

CLIMATE CHANGE: ISSUES AND AGENDA FOR THE FUTURE

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Abstract: Climate change is the change in the average distribution of weather pattern for a prolonged period of time ranging from decades to millions of years. This climate change affects all eco systems, availability and production of food and associated ill effects on health. United Nations & various governments have formulated strategies to combat the the threat posed by the climate change.

Keywords: climate change, green house gases, global warming, United Nations framework on climate change (UNFCC), conferences of parties (COP)

CLIMATE CHANGE: DESCRIPTION

Climate is described as the 'Average Weather' of an area. It includes physical conditions like precipitation, wind, temperature, humidity and also seasons. These factors are known to shape ecosystems and this in turn shapes cultures and economies dependent on them. It has been observed that change in climate is causing catastrophic damage to the ecosystem. Rate of change is faster than what has been observed in the last 2000 years.

When the average distribution of weather pattern changes and the change so observed lasts for relatively long time span, this change in climate conditions is termed 'Climate Change'. The time ranges from decades to thousands of years. In simple words, climate change is the increase in temperature of earth's atmosphere. This phenomenon is termed as 'Global Warming'. Scientific Community has enough evidences to prove that causes of Climate Change are the Green House Gases (GHG) including carbon dioxide which is released into the atmosphere by burning of fossil fuels. These gases are known to trap the heat and to increase the average surface temperature of the earth which has its ill effect on ecosystems and consequences are flood, rising level of sea, drought etc.

Many ecosystems are linked to climate patterns. Changes in these climatic patterns affect all ecosystems whether it is habitat of flora and fauna, production and availability of food and associated ill effects of health.

Scientific studies from across the globe have concluded that Climate Change is a reality and is on account of greenhouse gases being pumped into the atmosphere due to burning of fossil fuels like coal and oil. Deforestation and agriculture are some of the human activities which also contribute towards climate change. Some of these greenhouse gases occur in earth's atmospheric systems and are important as they have characteristics properties to control earth's temperature. Since the beginning of the human civilization the concentration of carbon dioxide in atmosphere has not risen above 300 PPM. This data is till 1990 beginning 1000 years ago. It is alarming that presently the level has gone upto 400 PPM.

CLIMATE CHANGE - IS IT REALLY OCCURING

Climate Change is a reality happening every second and scientific community at large is in consensus with this fact. There is no doubt to the scientific community that climate change is a consequence of human activities. Agencies like Atmospheric Administration, US Environmental Protection Agency and NASA have enough proof to back this hypothesis.

A body comprising of 2500 scientists across the world in IPCC (Intergovernmental Panel on Climate Change) have given an assessment scientifically on the effect of global warming on flora and fauna. As per the IPCC Report, Green House Gases comprising mainly of nitrous oxide, carbon dioxide, methane are the main culprit, compounded by unabated burning of coal, oil, various industrial processes, agricultural activities, urbanization etc. These have resulted into global warming leading to melting of glaciers and rise in the level of sea. Rising sea level will contribute towards warming ocean temperatures, frequent storms, excessive rainfall, floods, droughts etc. IPCC has projected that global average surface warming will lead to increased temperatures worldwide. The range of temperature rise predicted from the end of 20th century to the end of 21st century is expected from 0.6 to 4 degree centigrade.

It is further predicted that closing 21st century sea level will rise by 0.47 meter in last 100 years. Several low lying areas have been totally submerged as sea level has gone up. Studies have concluded that receding of Himalayan glaciers is due to temperature increase in Tibetan Plateau. The study further predicts that Badin and Thatta in Sind which are historical cities of Pakistan would be submerged in sea by the end of 2025. This is because eighty acres of land is being encroached by sea on daily basis. Rising sea levels will result in migration of population to higher reaches causing stress to the social environmental at their new dwelling

Cherrapunji and Mawsynram in India are two prime examples of the effects of global warming. These towns were the wettest places in the world till few decades back due to their high rainfall. However, now these towns at times face drought like situations and no systematic pattern in rainfall is observed. Large number of inhabitants of these areas who were engaged in cultivation of paddy and maize are affected. Their livelihood is greatly hit as a consequence of water shortage.

The impact of climate change is being felt all across the globe and hence need of the day is to address these issues with objectivity so as to save the earth from the catastrophic impact of climate change. Countries around the globe have realized that consequences of climate change are biggest impediments to fight poverty and welfare and development of a nation.

Scientific studies have further come out with various other external factors which contribute towards global warming like orbital variations, solar output, volcanization, plate tectonics etc. Orbital variations like eccentricity, change in the angle of axis along which earth rotates lead to variation in geographical distribution of sunlight which reaches the surface of earth, this leads to changes in distribution of climate and largely impacts the glacial and interglacial periods. Solar output of sun, geothermal energy emitted from core of earth and heat due to radioactive decay of compound can cause changes in global climate.

