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Weather Report
THE CRISIS OF CLIMATE CHANGE

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WeatherReport

THE CRISIS OF CLIMATE CHANGE

EDITED BY

RAVI AGARWAL
OMITA GOYAL

India International Centre
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INTRODUCTION

RAVI AGARWAL

During my many visits (2013–2017) to a fishing village in Tamil Nadu off the Bay of Bengal, I witnessed the coast change. Each year the tide became more unpredictable, coming in further till it lapped at the edges of fishing huts, carrying away more of the sandy beach with it, even as storms became more frequent and intense. The landing beach was the fishers' lifeline, a place to launch and park their boats—without it fishing was not possible. The fish catch near the coastline was dropping, and the smaller fishermen who went out in their paddle-driven boats came back with increasingly meagre catches. The young did not want to fish anymore, instead opting to learn other vocations, while those who were too old to fish spent their time reminiscing about their forefathers who had seen different times. The sea gods they prayed to every morning had evidently turned their backs on them.

The term climate change was unknown, or not understood, or that the changes being seen could be caused by conditions far beyond their control. It was as if everything was slowly, but surely, changing. Not only this community, but those like them around the globe would be the first victims of sea level rise. Their lives were so entangled with the sea that the impact would be catastrophic to their very way of life. On the other hand, perhaps in such entanglements could lie hidden secrets of other ways of being and re-learning how to coexist with the planet.

The uncertainty of knowing the manner in which the impacts of climate change would be visible, or even their unpredictability, has left a large gap in our comprehension of the crisis. Even so, the term 'Climate Change' has acquired widespread global urgency.

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It has become a marker of the planetary crisis caused by greenhouse gases (GHG), resulting in global warming. The change in climatic systems has been induced by anthropogenic emissions in the atmosphere, largely owing to fossil fuel-based energy use. It has led to severe environmental decline, raising fears of catastrophic consequences, and calls into question the fossil fuel-based economic growth model.

Initial efforts to comprehend the effects of climate change focused on determining the extent to which human activities have triggered this crisis. Future climatic scenarios were modelled to suggest mitigation and adaptation measures, and hold responsible the largest emitters of such gases through global UN-based mechanisms. However, despite unfavourable scenarios predicted by the Intergovernmental Panel on Climate Change (IPCC), countries expressed unwillingness or an inability to bear the cost of achieving mandated GHG emission targets. The issue of bearing the cost and responsibility for legacy emissions by developed nations proved sticky. The Paris Conference of Parties (COP–21) of the United Nations Framework Convention on Climate Change (UNFCCC) attempted to overcome the impasse by changing the approach to one that was more ground-up inclusive and state-centric, through instruments such as nationally determined emission contributions (NDCs). Yet those efforts have not been very successful thus far, as greenhouse gases continue to rise. Some say it may already be too late. Alongside, the idea of the Anthropocene has come into play.

'Anthropocene' is a term for this era, where human activity will determine the future of the planet. It calls for an urgent response as well, but also shows a deeper malaise. Other terms have been coined to capture this era, such as the Capitalocene, or the Chthulucene, etc., depending on the perspectives through which the evidence is viewed. They all point to a much broader condition in which climate change occurs. The 'crisis' is multi-dimensional and questions the very foundations of modern life, which has been based on using nature as a 'resource', instead of an ecosystem in which human life exists.

The recognition that man has been able to modify climate systems (and, as a consequence, ecosystems) opens up such broader questions as: What are the barriers to adopting other trajectories; or, are we able to fully comprehend or deal with the problem from

within our current social and political paradigms, or are larger shifts called for? For example, although we have recognised that the effects of climate change are not the same in different parts of the world, we are not able to fully predict them. In particular, we do not know the impacts on the most vulnerable populations on the planet.

Political, economic and social factors determine the magnitude of the impacts. There is a palpable difference between rich and poor countries in their ability to cope with the impacts of climate change. While rich countries have more financial and organisational capabilities for mitigation, poorer countries face serious difficulties in containing the negative effects. Such effects also generate social problems as they impose changes in modes of life at a greater speed than the current capacity to react to them. The more distant populations are from the centres of economic and political activities (thus closer to rural risk areas), the greater is their risk for survival. Climate change could be gradual and appear counterintuitive, yet visible in diverse ways if one knows how to look. The larger, looming questions of a greater ecological crisis rooted in inequities of social and political power structures ought to be reflected upon, besides deeper issues relating to science and society.

The otherness of vulnerable populations should be particularly considered in India. Indeed, India's vast geographical size, huge population and cultural diversity require a differentiated response to climate change impacts. As a consequence of rapid economic development, India is rising on the list of future contributors to GHG emissions. In fact, the country's economic and political security is dependent on factors which global warming will impact. These include vulnerabilities owing to the dependence on the monsoon for agriculture, rapid urbanisation, severe demands on water, contestations of forest areas and wildlife with human habitation, changing river flows, large coastal populations and susceptibilities to new vector diseases, etc. In addition, India is also home to deep cultural and philosophical values of living with nature, and conservation-oriented thinking and practices which can help lead towards different kinds of futures.

