

rather than commitments. Some Indian diplomats argue that at issue is not the desirability of moderating emissions growth but the question of ‘incremental costs’ and who bears them.³² The conversation about commitments is believed to be directed at persuading developing countries to bear part of the incremental costs.³³

On a more pragmatic level, India argues that its emissions will not have a significant impact on the global climate change trajectory since there are significant polluters outside the regime.³⁴ There are also some perverse incentives built into the system for developing countries to stay energy inefficient and environmentally unsound—for only then will they be able to demonstrate the ‘additionality’ necessary for CDM projects.

B. The Indian alternative: voluntary actions to decarbonize the economy

India advocates equal rights to the atmosphere. In its view, while developing countries, with less than equal current use of the atmosphere, cannot be expected to take on absolute emission limitation commitments, they can, nevertheless, take voluntary practical actions to decarbonize their economies. Decarbonization, according to India, refers to an economy with lower carbon intensity over time. It does not refer to a reduction in the absolute level of GHGs or to the reduction in the rate of GDP growth.³⁵ Decarbonization includes:

- enhanced energy efficiency;
- shift in primary energy use from fossil fuels to renewables (including hydro-power) and nuclear energy; and
- changes in production and consumption patterns.³⁶

In India’s Initial National Communication,³⁷ presentations at the Dialogue,³⁸ and other submissions to the FCCC, it lists actions that it has taken to contribute to decarbonization. These include initiatives to promote renewable energy,³⁹ energy efficiency,⁴⁰ and energy conservation,⁴¹ ensure cleaner transport

³² Interview, C. Dasgupta, 16 Apr. 2007.

³³ Ibid.

³⁴ Interview, A. Mathur, 13 Apr. 2007.

³⁵ ‘Dealing with the Threat of Climate Change’, *India Country Paper*, the Gleneagles Summit, 2005.

³⁶ Ibid.

³⁷ *India’s Initial National Communication to the United Nations Framework Convention on Climate Change*.

³⁸ Dialogue on Long Term Cooperative Action to Address Climate Change by Enhancing Implementation of the Convention.

³⁹ Further details available at <mnes.nic.in/>.

⁴⁰ Further details available at <www.bee-india.nic.in/>.

⁴¹ *India’s Initial National Communication to the United Nations Framework Convention on Climate Change*, 196–202.

(including through imposition of Euro norms), and conversion of all public vehicles to compressed natural gas in New Delhi,⁴² develop fuel-efficient appliances, and implement afforestation and land restoration.⁴³ India also identifies opportunities for emissions reductions in various sectors, the 'CDM potential' as it were, and quantifies the investment outlay needed to transition to a low-carbon pathway in the 2007–12 plan period (US\$25.1 billion).⁴⁴

In addition India proposes the establishment of a 'Clean Technology Acquisition Fund'. At Gleneagles 2005,⁴⁵ at the UN General Assembly in 2006,⁴⁶ and at the fifteenth session of the UN Commission on Sustainable Development, 2007,⁴⁷ India argued that the technologies that can help India decarbonize are out of its reach because of intellectual property rights and prohibitive costs. The intellectual property issues were successfully addressed in the HIV/AIDS context in developing countries, and it is India's position that this should be done so in the field of sustainable development as well.⁴⁸

India's membership in the Asia Pacific Partnership on Clean Development and Climate which focuses on 'voluntary practical measures', and on 'national strategies, experience-sharing, and technology development and deployment', is in keeping with India's preferred strategy.⁴⁹ As also are India's bilateral partnerships with the EU,⁵⁰ the USA,⁵¹ and the UK⁵² on climate research and technology.

A recent development, in keeping with India's policy priorities, is the controversial Indo-US nuclear deal.⁵³ Under this agreement, India will gain access to US civil nuclear technology in return for opening up its facilities for inspection.⁵⁴ There have been numerous concerns relating to national security, sovereignty,

⁴² For a detailed study of this initiative see L. Rajamani, 'Public Interest Environmental Litigation in India', *Journal of Environmental Law* (forthcoming Fall 2007).

⁴³ Some of these are clearly identified ex post facto, as for instance the New Delhi CNG transport initiative. *Ibid.*

⁴⁴ Dialogue on Long Term Cooperative Action to Address Climate Change by Enhancing Implementation of the Convention.

⁴⁵ 'Dealing with the Threat of Climate Change'.

⁴⁶ Statement by R. Gandhi, Member of Parliament, Second Committee of the 61st session of the UN General Assembly, 25 Oct. 2006.

⁴⁷ Statement by P. Ghosh, Secretary Ministry of Environment and Forests, Government of India, High-Level Segment, Fifteenth Session of the Commission on Sustainable Development, 10 May 2007.

⁴⁸ As Indian Foreign Secretary S. S. Menon observed, India views climate change 'in the context of the promises made by the international community for technology transfer and additional financing since Rio, which have remained unfulfilled'. I. Bagchi, 'Climate Policy Must Address Third World Needs', *Times of India*, 11 Apr. 2007.

⁴⁹ *Asia-Pacific Partnership on Clean Development and Climate*.

⁵⁰ 'India-EU Strategic Partnership Joint Action Plan', available at <ec.europa.eu>.

⁵¹ Overview of the USA-India Climate Change Partnership, US Department of State, available at <www.state.gov>.

⁵² 'Working with Developing Countries', India, Department for Environment, Food and Rural Affairs, Government of the UK, available at <www.defra.gov.uk>.

⁵³ For full coverage of this deal see 'Indo-US Nuclear Deal', *Indian Express*, available at <http://www.indianexpress.com/fullcoverage/42.html>.

