India in International Climate Negotiations

Chequered Trajectory

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India's stance at and approach towards the international negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) have evolved through several phases. Officially, India proclaims that it has staunchly guarded its national interests, warded off incessant efforts by developed countries to impose emissions control obligations and other onerous burdens on India, and acted unswervingly in favour of developing countries (Ghosh 2012). This claim has been broadly accepted, even if grudgingly, by sections of academics, the media, and even by activists or non-governmental organizations (NGOs) in India, especially in the face of intransigent behaviour by the United States (US) and other developed countries. However, such a portrayal betrays a confirmation bias towards a hypothesis often proffered by key official interlocutors themselves, and also misses some discernible shifts in the negotiating framework and possible explanations for them. A more critical appraisal of India's

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stance and floor tactics would reveal a rather less praiseworthy and more inconsistent position, often not matching official rhetoric and self-perception.

Starting from a proactive and creative early phase, notably during the formulation of the UNFCCC, India's perspective and tactics shifted to a relatively quiescent posture. As the Kyoto Protocol (KP) gradually took shape and came into force, India further moved to somewhat peculiar interventions looking to game the negotiations process, but in effect contributing, along with other countries, to considerable damage to the integrity and effectiveness of the Protocol. As negotiations moved to defining and shaping the architecture of the second phase of the KP, India floundered between striving to stave off US and other developed country pressures to take on emissions reduction commitments and seeking to advance a strategic alliance with the US. In the lead up to, and at, the Copenhagen and Cancun summits, where the foundations of a new, post-Kyoto emissions control architecture were laid, India made a paradigm shift by committing to a voluntary emissions reduction pledge, but failed to leverage this momentous change to elicit emission cuts by developed countries. India, thus, ended up at Paris meekly accepting a US-engineered architecture with deleterious consequences for the earlier hard-won equity between developed and developing nations, for adherence to the requirements of science for controlling climate change, and for its own national interests with regard to domestic climate vulnerabilities and impacts.

In particular, India did not build its own capacities in understanding climate science or formulate its negotiating positions based on that understanding. India approached the climate negotiations as primarily a problem of foreign relations, rather than as a forum to deal with and help tackle its serious vulnerabilities to climate impacts. In later periods, India mistakenly forged an alliance with developed countries, especially the US, at the cost of traditional allies in developing countries, especially Small Island Developing States (SIDS) and least developed countries (LDCs), and was slow to realize the import of its own economic development at the turn of the millennium, especially how this was perceived by other developing countries, and make suitable adjustments to its negotiating position. Through all these phases, India adopted a defensive and reactive posture—fending off

pressures from developed countries—rather than a proactive one projecting its own core concerns regarding climate change and pressing for enhanced actions by developed countries. Consequently, serious questions arise as to whether, or to what extent, India's negotiating position truly promoted outcomes enabling the country to better deal with the serious challenges it faces due to climate change, and advance its own vital developmental interests along with those of other developing countries.

India has paid insufficient attention over the years to its own vulnerabilities to climate change. The serious impacts these may have on India, and South Asia in general, have been made clear in successive assessment reports of the Intergovernmental Panel on Climate Change (IPCC), especially in the Fourth and Fifth Assessment Reports. India's own Second National Communication (otherwise known as NATCOM 2) to the UNFCCC in 2012 and a series of studies commissioned by India's Ministry of Environment and Forests (MoEF) under the Indian Network for Climate Change Assessment (INCCA 2010) contain the hitherto most authoritative estimates of climate impacts in India over the near to medium term, and some projections for the longer term till the end of the century.1

As a brief snapshot, India has close to 18 per cent of the world's population and, despite the much-hyped rapid economic growth in recent years, carries a huge burden of poverty and underdevelopment, with human development index rankings similar to LDCs in most indicators. Agricultural production in India is expected to be badly affected in both quantity and quality by changes in climatic patterns, variations in rainfall, and shift in onset and withdrawal of monsoons (MoEF 2012).² About 65 per cent of its people live in rural areas, are mostly poor and dependent on agriculture, with over 60 per cent of the cropped area being rain-fed and highly climate sensitive. India's long coastline has many heavily populated towns and cities along it,

¹ Some people may argue that other studies show different and more accurate estimates. However, as with the IPCC assessment reports, I have preferred to go with the NATCOM and related studies (in INCCA 2010) as the most reliable evidence at hand, unless established otherwise in a fairly conclusive manner through widely accepted peer-reviewed studies.