During August 2011, European Organization for Nuclear Research in their initial results from its CLOUD experiment announced ionization from cosmic rays were enhancing aerosol formation when sulphuric acid was present along with water. Large volcanization eruptions inject huge quantities of Sulphurdioxide in stratosphere. Due to its optical properties, sulphur dioxide present in stratosphere strongly absorbs or scatters solar radiations. This results in the formation of the acid haze of sulphuric acid. Plate tectonics over millions of years has led to the reconfiguration of ocean areas as well as land which in turn effect both global and local pattern of climate and oceanic circulation. Location of oceans/seas is important to control the transfer of humidity and heat content across the globe, thus determining the global climate.

UNITED NATIONS AND ITS RESPONSE TO CLIMATE CHANGE

Due to the hazardous threat posed by the consequence of climate change, political and scientific fraternity from across the globe come together under the aegis of UN and agreed on Rio Conventions adoption of United Nations Framework on Climate Change. This started at Earth Summit held in Rio in 1992. The Committee scheduled a framework to be acted upon with the main aim of brining stabilization to atmospheric concentration of all the greenhouse gases. This was done to set off any hazardous anthropogenic disturbance with climatic network. UN Framework on Climate Change (UNFCCC) was set up on 21 March 1994. Till date 195 parties are members of prestigious UNFCCC. The location of UNFCCC talks is held in rotation throughout United Nation Countries. Conferences of Parties (COP) so constituted, meets annually to review UNFCCC's implementation to assess the progress with regard to climate change. COP aims to promote long term solutions for stopping global warming and to take the world forward to zero carbon and climate resilient future.

It was in Berlin in 1995 that first COP took place and has since then continued on annual basis. Significant meetings of COP have taken place since COP1 particularly COP 3 in 1997 where Kyoto Protocol on climate change was adopted. This gave an agenda to various nations to reduce emissions of greenhouse gases. Industrialized nations of the world and few economies of Europe legally agreed to reduce emissions of Green House Gases to average 6-7% for the period 2008-2012. This is called the First Emission Budget Period. There was a major shift in the approach to Kyoto Protocol wherein Conference of Meeting of Parties (CMP) allowed parties to be present as observers who were not part of CMP.

Significant and important decisions were agreed upon in COP 11/CMP 1 which was scheduled in Canada. Here 'Montreal Action Plan' came into existence. The date of Kyoto Protocol was extended beyond 2012 and 'Map for Future' was chalked with plan to achieve a deeper cut in levels of greenhouse gases. Not a very positive development was noted in COP 15/CMP 5 in Copenhagen, as no binding agreement for action on Kyoto Protocol was achieved which was due to expire in 2012.

In Cancun, Mexico, COP 16/CMP 6 was held and a significant agreement was worked upon with consensus of all the parties. A fund called "Green Climate Fund" and a center under the banner 'Climate Technology Center' was agreed upon to be set up. The initial fund of US \$ 100 billion per annum was given for this. However, the parties did not agree with the distribution of the fund. The distribution of this fund was agreed upon in Durban, South Africa in COP 17/CMP 7. It was decided that this fund would be utilized in helping and aiding poor countries to adopt measures to bring down global warming. It was also agreed by the countries to initiate negotiations for legal binding by the parties to be adopted in 2015. The decision was for the period post 2020. COP 21 also known as the 2015 Paris Climate Change Conference aimed at accomplishing an agreement binding for all parties so as to keep global warming below 2° C.

THE PARIS CONFERENCE

From 30th March 2015 to 12th December 2015 in Paris, France COP 21 also known as CMP 11 was held. The venue for this summit was specifically chosen as France as France had proved itself to be the model energy generating state. France maintained its high living standards while decarbonizing production of electricity in totality.

Non-conventional sources of energy which includes wind, hydroelectricity and nuclear energy are explored. In France since 2012 these zero carbon sources are providing 90% of the electricity to the country. The main objective set in Paris Summit was to achieve a universal binding pact on climate from all the nations of the world. This was achieved after two decades of negotiations by UN.

The Paris Summit negotiated a Global Agreement which aimed at bringing down the global warming. It was agreed upon by 196 countries attending the Conference that if 55 countries which contribute 55% of emissions of greenhouse gases came together for the objectives, it will become legally binding for all the representative parties. These countries were to sign a legal agreement between 22nd April 2016 - 21st April 2017 and adopt policies to limit the global warming. The Paris Pact also envisaged for zero net greenhouse gas emissions to be achieved in latter half of 21 century. The Parties were also to adopt measures so as to limit global temperature rise to 1.5°C. According to environmental scientists this objective will require no emissions between years 2030-2050.