⁵⁴ *Ibid.*

and nuclear non-proliferation, but one forgotten element of this deal is its carbon implications. The US Senate Committee on Energy and Natural Resources considered testimony that suggested that the annual carbon savings from this deal could be nearly as large as the entire commitment of the EU to meet the Kyoto Protocol.⁵⁵

C. Legitimate but not sagacious?

As the chair of the IPCC, R. K. Pachauri, noted, ‘while the Indian position may well be legitimate whether it is sagacious is questionable’.⁵⁶ The Indian stance is arguably legitimate for it is firmly positioned within the burden-sharing architecture of the FCCC and its Kyoto Protocol. The burden-sharing architecture of the FCCC and its Kyoto Protocol contains three central elements which would impart legitimacy to the Indian position: common but differentiated responsibility, redistribution of the ecological space, and the linking clause.⁵⁷ Legitimate though it may be, India’s position is nonetheless not a sagacious one.

Poorer nations, and the poorest within them, will be the worst hit by climate change.⁵⁸ This is indeed the fundamental inequity at the heart of the climate change problematic—that those who have contributed the least to causing climate change will bear the real brunt of it. ‘Like the sinking of the *Titanic*, catastrophes are not democratic’, and ‘a much higher percentage of passengers from the cheaper decks will be lost’.⁵⁹ A vast majority of the occupants of the cheaper decks are Indians. India has the world’s largest number of people living under US\$1 a day.⁶⁰ A vast majority of India’s poor are in rural areas and are dependent directly on climate-sensitive natural resources.⁶¹ The poor have the least adaptive capacity.⁶² And climate change is predicted to have severe impacts

⁵⁵ D. G. Victor, ‘The India Nuclear Deal: Implications for Global Climate Change’, Testimony before the US Senate Committee on Energy and Natural Resources, 18 July 2006. The Indian PM, M. Singh, estimates that India will increase nuclear energy by 40 GW by 2015—which will result in 300 million tonnes of CO₂ reductions. Cited *ibid*.

⁵⁶ Interview, R. K. Pachauri, 20 Apr. 2007.

⁵⁷ For an extended discussion of these three elements see L. Rajamani, ‘The Nature, Promise and Limits of Differential Treatment in the Climate Regime’, *2005 Yearbook of International Environmental Law* (2007), 81.

⁵⁸ IPCC Working Group II Report, *The Impacts of Climate Change* (2007). For a flavour of the Indian reactions to this report see ‘Forget Himalayan Glaciers’, *Times of India*, 2 Apr. 2007, and ‘Fighting Warming in an Unequal World’, *Times of India*, 4 Apr. 2007.

⁵⁹ Quoting H. Miller, Stanford University, in A. C. Revkin, ‘Poor Nations to Bear the Brunt as the World Warms’, *New York Times News Service*, *Times of India*, 2 Apr. 2007.

⁶⁰ *Human Development Report*.

⁶¹ India’s 700 million rural population depends directly on climate-sensitive sectors (agriculture, forests, and fisheries) and natural resources for their subsistence. See Sathaye et al., ‘Climate Change, Sustainable Development and India: Global and National Concerns’, 90:3 *Current Science* 314, 318 (2006).

⁶² See R. Harrabin, ‘How Climate Change Hits India’s Poor’, *BBC News*, 1 Feb. 2007.

in India.⁶³ Climate change will increase the severity of draughts, land degradation and desertification, intensity of floods and tropical cyclones, incidence of malaria and heat-related mortality, and decrease crop yield and food security.⁶⁴ In addition, rising sea levels will displace coastal populations and lead to an escalating refugee crisis.⁶⁵ Melting Himalayan glaciers will initially increase flood risk and eventually threaten water shortages for one-sixth of humanity primarily in the Indian subcontinent.⁶⁶

The Stern Review highlights the toll that climate change could take on the Indian economy. Even a small change in temperature could have a significant impact on the Indian monsoon resulting in up to 25 per cent lower agricultural yield.⁶⁷ A 2–3.5 °C temperature increase could cause as much as 0.67 per cent GNP loss, and a 100-cm increase in sea level could cause 0.37 per cent GNP loss.⁶⁸ A quarter of the Indian economy is dependent on agriculture, and any impact on this sector will fundamentally impair India's ability to meet its development goals.

It is of critical importance that climate change concerns are mainstreamed into development and energy planning and concrete actions are taken to transition to a low-carbon or beyond-carbon development pathway. It is also important that 'commitments' are undertaken at a global level, for it is only cumulative global not regional or national emissions reductions that will impact the trajectory of climate change. What then is India doing at home?

III. India's domestic stance: a focus on co-benefits

India's domestic stance is shaped by a series of factors. India's policy makers and law enforcers, with some exceptions, are apathetic, if not corrupt, and its politicians are largely opportunistic demagogues rather than visionary leaders. India has however a few erudite leaders at the helm of affairs, a politically active populace, a vibrant civil society, an enterprising and hungry industrial sector, an

⁶³ IPCC Working Group II Report, *The Impacts of Climate Change*; Sathaye et al., 'Climate Change, Sustainable Development and India: Global and National Concerns'; J. Roy, 'A Review of Studies in the Context of South Asia with a Special Focus on India' and A. Challinor et al., 'Indian Monsoon', both in *Stern Review on the Economics of Climate Change*.

⁶⁴ Sathaye et al., 'Climate Change, Sustainable Development and India: Global and National Concerns', 318–19 and Challinor et al., 'Indian Monsoon'.

⁶⁵ Challinor et al., 'Indian Monsoon'.

⁶⁶ *Stern Review on the Economics of Climate Change*, Executive Summary, 6. See also 'Climate Change in South Asia: A Conversation with Sir Nicholas Stern', 14 Feb. 2007, available at <web.worldbank.org>.