² The climate impact data in this section are taken from MoEF (2012).

all facing threats from sea-level rise and coastal erosion. The already most marginalized sections of its people are also the most vulnerable to climate impacts.

Whereas India may not be among the 'canaries of climate change' facing an existential threat like small island states, it is, along with other South Asian nations, among the most severely affected regions of the world (Hijioka et al. 2014). Like the island states and LDCs, India too therefore has a vital interest in working assiduously towards minimizing temperature rise and related climate impacts. Unfortunately, India's climate vulnerabilities were never major drivers of its climate policy, nor were they allowed to significantly shape India's negotiating position. If India's stance had indeed been based on the science, that is, on limiting global temperature rise and on emission cuts required to achieve those goals, and had been domestically rather than externally driven, it may well have evolved very differently, possibly even leading to a different outcome of the negotiations.

Early Phase: Major Contributions from 1990 to 1992

During the early 1990s, when the Convention was being shaped, India indeed championed the cause of developing nations, who were waging highly asymmetrical battles against developed countries that were armed with scientific data and were seeking to build a case for shifting responsibility for greenhouse gas (GHG) emissions on to developing countries. As explained later, strenuous attempts were made, particularly by the US, to drag various red herrings through the deliberations, taking advantage of a perceived lower level of scientific knowledge among developing countries.

One of these was the erroneous, yet for a while vigorously pursued, argument that methane emissions from rice paddies and from cattle and pig rearing—widespread in India, China, and other populous regions of Asia—were the major causes of climate change and should therefore be the focus of mitigation efforts. India and many observers saw this as an attempt to divert attention away from the predominant warming role of fossil fuel-based carbon dioxide (CO₂), historically emanating mostly from industrialized nations. A team of scientists from India conducted intensive studies of emissions from paddy fields and, combined with other science, successfully refuted this contention (Parashar et al. 1996; Ramachandran 2012),³ thereby also establishing that India and other developing countries were alert to such tactics and had the capacity to deal with them scientifically.

Developed countries further argued that developing nations had large and growing populations and therefore, it stood to reason that they would discharge higher quantities of GHGs. The official Indian delegation, assisted by significant NGO contributions, specifically by Sunita Narain and the late Anil Agarwal of the Centre for Science and Environment, saw this as a politically motivated campaign and worked to correctly anchor the discussions to per capita rather than total national emissions, and to the historical responsibility of developed countries whose enormous past emissions since the industrial era had triggered climate change (Agarwal and Narain 2012). These Indian interventions, along with substantive contributions to the language of the text, particularly equitable burden sharing in reduction of emissions, played a crucial role in the formulation of key elements of the Convention. These also formed the basis for major UNFCCC principles, such as demarcating between developed and developing countries based on common but differentiated responsibilities and respective capabilities (CBDR&RC), and for the emissions control architecture under the consequent KP (Chapter 8).

However, once these battles were effectively won, India did not sustain this intensity of involvement in making substantive contributions to climate science and to operational formulations relating to the emissions control architecture. Little work was done in research and academic institutions in India to understand the impacts of climate change in the subcontinent and how resilience to them could be built, or to examine possible strategies to mitigate emissions globally and domestically. These deficiencies were in part due to weaknesses in institutional capacities, particularly in climate science and related policies, and in part due to the official perspective of

³ Later studies showed that this early research had underestimated methane emissions, but this does not take away from the fact that methane emissions are still a small fraction of CO2 emissions and an even smaller fraction of total GHG emissions.

the international climate negotiations, which were viewed mainly as an extension of India's diplomacy and subservient to larger foreign policy objectives. Whatever the reasons, the result was that India ceded substantial ground to developed countries in setting the future agenda, with serious consequences for outcomes.

