



## Climate Change and Global Warming: An Anthropological View

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The global discourse on climate change has turned increasingly to adaptations as a priority for research and policy. Although many of us working on developing anthropological perspectives on climate change are versed in the frames of adaptive capacity and resilience, we nonetheless question whether these coping mechanisms are sufficient. Resilience, both social and ecological is a crucial aspect of the sustainability of local livelihoods and resource utilization, but we lack sufficient understandings of how societies build adaptive capacity in the face of change. (Crate and Nuttall, 2009, pp9-10)

Over decades, a relatively small group of anthropologists have contributed to the understanding of how cultures large or small, technologically advance or low deal with environmental change and climate variability. Those contributions aside, the discipline is not strongly positioned in public debate about or research and action on anthropogenic global warming until recently. This briefs speculation attempt to highlight human response of climate change and global warming (Michael R Dove and Carol Carpenter, 2008).

"Specific tendency in anthropology to explore the particularities of human action, practice and value within the embracing complexities of their specific and wider contexts must include the actions, practices, and values developed around anthropogenic climate change, as well as much deeper attention to the 'specific and wider contexts' of physical environments and social structures that constitute the milieu forever-more visible signs of atmospheric warming" (Kapferer 2007:307-321).

Anthropogenic factors are acts by humans that change the environment and influence climate. The biggest factor of present concern is the increase in carbon-dioxide levels due to emissions from fossil fuel combustion, followed by aerosols (particulate matters in the atmosphere) which exerts a cooling effect. Other factors, including land use, ozone depletion, and deforestation also impact climate.

So far humans have considered unique having cultural means of adaptations apart from biological. "Adaptation refers to the process by which [humans] organisms cope with environmental forces and stress..." (Kottak 2008:4). In over two centuries, anthropologists have emphasized human ability to be most adaptable animal and have explored "human biological and cultural diversity in time and space" (Kottak 2008:4)

There are two stream of intellectual debate that ought to be considered while discussing global warming and climate change vis-à-vis humans of 21<sup>st</sup> century. First, there is a need to reconsider the basic premise of anthropologists that human ability is par excellence as the most adaptable animal who can overcome any climatic effects and conditions.

Our effort is to present what is known and what may happen to human beings within this century. Both sides of the coins are discussed to put forward some of gloomy and dark future of humankind on the earth.

### **Planet Earth**

Out of the entire atmospheric makeup of planet earth, only one to two percent is made up of greenhouse gases with the majority being nitrogen (about 78 percent) and oxygen (about 21 percent). Of that two percent, "planet-killing" carbon dioxide comprises only 3.62 percent while water vapor encompasses 95 percent. And of the amount of carbon dioxide in the atmosphere, humans cause only 3.4 percent of annual CO<sub>2</sub> emissions (National Geographic News, posted March 27<sup>th</sup>, 2009).

Indeed, anthropogenic effects are real but carbon is a small portion of the natural cycle. Also both the sun and carbon are needed for natural cycles that are good for the earth such as photosynthesis (Global Warming Premier published by the National Center for Policy Analysis, 2007).

Climate variability and weather patterns are a permanent backdrop, and often a central force, in socio-cultural life. Climate changes are central to the future of cultures and ecosystems on earth. Anthropogenic global warming is a result of the '...basic material processes of modern human life' and '... dealing with the problem apparently implies the most ambitious plan to reshape human values and existence ever mounted' (Richards 1999:497). Urgent emissions reductions to avoid more than 2 degree Celsius warming deemed a notional threshold beyond which significant sea level rise and major extinctions will occur are proving elusive. Inadequate response has a potentially world- changing, but still uncertain consequence (Intergovernmental Panel on Climate Change 2007).

The Intergovernmental Panel on Climate Change (2007) used its strongest language yet to link human activity to Earth's warming temperatures, rising seas, more intense storms, and a host of other environmental maladies.

"Most of the observed increase in globally averaged temperature since the mid-20th century is very likely due to the observed increase in anthropogenic [human-caused] greenhouse gas concentrations," the report reads "Very Likely" a Big Step. The phrase "very likely" translates to a 90 percent probability, the report authors' note. This is a significant departure from previous reports where it was concluded that humans were "likely," or with 66 percent probability, the cause of global warming in 2001. Intergovernmental Panel on Climate Change in 2001 also issued a benchmark report claiming the world's glaciers were melting so fast that those in the Himalayas could vanish by 2035. Controversy continues to surround doomsday cohesions worldwide.

Numerous scientific reports compiled by international teams of experts confirm that climate change is not only happening but is very likely caused by human activity, a point clarified by Climate Change 2007, the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC 2007).

Two points that emerged are loud and clear. 1) Climate change and global warming is undeniable; 2) humans are largely contributing in climate change and global warming.