⁶⁷ 'Climate Change in South Asia: A Conversation with Sir Nicholas Stern'. See also Roy, 'A Review of Studies in the Context of South Asia with a Special Focus on India' and Challinor et al., 'Indian Monsoon'. Challinor et al. illustrate with the failure of the monsoon in July 2002 which resulted in a 3% drop in GDP.

⁶⁸ Roy, 'A Review of Studies in the Context of South Asia with a Special Focus on India'.

ever-expanding pool of technocrats, and a environmentally sympathetic and proactive judiciary. This unique concatenation of factors has set India on the sharp economic growth pathway it is currently on, but the focus on economic growth and the momentum this has generated is in danger of marginalizing environmental concerns.

There is as yet no coordinated national effort under way to transition to a low-carbon or beyond-carbon development pathway. The approach to energy is driven by the need to achieve energy security⁶⁹ and electricity for all by 2010,⁷⁰ that is, primarily to fuel economic growth. The approach to the CDM is driven by the need to maximize CDM revenues. India's approaches on both fronts yield significant climatic co-benefits, but the legal architecture is not designed to deliver or maximize these.

A. Fuelling development: the role of renewable energy and energy conservation

According to the 2001 Census an estimated 44 per cent of Indian households do not have access to electricity.⁷¹ The Indian government, recognizing electricity supply as central to sustained growth, global competitiveness, and rural development,⁷² set itself the target of providing electricity to all by 2010, and meeting full demand by 2012.⁷³ To meet these targets, the National Electricity Policy advocates 'maximum emphasis' on feasible hydro potential, significant increase in nuclear capacity,⁷⁴ full exploitation of feasible non-conventional energy resources, but with a recognition, however, that coal will continue 'to remain the primary fuel'.⁷⁵ The Integrated Energy Policy advocates in relation to climate change, inter alia, 'accelerated development of nuclear and hydro-electricity', and an 'active policy on renewable energy'.⁷⁶

The emphasis on hydro power is of concern given that dams emit significant quantities of methane. It is estimated that 19 per cent of India's greenhouse gas emissions are from large dams.⁷⁷ An increase in hydro may well have a detrimental impact on India's climate footprint. The planned increase in nuclear capacity is being directed through the India–USA nuclear deal, currently in the

⁶⁹ Interview, A. Mathur, 13 Apr. 2007.

⁷⁰ National Electricity Policy 2005.

⁷¹ Ibid.

⁷² Integrated Energy Policy, 2005, at p. ii, noting that to sustain 8% growth through 2031 India would need to increase its energy supply by 3–4 times, and its electricity supply by 5–7 times. Available at <planningcommission.nic.in>.

⁷³ National Electricity Policy 2005.

⁷⁴ Nuclear is characterized in the Integrated Energy Policy as the 'most potent means to long term energy security', p. viii.

⁷⁵ National Electricity Policy 2005.

⁷⁶ Integrated Energy Policy.

⁷⁷ '19 Per Cent of India's Global Warming Emissions from Large Dams, Says Study', *The Hindu*, 19 May 2007, and 'Indian Dams Spew Most Methane', *Times of India*, 19 May 2007.

final stages of negotiation.⁷⁸ While nuclear power may have benefits in terms of avoided carbon emissions, it comes at a cost, raises extensive health and safety concerns, and engages fierce ideological passions.⁷⁹

India has taken great strides in developing and exploiting new and renewable energy sources. The current share of new and renewable energy sources in India is between 33⁸⁰ and 36 per cent.⁸¹ A major proportion of this figure however is traditional biomass used for cooking (which could have a detrimental impact on forest resources) and electricity from large hydro.⁸² Modern renewables account for a mere 2 per cent of the total.⁸³ Several measures have been taken through the Ministry of New and Renewable Energy, one of the few of its kind in the world, to encourage development and deployment of these energies.⁸⁴ In addition, the Electricity Act 2003 tasks state electricity commissions to promote renewables, and 'specify a percentage of the total consumption of electricity in the area of a distribution licence'.⁸⁵ Eight states have currently specified percentages. They range from 0.5 per cent to a proposed 10 per cent.⁸⁶ The Act also tasked the government with preparing a national policy, incorporating renewables, for rural areas.⁸⁷ The resultant Rural Electrification Policy 2006⁸⁸ highlights the role of renewables but notes, however, that the choice between conventional and non-conventional generating systems should be made based on whichever is more 'suitable and economical', and 'cost-effective'.⁸⁹ In many small villages and remote rural areas, renewable energies such as solar are far more cost effective than building expensive conventional generators or connecting rural areas to the existing power transmission infrastructure, and it is this that drives the emphasis on non-conventional energy in remote rural areas. Notwithstanding India's efforts, the Integrated Energy Policy estimates that even with an ambitious twentyfold increase in current capacity, the share of renewables in the energy mix will only increase to 5–6 per cent by 2031,⁹⁰ and the Renewable Energy Policy Statement 2005 considers it unlikely that the share of renewable energy will increase significantly before 2051–2.⁹¹

⁷⁸ 'Indo-US Nuclear Deal'.

⁷⁹ See Ch. 14 above.

⁸⁰ Integrated Energy Policy, 92.

⁸¹ *National Environmental Policy*, 43.

⁸² Integrated Energy Policy, 92.

⁸³ *Ibid.*

⁸⁴ Further details at <mnes.nic.in>.

⁸⁵ Electricity Act 2003, s. 86 (e), available at <powermin.nic.in>.

⁸⁶ Relevant Extracts of Orders of State Regulatory Electricity Commissions Regarding Purchase of Renewable Power, available at <www.mnes.nic.in>.