Treading Water: 1992–7

In the period after formulation of the Convention and the delineation of the KP, roughly 1992-7, which had seemingly laid out the basics of the international emissions control architecture and the respective responsibilities of developed and developing countries visualized as clearly demarcated binaries, India transitioned from its earlier activist phase into a phase of relative quiescence. In the opinion of this writer and several others, the official Indian position during this period gradually ossified into stonewalling of persistent developed country efforts to breach the developed-developing firewall, and belabouring concerns about funding and transfer of technology from the developed countries (Vihma 2011). Undoubtedly, these issues were and remain important. However, fixating on these issues meant that India did not adequately prepare for, and was unable to mount, effective evidence-based campaigns to address the critical issue of inexorable global warming and to press developed nations to raise their emissions reduction commitments. This inability by India and other developing countries to take a lead in framing key issues at the negotiations left the field open to the US and its allies to set the agenda and, over time, build alliances with groups of developing countries to the detriment of Indian interests.

Thrashing About: 1997–2005

This quiescent period was followed by a phase in which, to continue with the swimming analogy, India was not steady in the water but rather flailing about without strategic purpose or direction, other than to ward off pressures to reduce its emissions. In the period between the KP being agreed and its ratification by the requisite number of countries for coming into force (roughly 1997-2005), India flirted with, if not embraced, several positions that detracted from the main global goal of limiting global warming by ensuring commensurate emissions reductions by developed countries, which would of course also help ameliorate climate impacts in India. These positions cumulatively conveyed an impression that India was evasive on important issues relating to this goal. Despite its championing the cause of developing countries, India showed during this period that it was not averse to tactical alliances with the US and other developed countries if these seemed to serve some short-term geostrategic purpose, even at the cost of ignoring the science and accepting reduced emission cuts by them.

During this time, many countries colluded, both directly and indirectly, with endeavours by the US and some allies to defang the KP by lobbying for case-specific treatment, newly introduced mechanisms for accounting of emissions reduction, and other special provisions, as the price for ratifying the Protocol, causing an immense setback to the battle against climate change (Sprinz 2001). Regrettably, India too joined this trend of countries gaming the negotiations process in an attempt to gain benefits for themselves at the cost of the integrity and effectiveness of the KP itself.

For instance, offsets were built in to the KP which permitted developed countries to take on mitigation measures like afforestation in developing countries that could be discounted against the formers' own emissions reduction obligations, giving them a less expensive way of supposedly reducing global emissions, albeit with uncertain outcomes. Similarly, a Clean Development Mechanism (CDM) was introduced, ostensibly to facilitate introduction of energy-efficient or other emissions-saving technologies by developed countries in developing nations, allowing the former to trade 'carbon credits' and offset these against their own actual emissions. Special concessions were given to countries such as Australia, Canada, and others because of their high dependence on coal. Also, Russia, which threatened to not ratify the KP and thus prevent it from reaching the required 55 per cent of global emissions, extracted huge allowances for emissions 'avoided' due to the severe economic downturn in post-Soviet times, derisively termed 'hot air' by critics. To all these, India was either a silent spectator along with many other major players or even went along with specious proposals such as offsets and CDMs, perhaps in the hope of some financial gains (Raghunandan 2002). Some companies in India did make considerable amounts from CDMs, but the quantum of emissions actually saved has remained questionable (Dutt 2009).

In another controversial move in the context of the times, India joined a perhaps well-intentioned but counterproductive chorus in the negotiations to shift focus to adaptation rather than mitigation—the idea being to draw attention and funding towards addressing climate impacts in developing countries. Unfortunately, this contributed to a drop in attention to the core issue of continuing high emissions by developed countries and the urgent need to take preventive action.

