



IMPACT OF CLIMATE CHANGE ON HUMAN DEVELOPMENT WITH REFERENCE TO INDIA

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Abstract: *Rising fossil fuel burning and land use changes have emitted, and are continuing to emit, increasing quantities of greenhouse gases into the Earth's atmosphere. These greenhouse gases include carbon dioxide (CO₂), methane (CH₄) and nitrogen dioxide (N₂O), and a rise in these gases has caused a rise in the amount of heat from the sun withheld in the Earth's atmosphere, heat that would normally be radiated back into space. This increase in heat has led to the greenhouse effect, resulting in climate change. The main characteristics of climate change are increases in average global temperature (global warming); changes in cloud cover and precipitation particularly overland; melting of ice caps and glaciers and reduced snow cover; and increases in ocean temperatures and ocean acidity – due to seawater absorbing heat and carbon dioxide from the atmosphere. This paper discusses the climatic impacts on the human development on the major concerns in the field of health, agriculture and many more. It tries to find out the solutions for this major problem.*

Keywords: *agriculture, atmosphere Climate change, greenhouse gases, heat, Temperature*

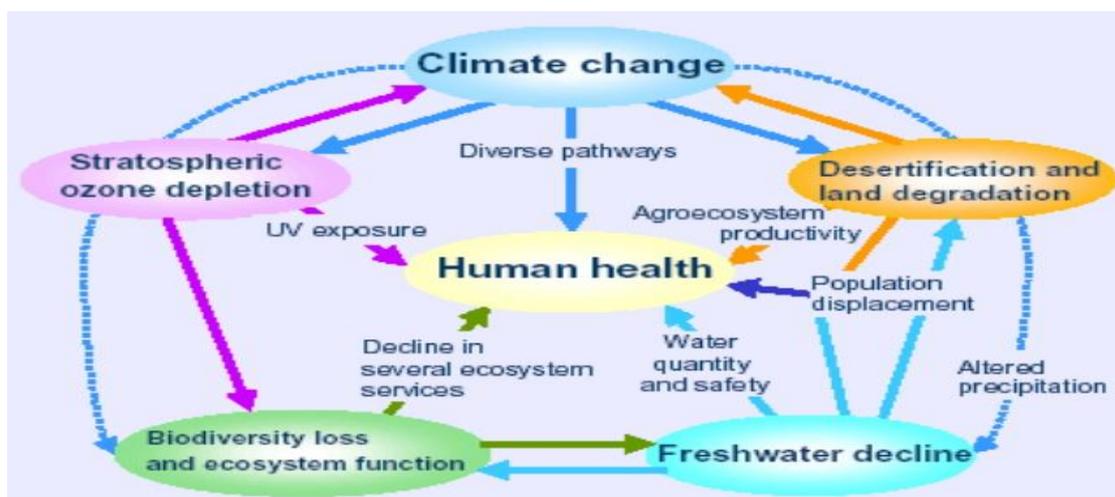
INTRODUCTION:

Climate change is one of the complex problems facing mankind today. The overriding complexity of the problem is attributed to its deeper global ramifications on a vast range of issues impacting the very survival of life on Earth. Understanding such a complex issue with vast and varied dimensions and implications, assumes greater significance for all stakeholders, especially for our policy makers. There are varieties of perceptions regarding the exact size and consequences of climate change. Yet, it is no secret that risks emanating from climate change are indeed profound, which call for urgent mitigation. There is now strong evidence that climate change is a reality.



1. Today, it has been scientifically established that significant global warming is occurring. Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level.
2. There is no denying the fact that the problem exists and it is assuming alarming proportions, each passing day. Therefore, there is an imperative need to take urgent and strong measures in the interest of calibrating an appropriate response to meet the emerging challenges of climate change.