### **Anthropological View**

The evolutionary origins of human cultures have provided ample evidences to suggest that during last (wurm) glacial (around 75,000 BP). It was cold climate that lead extinction of Neandertals. This time round it will be global warming that would lead to large scale human extinction given large human population on the earth. In the past, glacial changes were gradual and having region specific impacts. In the present situation depletion and degradation would be at an accelerated pace encompassing the total bio- sphere and beyond since little or no unique human adaptations would be possible.

We are of the view that cultural skills to cope with climate change and global warming issues of human contributions must be carefully re-examined in the light of human history, migration pattern, omnivorous nature of humankind and worldwide deaths due to extreme cold and heat and emotional dissonance. Also reduced ability of humankind after achieving certain technological sophistication and cultural specialization must be reviewed in the present context. The current human situation has reminded us of an old Indian fable which can be translated somewhat like this "Human adaptation to external environment continues to grow like the lotus flower in the pond where water level is growing. But, once pond begins to lose the water level the lotus stem cannot climb down".

The current human cultural situation is somewhat like the lotus in the pond. In the industrial, information and global world order, catastrophes and disasters in the 21<sup>st</sup> century is a grim reminder of human inability to overcome the catastrophes and disaster which are occurring with a lower frequency.

In today's human condition, the food chain, the apparel chain and energy supply chain are becoming global? There is no way; it is going to be reversed in near future. The poorest of the poor with low technology use and low consumption while living in an adverse climatic condition is forced to support those living in high food, cloth and energy consumption cultures. In spite of best human efforts global warming and climate change will drastically bring about disruption, dislocation and distortion of well-established supply chains. In the near future the process will get further accentuated.

We think, the 21<sup>st</sup> century human beings will lack cultural means to re-adapt and re-adjust with the drastically reduced supply chain for their survival. At the same time, the growing demand of material culture and comfort from the sleeping giants of the old world civilizations of China and India have already started competing to demand a large portion of the limited existing resources on the earth. This will further create serious human conflict and competition which cannot be resolved in the changing climate and global warming. Since these will adversely affect food production, agro-based products and energy supplies the chances are high for fast deterioration due to human interventions.

Twenty-first century civilizations centers around refrigeration, techniques of preservation, and processing which can't be sustained even for a century. We would like to raise questions: To what extent, these techniques would require re-examination, revamping and reformulation? From cold method of refrigeration to hot method of preservation, followed in many parts of the old world may mitigate the current crisis but chances are humans would ignore these adaptations due to inherent global business interest.

One of the significant observations of the anthropologists in the last century has been that there exists a perpetual gap between technological innovations and cultural adoptions. In other words, while technological changes are occurring with a high speed, the integration and adoption of the technology takes much longer due to slow human acceptance of innovations in almost all cultures of the world. Similarly, cultural changes are often aloof or divorced of concomitant technological changes. Do anthropologists have something to learn from such conclusions in the present context of global warming and climate change?

We think the cultural lag in appreciating the problems ahead will hinder combat climate change and global warming by a large human majority across the world. By the time the present depletion and degradation reaches at an accelerated pace, encompassing the total bio-sphere and beyond a large number of cultures would have either lost their abilities to adapt or the conditions would be so difficult that it would not be possible for them to adapt.

The effects of climate change are not just about community's or population's capacity to adapt and exercise their resilience in the face of unprecedented change. Climate change is also about the relocation of human population to adjust to change and to cope with its implications. (Crate and Nuttall, 2009, pp12-13).

### **Human Genome Diversity and Cultural Skill**

Major initiatives taken by anthropologists have led to unfolding of human genome diversity in few millennia. The complete picture of human diversity and human past is better understood than has been previously possible. Has human genome diversity helped improved human ability to cope with the changing climate? It needs to be investigated for human survival. Has human genome diversity help acquire new cultural skills to increase flexibility and adaptive ability is yet to be understood.

Given the technological interventions in human environmental and climate adaptation, it would be possible that growing genomic uniformity could lead to weakening of human ability to withstand and cope with the changing climate and global warming. It may also reduce certain dimensions of cultural skills required for human survival in the changing climate.

Another aspect of genome diversity relates to human health in which efforts are being made to establish genomic medicine that will improve human at an individual level with the hope to usher "in an era of personalized medicine, characterized by more accurate abilities to predict illness, prevent disease, promote health and allocate resources better at national levels" (<http://www.physorg.com/news140960226.html>, 2008). Precisely these developments may weaken cultural skills and abilities to cope changing climate (Agrawal and Chakrabarty 2008).

### **Human Aggression and Climate Change**

Human nature both in biological and cultural terms are largely in the realm of speculation and unending intellectual discourse, philosophical debate and scientific research. Anthropological studies have recorded human aggression whether foraging bands or most industrial nations (Kottak 2008). Human aggression continues to be an urgent concern of all religions, nations and cultures since one can witness human aggression in every aspect of human life.