⁸⁷ Electricity Act 2003, s. 4.

⁸⁸ Rural Electrification Policy 2006, available at <www.mnes.nic.in>.

⁸⁹ *Ibid.*, s. 3.3.

⁹⁰ Integrated Energy Policy, p. ix.

⁹¹ New and Renewable Energy Policy Statement, Ministry of Non-Conventional Energy, Government of India, 2005, 5–6, available at <mnes.nic.in>.

The Energy Conservation Act 2001⁹² established the Bureau of Energy Efficiency in 2002. The potential for energy conservation, viewed as the least-cost method of reducing energy demand, for the Indian economy is estimated to be 23 per cent with the most potential in industrial and agricultural sectors.⁹³ The Bureau is tasked, inter alia, with conducting public awareness campaigns on energy efficiency, issuing guidelines on energy conservation buildings, distributing awards for energy conservation, strengthening consultancy services, and maintaining a list of accredited energy auditing firms.⁹⁴ The central government can direct energy-intensive industries listed in the Annex to the Act and certain consumers to conduct an energy audit.⁹⁵ In effect, the Bureau, according to its director general, ensures that 'every facility in India is more energy efficient than the last'.⁹⁶

Several initiatives undertaken by the Bureau, the Ministry of Power, and the Ministry of New and Renewable Energies fall within the spectrum of 'voluntary actions to decarbonize', but they do so because diversification of energy sources (with the promotion of renewable energies as an element) and the conservation and optimal use of energy, in addition to enhancing energy security, also deliver climatic co-benefits. These initiatives are listed in India's various position papers in international fora. Although identified ex post facto, for the purposes of these papers,⁹⁷ the initiatives do contribute to reducing the energy intensity of the Indian economy.⁹⁸

Thus far, however, the most significant climate-related work in India has been undertaken in the context of the CDM. This is entirely in keeping with India's international position that mitigation action will only be taken under the rubric of the CDM.

B. The Clean Development Mechanism: 'green moolah'⁹⁹

The CDM, defined in Article 12 of the Kyoto Protocol, is a project-based mechanism designed to assist developing countries achieve sustainable development and industrialized countries meet their mitigation commitments. India argues that,

⁹² Available at <powermin.nic.in>.

⁹³ Ibid.

⁹⁴ Ibid., s. 13.

⁹⁵ Ibid., s. 14 (h).

⁹⁶ Interview, A. Mathur, 13 Apr. 2007.

⁹⁷ Interview, C. Dasgupta, 16 Apr. 2007, noting that this is true of various industrialized countries as well.

⁹⁸ Dialogue on Long Term Cooperative Action to Address Climate Change by Enhancing Implementation of the Convention.

⁹⁹ 'Moolah' is urban Indian slang for money. V. Ranganathan, 'Green Moolah', *Times of India*, 29 Jan. 2007, highlighting the cash potential of Kyoto. See also 'Get Eco-savvy or Lose out on Mega Investments', *Times of India*, 22 Apr. 2007, and 'It Pays to Go Green', *Times of India*, 22 Apr. 2007.

for now, the CDM is the only avenue for developing country participation in the GHG mitigation effort under the international climate regime.¹⁰⁰ And, within the framework of the principle of common but differentiated responsibility, India would be fulfilling its share of the common responsibility through its active participation in the CDM.

The National Environmental Policy 2006, as part of its response to climate change, seeks to encourage Indian industry to participate in the CDM 'through capacity building for identifying and preparing CDM projects, including in the financial sector'.¹⁰¹ In one of India's recent submissions to the FCCC India urges 'more extensive use of the CDM' because industrialized countries 'could adopt more ambitious emissions reduction targets, without incurring excessive costs'.¹⁰²

India is an enthusiastic participant in the CDM: 35.2 per cent of all registered projects are from India (the highest in number, much higher than Brazil at 14.73 per cent and China at 12.22 per cent) and 14.99 per cent of all expected certified emissions reductions (CERs) are from India (as compared to 44.08 per cent from China and 11.39 per cent from Brazil).¹⁰³

Indian industry has embraced the CDM wholeheartedly, and they have nothing but praise for the government's market-based approach, which has resulted in the organic evolution of a uniquely Indian CDM experience. There are several distinctive features of the Indian CDM experience.

1. *Distinctively Indian: unilateral CDM*

The vast majority of the Indian CDM projects are unilateral in nature. In unilateral CDM projects there is no investor industrialized country. The project is developed, financed, and implemented domestically, and it does not have identified buyers before certification.¹⁰⁴ The CDM, as the clear terms of Article 12 indicate, was envisaged as a bilateral enterprise. After significant lobbying from India, among others, however, the Marrakesh Accords explicitly refrained from prescribing any particular institutional arrangement for the CDM, thereby creating the space necessary to bring unilateral projects within the framework of the CDM.¹⁰⁵ The CDM Executive Board's Project Design Document Template explicitly envisages such unilateral CDM projects.¹⁰⁶

¹⁰⁰ Interview, A. Mathur, 13 Apr. 2007.

¹⁰¹ *National Environmental Policy*.

¹⁰² Paper No. 6, India, Views regarding Art. 3, para. 9, of the Kyoto Protocol, in FCCC/KP/AWG/2006/MISC.1, available at <unfccc.int>.

¹⁰³ CDM Statistics available at <cdm.unfccc.int>.

¹⁰⁴ A. Michaelowa et al., *Unilateral CDM: Chances and Pitfalls* (2003), and UNEP, *Legal Issues Guidebook to the Clean Development Mechanism* (2004), 48–9.

¹⁰⁵ Art. 40 (a), Annex, Decision 17/C.P.7, 'Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol', in FCCC/CP/2001/13/Add.2 (2002).