Climate change is not an isolated issue. It has several aspects and inter-linkages namely, science and technology, economy and trade, diplomacy and politics - that makes it not just another issue in this complicated world of proliferating issues, but the mother of all issues. Climate change, however, is different from other problems facing humanity and it compels us to think differently at many levels. It obliges us to think about what it means to live as part of an ecologically interdependent human community. In the face of much diversity that characterizes human society, climate change provides a potent reminder of one thing that we share in common - the planet Earth. All nations and all people share the same atmosphere. And, we only have one. Addressing the climate chaos by all the countries both individually and collectively will be critical to the human well-being and prosperity of the present as well as the future generations. Ref,(1) as following diagram collects explains its proper way on effect on human development.



As in the newspaper "The Himalayan Times" on June 5, 2011 collectively tries to show the effects of climate change and how it affects and violates human rights. Ref.(2)



DATA AND METHODOLOGY:

The proposed study mainly is descriptive in nature. It solemnly based on secondary data and information which is collected from the concerned sources as per need of the research. The relevant books, documents of various ministries/departments and organizations, articles, papers and web-sites are used in this study.

OBJECTIVE OF STUDY:

The main objective of this study is to analysis the climatic change impacts on human development. The study includes the measures adopt by the government to lessen down the impact and make the nation a developing one.

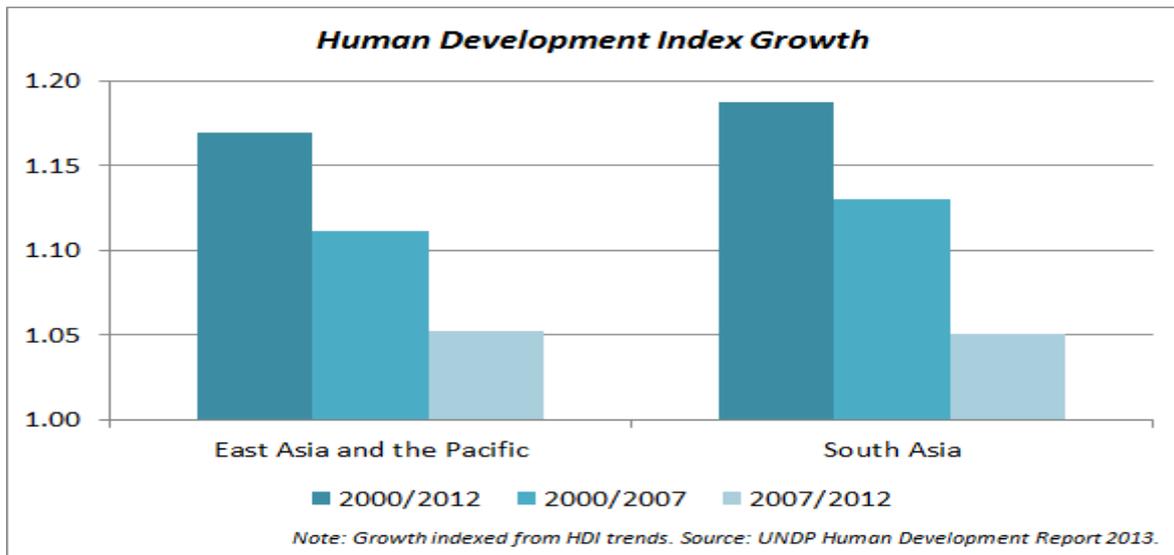
UNDERSTANDING THE CONCEPT OF CLIMATE CHANGE:

Climate change refers to the variation in the Earth's global climate or in regional climates over time. It describes changes in the state of the atmosphere over time scales ranging from decades to millions of years. Climate change has been defined by many in many ways. While some define it as an offshoot of Earth's natural processes, others define it as a result of human activities. Striking a balance between these two varying perspectives, climate change is defined as "a change which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". Truly, the present changes in the Earth's climate cannot be explained alone by the natural processes that explain Earth's previous warm periods. There is a broad scientific consensus that most of the warming in the recent decades can be attributed to human activities. If humanity is, in large part,



responsible for this change, then whatever choices we make today, will have a significant bearing on the climate of the future. This makes climate change a formidable concern. As in the following news its clearly indicates that the concept of climate change and human rights become more prominent.