The US, of course, did the most to weaken the KP, maintaining that it would not join any global compact that exempted developing countries, particularly major economies such as India, China, and Brazil, and finally dropped out of Kyoto altogether soon after George W. Bush took over as president in 2001 (Reynolds 2001). When all 164 remaining countries decided to stay in the KP despite the US departure, it was hailed as a great victory against big odds, but the US continued shaping the global emissions control negotiations towards outcomes it preferred.

Various other countries, both developed and developing, played a role in this charade. At the 8th Conference of the Parties (COP 8) in Delhi, for instance, following which India held the COP presidency till the next year, India played a particularly lamentable role. While the European Union (EU) deplored the US position of withdrawing from the KP on the one hand, it advanced the US agenda on the other by raking up the developed-developing divide, which had been resolved earlier in the face of the US onslaught and in united defiance of its withdrawal. The EU pushed for developing countries to begin defining obligations they would take on, even though the agreed time to do so was many years later when discussions on a post-Kyoto arrangement were scheduled to begin. In a clearly orchestrated move, Saudi Arabia, long a climate denier, incredibly led an Organization of Petroleum Exporting Countries (OPEC) charge defending developing countries and sharply polarizing the conference. The Indian prime minister's inaugural address had also harped on this theme, defying delegates' expectations that the conference would discuss

substantive issues relating to implementation of the KP and filling in the blanks from the previous COP.

The Indian draft declaration summing up the conference was also too clever by half, full of platitudes and high-sounding sentiments, but avoiding the main issues exercising the delegates. The draft, shockingly, did not even mention the KP, ostensibly on the grounds that it had not yet entered into force, even though its substance was precisely the subject of discussions at the conference. It also did not mention the word 'mitigation', emphasizing India's liking for a focus on adaptation rather than emissions reduction, much to the delight of the US and its allies. Many observers noted that the draft also stressed aspects extrapolated from the recent World Summit on Sustainable Development, revealing India's preference for looking at climate change as an extension of sustainable development. Ultimately, the draft showed India's customary penchant for wordsmithy as opposed to substance, supposedly conveying a consensus that did not exist. In a huge blow to India's prestige, this draft was summarily rejected by the conference (Raghunandan 2002). An informal gathering of observers and NGOs awarded a 'worst performance' award to the US, Saudi Arabia, and India for derailing the conference. Great company indeed!

India's US Dalliance and Paradigm Shift: 2005-15

In the late 1990s and into the new millennium, India and some other large developing countries witnessed high gross domestic product (GDP) growth, adding to the major geopolitical changes prompted earlier by the collapse of the Soviet Union and the East European bloc. The spectacular economic growth of China and its rising international influence also helped shape new alliances and groupings. The US and other developed country powers sought to draw the so-called 'emerging economies' into their orbit on major geopolitical and economic issues of the day, including climate change.

India, which was also recasting its foreign policy in the post-Soviet era, was now avidly pursuing a strategic alliance with the US. This new Indo-US relationship was beginning to find concrete expressions in efforts towards a far-reaching defence agreement and a pathbreaking nuclear deal, seen in India as a watershed moment for its international relations and enhanced standing. India, therefore, saw advantage in going along with the US at various international forums, especially, of immediate relevance here, in relation to climate change (for a more detailed discussion on this aspect, see Raghunandan 2012). India's own GHG emissions were by now quite substantial in absolute terms, although not in per capita terms, and were drawing international attention as the world's third or fourth largest among nations. Taken together with its new-found economic rise and aspirations of global leadership, these growing numbers made it increasingly difficult for India to persist with its earlier position of claiming to be at par with other developing countries and hence under no obligation to take on emissions reduction commitments, despite the fact that India continued to carry an enormous poverty burden and development deficit. Meanwhile, other large developing countries such as China, Brazil, Mexico, South Africa, and Indonesia were also now indicating that they were not averse to reducing their emissions by differing degrees.

