

# EFFECTS OF CLIMATE CHANGE ON NATURAL RESOURCES AND PUBLIC HEALTH IN INDIA

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## ABSTRACT

*This paper briefly discusses some important climate change problems facing the India and all over world. The climate is changing, the earth is warming up. Many are agreed that climate change may be one of the greatest threats facing the planet .Recent years show increasing temperatures in various regions and increasing extremities in weather patterns. Most of direct climate change occurs due to green house emissions i.e. carbon dioxide ,methane etc. Climate change and associated increases in climate variability will likely further exacerbate global health disparities .More research is needed particularly in developing countries to accurately predict the anticipated impacts and inform effective interventions.*

*This paper shows that what causes climate change, what the impact on human health and how to help the save climate.*

**KEY WORDS:** *Climate change, national action and human health*

## INTRODUCTION

Climate change<sup>1</sup> refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer).Climate change is one of the most critical global challenges of our times. Recent events have emphatically demonstrated our growing vulnerability to climate change. Climate change impacts will range from affecting agriculture – further endangering food security – to sea-level rise and the accelerated erosion of coastal zones, increasing intensity of natural disasters, species extinction, and the spread of vector-borne diseases. is home to an extraordinary variety of climatic regions, ranging from tropical in the south to temperate and alpine in the Himalayan north, where elevated regions receive sustained winter snowfall. The nation's climate is strongly influenced by the Himalayas and the Thar Desert. The Himalayas, along with the Hindu Kush e mountains in

Pakistan, prevent cold Central Asian katabatic winds from blowing in, keeping the bulk of the Indian subcontinent warmer than most locations at similar latitudes. Simultaneously, the Thar Desert plays a role in attracting moisture-laden southwest summer monsoon winds that, between June and October, provide the majority of India's rainfall. Four major climatic groupings predominate, into which fall seven climatic zones that, as designated by experts, are defined on the basis of such traits as temperature and precipitation.

Global warming<sup>2</sup> introduces an additional factor of inequality and disparity between the different geographical regions of the planet. The populations of the world's<sup>3</sup> poorest countries are more vulnerable when faced with the effects of climate change even though they are less responsible for it. The developing countries<sup>4</sup> are not able to neither protect themselves against the impact of this phenomenon nor adjust to it. Climate change increases the precarious situation of the poorest populations (food security, access to health care, water and energy, housing...), widening even further the socio-economic divide between the North and the South. Because of their location, their low incomes, the insufficiency of their resources and institutional capacities, and because they mostly count on climate dependent sectors like agriculture, populations of the poorest countries are the first victims of current and future climatic changes.

## CAUSES OF CLIMATE CHANGE

The earth's climate<sup>5</sup> is dynamic and always changing through a natural cycle. What the world is more worried about is that the changes that are occurring today have been speeded up because of man's activities. These changes are being studied by scientists all over the world who are finding evidence from tree rings, pollen samples, ice cores, and sea sediments. The causes of climate change can be divided into two categories - those that are due to natural causes and those that are created by man.

### Natural causes

There are a number of natural factors responsible for climate change. Some of the more prominent ones are continental drift, volcanoes, ocean currents, the earth's tilt, and comets and meteorites. Let's look at them in a little detail.

### Human causes

The Industrial Revolution in the 19th century saw the large-scale use of fossil fuels for industrial activities. These industries created jobs and over the years, people moved from rural areas to the cities. This trend is continuing even today. More and more land that was covered with vegetation has been cleared to make way for houses. Natural resources are being used extensively for

construction, industries, transport, and consumption. Consumerism (our increasing want for material things) has increased by leaps and bounds, creating mountains of waste. Also, our population has increased to an incredible extent.

All this has contributed to a rise in greenhouse gases in the atmosphere. Fossil fuels such as oil, coal and natural gas supply most of the energy needed to run vehicles, generate electricity for industries, households, etc. The energy sector is responsible for about  $\frac{3}{4}$  of the carbon dioxide emissions,  $\frac{1}{5}$  of the methane emissions and a large quantity of nitrous oxide. It also produces nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO) which are not greenhouse gases but do have an influence on the chemical cycles in the atmosphere that produce or destroy greenhouse gases.

### **Climate Change and Human Health**

Although low- and middle-income countries are responsible for only a small percentage of global greenhouse gas emissions, the adverse health effects associated with climate change will likely fall disproportionately on their populations. This inequity will further exacerbate global health disparities. High-risk areas include those already experiencing a scarcity of resources, environmental degradation, high rates of infectious disease, weak infrastructure, and overpopulation. In particular, tropical regions will experience significant changes in human-pathogen relationships because of climate change. Changing temperatures and precipitation patterns linked to climate change will further affect health by changing the ecology of various vector-borne diseases<sup>6</sup>, such as malaria, dengue, chikungunya, Japanese encephalitis, kala-azar, and filariasis. Vulnerable populations include the elderly, children, urban populations, and the poor. The goals of this report are to briefly summarize relevant literature and highlight the enormous challenges and opportunities for innovative research, with a particular focus on India. Such research<sup>7</sup> is needed to pave the way for unique and pioneering solutions that can improve public health in the face of increasing climate variability. Therefore, we review the current state of the science relevant to the 2009 Joint Indo-U.S. Workshop on Climate Change and Health that was held in Goa, India, and then discuss the observed relationships between climate variability and human health, specifically in relation to the Indian subcontinent, highlighting future research directions.

