the one that hit Chicago in 1995, killing some 750 people and hospitalizing thousands, became more common. Hot, humid nights, which have become more frequent with global warming, magnify the effects. The 2003 European heat - wave involving temperatures that were 18°F (10°C) above the 30 year average, with no relief at night-killed 21,000 to 35,000 people in five countries.

During the past two decades, the widespread presence of asthma in the world has increased significantly, because of climate-related factors. For Caribbean islanders, respiratory irritants come in dust clouds that emanate from Africa's expanding deserts and are then swept across the Atlantic by trade winds accelerated by the widening pressure gradients over warming oceans. Increased levels of plant pollen and soil fungi may also be involved. When ragweed is grown in conditions with twice the medium level of carbon dioxide, the stalks sprout 10 percent taller than controls but produce 60 percent more pollen. Increased carbon dioxide levels also promote the growth of some soil fungi.

The melting of the earth's ice cover has already become a source of physical trauma. In Alaska, Inuits report an increase in accidents caused by walking on thin ice.<sup>5</sup> Ocean warming and Arctic melting are also creating severe winter storms and hazardous conditions in the region. Although tropical sea surfaces are warming and becoming saltier, parts of the North Atlantic are freshening from melting polar ice and increased amounts of rain falling at high latitudes. Contrasting barometric pressures over changing oceans increase winds and propel storms.

Eighteen heat-waves were reported in India between 1980 and 1998, with a heat - wave in 1988 affecting ten states and causing 1300 deaths.<sup>6,7</sup> Heat-waves in Odisha, India, in 1998, 1999 and 2000 caused an estimated 2000, 91 and 29 deaths consequently<sup>8</sup> and heat-waves in 2003 in Andhra Pradesh, India, caused more than 3000 deaths. In June 2005, there was another record in the Eastern Indian state of Odisha with an unusual volatile rise in summer, the capital city of Bhubaneswar recorded the highest temperature of 46.3°C which was 10° above normal,<sup>9</sup> leading to a heat wave. According to the Indian Meteorological department, it was the heaviest ever (83.82 cm) in India of last 100 years, breaking the record of previous highest rainfall in India at Cherrapunjee in Meghalaya recorded on 12 July 1910.<sup>10</sup> On one hand, Mumbai was being flooded; Cherrapunjee which was once well known for being the wettest place in the world received less than average rainfall in June and July with upsetting situation subsequently. The record-breaking Mumbai rain or heat waves in Odisha may not have a direct causal relation with global climate change but at the same time, it cannot be ignored. Populations in high-density urban areas with poor housing will be at increased risk with increasing frequency and intensity of heat waves, partly due to the interaction between increasing temperatures and urban heat-island effects.<sup>11</sup> Delhi experienced the worst summer in 33 years in 2012. The average maximum temperature in Delhi in the year during May - June has been 41.5°C (106.83 degrees Fahrenheit). What's made it particularly unaffordable were the long stretches of 40+ degree days.<sup>12</sup> These extreme weather conditions reported from various parts of India in the recent past could be attributed to global climate change.

### **Climate Change Affecting the Ecosystem**

Meanwhile, in the past three – four decades, widening social inequities and changes in biodiversity - which alter the balance among predators, competitors, and prey that help keep pests and pathogens in check - have apparently contributed to the resurgence of contagious diseases. Global warming and wider change in weather help to spread these diseases: temperature constrains the range of microbes and vectors, and weather affects the timing and intensity of disease outbreaks.<sup>13</sup> The invasion of human housing on wilderness and reductions in the populations of predators of deer and competitors of mice are largely responsible for the current spread of Lyme disease.

Mosquitoes, which can carry many diseases, are very sensitive to temperature changes. Warming of their environment — within their viable range — boosts their rates of reproduction and the number of blood meals they take, prolongs their breeding season, and shortens the maturation period for the microbes they scatters. In highland regions, as permafrost thaws and glaciers retreat, mosquitoes and plant communities are migrating to higher ground.<sup>14</sup> mosquitoes arrive in shallow pools of foul water that remain in drains during droughts. When dry springs yield to airless summers, viral development increases and, with it, the cycle of mosquito-to-bird transmission. During the hot, arid summer of 2002, West Nile virus traveled across the country, infecting 230 species of animals, including 138 species of birds, along the way. Many of the affected birds of prey normally help to rein in rodent populations that can spread hanta viruses, arenaviruses, and yersinia and leptospira bacteria, as well as ticks infected with *Borrelia burgdorferi*.

Exceedingly wet weather may bring its own share of ills. Floods are frequently followed by disease downpours can drive rodents from burrows, deposit mosquito-breeding sites,

foster fungus growth in houses, and flush pathogens, nutrients, and chemicals into waterways. Major coastal storms can also trigger harmful algal blooms (“red tides”), which can be toxic, help to create hypoxic “dead zones” in gulfs and bays, and harbor pathogens.

Prolonged droughts, for their part, can weaken trees' defenses against promote wildfires, which can cause injuries, burns, respiratory illness, and deaths. Shifting weather patterns are jeopardizing water quality and quantity in many countries, where groundwater systems are already being overdrawn and underfed. Most aerial ice fields are predicted to disappear during this century - removing a primary source of water for humans, livestock, and agriculture in some parts of the world.