Significant changes were also taking place in Indian domestic public opinion after the release of the IPCC Fourth Assessment Report (AR4) in 2007. Influential sections of civil society and academia advocated, for the first time, that India should now offer to reduce its emissions growth rate, not because it was a part of the problem of climate change primarily caused by the historical emissions of developed countries, but because it wanted to be part of the solution. The IPCC AR4 had indeed stated that even if developed countries made the deep emission cuts called for in the report, large developing countries too would have to ensure that their future emissions 'deviate below their projected baseline emissions' (Metz et al. 2007; emphasis added). For example, a group of academics and civil society actors (including this author) suggested that India offer to reduce its emission flows below the then current trajectories as its contribution to the global effort, despite being a developing country with huge climate vulnerabilities and developmental needs (Progressive Climate Policy Campaign-India 2009). Importantly, the suggestion was that this offer be made conditional upon developed countries committing to the deep emission cuts called for, which would have thrown the ball in the developed countries' court and put pressure on them. India, it was felt, had the economic strength and technological

capability to take on such a posture so as to contribute to the global effort, while still retaining the ability to deal with domestic developmental priorities. It was further argued that such a position by India would enable it to reconcile the apparently contradictory pulls exerted on its negotiating position by its economic growth and technological capability on the one hand, and its low per capita energy consumption and development deficit on the other, while potentially changing the dynamic in the climate negotiations.

All these factors combined to see India making a paradigmatic shift in its international negotiating position on the eve of the Copenhagen Summit, and committing itself to reducing its emissions intensity by 20-5 per cent by 2025, overcoming its earlier rigid stance on the hard differentiation enshrined in the KP between developed and developing countries. As discussed later, however, India was unable to leverage this dramatic shift to secure deeper emission cuts by developed countries, or even to enhance its own international prestige.

In a series of G8 summits, starting with Heiligendamm in Germany in 2007, major 'emerging economies' were invited to sit in at the high table of global powers. These summits discussed various economic and other challenges facing the international community, including climate change. At these summits of the 'G8+5', which soon morphed into the Major Economies Forum (MEF) and then into the G20, India, clearly enjoying its new-found 'big boy' status and perhaps also driven by hubris, allowed itself to be herded into a set of US-led formulations on climate change. These formulations fundamentally changed the prevalent international emissions control architecture and the UNFCCC understanding of equity between nations as manifested in the principle of common but differentiated responsibilities (CBDR) (Raghunandan 2012).⁴ They also provided the essential building blocks for the language of declarations adopted at the climate conferences at Copenhagen (2009), Cancun (2010), and Durban (2011), which formed the core of the new climate architecture ultimately adopted at Paris in 2015. These building

⁴ See even more detailed accounts following the G8 summits at Heiligendamm, L'Aquila, and Toyako in blogs by the author. Available at www.delhiscienceforum.net. See also Chapter 7 in this volume.

blocks included the global goal of limiting temperature rise to 2°C (with ambition to address 1.5°C added at Cancun), an agreement on mitigation efforts to be made by all countries with, however, some differentiation for developing countries, scant mention of the deep cuts to be made by developed countries, and playing down of historical emissions.

The 'single framework' clubbing together developed and developing countries under a common umbrella, long desired by the US, was introduced at Copenhagen and formalized in Cancun, pushed mostly by the same countries, with the addition of a 'pledge and review' system of voluntary emission reduction commitments. This latter system, while maintaining some differentiation between developed and developing countries by allowing for differing degrees or phasing of emissions reductions pledged, in practical terms gave much greater leeway to the former. The omission of historical emissions from any calculus for arriving at fair and equitable national actions by developed countries was particularly egregious, especially since the role of historical emissions by developed countries in contributing to climate change had been well recognized in the UNFCCC and IPCC reports. Further details of the significance of the emissions control architecture agreed at Paris are discussed in Chapter 12 in this volume.

