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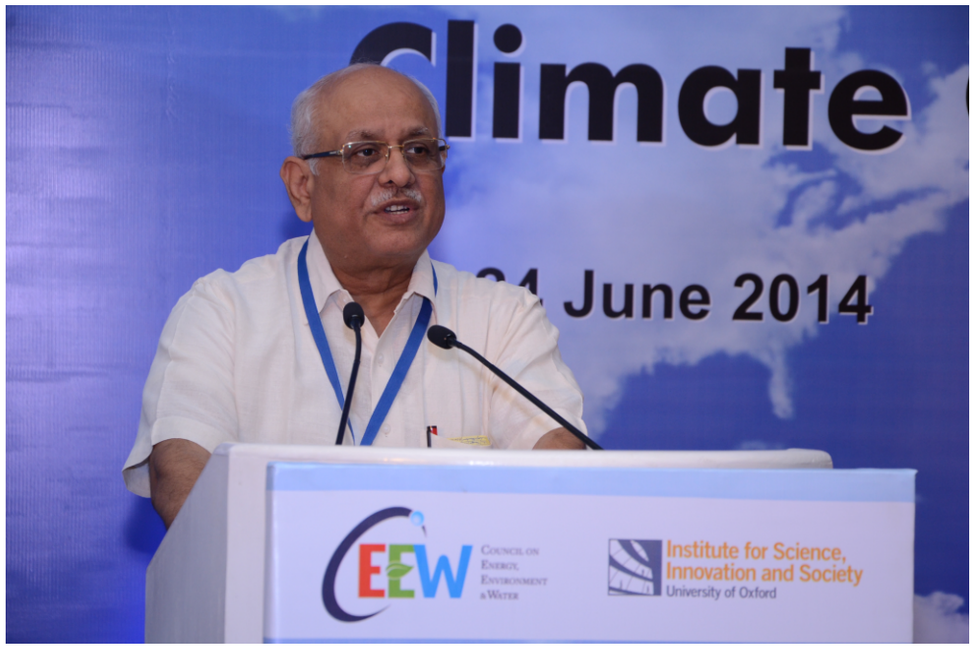
CEEW Lecture

Evolving Indian Environmental Policy as a Context for the Governance of Climate Change

Lecture delivered at CEEW-InSIS Conference on Climate Geoengineering Governance

J M Mauskar



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CEEW Lecture June 2014
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A keynote address delivered at CEEW-InSIS' Climate Geoengineering Governance Conference.

The Council on Energy, Environment and Water (http://ceew.in/) is an independent, not-for-profit policy research institution, chaired by former Union Minister Suresh Prabhu. CEEW addresses pressing global challenges through an integrated and internationally focused approach. It does so through high quality research, partnerships with public and private institutions, and engagement with and outreach to the wider public. The International Centre for Climate Governance has ranked CEEW as India's top climate change think-tank two years in a row. In 2014, the Global Go To Think Tank Index ranked CEEW 1st in India in three categories.

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ABOUT THE ORGANISERS

COUNCIL ON ENERGY, ENVIRONMENT AND WATER

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In less than four years of operations, CEEW has engaged in more than 60 research projects, published 35 peer-reviewed policy reports and papers, advised governments around the world over 80 times, engaged with industry to encourage investments in clean technologies and improve efficiency in resource use, promoted bilateral and multilateral initiatives between governments on 30 occasions, helped state governments with water and irrigation reforms, and organised more than 75 seminars and conferences.

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CEEW's **current projects include**: developing the Clean Energy Access Network (CLEAN) of hundreds of decentralised clean energy firms (an idea endorsed by Prime Minister Singh and President Obama in September 2013); modelling India's long-term energy scenarios; modelling energy-water nexus; modelling renewable energy variability and grid integration;

supporting India's National Water Mission; analysing collective action for water security; business case for energy efficiency and emissions reductions in the cement industry.