Climate change is greater threat to human health comes from illnesses affecting the wildlife, livestock, crops, forests, and marine organisms. The Millennium Ecosystem Assessment of 2005 revealed that 60 percent of the resources and life-support systems examined - from fisheries to fresh water - are already in decline or are being used in unsustainable ways.<sup>15</sup>

Crops are being confronted with more volatile weather, vanishing pollinators, and the proliferation of pests and pathogens. And many habitats are not faring well. Our coastal zones, for example, are in trouble: coral reefs are suffering from warming-induced “bleaching,” excess waste, physical damage, overfishing, and fungal and bacterial diseases. Reefs provide a buffer against storms and groundwater salinization and offer protection for fish, the primary protein source for many inhabitants of island nations. One reef resident, the cone snail, produces a peptide that is 1000 times as potent as morphine and that is not addictive.<sup>16</sup> We may never know what other potential treatments will be lost as reefs deteriorate.

## **Conclusion**

International agreements on global environmental issues such as climate change should consider the principles of sustainable development proposed in Agenda 21 and the UNFCCC. These include the “precautionary principle”, the principle of “costs and responsibility” (the cost of pollution or environmental damage should be borne by those responsible), and “equity” – both within and between countries and over time (between generations). Adherence to these principles would help prevent future global environmental threats and reduce existing ones. With climate change already underway, there is need to assess vulnerabilities and identify intervention/adaptation options. Early planning for health can reduce future adverse health impacts. The optimal solution, however, lies with governments, society and individuals – and requires changes in behavior, technologies and practices to enable a transition to sustainability.

It would appear that we may be underestimating the breadth of biologic responses to changes in climate. Treating climate-related ills will require preparation, and early-warning systems forecasting extreme weather can help to reduce casualties and curtail the spread of disease. But primary prevention would require halting the extraction, mining, transport, refining, and combustion of fossil fuels - a transformation that many experts

believe would have innumerable health and environmental benefits and would help to stabilize the climate.

The good news is that we may also be underestimating the economic benefits of the clean-energy transition and acknowledging the consequences of climate change and its threats at the same time. When the financial incentives are adequate, renewable energy, energy-efficient and hybrid technologies, “green buildings,” and expanded public transportation systems can constitute an engine of growth and safe environment for human health in the 21st century.

## References

1. Bi, P., Hayes, J., Donald, K. and Mackenzie, J.S., 2001. Geographic variation of notified Ross River virus infections in Queensland, Australia, 1985-1996. *American Journal of Tropical Medicine and Hygiene*, **65**(3): 171–176.
2. Houghton JT, Ding Y, Griggs D.J, et al., eds. *Climate change 2001: the scientific basis : contribution of the Working Group I to the third assessment report of the Intergovernmental Panel on Climate Change*. Cambridge, England: Cambridge University Press, 2001.
3. Hassal SJ. *ACIA, Impacts of a warming Arctic: arctic climate impact assessment*. Cambridge, England: Cambridge University Press, 2004.
4. McMichael AH, Campbell-Lendram DH, Corvalán CF, et al., eds., *Climate change and human health: risks and responses*. Geneva: World Health Organization, 2003:250.
5. Epstein PR, Diaz HF, Elias S, et al. Biological and physical signs of climate change: focus on mosquito-borne diseases. *Bull Meteorol Soc* 1998;78:409-417.
6. Mukhopadhyay, R.K. (1998). Severe heat wave over Indian subcontinent in 1998 in a perspective of global Climate. *Current Science*, 75, 12: 1308-1311.
7. De, U.S., Khole, M. and Dandekar, M.M. (2004). Natural hazards associated with meteorological extreme events. *Natural Hazards*, 31: 487-497.
8. Mohanty, P. and Panda, U. (2003). Heat wave in Orissa: A study based on heat indices and synoptic features. *Regional Research Laboratory, Institute of Mathematics and Applications, Bhubaneswar*, 15.
9. Indian Meteorological Department (IMD). All India weekly weather report (Accessed on 17 August, 2012) <http://www.imd.gov.in>. <http://www.imd.gov.in/section/nhac/dynamic/week.htmrk>.
10. Srivastav, A. K, (2007). Indian Meteorological Department, *Climate change over India, National Workshop on Climate Change and its Impact on Health*, 26-27.
11. Times of India, 2012. Accessed on 30 July 2012., <http://timesofindia.indiatimes.com/city/delhi>

12. Alderson, M.R. (1985). Season and mortality. *Health Trends*, 17:87–96.
13. Myers, N. Biodiversity's genetic library. *Nature's services. Societal dependence on natural ecosystems*. Washington, DC: Island Press, pp. 255–273, 1997.
14. Woodward, A.J. et al. Protecting human health in a changing world: the role of social and economic development. *Bulletin of the World Health Organization*. 78: 1148–1155 (2000).
15. Lindsay, S. & Martens, W.J.M. 1998. Malaria in the African Highlands: past, present and future. *Bulletin of the World Health Organization* 78, 76:33–45 (2000).
16. Watson, R.T. & McMichael, A.J. Global climate change—the latest assessment: Does global warming warrant a health warning? *Global Change and Human Health* 2: 64–75 (2001).