¹⁰⁶ Available at <http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html>.

India is unique in its enthusiasm for unilateral CDM. The majority of projects in other developing countries, including China and Brazil are bilateral. Indian industry, unlike perhaps that of the rest of the developing world, has proven itself to have a significant risk appetite.¹⁰⁷ Unilateral CDM projects involve considerable risks. There is a higher Kyoto risk (the risk that there will be no second commitment period) and a CER price risk (the risk that prices are low when the CERs are ready to be sold). There is a larger initial financial outlay because the project developer has to bear the financial costs of designing the project, purchasing the technology, improving capacity, acquiring the necessary approvals, certifications, and marketing before any revenues start coming in.¹⁰⁸ Indian entrepreneurs have raised the finances, embraced the risks, and reaped significant profits. To illustrate, chemicals and technical textiles manufacturer SRF¹⁰⁹ earned US\$125 million from the sale of CERs in 2006–7, three times the profits from its underlying business.¹¹⁰ And, this is just the tip of the iceberg for the big Indian industrial houses. Reliance, Tata, and such have just begun to enter the market.¹¹¹

2. *Small is sustainable*

Another distinctive feature of the Indian CDM experience is that with the exception of a few industrial gas projects, most CDM projects in India are relatively small. This is evident from the fact that although 35.2 per cent of the total registered projects are from India, they are expected to generate only 14.99 per cent of the total CERs.¹¹² Although smaller projects involve higher transaction costs and generate fewer returns, they are preferable because their potential to contribute to local sustainable development is higher. Small renewable energy projects, for instance, will meet the needs of the local community for energy thereby improving their quality of life. Smaller projects are also better suited to unilateral CDM, as the transaction costs involved in sustaining a bilateral relationship are avoided. A larger number of smaller projects also offer better chances of wider geographical distribution.

¹⁰⁷ Interview, A. Mathur, 13 Apr. 2007. Mathur argues that Indian entrepreneurs use the CDM as a 'risk mitigation measure'. They use it to help them undertake projects, motivated perhaps by non-carbon benefits, but which with the prospect of CDM revenues offer them a risk cushion.

¹⁰⁸ Michaelowa et al., *Unilateral CDM*, and UNEP, *Legal Issues Guidebook to the Clean Development Mechanism*.

¹⁰⁹ Further details available at <http://www.srf-limited.com/about_business.htm>.

¹¹⁰ 'Chemicals and Technical Textiles Manufacturer SRF Has Raised Close to Rs 500 Crore from the Sale of Carbon Credits in FY07', *Times of India*, 9 Apr. 2007.

¹¹¹ 'Corporate Biggies Warm up to Carbon Credit Trade', *Economic Times*, 30 Aug. 2006.

¹¹² CDM Statistics available at <cdm.unfccc.int>.

Large industrial gas projects such as the HFC projects,¹¹³ of which India has four, generate windfall gains,¹¹⁴ but they have few local sustainable development benefits. India's four HCFC23 projects account for 24 per cent of its total CERs (Figures 18.1 and 18.2).

The majority of the Indian CDM projects are in renewable energies, a larger share than in Asia or in the World (Figures 18.3 and 18.4).¹¹⁵ Fifty-five per cent of the projects and 31 per cent of the CERs in India can be sourced to renewable energy (Figures 18.1 and 18.2).

3. Achieving 'sustainable development' through the CDM

The *raison d'être* for the CDM, as far as developing countries are concerned, is that it assists them in achieving sustainable development. Although the term 'sustainable development' is used frequently in the FCCC and its Kyoto Protocol, it is not defined anywhere. Efforts to define the notion, as well as to develop sustainable development indicators, in the climate negotiations proved bootless, and the Marrakesh Accords, 2001, refrain from defining the term, choosing instead to characterize sustainable development as a host country 'prerogative'.¹¹⁶

A Designated National Authority (DNA) in each country has to confirm that project participation is voluntary, and that the project assists it in achieving sustainable development.¹¹⁷ India set up a National Clean Development Mechanism Authority in 2004 consisting of representatives of the Ministries of Environment, Non-Conventional Energy, Power, the Planning Commission, Finance and Foreign Affairs, as the DNA under the Kyoto Protocol to screen and grant approval to CDM projects in India.¹¹⁸

¹¹³ HFC is a gas with low toxicity and limited localized polluting effects, but with a high global warming potential. Its destruction generates a large number of CERs. HFC23 destruction projects recover and destroy HFC23, produced as a by-product in the HCFC22 manufacturing process. HCFC22 is a refrigerant controlled under the Montreal Protocol. Developing countries are required to freeze their HCFC22 consumption at 2016 levels, and phase it out by 2040 (*Montreal Protocol Handbook* (7th edn. 2006), s. 1.2). The growth in wealth has led to a sharp increase in the use of HCFC22 in the developing world, especially in China and India. (India's consumption of HCFC increased from 118 in 1989 to 724 in 2005, and its production from 119 in 1989 to 1313 in 2005 (figures in tonnes of Ozone Depleting Potential—ODP). Data available at <www.ozonecell.com>.) The windfall gains in HFC23 destruction projects have led some to query whether this might create perverse incentives for establishment of new HCFC22 production plants, a concern flagged in the climate negotiations as well. The local sustainable development benefit of such projects is dubious, at best. See Y. Matsumoto, 'Policy Contradictions between Environmental Regimes Induced by the Kyoto Protocol Clean Development Mechanism, and an Analysis of Causes from the Perspective of Policy Interplay', Paper Presented at the IDGEC Synthesis Conference, Bali, 6–9 Dec. 2006.

¹¹⁴ See text accompanying above nn. 109–10.

