

ILLUSTRATION BY BINAY SINHA



Ecological crisis: Point of no return?

We must promote a comprehensive ecological convention that addresses all interconnected parts of ecology and not just climate

This summer has seen massive forest fires in the temperate zones of Europe and America. Temperatures in Spain have touched 47 degrees Celsius, which are more associated with Rajasthan's desert regions than Europe. Unprecedented floods have ravaged parts of Japan. The scale and frequency of extreme climatic events like cyclones and typhoons have increased the world over. Global warming is accelerating with 17 of the warmest years on record having occurred since 2001. The melting of ice sheets and glaciers has also gathered momentum. According to NASA, ice losses from Antarctica have tripled since 2012, increasing sea levels by 3 mm just in this short span of time. At the global level, NASA estimates that before 2012, the world's glaciers and ice sheets were being lost at the rate of 76 billion tonnes per annum. Since 2012, the loss is at the rate of 219 billion tonnes per annum. The rate of sea-level increase has therefore doubled to 0.6 mm per year from 0.3 mm per year on an average globally. To put this in perspective, if all the ice which currently lies locked in ice sheets on Antarctica were to melt and flow into the oceans, sea levels would rise by 58 metres and most of the major cities of the world, its coastal plains and islands would cease to exist.

Global warming is linked to the density of accumulated greenhouse gases, mostly carbon dioxide, in the earth's atmosphere. The current density, according to NASA, is 408 ppm (parts per million),

It was estimated to have been 280 ppm before our current industrial age began. Average global temperature has increased by one degree Celsius compared to 1880 and scientific consensus holds that if temperatures were to increase beyond 2 degrees Celsius, there could be catastrophic and possibly irreversible changes in our planet's fragile ecology. Although there is some ambiguity over the density of carbon emissions associated with the 2-degree temperature rise, a figure of 480 ppm is generally accepted by climate scientists. This would imply

that the world could add another 72 ppm to the existing stock of carbon dioxide in the atmosphere before an irretrievable ecological crisis erupted. But it appears that even with a one-degree rise we may already be in the midst of a crisis. The dystopian future may already be upon us. This is because the change in climate is also interacting with the large-scale and worldwide environmental degradation. Our oceans are dying

from the millions of tonnes of non-degradable plastics being dumped into them. Our forests are being denuded and our rivers are turning into chemical sewers. The mountains of urban waste have become dangerous stores of methane which has a much higher global warming impact than carbon dioxide. There is thus a strong feedback loop between climate change and environmental degradation, which intensifies the consequences of both. One is not even taking account of other alarming developments in the planetary ecology. Nearly 20-30



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per cent plant and animal species evaluated in recent climate change research are threatened with extinction, both due to human encroachments into and changes in their habitats due to temperature rise.

It should also be noted that global warming is a "stock" not a "flow" problem, that is, warming is the result of the accumulated stock of carbon dioxide and other greenhouse gases in the atmosphere. Current emissions add incrementally to that stock but do not by themselves cause global warming. Furthermore, since the stock of carbon emissions dissipates only very slowly over several decades, even if the incremental addition were to be reduced to zero, global warming would still continue and its consequences would be of a long-term nature. In that sense mitigation or reducing carbon emissions, which is the focus of the Paris climate change agreement, is only a partial answer to the challenge. Reversing environmental degradation is also critical because a wasting environment multiplies the impact of climate change. For example, the ocean's capacity to absorb atmospheric carbon dioxide is diminished by widespread pollution.

Both scientific advance and our day-to-day experience have brought growing awareness that we are part of a deeply interconnected and extremely fragile ecological system where a disturbance in one part of the system can trigger major alterations in all its other parts. The UN Sustainable Development Goals (SDGs) recognise this reality. But much of international discourse and norm-setting is still locked into a competitive and minimalist frame. Countries seek to preserve their advantage, reduce their obligations and try and shift the burden of adjustment on to others. It is the same with climate change. Those responsible for the current stock of carbon dioxide in our atmosphere through decades of fossil fuel burning do not accept their historical responsibility and wish countries like India to sacrifice their development prospects to meet the challenge of climate change. *The Economist*, in its latest issue, has homed in onto India for its apparent addiction to coal and thereby, undermining global climate change efforts. It does not deem it convenient to mention that India's current coal-based thermal power capacity is a mere 192 GW and rising very slowly against more than 940 GW for China which has another 200 GW in the pipeline. Or that Japan has added eight new coal-based plants in the past two years and plans to build 36 more over the next decade. By 2030, its coal-based power capacity will be 26 per cent of the total rather than the original target of 10 per cent. While rejecting the selective targeting of India, it must be our effort to promote a more comprehensive ecological convention which addresses all the interconnected parts of our planet's ecology and not just climate and setting out a series of collaborative rather than competitive interventions. The threat to human survival has made such an overarching initiative both urgent and compelling.

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