CEEW's **work covers all levels of governance**: at the national level, resource efficiency and security, water resources, and renewable energy; at the global/regional level, sustainability finance, energy-trade-climate linkages, technology horizons, and bilateral collaborations, with Bhutan, China, Iceland, Israel, Pakistan, Singapore, and the US; and at the state/local level, CEEW develops integrated energy, environment and water plans, and facilitates industry action to reduce emissions or increase R&D investments in clean technologies.

INSTITUTE FOR SCIENCE, INNOVATION AND SOCIETY

The Institute for Science, Innovation and Society (InSIS) researches and informs key contemporary and emerging issues and processes of social, scientific, and technological change. We combine the highest standards of scholarship and relevance to pursue and disseminate timely research in the UK and worldwide. We collaborate with leading thinkers around the world and welcome them to Oxford as visiting researchers. We nurture early career researchers through research fellowships in our various programmes.

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InSIS receives funding from the Oxford Martin School, the European Research Council, the UK Economic and Social Research Council, the CSPVM Trust and other public and private agencies.

ABOUT THE AUTHOR

Mr J.M. Mauskar is former Special Secretary, Ministry of Environment and Forests. Spending more than 34 years as a Public Servant as an officer of the Indian Administrative Service he has had 'hands on' experience of International Trade, Investment Promotion, Overseas Investments, International Contracts, Dynamics of Petroleum Sector and Environmental issues, especially Climate Change. He has been closely associated with major policy and regulatory initiatives in the domain of trade, energy and environment for more than 15 years by virtue of his having occupied key positions in the Ministries of Commerce, Petroleum & Natural Gas and Environment & Forests. He has also been Chairman, Central Pollution Control Board. He has spent over five years as Director on the Board of major Public Sector Undertakings such as ONGC, OVL and OIL. Following his retirement he was associated with climate change negotiations and was a member of several Central Government Committees.

Presently, as an Advisor to the Director in the Observer Research Foundation he continues to pursue his keen interest in environmental and trade matters and their impact on India’s international relations.

ABOUT CLIMATE GEOENGINEERING GOVERNANCE CONFERENCE

Human-induced climate change poses threats to the survival and livelihoods of many peoples across the world. Early debate on possible responses focused on mitigation, in which we try to reduce carbon emissions by consuming less energy or by reducing the carbon in the energy produced. In the last decade there has also been increasing discussion of adaptation, in which we also try to see what changes we could make to better cope with climate change. Under discussion now, within the scientific community and partially within policy circles, is a third option – the use of climate geoengineering. Defined as the 'the deliberate large-scale manipulation of the planetary environment to counteract anthropogenic climate change', the term covers a wide range of technologies, which work either by reducing the amount of the sun's radiation to reach the earth (solar radiation management – SRM) or by removing carbon dioxide from the atmosphere as the largest volume greenhouse gas (carbon dioxide removal – CDR).

There is growing international interest climate geoengineering. The Intergovernmental Panel on Climate Change (IPCC) included geoengineering in its Fifth Assessment Report (2014) and held its first expert consultation on geoengineering in 2011.[1] Earlier, the Royal Society UK had published an initial assessment of technologies and put forward recommendations.[2] Geoengineering research and related governance questions have been discussed at the national legislative and executive levels. Congressional and Parliamentary reports and hearings have been held in the United Kingdom[3] and the United States[4,5] respectively, and other studies have been commissioned by the German federal government.[6]

With anthropogenic climate change expected to impact severely on the global south, any attempt at large scale implementation of climate geoengineering technologies is bound to have cross-boundary effects. However, there is a governance gap, particularly at the international level. No existing institution appears to have the mandate or capacity to govern

[1] Ghosh, A. 2011. 'International Cooperation and the Governance of Geoengineering,' Keynote Lecture to the Expert Meeting on Geoengineering, Intergovernmental Panel on Climate Change, Lima, 21 June. Available at: http://ceew.in/pdf/AG_International_Cooperation_IPCC_21Jun11.pdf.