That this was a well-thought-out stratagem pursued over many years by the US was made clear after the Copenhagen Summit by no less than then Secretary of State Hillary Clinton in a signed opinion editorial (op-ed) article (Clinton 2009). She averred that the Obama administration's position at Copenhagen was no aberration, represented continuity from the Bush era, and that the US indeed saw itself, China, and India as part of the same club and therefore wanted a single framework for all of them. Clinton wrote that success at Copenhagen required that 'all major economies, developed and developing, need to take robust action to reduce their carbon emissions', that 'they agree to a system that enables full transparency' (that is, commitments by India and China too should be subject to verification as with developed country targets), and that the US had taken the lead to bring developed and key developing countries together to tackle climate change through initiatives such as the 'Major Economies Forum ...

and agreements at the G-20 and the Asia-Pacific Economic Cooperation' meetings.

The almost unidimensional approach by India to international climate negotiations, focusing on alignment with US positions as part of a reoriented foreign policy seeking a strategic alliance with the now sole superpower, also led India to neglect its traditional associations with developing countries and fail to incorporate their concerns into its negotiating position. Additionally, India had not fully appreciated the substantial shift evolving in the positions of many developing nations, especially LDCs, SIDS, and countries in Africa, whose voice it had earlier effectively championed during the KP negotiations. These countries now viewed climate change as posing an existential threat and were pushing for urgent action to counter it. Further, they now increasingly saw large developing countries, including India, as part of the problem, and these perceptions were shrewdly capitalized on by the US, the EU, and others to push for larger emission reduction commitments and other concessions by large developing countries, including by cynically accepting a more ambitious 1.5°C goal even while pulling back from commitments conforming even to a 2°C pathway and from financial and technical assistance to developing nations.

India too faced serious climate impacts and could have made common cause with the LDCs and the island states, but could not find a way to reconcile this with its own high economic growth and concomitant growing emissions, along with its desire to be part of the 'big boys' club'. India was, therefore, badly affected by the aforementioned shift in position by a large group of developing countries. In the run-up to Copenhagen, China, Brazil, and many others had, as noted earlier, already declared their willingness to take on mitigation obligations, leaving India as a virtually lone hold-out among nations with large emission flows. India's isolation was brought home sharply at the Durban COP in 2013 when India found itself under attack from both developed and developing countries when it refused to accept language calling for legally binding commitments, exposing itself to immense pressure and opprobrium (Raghunandan 2011), as well as to the however incorrect perception, poignantly voiced by Grenada's lead delegate and spokesperson for the island states, that India was conveying that 'while they develop, we die' (Black 2011).

India's foreign relations-driven climate policy had also led to a blindness to the science. While India and other developing countries had substantially shifted ground in the run-up to and in the Paris Agreement itself, they had also collectively allowed the 2°C goal to be given short shrift and let the US and other developed countries off the hook. The latter did not take on the deep emission cuts demanded by science and by the IPCC assessment reports and other studies. They were allowed to ignore their historical emissions in working out future responsibilities, and were thus permitted to continue occupation of atmospheric space. This left little atmospheric space for the developing countries to use for their medium-term future development (Kanitkar et al. 2013), having already ceded much of what space they could have had by taking on emission reduction commitments in Paris.

India continues to labour under multiple, seemingly conflicting demands on its negotiating position. India has low per capita emissions, poverty burden, and development deficit, yet its current economic growth results in relatively high annual emissions. Its traditional alliance with developing countries along with a shared, pressing concern about climate impacts demands more urgent, effective action to reduce global emissions, especially by developed countries, yet it wants to play a leadership role on global issues, including climate change, in the company of leading developed nations. It retains focus on its original, defining stance on equity between nations based on historical per capita emissions and resisting pressures to take on unfair emission reduction demands, yet it seeks to be flexible about an increasingly unsustainable firewall between developed and developing countries. The tension between these imperatives is reflected in India's stance in the negotiations and, certainly to the discerning eye, also in India's Intended Nationally Determined Contribution within the framework of the Paris Agreement (Dubash and Khosla 2015; Raghunandan 2015).