To-day there is not a single day passed by across the globe without one or other form of human aggression. We believe aggression is inherent among human beings apart from other animals as a bio-cultural organism shaped and moulded by cultural ethos. An important question raised among anthropologists is whether climate change and global warming would adversely affect in accentuating and enhancing human aggression? Based on sporadic observations of increased human aggression during desert summer and drought period, we think, future will witness higher levels of human aggression tending to self destruction. Since cumulative effects of climate change and global warming would be spread over 21<sup>st</sup> century, the human self destruction and high degree of aggression would be felt and realized over a period of time (Agrawal 2008).

### **Yellowing of Green Revolution**

Human activity coupled with increased use of technology, high yielding variety seeds, chemical fertilizers, and pesticides have helped food production to sustain human life on earth. These developments have put agriculture in bind for high irrigation requirements, continuous and right quantity use of prescribed fertilizers and pesticides to maintain production level. Most of these agricultural practices are not amenable to climate change and global warming and in no way helps unleashing fresh creativity of the farmers.

Spectacular increase in the agricultural production globally has been a short-lived dream and caused ecological degradation of soil on large scale. Green revolution according to a large number of agriculture scientists, economists and agricultural scientists had an adverse on the growth rate of pulses, the main protein the fish which in the past had been available in abundant quantity is killed by pesticides" (Bhattacharya nd:5). The same holds true for several varieties of eatable flora and fauna across the globe.

Another dimension that started coming in to the light relates to the human endeavor to play and experiment with reduce genetic diversity like seeds to have high yielding variety seeds. Growing agro-climatic diversity and soil variation in different regions it would be difficult to grow uniform seed variety at the same time such seed would be vulnerable to new diseases and pests. The signs on the wall are clear that yellowing of green revolution is going to hurt worldwide loss of food production which will cause untold misery to humankind. To what extent cultural skills which have been blunted in the wake of green revolution can help in coping with climate change and global warming? In the light of several other factors discussed earlier the chances are little in coping with the newsituation.

### Concluding Remark

What has emerged from the brief analysis that there is growing homogenization in human cultural skills, human biological diversity because of human intervention over a long period of time. Without getting into ideological reasons that might have lead to the present process of homogenization, it is certain that cultural and biological homogenization may further get accentuated due to climate change and global warming. In the last century, automation, information and communication technology have contributed in the permanent damage of human organism to a point where behaviour changes for reduction in the fuel use and carbon emission would be possible. This would lead to large scale destruction and change in terms of human causalities and flora and fauna. It may look slow but irreversible process. Further, frequency of destruction will increase in coming years. The first victim of global warming and climate change will be those who won't be able to climb down from the high techno-social living and also unable to cope with changes. Those who survived will see the bright sun and cool moon will remain hot and humid on the earth's southern hemisphere.

Anthropological contribution though seem to be small in our view, it can significantly contribute in altering to some extent adverse effect of climate change and global warming.

This relates to re-inventing, re-vitalizing and re-enforcement of the cultural skills of specification and uniqueness to hold cultural diversities across world.

### References

- 1) Agrawal Binod C "Satellite Communication and Transformation of the Indian Civilization: Reflection on Human Condition" Paper presented in the 17<sup>th</sup> AMIC Annual Conference "Changing Media, Changing Societies: Media and the Millennium Development Goals" in the Plenary Session 1-July 14-17, 2008, Manila, Philippines.
- 2) Agrawal Binod C and Mitali Chakrabarty "Human Genome and Cultural Diversity for Improving Health Care", National Seminar on Human Genome and Cultural Diversity held at School of Studies in Anthropology, Pandit Ravishankar Shukla University, Raipur, India, March 2 - 4, 2009.
- 3) Crate Susan A. and Nuttall Mark (Ed.) 2009 Anthropology and Climate Change: From Encountersto Actions, LeftCoastPress, Inc. California.
- 4) International Panel on Climate Change. 2007. Climate Change. 2007. 3 vols and synthesis, Cambridge University Press.
- 5) Kapferer, B. 2007 Anthropology and the Dialectic of Enlightenment: A Discourse on the Definition and Ideals of a Threatened Discipline. The Australian Journal of Anthropology 18 (1): 307-321.
- 6) Kottak, Conrad, Phillip. 2008 Cultural Anthropology (Twelfth Edition), New York, McGraw Hill.
- 7) Michael R Dove and Carol Carpenter (Ed.) 2008 Environmental Anthropology - A Historical Reader, Malden (M A) Blackwell Publishing.

- 8) National Research Council Committee on the Geological Record of Biosphere Dynamics, The Geological Record of Ecological Dynamics: Understanding the Biotic Effects of Future Environmental Change (National Academies Press, Washington, DC, 2005).
- 9) [http://www.wikipedia.org/wiki/National\\_Center\\_for\\_Policy\\_Analysis](http://www.wikipedia.org/wiki/National_Center_for_Policy_Analysis)
- 10) <http://www.canadafreepress.com/2007/global-warming020507.htm>
- 11) <http://www.ncpa.org/globalwarming/GlobalWarmingPrimer.pdf>
- 12) <http://www.physorg.com/news140960226.html>, 2008