[2] Royal Society. 2009. Geoengineering the Climate: Science, Governance and Uncertainty. London, UK: Royal Society.

[3] House of Commons Science and Technology Committee. 2010. The Regulation of Geoengineering. London: The Stationery Office Limited

[4] Gordon, B. 2010. Engineering the Climate: Research Needs and Strategies for International Coordination. Committee on Science and Technology, House of Representatives, United States Congress, Washington, DC.

[5] United States Government Accountability Office. 2010. Climate Change: Preliminary Observations on Geoengineering Science, Federal Efforts, and Governance Issues. United States Government Accountability Office, Washington, DC.

[6] Rickels W., et al. 2011. Large-Scale Intentional Interventions into the Climate System? Assessing the Climate Engineering Debate. Scoping report conducted on behalf of the German Federal Ministry of Education and Research (BMBF), Kiel Earth Institute, Kiel.

the upstream process of laying down proactive research and governance mechanisms.[7] And the existing landscape of multilateral environmental agreements varies in terms of its relevance to governing the deployment of geoengineering technologies.[8] Meanwhile, research activities are gaining momentum, even though the vast majority of researchers might currently be concentrated in a few developed countries, thus raising questions about the legitimacy of the research and exposing governance deficits.

The Council on Energy, Environment and Water (CEEW) and the Institute for Science, Innovation and Society (InSIS), University of Oxford, organised a two day conference on Climate Geoengineering Governance in India on 23-24 June, 2014. The conference aimed to examine the governance arrangements that may be needed to ensure that experimentation or deployment of any of the large range of geoengineering techniques being proposed are safe, fair, effective and economic. It saw participation of experts in multiple disciplines from across the world. The speakers included seasoned administrators and policy makers, social and political scientists, techno-economic experts and practitioners in international law.

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[7] Ghosh, A. 2014. 'Environmental Institutions, International Research Programmes, and Lessons for Geoengineering Research.' Working Paper, Geoengineering Our Climate Working Paper and Opinion Article Series. Available at: http://wp.me/p2zsRk-av

[8] Blackstock, J.J., and A. Ghosh. 2011. 'Does Geoengineering Need a Global Response – and of What Kind?' Background Paper, Solar Radiation Management Governance Initiative, Royal Society UK, March.

KEY MESSAGES

i. **Carbon Dioxide Removal (CDR)**: The Parties did negotiate Carbon Capture and Sequestration (CCS) under the UNFCC and at that time we were concerned about its long term impacts, high cost of technology, suitability in India and in many other developing countries etc. Arguably, CDR appears to be covered under the UNFCCC because "Stabilization of greenhouse gas concentration in the atmosphere' is the Objective in Article 2 of this Convention.

ii. **Solar Radiation Management (SRM)**: We must be wary of this approach of reducing global temperatures. Little Ice Age (17th-18th Century AD) had coincided with very variable monsoon in India. The IPCC Report, especially of WG3 on geoengineering, has not yet been discussed in SBSTA of the UNFCCC. SRM should not undercut efforts under the UNFCCC or be implemented under any principles other than those of the UNFCCC.

iii. **Uncertainties:** First are those in Climate Change Science revealed in IPCC's 5th AR, like role of aerosols and cloud, feedback mechanisms and their strength, and the impact of natural variability as revealed by the temperature hiatus. Models need be tested by the reality. Second are uncertainties evident at present for geoengineering, like inadequate knowledge of theory, practical difficulties in implementation at a global scale, ignorance of short and long term global impacts etc. Lastly, Science and Technology are indeed important but so are Principles and Processes for tackling Climate Change enshrined in the UNFCCC.