In the final analysis, the global agreement finalized at Paris met neither the requirements of science nor the needs of international equity, that is, for developed and developing countries to shoulder a

'fair share' of the emissions reduction burden. On its part, India did not adopt a science-based approach, which would have led to a better appreciation of the threats it faces from climate change, minimizing which would then have been the main goal. A domestically driven perspective focusing on climate impacts on the subcontinent, rather than one driven by foreign relations considerations, would also have lent urgency to the need for an effective global compact to limit global warming. A better floor strategy in the negotiations—placing less reliance on cozying up to the US and other developed countries and consistently standing with other developing countries, as warranted by India's poverty burden and development deficits—would also have served India better. Crucially, India also failed to factor in its own economic growth story and could not find a way to reconcile this with its traditional position favouring the Kyoto firewall between developed and developing countries. Had India's negotiating position not been this mixed bag of early creative interaction followed by vacillations, missed opportunities, misplaced alliances, and a failure to capitalize even on a belated paradigm change, its role in shaping the global emissions control architecture would have been quite different and might even have engendered a different outcome. As things stand, the Paris Agreement is a low-ambition emissions control regime, with an architecture favouring developed countries and distributing the burden unfairly among 'all countries' by ignoring historic responsibility, while allowing developed nations to substantially defer enhanced commitments under the KP till the new commitments kick in.

However, the story does not end with the Paris Agreement. There is still much work to be done, now and in the coming years, on many important issues. The issue of dealing with the higher-ambition 1.5°C goal is yet to be dealt with in an effective manner, yet with sensitivity towards the perceptions of the island states and LDCs. The anticipated upward revision of Nationally Determined Contributions (NDCs) is to take place in 2020, and unless some meaningful science-based metric is worked out to incorporate historical emissions of developed countries and as to how different countries should make upward revisions in such a way as to ensure adequacy to meet the 2°C goal, the world may again well be left with another ineffective set of voluntary pledges. The global stocktakes in 2025 and beyond also loom, and these again will not meet requirement unless the vexed issue of adequacy is tackled. India will undoubtedly face many challenges in the years ahead, not least the pressure of taking on ever-greater mitigation burdens, and many of the old dilemmas will continue to vex India. However, lessons from the negotiations thus far, if learned well, could prove useful, and India would do well to approach the negotiations differently than in the past, focusing on broader outcomes rather than on daily skirmishes. India's national interests, given the severe climate impacts it is likely to face in the years to come, demand no less.

India will also face enormous challenges on the domestic front. India's NDC commitments are at present relatively modest, which, it must be said, is acceptable in the face of shamefully low emission reduction commitments by developed countries. In the longer term, these commitments will need to be approached with far greater cohesion and more cross-sectoral perspectives than hitherto, especially addressing issues of domestic inequities, rather than being based only on a concern for satisfying international audiences. Both the international negotiations and the low-carbon pathways within India will require a chiefly domestic starting point.

References

- Agarwal, Anil and Sunita Narain. 2012. 'Global Warming in an Unequal World: A Case of Environmental Colonialism (Selected Excerpts)', in Handbook of Climate Change and India. New Delhi: Oxford University Press, pp. 81-9. Available at https://doi.org/10.4324/ 9780203153284-16.
- Black, Richard. 2011. 'Climate Talks End with Late Deal', BBC News, 11 December. Available at https://www.bbc.com/news/scienceenvironment-16124670; accessed on 10 June 2019.
- Clinton, Hillary Rodham. 2009. 'The U.S. Is on Board', *The New York Times*, 14 December. Available at https://www.nytimes.com/2009/12/15/ opinion/15iht-edclinton.html; accessed on 10 June 2019.
- Dubash, Navroz K. and Radhika Khosla. 2015. 'Neither Brake nor Accelerator', Economic & Political Weekly, 50(42). Available at https:// www.epw.in/journal/2015/42/commentary/neither-brake-nor-accelerator.html; accessed on 10 June 2019.
- Dutt, Gautam. 2009. 'A Climate Agreement beyond 2012', Economic & Political Weekly, 44(45): 39–49.