Potential health impacts discussed at the Goa workshop fell into three categories: heat stress and air pollution, waterborne disease, and vector-borne disease focusing on malaria. Additional crosscutting sessions covered climate modeling and predictions for India, adaptation and vulnerability, surveillance and early warning systems, integration of spatial analysis, and bridging policy and science. We acknowledge that the potential physical and social impacts of climate change in India will likely be diverse. The Goa workshop served to target many of the major public health concerns associated with climate change and began the process of

conceptualizing research needs and approaches that are integrative and achievable in low- and middle-income countries.

## **NATIONAL ACTION ON CLIMATE CHANGE:**

The action plan <sup>8</sup> outlines a number of steps to simultaneously advance India's development and climate change-related objectives. The National Action Plan on Climate Change (NAPCC) encompasses a range of measures. It focuses on following mission:

**National Solar Mission:** The NAPCC aims to promote the development and use of solar energy for power generation and other uses, with the ultimate objective of making solar competitive with fossil-based energy options. It also includes the establishment of a solar research center, increased international collaboration on technology development, strengthening of domestic manufacturing capacity, and increased government funding and international support.

**National Mission for Enhanced Energy Efficiency:** The NAPCC recommends mandating specific energy consumption decreases in large energy-consuming industries, with a system for companies to trade energy-saving certificates, financing for public-private partnerships to reduce energy consumption through demand-side management programs in the municipal, buildings, and agricultural sectors, and energy incentives, including reduced taxes on energy-efficient appliances.

**National Mission on Sustainable Habitat:** The NAPCC also aims at promoting energy efficiency as a core component of urban planning by extending the existing Energy Conservation Building Code, strengthening the enforcement of automotive fuel economy standards, and using pricing measures to encourage the purchase of efficient vehicles and incentives for the use of public transportation. The NAPCC also emphasizes on waste management and recycling.

**National Water Mission:** The NAPCC sets a goal of a 20% improvement in water use efficiency through pricing and other measures to deal with water scarcity as a result of climate change.

**National Mission for Sustaining the Himalayan Ecosystem:** This particular mission sets the goal to prevent melting of the Himalayan glaciers and to protect biodiversity in the Himalayan region.

**Green India Mission:** The NAPCC also aims at afforestation of 6 million hectares of degraded forest lands and expanding forest cover from 23 to 33% of India's territory.

**National Mission for Sustainable Agriculture:** The NAPCC aims to support climate adaptation in agriculture through the development of climate-resilient crops, expansion of weather insurance mechanisms, and agricultural practices.

### **What You Can Do ?**

There are many ways that you can make a difference, such as driving less, insulating your house better, changing your voting priorities, buying organic food, eating less meat, buying fuel efficient appliances and vehicles..and reducing greenhouse gas emissions.

You can reduce emissions through simple actions like changing a light bulb, powering down electronics, using less water, and recycling.

### **CONCLUSION**

To gain a better understanding of climate science, impacts, and challenges, the plan envisions a new Climate Science Research Fund, improved climate modeling, and increased international collaboration. It also encourages private sector initiatives to develop adaptation and mitigation technologies through venture capital funds. 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. Sustainability is essentially about maintaining Earth’s ecological and other biophysical 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 evaded. We must live within Earth’s limits. The state of human population health is thus a central consideration in the transition towards sustainability .

Many and varied solutions to climate change have been proposed, including individual frugality, energy conservation measures, renewable energy, and carbon sequestration. Which is the solution? Most likely, all of them. There are champions for each, but in the end we may need to use every trick we know to get us out of this one. Because carbon dioxide is mostly emitted from

the consumption of energy from fossil fuels (for lighting, transportation, manufacturing, etc.), changing the way we produce and use energy is our starting point in trying to reduce emissions. Decisions on policies and programs for resource management need to be based on broad citizen participation and the engagement of rural communities that have often been disenfranchised or marginalized. Women are disproportionately responsible for agricultural production, household nutrition and resource management in many countries. Because women experience more direct and greater impacts from resource degradation and climate change than men, steps to empower, educate and support them in improving food security and stabilizing rural landscapes are essential. Legal reforms that enable women to own and manage land and to control the returns to their labor are critical for the well-being of farm families, increased investment in agricultural productivity and sustainable management.

## REFERENCES

1. About Climate change. Available from: <http://www.unep.org/themes/climatechange/about/index.asp> [last assessed on 2008 Oct 11]
2. Pandve H. Global warming: Need to sensitize general population. Indian J Occup Environ Med. 2007;11:86-7. [[PMC free article](#)] [[PubMed](#)]
3. Sunita Narain. The mean world of climate change. Available from: [http://www.downtoearth.org.in/editor.asp?foldername=20080731andfilename=Editorandsec\\_id=2andsid=1](http://www.downtoearth.org.in/editor.asp?foldername=20080731andfilename=Editorandsec_id=2andsid=1). [last assessed on 2008 Oct 11]
4. Pandve HT. Global initiatives to prevent climate change. Indian J Occup Environ Med. 2008;12:96-7. [[PMC free article](#)] [[PubMed](#)]
5. Dsouza M. India unveils strategy to counter climate change. Available from: [http://www.downtoearth.org.in/full6.asp?foldername=20080731andfilename=newsandsec\\_id=4andsid=6](http://www.downtoearth.org.in/full6.asp?foldername=20080731andfilename=newsandsec_id=4andsid=6) [last assessed on 2008 Oct 11]
6. India- vector born disease-water-born disease, Indian j. Med Res. 138 December 2013, pp 847-852.
7. Pittock, A. B. 2009a. *Climate change: the science, impacts and solutions*. Second edition. CSIRO Publishing
8. India's climate change action-plan takes the safe way: no to caps, yes to efficiency. Available from: <http://www.indianexpress.com/news/indias-climate-change-actionplan-takes-the-safe-way-no-to-caps-yes-to-efficiency/318373/2>. [last assessed on 2008 Oct 11]