The report given by UNDP clearly shows the HDI trends in asia and pacific in following chart:



IMPACTS OF CLIMATE CHANGE ON HUMAN DEVELOPMENT:

As, The Indian Constitution give on a sensitive provision in Article 48-A states, "The State shall Endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country." This is a fundamental obligation of the state since its violation has fatal implications. Article 51A (g) creates a fundamental duty on every individual to obey the mandate of environment and ecology. Ref.(3) But due to the development which is taking place at a rapid speed , ignores the provision of safeguarding the ecology which not only effects the environment but also hinders the growth and development of humans.

- 1. Impact on Monsoons:** Scientists at the University of Liverpool are investigating the anticipated effects of climate change on India's monsoon season and the impact that alterations in India's water cycle will have on the country's people, agriculture and wildlife. Changes to India's annual monsoon are expected to result in severe droughts and intense flooding in parts of India. Scientists predict that by the end of the century the country will experience a 3 to 5°C temperature increase and a 20% rise in all summer monsoon rainfall. As part of the UK-India Education and Research Initiative (UKIERI), Liverpool and Indian scientists have been awarded £150,000 to



develop key research methodologies and scientific monitoring procedures in collaboration to investigate how alterations in water resources may affect human health, agriculture, forests and wildlife which indirectly and directly effects the human development. Ref.(4)

2. Impact on Agriculture: Climate change and agriculture are interrelated processes, both of which take place on a global scale. Climate change affects agriculture in a number of ways, including through changes in average temperatures, rainfall, and climate extremes (e.g., heat waves); changes in pests and diseases; changes in atmospheric carbon dioxide and ground-level ozone concentrations; changes in the nutritional quality of some foods; and changes in sea level The Intergovernmental Panel on Climate Change (IPCC) has produced several reports that have assessed the scientific literature on climate change. The IPCC Third Assessment Report, published in 2001, concluded that the poorest countries would be hardest hit, with reductions in crop yields in most tropical and sub-tropical regions due to decreased water availability, and new or changed insect pest incidence. In many parts of India, many rainfed crops are near their maximum temperature tolerance, so that yields are likely to fall sharply for even small climate changes; falls in agricultural productivity of up to 30% over the 21st century are projected. Marine life and the fishing industry will also be severely affected in some places. A 2008 study published in *Science* suggested that, due to climate change, "In South Asia losses of many regional staples, such as rice, millet and maize could top 10%. in 2030 Ref.(5)

3. Impact on Human Health: The potential for climate change to intensify or alter flood patterns may become a major additional driver of future health risks associated with flooding. In tropical Asia, an increase in the frequency and duration of heat waves can be expected. This will increase the risk of mortality among the elderly and within Asia's urban poor population. An increase in respiratory and cardiovascular diseases in arid, semi-arid and tropical Asia can also be expected as a result of global warming. Global warming will alter the occurrence of vector-borne diseases like malaria and dengue fever. With an increase in temperatures and changes in rainfall patterns, the spread of vectors, such as mosquitoes may also be altered. It is possible that these temperature and rainfall changes will increase vector-borne diseases in



temperate and arid Asia, which would have serious human health implications. Water-borne diseases, such as cholera and the diarrheal diseases caused by organisms such as giardia salmonella and cryptosporidium, could become more prevalent in many South Asian countries as a result of global warming. Ref.(6)

- 4. Impact on Settlements, Industry and Infrastructure:** Climate variability, including extreme events such as storms, floods and sustained droughts, have already had marked impacts on settlements and infrastructure. The negative impacts of climate change could create a new group of refugees, who may migrate into new settlements to seek new livelihoods, which will create additional demands on infrastructure. However, few detailed assessments of such impacts using climate as a driving factor have been undertaken in the LDCs. More research is needed, particularly on the impact of climate change on energy, tourism, settlement and infrastructure. Ref.(7)

MIGRATION AND CONFLICT:

South Asia is a hotspot for the migration of people from disaster-affected or degraded areas to other national and international regions. The Indus and the Ganges-Brahmaputra-Meghana Basins are major trans boundary rivers, and increasing demand for water is already leading to tensions among countries over water sharing.