- Ghosh, Prodipto. 2012. 'Climate Change Debate: The Rationale of India's Position', in Handbook of Climate Change and India: Development, Politics and Governance, pp. 157-67. Oxford University Press.
- Hijioka, Y., E. Lin, J.J. Pereira, R.T. Corlett, X. Cui, G.E. Insarov, R.D. Lasco, E. Lindgren, and A. Surjan. 2014. 'Asia', in V.R. Barros, C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir et al. (eds), Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, pp. 1327–70. Cambridge, UK, and New York, NY: Cambridge University Press.
- Indian Network for Climate Change Assessment (INCCA). 2010. 'Climate Change and India: A 4x4 Assessment—A Sectoral and Regional Analysis for 2030s', Report No. 2. Available at http://moef.gov.in/indian-networkfor-climate-change-assessment/; accessed on 10 June 2019.
- Kanitkar, Tejal, T. Jayaraman, Mario D'Souza, and Prabir Purkayastha. 2013. 'Carbon Budgets for Climate Change Mitigation—A GAMS-Based Emissions Model', Current Science, 104(9): 1200-6.
- Metz, Bert, Ogunlade Davidson, Peter Bosch, and Leo Meyer (eds). 2007. Climate Change 2007: Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge and New York: Cambridge University Press.
- Ministry of Environment and Forests (MoEF). 2012. India—Second National Communication to the United Nations Framework Convention on Climate Change. New Delhi: MoEF, Government of India. Available at http://doi.wiley.com/10.1111/j.1467-9388.1992.tb00046.x.
- Parashar, D.C., A.P. Mitra, P.K. Gupta, J. Rai, R.C. Sharma, N. Singh, S. Koul, et al. 1996. 'Methane Budget from Paddy Fields in India', *Chemosphere*, 33(4): 737–57.
- Progressive Climate Policy Campaign-India. 2009. 'India's Position on Climate Change: Statement Submitted to PM', Progressive Climate Policy Campaign-India (blog), 21 November. Available at http://progressiveclimatepolicycampaign-ind.blogspot.com/2009/11/indias-positionon-climate-change.html; accessed on 10 June 2019.
- Raghunandan, D. 2002. 'Flop-8: Climate Conference in Delhi', COP-8 blog, Delhi Science Forum, 10 November. Available at https://delhiscienceforum.net/flop-8-climate-conference-in-delhi-by-raghu/; accessed on 10 June 2019.
- ____. 2011. 'Durban Climate Agreement: The Morning After', Delhi Science Forum (blog), 19 December. Available at http://www.delhiscienceforum.net/environment/445-durban-climate-agreement-themorning-after.html; accessed on 10 June 2019.

- ___. 2012. 'India's Official Position: A Critical View Based on Science', in Handbook of Climate Change and India, pp. 170-6. New Delhi: Oxford University Press.
- .. 2015. 'India's INDC', Delhi Science Forum (blog), 14 October. Available at https://delhiscienceforum.net/indias-indc-for-paris-climatesummit/; accessed on 22 July 2019.
- Rajamani, Lavanya. 2011. 'Deconstructing Durban', The Indian Express, 15 December. Available at https://indianexpress.com/article/opinion/ columns/deconstructing-durban/; accessed on 10 June 2019.
- Ramachandran, Kaushalya. 2012. 'Assessing Agricultural Vulnerability Due to Climate Change Using NDVI Trends', ResearchGate, Hyderabad. Available at http://dx.doi.org/10.4172/2157-7625.S1.003.
- Reynolds, Paul. 2001. 'Kyoto: Why Did the US Pull Out?', BBC News, 30 March. Available at http://news.bbc.co.uk/2/hi/americas/1248757.stm; accessed on 10 June 2019.
- Sprinz, Detlef. 2001. 'Summary Notes of the 7th Conference of the Parties of the UN Framework Convention on Climate Change', 27 November. Available at https://www.uni-potsdam.de/u/sprinz/doc/ UNFCCC COP 7.Summary.27Nov2001.pdf; accessed on 22 July 2019.
- Vihma, Antto. 2011. 'India and the Global Climate Governance: Between Principles and Pragmatism', The Journal of Environment & Development, 20(1): 69–94. Available at https://doi.org/10.1177/1070496510394325.