iv. Anthropogenic geoengineering technologies are being brought up and discussed only in the context of Anthropogenic Climate Change. So Climate Change related Principles of Equity, CBDR etc., as agreed already in the UNFCCC, must be agreed to apply to all Geoengineering studies and implementation before we proceed any further. Because the IPCC has already reported on geoengineering in its 5th AR, nothing should be done till the UNFCCC CoPs at Lima and Paris give guidance.

v. While the Oxford Principles, the Asilomar Principles and the EUTRACE Principles being proposed for governing geoengineering research, development and implementation have their good and not so good aspects comparatively, IPCC is the only forum to deliberate upon and report on such proposed Principles to the CoP of the UNFCCC.

vi. On governance aspects, at present, we should do only 'thought experiments' of what it would look like at the stages of modelling studies, lab experiments, pilot projects and large scale/ global roll out. There may be common or different features of governance for various technologies under CDR and SRM. In any case, scientists can begin by studying the natural analogues, like volcanic eruptions for SRM or river runoff containing iron oxide in sea for CDR.

vii. No Body, whether plurilateral groups or any individual country, other than the UNFCCC/IPCC can or should press the alarm bell, that is to decide as to when the time had come to deploy any of the geoengineering technologies .

viii. In case anyone, the EU or the USA, think that the negotiated regulation of geoengineering Research will take far too long under the UNFCCC auspices, nothing prevents them from voluntarily declaring and enforcing under their domestic laws specific rules for such a regulation- this may speed up the negotiations at least- the developed countries need to and can take the lead here!

Good Morning Ladies and Gentlemen,

I thought that today I would give you some facts to mull over, some reflections, some food for thought but maybe not answers. The ideas I share with you are all my own. I no longer represent the Government of India, and haven't for three years now.

In India, you find a little bit of the prehistoric ages, something from the medieval ages, something from today's ages and I hope that we will find something from the 22nd century. I will first go back to the prehistoric times: The Vedic Period. Then, there was deification of the earth, the rivers and the forests. The propitiation of these deities was a must before any human activity took place that influenced them. Emperor Ashoka was the first Pan-Indian ruler. Ashoka had edicts carved on stone, still visible. On them, he is quoted to have said that it was the duty of the state to preserve animal life and forests. Under his rule, certain acts were rewarded by keeping them revenue-exempt, or with tax relief. Among those acts were the plantation of trees, taking care of animals, lakes and natural resources.

During the British rule, our policy was that forests and wildlife were resources to be exploited. If you felled trees or took anything out of the forest; you had to pay royalty tax. There were municipal laws that governed the air and the water resources and highlighted how these should be regulated. Surprisingly, under the Criminal Procedure Code, there was a Chapter 10 which was for prevention of offences likely to take place. This mentioned that it was the duty of the collector to apprehend anyone that was going to cause harm to others through pollution. A notice would be issued to any future polluter.

Now we come to India's Constitution post-independence. India is a union of states and not a federation. There is a division of power between states and the centre, with some centralising tendency. The states cannot separate. We have fundamental rights which try to reflect egalitarianism, of which the concept of equity is a part. Articles cover the right to equality, the right against discrimination and the right to equal opportunities. There is a chapter on the directive principles of state policy because the framers of the Constitution recognised that everything they wanted to include could not be achieved easily or quickly. These principles were evolving in nature, and the state applied them through laws. They minimised the inequality, that of men and women which was stated very clearly in the Constitution.

In 1950, when the Indian Constitution was adopted, 'Sustainable Development' was a phrase no one had even thought of. However, there was a directive principle that stated that material resources had to be distributed for the common good. I think this embodies the concept of sustainable development. In 1972, there was a UN Conference on the Environment in Stockholm. Mrs. Indira Gandhi, Prime Minister of India at the time, was the only head of state except for the Swedish Prime Minister to attend this conference. She said a memorable phrase then: "Poverty and need are the worst polluters". Subsequently, two principles were introduced in the directive principles of state policy. One was that the protection and improvement of the environment was a principle that the state had to promote. The other was

a fundamental duty enjoined on the citizens of India to protect and improve the natural environment and to have compassion for other living creatures. This finds some kind of resonance with what Emperor Ashoka said 2000 years ago.

