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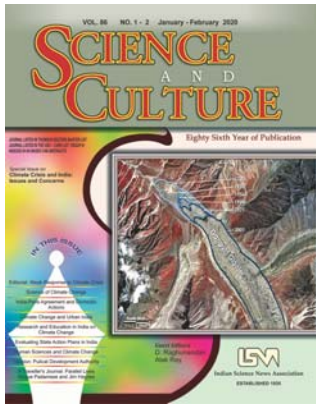
EDITORIAL

# WEAK RESPONSE TO CLIMATE CRISIS




Climate change is, in some special ways, a uniquely challenging subject to comprehend, not just for lay people but also for scholars, researchers, activists, policy makers, journalists. One may think, with climate change being proclaimed as the greatest existential threat faced by humankind and with the subject discussed, so much these days, that everybody would be very well informed about the subject. Surprisingly, even otherwise erudite academics, or contemplative activists, may actually have only a smattering of knowledge in specific thematic areas with quite hazy notions in others.

Part of the problem is the very complexity of climate change and the many disciplines involved in its study. All the sciences are involved, with several issues or subjects straddling two or more disciplines. Besides the basic sciences, thermodynamics, oceanography, meteorology, engineering and so on, all are required to understand climate change. Agronomy, life sciences, geography, medicine and health sciences are needed to study climate impacts.

Then there are the social sciences. It is clear that no purely technological or social engineering solutions exist for the climate crisis. The transition away from the fossil fuel burning civilization that modern human societies have created and lived in since the industrial age, will require changes across the spectrum. To understand what is required and how to bring about the necessary changes will not be possible without an understanding of economics, sociology, behavioural sciences and so on.

In fact, as enlightened research organizations and think tanks in many countries have realized and incorporated into their practice, inter-disciplinary studies are a must to understand the phenomena of climate change and its impacts. An inter-disciplinary approach is also required to devise strategies for adapting and building resilience to these impacts, as well as for the requisite integrated, cross-sectoral and transformational development pathways for a non fossil-fuel future.

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In India, we have barely begun to grasp this and to incorporate it into institutional practice whether it be in academics, research institutes or government. Maybe some think-tanks, social movements and NGOs are better placed in this regard, possibly because they do not have the luxury of numerous departments that will not talk to each other! Policy studies, crucial to understanding and designing ways to respond to climate change and bring about a required transition, is another area in which India has lagged behind academic and governance in other countries, including in some

developing nations. Perhaps this has ensued from having a permanent bureaucracy that feels it knows all, or from subjects being taught and studies without reference to complex social realities. Did the chicken come first or the egg?

It was this scenario that prompted the idea of putting together this Special Issue of this very special Journal, on the highly topical yet not particularly well understood subject of climate change and responses to it. "Science and Culture," is of course a Journal with a hallowed history, founded and edited by Dr. Meghnad Saha till his passing. Dr. Saha was not only a doyen of that early generation of Indian scientists but was also politically active, elected to Parliament, and played an active role in the planning process of science and technology. He thus straddled the academic and policy worlds mediated by his public service. His beloved Journal is multi-disciplinary and covers a wide area of science and technology, including their applications for societal benefit, and culture. It is therefore an apt vehicle for what we had contemplated. We planned this issue to cover a range of topics related to climate change, aimed at scholars with inter-disciplinary interests and an inclination towards public policy. Given the readership of the Journal, we felt this would help expand the circle of scientists, social scientists, humanists and policy actors engaging with climate change issues. Contributors to this Issue are drawn from diverse disciplines and institutional or career backgrounds. Although, regrettably, not all those contacted could contribute, those that did are scholars, science educators, practitioners, policy researchers and activist-scholars (or scholar-activists if you prefer!).

*Inter-disciplinary studies are a must to understand the phenomena of climate change and its impacts*

Nagraj Adve covers the science of climate change and gives us a picture of the current state of understanding of the phenomena and mechanisms involved. In particular, his article explains the interactions between different elements of the atmosphere and biosphere, the relationships between different physical manifestations of climate change, how the impacts of climate change occur and how they may be understood. In the process, his article helps remove several misconceptions and, rather than oversimplifying difficult concepts, helps improve our understanding of climate change in all its complexity.

D. Raghunandan guides us through the labyrinthine international climate negotiations and helps advance our understanding of the outcomes in the form of specific emissions control regimes, global goals and national targets, and their implications for India and other developing countries. His article covers the science, global political economy, roles played by different countries and groupings, and policy actors. He then takes a closer look at India's role and its evolution through this long process spanning over two decades. Finally he looks at India's commitments under the Paris Agreement of 2015 through its Nationally Determined Contributions (NDC) and examines it in the context of the sectors covered or not, as well as the approach adopted. A few concluding remarks about the way forward are of particular interest.

Ankush Gupta's article covers a specific area of interest, namely urban regions. He draws attention to the special character of urban areas, now home to over half the population of the planet and responsible for around 70 percent of greenhouse gas emissions, regarding both different sources of emissions and responses to climate change. He shows that urban areas generate a large proportion of very potent greenhouse gases (GHGs) other than carbon dioxide, such as methane from waste, "super GHGs" such as halo-carbons used in refrigerators and air conditioners, and sulphur hexafluoride used in the electrical industry and other applications, various aerosols and so on.

Alak Ray's article gives us a flavour of climate change research in Indian academic and research institutions, think tanks and non-governmental organizations, through brief profiles of the work in some of each. He finds that while a considerable volume of scientific research is being done in institutions, representation of Indian scientists in international bodies such as the Inter-governmental Panel on Climate Change (IPCC) is relatively low. Work done in a few non-governmental think tanks and research organizations appear to be more policy oriented and inter-disciplinary. The issue of building capacity in India as regards research on different aspects of climate change therefore poses a major challenge for the future.

Anu Jogesh and Mridula Mary Paul update us on their respective research on the various phases of the formulation of State Action Plans on Climate Change

(SAPCC). They point to often contradictory signals from the Centre to the States as to whether the State Plans should focus more on mitigation or adaptation. They also find that States were quite confused about funding of identified programmes, only to discover later that they were expected to raise funds themselves. International and bilateral agencies, as also several consultants, contributed substantially to the formulation exercise, which itself followed guidelines prepared by UNDP, all showing a lack of capacity at the State and Central level. Given all this, the SAPCCs present a widely varying set of perspectives, plans and proposed programmes, often based on a thin data set, and not well aligned with governance at the State level. The authors suggest that perhaps the present SAPCCs are best considered as first drafts towards subsequent, more goal-oriented revised plans.

Dipesh Chakrabarty interrogates the place of the humanities and the interpretive disciplines in studying climate change and the practical as well as theoretical questions raised by it. He argues that whereas such studies have gained salience only over the past decade, concerns of these disciplines have been at the heart of the international debate from the very outset, such as ethics, justice, values and equity. He explores the role that these disciplines could play in understanding climate change and societal, or indeed, fundamentally human responses to it. He also discusses the issue of interpretive explanations not having or claiming the same degree of consensus even amongst their own practitioners that the natural sciences do and wonders if this is really a problem. The author engages in an intriguing discussion contrasting societal understandings of climate change with those that look at humanity as a whole. He proposes that, despite differences within the humanities, common ground may lie in an enlargement of the hitherto anthropocentric perspective on climate change to one that embraces the "deep time" interconnections between the geological, biological and climatological constituents of our planet. ❐

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