¹¹⁵ The term renewables refers to biomass, biogas, landfill, solar, and wind energies.

¹¹⁶ Decision 17/C.P.7, 'Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol', in FCCC/CP/2001/13/Add.2 (2002).

¹¹⁷ Art. 40 (a), Annex, Decision 17/C.P.7, 'Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol'.

¹¹⁸ Gazette Notification for National CDM Authority, Ministry of Environment and Forests (Climate Change Division), Order, New Delhi, 16 Apr. 2004.

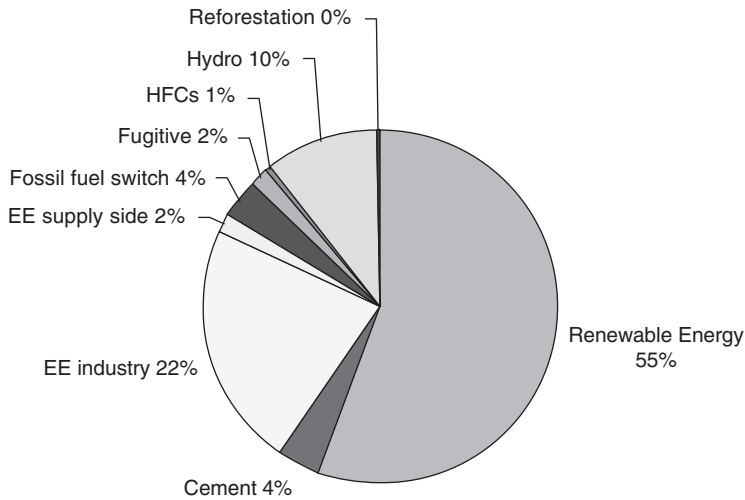


Figure 18.1. Distribution of CDM project by sector

Source: Generated based on data available at the UNEP Risøe CDM/JI Pipeline Analysis and Database <cdmpipeline.org/>.

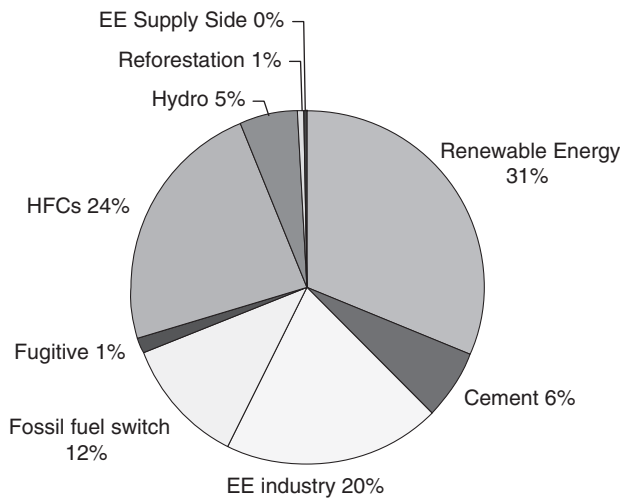


Figure 18.2. Distribution of CERs by sector

Source: Generated based on data available at the UNEP Risøe CDM/JI Pipeline Analysis and Database <cdmpipeline.org/>.

While it is a country’s prerogative to make the sustainable development determination, it is also a responsibility, indeed the only responsibility assigned to the host country. Neither the validator nor the CDM Executive Board is tasked or authorized to enquire into the sustainable development impacts of a

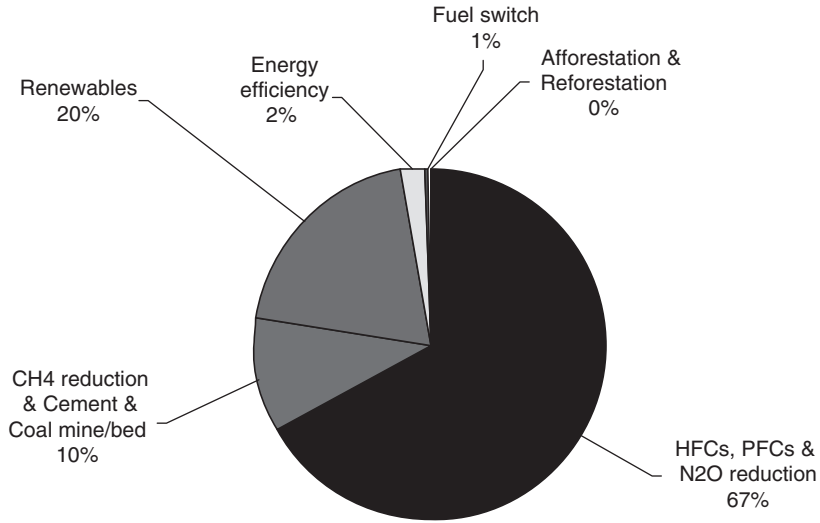


Figure 18.3. Global distribution of CERs by sector

Source: Jørgen Fenhann, UNEP Risøe Centre, CDM/JI Pipeline, available at <<http://cdmpipeline.org/>>.