The governance part of the Indian Constitution has three lists. All conceivable subjects with which the State has to deal with are found in the Union List, the State List and the Concurrent List. Entry 13 of the Union List acknowledges participation in international conferences and implementing decisions thereof. Entry 14 deals with entering into treaty making and implementation. Water, surprisingly, falls into the State and Concurrent lists. This creates problems because matters in water are better dealt with by the central government

The translation of the constitutional imperatives into laws dealing with the environment, over 1970s and 1980s, can be traced to the Stockholm Conference. We first had the Water Prevention and Control of Pollution Act in 1974 and a similar act for air came in 1981. In 1984, the Bhopal Gas disaster occurred. It was found that neither of these acts could really have prevented it. So, the Environmental Protection Act (EPA) was promulgated in 1986. This marked a shift in approach from controlling pollution to protecting the environment. The structures that came through the two previous acts were settled into a pollution control board at state levels. The EPA had a concept of authorities for specific purposes as seen in Section 5.3. The government could set up authorities to look into minute aspects.

There was a concept of subordinate legislation, borrowed from the previous British rulers. This is something done by the administrative ministry with approval of the minister, but laid in front of parliament which can suggest any changes to make. It was a faster method of putting laws into force. The subordinate legislations as a result of the EPA included some for impact assessment and coastal regulation. There were many which dealt with the treaty obligations of India, such as the control of ozone depleting substances as a result of the Montreal Protocol.

There are certain national norms for water and air pollution. These norms are notified by the central government and in this way pollution can be regulated. There are forest conservation acts and wildlife protection acts, no longer making them resources to be exploited but national treasures to be conserved. The word co-benefit comes up frequently in climate discourse. We too have a "co-benefit law", in that its effects have co-benefits for the environment. This is the Energy Efficiency Act. It enjoins energy efficiency standard for various industrial and commercial appliances.

After the 1980s, environmental law-making ceased. Although correlation is not necessarily causation, that period saw about 20 years of coalition government. A coalition of parties may have a majority in the lower house but in the upper house there may be no majority. In my mind, as far as the legal positions go, we have sufficient sets of laws which if properly implemented can tackle even the earlier unforeseen objectives such as climate change and geoengineering.

In the 1990s, there was judicial ruling laying down environmental policies. This follows from the articles 141 and 142 in the Constitution which mandate that any judicial pronouncement by the Supreme Court, unless undone by the legislature, must be abided by all the courts, bodies and citizens of India. The second aspect is the writ jurisdiction of the Supreme Court, another concept borrowed from Anglo-Saxon jurisprudence. This has been slightly elaborated in India via the Public Interest Litigation route. Any citizen may go to court with a problem and have the court provide some direction. Under the writ jurisdiction, the Supreme Court firstly interpreted the laws, then brought in the directive principles and the constitution. They also brought in natural laws such as the "precautionary principle" or "polluter pays principle". Some interesting cases were the Taj Trapezium case for air pollution and the Goa Foundation case for mining pollution.

The Supreme Court passed fundamental and far-reaching directions for the control of air pollution, mining pollution and deforestation. For example, through a series of orders, the public transport in Delhi was switched over from diesel to natural gas as a fuel. The court also monitors compliance. Even specialised tribunals have been set up (such as the National Green Tribunal set up in 2010) which seek to apply natural law to public life in the country.