Another aspect of these vulnerabilities is through the widespread environmental changes predicted by the Anthropocene that are all not contained within the central climate change

discourse, and which is largely centred on the decarbonisation of economies. Habitat loss, loss of biodiversity, rapid extinction of non-human animals, excessive mining, marine plastics and other wastes, water scarcity, and an overall deterioration of ecosystems, etc., are some other vulnerabilities. The United Nations recently published a report on the global decline of nature, with unprecedented rates in human history, causing an accelerated extinction of animal species.

The questions are not only about the scientific facts of climate change, but also of their communication. Possibly, the problem lies in the exclusive nature of how science is itself produced. Science has developed into a system represented by 'experts', ratified by others, and bound by specific disciplinary and methodological boundaries. Recognising other disciplines (multi-disciplinarity), or carrying out research of the same object of study from different perspectives (pluri-disciplinarity) is insufficient. Instead, a common objective must be established, and efforts made to transfer methods and epistemological contributions from one discipline to another. Such a dialogue is the aim of interdisciplinarity. For example, the impact of the changes in the coastal landscape referred to earlier will have very different readings when carried out by, say, a physicist, a marine biologist, an anthropologist or a cultural theorist. However, as a 'lived' landscape, it is enmeshed with culture, nature and societal perspectives—all together. Further, what is often not considered are ways of knowing and observing nature, as part of people's experiences or their ways of relating to the landscape. The question that arises is whether climate science can be produced in association with such other ways of knowing and experiencing. By doing so, will not the issue of communication of the crisis not be 'after the fact', but during the very production of science? Thus, the climate crisis provides an opportunity to reconsider more fundamental questions of knowledge production.

This volume seeks to not only outline the specific conditions and responses to climate change in India, but also takes an unusual ground-up approach of including the voices of those who are researching landscapes and observing changes in them, across disciplines and practices. The wide range of contributions in this volume are testimony to this. From a policy perspective, Navroz K. Dubash and Lavanya Rajamani suggest a rethinking of India's approach to climate change from a diplomatic issue to a

developmental challenge by strengthening institutional structures and internalising climate change considerations as a departure from past approaches, especially since India is facing huge consequences and impacts as a result of climate change. Sagar Dhara brings in a South Asia perspective on India's vulnerability, despite it having historically low emissions per capita. The contentious issue of land is dealt with by Wischnewski, et al., who encourage India to take a global lead in creating an enabling environment by taking concrete actions on land tenure and gender mainstreaming.

One of the key shifts India will have to make is in the energy sector. Kaveri K. Iychettira highlights the electricity sector to outline its bottlenecks. In a scenario where dependence on coal is established, the inability to absorb the variability of renewable energy could be a problem in meeting stated targets. India is very vulnerable in the health sector and the impact climate change will have on it. Soumya Swaminathan and Poornima Prabhakaran point towards the multiple ways in which Indian populations are at risk—especially vulnerable groups—from vector-based diseases, impacts of heat and cold waves, nutritional status, etc., and suggest ways for its mitigation. K. J. Joy and Veena Srinivasan analyse the impacts of climate change on freshwater resources, while Ghazala Shahabuddin discusses the importance of forest conservation and regeneration. Janki Andharia draws linkages between climate change and extreme weather events, which are increasing in frequency, and argues for risk informed planning. Suman Sahai examines the impacts on another key sector—agriculture—across different types of ecosystems, as well as on fisheries, and suggests ways to adapt. Srinivasaiah, et al., discuss the adaptations in elephant behaviour as a result of landscape changes and the importance of factoring in climate change in animal management strategies, which is currently lacking. Madhuri Ramesh puts the lens on India's coastline and the lack of emphasis on this critical and populated landscape. The normally overlooked area of national security from a climate change perspective is brought in by Uttam Kumar Sinha. Nitya Rao calls for recognising the complex power and privilege structures in which gender, caste and race are located, and the differential impacts of climate change. She argues for creating 'longer-term enabling environments for innovative and creative adaptations to climate change' on the ground. Urban environments are being inundated

with plastics, an outcome of the fossil fuel-based petrochemicals sector, and Aravindhan Nagarajan lays this problem threadbare.

This volume attempts to include another, and unusual, spectrum of responses which are often left out in science and policy circles—these include holistic or alternate, literary and the arts, and grassroots movements' perspectives. Soumya Dutta lays out the concern and topography of the climate justice movement. The poet Nitoo Das brings in the question, 'What is the future of language, poetry, story-telling in the Anthropocene?' As a dancer, Navtej Johar questions the very categorisation of 'ecology' and proposes a 'visceral variety of performance' as a reconstitutive idea of nature. Bharat Dogra speaks of a more holistic approach to climate change. Locating her research in the Inupiaq Natives—the indigenous people of the far Artic—and those of Jharkhand in India, Vandana Singh states that the system is poorly equipped to engage with a problem as vast and complex as climate change, and lays out the challenges of adopting 'a cross-curricular transdisciplinary model of pedagogy, where educators from different disciplines collaborate and would be far more effective and powerful'. Finally, Paulina Lopez and Ravi Agarwal draw out the difficulties as well as possibilities of implementing a Gandhian way of thinking in a global economy. As a visual contribution is included a portfolio by artist Ayeshe Sadr.

The remedy to climate change may need more than changing energy choices or technologies. It must include ethical responses, and a reconfiguration of ideas of justice which extend to animal species, gender, race, caste, and ways to recover the multiplicity of man–nature relationships from the current binary one.

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