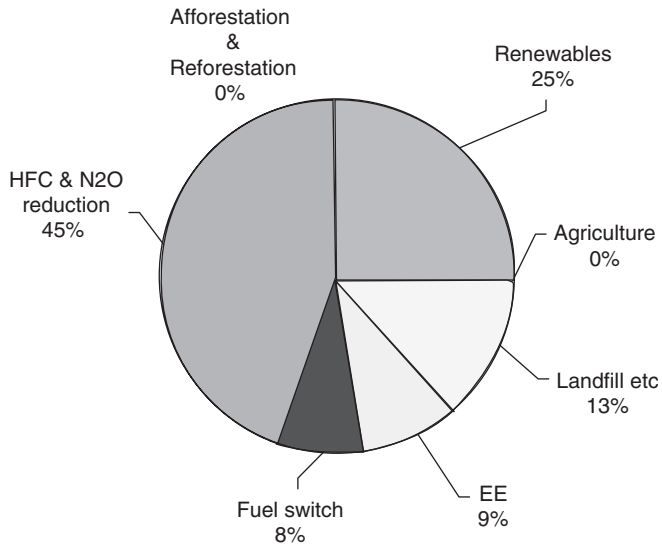


Figure 18.4. Asian distribution of CERs by sector

Source: Jørgen Fenhann, UNEP Risøe Centre, CDM/JI Pipeline, available at <<http://cdmpipeline.org/>>.

project.¹¹⁹ It is the sole responsibility of the host country, and a serious one it is too. This responsibility can be discharged in a variety of ways, including by careful screening of proposed CDM projects, and/or by funneling part of the revenues from CDM into sustainable development initiatives.

Developing countries have developed different approaches to determine whether CDM projects contribute to their sustainable development. These can be broadly categorized into three: the guidelines approach where broad (generally ambiguous and indeterminate) guidelines are prescribed; the checklist approach where either a positive and/or negative checklist is developed (for instance, renewable energy development and energy efficiency may be part of the positive checklist, and large hydro development part of the negative checklist); and the scoring approach where projects are rated based on predetermined criteria.¹²⁰ Of the giants in the CDM field, China, India, and Brazil, India has the least taxing process. Brazil has a combination of the guidelines, checklist, and scoring approaches,¹²¹ China combines the guidelines and checklist approach,¹²² and India has a pure guidelines approach. There is neither a positive list of environmentally friendly or preferred projects from which CDM projects are drawn and developed, nor a negative list excluding certain projects, or even prescribing conditions for them.

The CDM Gazette Notification tasks the National CDM Authority (hereinafter the Authority) with evaluating 'the extent to which projects meet the sustainable development objectives' and to 'prioritise projects in accordance with national priorities'.¹²³ It does not, however, define sustainable development or list sustainable development objectives. It does not also specify the 'national priorities' referred to. The notification empowers the Authority to recommend 'certain additional requirements' to ensure that the projects are 'compatible with the local priorities and stakeholders have been duly consulted'.¹²⁴ It also mandates the Authority to 'ensure that in the event of a project proposal competing for the same source of investment, projects with higher sustainable development benefits and which are likely to succeed are accorded higher priority'.¹²⁵ Again,

¹¹⁹ For an overview of the CDM project activity cycle see <cdm.unfccc.int>.

¹²⁰ Anne Olhoff et al., 'CDM Sustainable Development Impacts', *UNEP Risoe CD4CDM* (2004).

¹²¹ Brazil identifies nuclear energy, large hydro, unsustainable biomass energy, among others, as ineligible under the CDM. 'Critérios de elegibilidade e indicadores de sustentabilidade para avaliação de projetos que contribuam para a mitigação das mudanças climáticas e para a promoção do desenvolvimento sustentável' (2002).

¹²² China identifies renewable energy, methane recovery, and energy efficiency as priority areas, and encourages transfer of environmentally sound technology to China, Arts. 4 and 6, 'Measures for Operation and Management of Clean Development Mechanism Projects in China', 2005, available at <cdm.ccchina.gov.cn>.

¹²³ s. II (ii)(b), Gazette Notification for National CDM Authority, Ministry of Environment and Forests (Climate Change Division).

¹²⁴ *Ibid.*, s. II (iii)(a).

¹²⁵ *Ibid.*, s. II (iii)(b).

neither the term 'stakeholders' nor 'local priorities' is defined, explained, and/or illustrated, and there are no indicators offered to assist the Authority in determining which projects should have priority. In effect, the notification, by defining little and limiting nothing, gives the Authority unbridled discretion in granting project approval.

To assist project developers in designing project documents, the Authority has, however, identified a set of 'sustainable development indicators' on its website.¹²⁶ These are: social well-being (the project should result in alleviation of poverty, increase employment opportunities, etc.); economic well-being (the project should secure additional investment); environmental well-being (there should be a discussion of the impact of the project on resource sustainability); and technological well-being (the project should lead to transfer of safe and sound technology).¹²⁷ The Authority does not specify how these will be assessed against each other, or which among them has priority.

In practice, very few project proposals are rejected, so much so that the Authority has been characterized as a 'clearing house' by a leading Indian environmental NGO.¹²⁸ The Authority meets once a month for a day and considers 30 to 40 project design documents, spending an average of 10 minutes on each project.¹²⁹ The Authority checks the documents to ensure that there is no significant negative impact, and that there is no prima facie breach of any part of the corpus of environmental laws.¹³⁰ Beyond that it does not tax the developers with queries on the 'sustainable development' impacts of the project. Project design developers and consultants readily admit that the sustainable development section of the document, structured around the Authority's identified indicators, often involves 'cutting and pasting' from other project documents in the same sector.¹³¹ In any case, whatever the sustainable development claims made by project participants, there is no national mechanism to verify them. In several project design documents, including in the SRF project referred to earlier,¹³² firms offer to put aside a portion of revenues from CER sale for the benefit of local communities. There is no mechanism to verify whether this actually occurs, and the verification of such claims is not the validator's responsibility either. Officials argue that the Notification implicitly mainstreams CDM project development and assessment into the structure of existing environmental regulation and enforcement, and

¹²⁶ Available at <cdmindia.nic.in>.

¹²⁷ Ibid.

¹²⁸ Ritu Gupta et al., 'Newest Biggest Deal' 14:12 Down to Earth 15 Nov. 2005, published by the Centre for Science and Environment, New Delhi.