I will now address the issue of climate change in relation to India. India's climate is extremely variable due to monsoons. However, impacts of climate change can be modelled. We have Intergovernmental Panel on Climate Change (IPCC) reports and our own communications. The variability in monsoons is projected to be impacted first. Droughts and floods have become more intense, with temporal and spatial variability increasing. Predictions are that there will be changes in crop seasons. Night and day temperatures will go up and vector-borne diseases will get worse. There will be a rise in the sea levels as well (a global phenomenon). The natural variability of Indian climate is such that the "signal-to-noise" ratio is very low. Limited information is available about the monsoons and changes in the crop season. Many changes earlier ascribed to climate change are actually due to deforestation, pollution impacting rainfall cycles or urbanisation (the heat island effect). The climate signals are only now being perceived.

Right from the 2nd Five Year Plan since 1952, we have sought to address issues of poverty, health, education, rural development and hydro power. These have been the focus of our development strategy. I am not talking about their success; just about what the efforts were. Their governance, in accordance with the Constitution, was with the Union government with respect to coordination and financing and with the state governments when it came to physical implementation.

Coming to the responses to climate change, the 4th assessment report from the IPCC was a landmark in climate affairs. India for the first time framed its National Action Plan on Climate Change (NAPCC), having several major missions under it. These include the Solar

Mission, the Energy Efficiency Mission, the Habitat Mission (which deals with transportation), the Water Mission, the Himalayan Mission, the Green India Mission (which deals with deforestation), the Sustainable Agriculture Mission, and the Strategic Knowledge Mission.

Again, looking at the governance structures, at the national level, there is a Council headed by the Prime Minister which coordinates with the Environment and Forests Ministry. We request the state government for state action plans. Some of these are implemented, but largely climate change has seen some resistance. Nevertheless, at state level there is focus on adaptation strategies. The reason for this is that adaptation is of local importance: it has to be driven by the local needs and implemented locally. As far as mitigation and energy policies are concerned, there is no distinguishing on the state level. These are national priorities, but implementation again happens at the state government level.

In line with the National Action Plan of 2008, adaptation and mitigation actions are being taken under the subsequent Five Year Plans. This position, I think, will change because the 5th Assessment Report of IPCC has arrived. In negotiation for the 2015 treaty, Intended National Contributions will task the central government with implementing treaty obligations. Even if what comes of 2015 is a treaty or not, the idea is that the driving force will come from domestic legislation, not from international obligations. As one of the proactive actions, there was a committee report under Prof. Kirit Parikh on low carbon growth strategies, although the committee did not have representatives from the trade unions or the state governments. India has also submitted the national communications (NATCOM) I and II to and the Biannual Update Report 2011-2013 is under preparation. These show that we are more or less on track to achieve our current goals.

There is another raging debate over environment versus development: are they critical to each other? "Poverty alleviation" was the phrase being used for the last 60 years, however, as the Bible says, "the poor will always be with us". The term now used in the framework convention for climate change is "poverty eradication". As a local touch, the president of India gave an address and used the term "poverty elimination". Although not likely achievable by 2019, it will remain one of the foremost goals of the new government.

Are environmental concerns holding up poverty eradication? I personally don't think so. Businessmen think that if they apply for clearance, they must get it. They do not see that a decision means a 'no' as well as a 'yes'. They may not get clearances due to bad business planning. Also there are central-state issues because states have their own priorities rather than national priorities. From the stakeholders to the NGO sector, it is sometimes difficult to figure out where the environmental concerns end and where the ideological concerns begin. This is especially true for nuclear power and large hydropower projects. The statistics we had

collected while I was with the Ministry showed that we had given clearance for enough power plants, mines and infrastructure projects to last us till about 2025.

Whenever debate takes place, the truth comes out. Hopefully the same will happen this time. Climate change impacts are the new mantra now, and we have been hearing this from various stakeholders. Are the climate change impacts already upon us? When do we give way to the precautionary principle as opposed to the overriding priorities of poverty eradication and economic and social development? These are few concerns we are wrestling with in India, and may not be as simple in various guises as the way I have put it, but politics, as they say, is "the art of possible". We will develop, maybe constrained in some ways, but not in others. India has played a lead role in international climate change negotiations (or so we would like to think), and played a positive one.