Prior to Paris Summit, 146 national climate panels publically presented a draft namely 'Intended Nationally Determined Contributions' (INDC). This panel gave recommendations which if worked upon would restrict global temperatures to 2.7°C by the year 2100. Highlight of Paris Agreement was that no goal specific for any particular country was set up and also no time frame was mentioned in contrast to Kyoto Protocol.

THE FLIP SIDE / RESULT OF COP 21

On 12th December, 2015 all 195 participating nations agreed to put up their best efforts to bring down global warming to below 2°C by keeping emissions of greenhouse gases under control. At the same time it was agreed upon that the 55 parties who are responsible for emitting 55% of world's greenhouse gases should ratify the agreement and only then it would be binding for all. All nations that ratify the agreement will have to set up goals for reducing the emissions. It was unanimously agreed upon that no country would be forced to set up a target and whole procedure would be voluntary. No enforceable measures will be taken if target set are not met.

Environmental analysts are of the view that high polluting countries like India, Canada, Indonesia, US, Brazil, China, Australia who are responsible for more than 50% emission of Green House Gases would now work on reducing emissions although there is no enforcement measures binding to them.

INDIA – ITS ROLE?

India has pledged to ramp up the renewable energy to 20,000 MW by 2020, India will harness 40% of its energy from non-fossil fuels by 2030.

Prior to the talks, India was firm that it would not change its carbon emissions as carbon emissions of India was nearly half as that of China during 2014. During 2010 per capita carbon emission was 1.7 mt which was well below the world average of 5 mt. According to the data published in WRI, during the year 2011, average per capita emission by India was lowest amongst the world's top 10 emitters with an average per capita emission of about 1.92 tonnes of Carbon dioxide equivalent. Other major emitters during 2011 were Canada (24.6 tonnes), US (19.6 tonnes), Russia (15.5 tonnes) and China (7.69 tonnes). India has been arguing that since it accounts for 1.6 tonnes of carbon dioxide per year compared to the world average of 4.9 tonnes, it needs the balance "carbon space" (difference between the world average per capita emission vis-à-vis India's per capita average emission) to undertake technological and economic activity so as to help the people out of poverty and setting a cap on emissions would be akin to asking India to drop its ambitious plan to emerge an economic power house. India's stand and argument has been appreciated by a few countries who have opined that India was not acting to blockade the negotiations but looking for protection of its national interests.

PERSPECTIVE FOR DEVELOPING COUNTRIES

Efforts to control and contain climate change as a global issue has resulted in divergent opinions amongst the developed and developing nations. While the developed nations do not want the quality of life or the industry and economy affected by initiating action towards controlling the climate change, the developing economies are trying to provide basic infrastructure like housing, electricity, road network etc. to its population which is under economic stress. Echoing such sentiments of the developing countries, Chinese President Xi Jinping stated that the world needs to respect economic and social differences amongst the countries especially the developing and approach towards climate change should not deny the need of the developing countries towards poverty eradication, thereby indicating that consumption of coal and oil will certainly increase in case the poverty has to be reduced. President Xi Jinping stressed that countries must retain the option to pursue their own climate change agenda and there should be an emphasis on inter-action towards exchange of ideas and best practices for mutual learnings amongst the countries. Interesting observation was also made that while the rich countries which pledged US\$ 100 billion at the Paris Conference to help poor countries to combat the climate change have themselves been historically responsible for high emission of GHGs.

The World Street Journal reported Indian Prime Minister Shri Narendra Modi's message that raising the living standards for the poor in India will be the core challenge without breaking the carbon budget. Indian Minister of State for Environment laid stress that the developing countries must accept historic responsibility for polluting earth in its quest for development. Billions of people are at the bottom of the socio-economic ladder and are looking forth towards growth said the Indian Prime Minister Modi as reported in Hindustan Times, further stating that the developed world needs to take a lead in fight against the climate change and provide more carbon space to the developing countries, thereby allowing such economies to initiate massive economic activity to bring their population out of poverty. The developed world needs to realize and acknowledge the expectations and aspirations of the developing economies to develop.

CLIMATE CHANGE - THE DEBATE

While scientific community and the governments agree that the climate change is happening and is primarily on account of human activity, there is a belief in certain quarters with regard to the validity of such findings. These groups believe that recent change in climatic patterns which are being attributed to human activity is in fact a process of natural change the climatic patterns have exhibited in respect of increasing temperatures and no direct influence can be drawn between the change in climate and any weather event. However, these opinions are overridden by the scientific data analyzed and the role of human activity in climate change. The Economists are unanimous in their belief that cost of reduction in Green House Gases emission would be far insignificant rather incomparable vis-à-vis the consequences of climate change.

A document "Climate Action and Support Trends" was submitted in 2019 detailing the UN Climate Change input in UN Climate Action Summit. This report highlights the progress made since the inception of UN Framework Convention on Climate Change (UNFCCC). This will be helpful to prepare next report of national climate action plan named Nationally Determined Contribution (NDCs) by 2020

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