¹²⁹ In conversation, Vinod Kala, Emergent Ventures International, and Sanjaya Vashisht, Synergy, 17 Apr. 2007.

¹³⁰ Ibid. Also interview, A. Mathur, 13 Apr. 2007.

¹³¹ In conversation, Vinod Kala, Emergent Ventures International, and Sanjaya Vashisht, Synergy, 17 Apr. 2007. They did however note that this was the appropriate role for the government, given the rigorous checks project proposals are subject to by the validators.

¹³² See text accompanying above n. 109.

therefore does not require either stringent additional regulation (as CDM projects cannot be subject to higher standards than other projects) or monitoring.¹³³

A review of environmental governance in India is beyond the scope of this chapter. Suffice it to say that there is much lawmaking and patchy enforcement, and the reins of governance are held at least in part by a proactive judiciary armed with expansive public interest jurisdiction. The recipe for effective environmental governance has thus far eluded India, and adding a large number of CDM projects into the mix will stretch the resources of the system.

It is worth flagging that Environment Impact Assessments are not mandatory for CDM projects. The validator is tasked with ensuring merely that project proponents have done an environmental analysis, and, 'if the impacts are considered significant by the project participants or the host Party', have undertaken an 'EIA in accordance with procedures required by the host Party'.¹³⁴ Here again, the onus is placed on the host country. It is for the host country to determine whether the impacts of a proposed project are 'significant', and to require an EIA in accordance with its procedures. The Indian EIA regime is a limited one, requiring environmental clearances for a specified list of activities,¹³⁵ and excluding all else. For instance it excludes renewable projects, thermal power projects less with than 500 MW capacity, and building/construction work less than 20,000 sq feet.¹³⁶ Thus far, the Authority has not required an EIA of any project proposal placed before it.

Even if the screening of CDM projects for their sustainable development impacts is not rigorous, sustainable development could still be achieved by funnelling a part of the revenues from CDM projects towards climate mitigation and adaptation projects. China, in addition to a more taxing screening process, employs this approach. According to the relevant Chinese legislation, revenues from the sale of CERs belong jointly to the government and the project developer, with the government taking 65 per cent CER transfer benefit from HFC and PFC projects, 30 per cent from N₂O project, and 2 per cent from CDM projects in priority areas.¹³⁷ This would, presumably, create incentives for projects in priority areas and raise finances for adaptation and mitigation projects. In India, however, no such provision exists, and indeed the legal character of a CER, as

¹³³ Interview, A. Mathur, 13 Apr. 2007.

¹³⁴ Decision 3/CMP 1, Modalities and Procedures for a Clean Development Mechanism, in FCCC/KP/CMP/2005/8/Add.1, para. 37 (c).

¹³⁵ Gazette Notification for Environmental Impact Assessment, Ministry of Environment and Forests, Order, New Delhi, 14 Sept. 2006. The following categories of projects, some if of a certain scale, require environmental clearances: mining, extraction of natural resources and power generation, primary processing, materials production and processing, building/construction/area/township development projects, oil/gas transportation, hazardous waste, manufacturing/fabrication, and physical infrastructure. *Ibid.*

¹³⁶ *Ibid.*

¹³⁷ 'Measures for Operation and Management of Clean Development Mechanism Projects in China'.

well as how it might be taxed, is yet to be worked out. All proceeds from the sale of CERs accrue unencumbered to the project proponent.

It is evident from the foregoing discussion that the system created for DNA approvals, as well as the practice of the National CDM Authority, is designed to assist project developers in maximizing CDM revenues rather than in achieving any prescribed affirmative vision of sustainable development. As it has developed, however, CDM projects in India, a vast majority of which are unilateral, and a larger proportion of which are in renewable energy than in Asia and worldwide, may well assist in achieving sustainable development.

IV. Synergies between development, energy, and climate goals

India's positions are remarkably consistent. Internationally it refuses to accept mitigation commitments, citing powerful equity reasons firmly positioned within the burden-sharing architecture of the climate regime, and therefore domestically it seeks merely to exploit those areas where synergies exist between development, energy, and climate goals, and to take 'voluntary actions to decarbonize'. Its approach to energy is driven by the need to fuel its development, and to this end it has passed legislation and formulated policies in the last five years. Its approach to the CDM is driven by its need to facilitate Indian entrepreneurship. There are no dedicated climate policies or legislations, and the low- and beyond-carbon notion is yet to be mainstreamed into the planning process. It is a testament to the tremendous potential for win-win/climate development synergies that even this limited approach has yielded significant results, in particular in the development of CDM, and in terms of increased energy efficiency. Failing direction, and planned integration of synergistic climate and development goals, it is unlikely, however, that in the medium or long term India will transition to a low-carbon or beyond-carbon economy.

For the climate to stabilize at the IPCC-prescribed 550 ppmv, which would limit the global temperature rise to 2 °C, the fossil fuel economy would need to peak at 2030 and decline sharply thereafter.¹³⁸ If India continues on the current development pathway, with coal remaining the 'primary fuel',¹³⁹ the fossil fuel economy will peak in middle of the twenty-first century, and the biomass-solar-hydrogen economy will be 'firmly in place' sometime in the second half of the twenty-first century, but not before.¹⁴⁰ The Integrated Energy Policy 2006 predicts little increase in the share of renewables before 2030.¹⁴¹

¹³⁸ IPCC, *Third Assessment Report* (2003), Summary for Policymakers.

¹³⁹ Interview, A. Mathur, 13 Apr. 2007.

¹⁴⁰ New and Renewable Energy Policy Statement, Ministry of Non-Conventional Energy, Government of India.

¹⁴¹ Integrated Energy Policy.