The Indian stance in my mind, whichever government is in power, will be based on equity. This is what our Constitution says and what our religious documents say too. Governments will not be able to ignore equity. I don't just mean *inter-generational equity* but also *intra-generational equity*. Primacy of the UNFCCC is something which all developing countries have been vocalizing. The forum-hunting for various issues (maritime organizations, the Montreal protocol) will find lots of resistance. The principle of Common But Differentiated Responsibility (CBDR) is the keystone for UNFCCC negotiations, and even the Indian Constitution recognises that there are weaker sections that have to be taken care of. The post-second-world-war arrangements have not been changing. For the foreseeable future, emerging economies will not change India's climate stance. An Indian Prime Minister once said that the per capita emissions will never exceed those of developed countries. This may be due to lack of fuel for our large population, or because of our use of technology and energy efficiency.

I have some thoughts on adaptation versus mitigation. Adaptation is our first priority, but in the future, more money and resources will have to be devoted towards mitigation as the uncertainties about climate change impacts reduce. The world will have to be clear on what to do about nuclear and hydropower. I am raising this issue because I feel geoengineering is a much worse option than nuclear and hydropower. If we are not willing to seriously discuss these options, why even consider geoengineering?

We discussed Carbon Dioxide Removal (CDR) during [UNFCCC] convention negotiations. At that time, India and other countries were worried about its uncertain long-term impacts, costs, IPR issues and its suitability for India. The sedimentary rocks capable of taking in Carbon Dioxide, necessary for the technology, don't exist in much of India. Arguably, CDR appears to be covered under the convention. Article 2 says that the objective of the convention is the stabilization of GHG concentrations. We are further wary of Solar Radiation Management (SRM). On a personal note, I read somewhere about the 'Little Ice

Age' that occurred in the 17th and 18th centuries in the Northern hemisphere. This had prolonged effects on the Indian monsoon. There was a 12 year drought in Mumbai's region. We will see some modelling results later, but the historical trends are important too. Although, these have been included in the IPCC reports, they have not been properly debated.

There is another fear that all this talk of SRM should not undercut the efforts of the UNFCCC. Geoengineering regimes should not be applied through principles different from those in the convention viz. CBDR and equity. Geoengineering is sought to be applied under different principles, and although the Oxford Principles are sound, I would further stress the point they make about governance coming before deployment. We also acknowledge much uncertainty over climate change as revealed by the IPCC assessment reports. This is also true for geoengineering. We have a limited knowledge of the science and no knowledge of its practical implementation. Its impacts according to the science in the short and the long run, the "known unknowns" and the "unknown unknowns" are tremendous.

My last point is that science and technology are very important in these areas, but so are the principles and the processes in any international matter. To sum up, India will continue to play a positive role in climate change deliberations, but this will be driven by equity and India's development imperatives. This will hold true for other developing countries, large or small, as well. The same imperatives will hold true for India's domestic efforts; governed by the Constitution and its dynamic laws. I don't know if we will soon get an amendment that fits in climate change or geoengineering. While a lot is being said about inter-generational issues, intra-generational issues should come first, with equity as a basis. I read an interesting paper by Andy Stirling where he says that democracy rather than authoritarianism should drive the climate change affairs; this should be true for geoengineering also. CDR to my mind seems to be feasible under the convention, but SRM is a wild card. Discussion on geoengineering needs to differentiate between these two distant technologies.

I am sure that at this Geoengineering Conference you will have successful deliberations, and although you may not reach a final point or consensus, you'll have enough food for thought. It is better to travel than to arrive. Thank you.

CEEW PUBLICATIONS

Books/Reports

- Arunabha Ghosh, Rajeev Palakshappa, Rishabh Jain, Shalu Aggarwal, and Poulami Choudhury (2014) 'Solar Power Jobs: Exploring the Employment Potential in India's Grid-Connected Solar Market', CEEW-NRDC Report, August
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