Though there are several impacts of climate change on human development. Our governments has taken many steps to initiate the process of conserving our environment so that there will be proper human development may occur. These are as:

- There should be sustainable development planning and practice. Climate change has the potential to undermine sustainable development, increase poverty, and delay or prevent the realization of the Millennium Development Goals. An effective way to address the impacts of climate change is by integrating adaptation measures into sustainable development strategies so as to reduce the pressure on natural resources, improve environmental risk management, and increase the social well-being of the poor.
- Incorporating or integrating adaptation to climate change into planning processes is a necessary strategy for sustainable development over the long term



- Capacity-building at local, national and regional levels is vital to enable developing countries to adapt to climate change. It is important for stakeholders and funders to recognize the role of universities, tertiary centres and centres of excellence. Enhanced support is needed for institutional capacity-building, including establishing and strengthening centres of excellence and building up hydrometeorological networks. Training for stakeholders in all sectors would help the development of specialized tools for planning and implementing adaptation activities and thus promote action by local and national governments.
- Education and training of stakeholders, including policy-level decision makers, are important catalysts for the success of assessing vulnerabilities and planning adaptation activities, as well as implementing adaptation plans.
- Participants at the workshops and meeting noted that awareness on climate change risks and the need for adaptation should be raised among key sectors and mass media, including by using current events, such as economic, weather and health crises, as a basis to promote adaptation measures with co-benefits. Improving public awareness and developing overall communications strategies makes climate change science accessible to the average citizen and can reduce their vulnerability

INDIAN STAND ON CLIMATIC CHANGE:

- India has been arguing at all climate negotiations that though it is among the top 10 emitters of carbon dioxide, the per capita emission is still one-sixth of the global average. Further, it has managed an 8 per cent growth with only a 3.7 per cent growth in energy consumption. India may oppose any move to seek its commitment to reduce greenhouse gas emissions and will ask the developed world to transfer Intellectual Property Rights with the clean technologies. The Indian Constitution on a sensitive provision in Article 48-A states, "The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country." This is a fundamental obligation of the state since its violation has fatal implications. Article 51A (g) creates a fundamental duty on every individual to obey the mandate of environment and ecology. India needs to chart out a roadmap for itself in the light of the report on climate change. Climate change can be mitigated in many ways, such as improving the



efficiency of energy - intensive devices, vehicles and buildings, all of which involve direct and indirect gas emissions. Developing countries like India must adopt new energy - efficient technologies. Fuel - efficient vehicles, hybrid vehicles, and affordable and safe public transport need policy support in the form of lower taxes and promotion of usage. The government can mandate that buildings integrate green technologies such as solar photovoltaic systems, which are particularly relevant in a country with plentiful sunlight. The energy efficiency of end user equipment can be ensured through appropriate tax breaks and certification systems. The improved cooking stoves and high efficiency lighting, heating and cooling devices are available even today. Ref.(3)

- Launched in 2008, India's National Action Plan on Climate Change (NAPCC) identifies a number of measures that simultaneously advance the country's development and climate change related objectives of adaptation and mitigation. The implementation of the NAPCC is designed to take place through eight National Missions, which form the core of the National Action Plan and incorporate multi-pronged, long-term and integrated strategies for achieving India's key goals in the context of climate change Ref.(8)

CONCLUSION:

Climate change requires a global framework for international cooperation. Adaptation action is a vital part of this framework. Actions to enable adaptation to climate change pose opportunities to promote sustainable development. Developing countries require resources in order to promote these actions. A successful framework must directly involve assistance for adaptation in developing countries, particularly small island developing States and least developed countries, given that they will disproportionately bear the brunt of climate change impact. Adapting to climate change will entail adjustments and changes at every level – from community to national and international. Communities must build their resilience, including adopting appropriate technologies while making the most of traditional knowledge, and diversifying their livelihoods to cope with current and future climate stress. Local coping strategies and traditional knowledge need to be used in synergy with government and local interventions. The choice of adaptation interventions depends on national circumstances. To enable workable and effective adaptation measures, ministries



and governments, as well as institutions and non-government organizations, must consider integrating climate change in their planning and budgeting in all levels of decision making.

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