The Political Economy of Clean Development in India: CDM and Beyond

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Abstract Global policies and instruments to tackle climate change look very different once translated into domestic programmes of action, reflecting varied institutional capacity, competing priorities, and diverse political cultures and political economies. In light of these variations, this article analyses how clean energy is governed in India, both through and beyond the Clean Development Mechanism. Governance processes are assessed across a number of scales, including various actors involved in mobilising finance and providing political and institutional support for clean energy. The nature of these relationships ultimately determines the nature of the relationship between policy goals such as energy security, alleviation of energy poverty and greenhouse gas emission reductions. Understanding these governance dimensions is therefore critical to assessing prospects for low carbon energy transitions in rapidly industrialising countries such as India.

1 Introduction

Energy security, energy poverty and climate change are three critical, interrelated global problems that require urgent action. Energy security concerns are compounded by the increasingly urgent need to mitigate greenhouse gas (GHG) emissions, including those relating to energy production and consumption. Trying to secure these objectives simultaneously creates a series of dilemmas and conflicts that some countries face more acutely than others. As Christian Aid (2009: 8) put it:

> India perfectly illustrates the nature of this challenge. While its middle class has full access to modern energy services and economic growth based on the high fossil fuel based power systems, the poor are left with no modern energy sources but have to face the worst impacts of climate change.

The energy challenges faced by India are considerable, requiring planners to address energy access for India's largely rural population, energy security and the growing impact of energy sector emissions on the global climate. According to 'India's Greenhouse Gas Emissions 2007', India is the fifth largest GHG emitter in the world, producing 4.7 per cent of global emissions, of which approximately 58 per cent are produced by the expanding energy sector (MoEF 2010). India has achieved recent economic growth without a proportional growth in emissions, but has made a voluntary pledge to further reduce the emissions intensity of its economy by 20–25 per cent from 2005 levels by 2020.

Against this background, India produced its first National Action Plan on Climate Change (NAPCC) in June 2008, a statement of intent by the Government of India (GoI) rather than a legally binding document, but a significant one nonetheless (GoI 2008). It includes eight missions on mitigation and adaptation, including a National Solar Mission to install 20,000 MW of solar-power generation capacity by 2022 as well as to reduce energy consumption by 5 per cent by 2015 through domestic trading of energy efficiency certificates, energy efficiency standards, and labelling for example.

The NAPCC makes explicit India's position of prioritising its own development goals over potential climate change mitigation co-benefits and clearly identifies the 'overriding priority of economic and social development and poverty

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alleviation' (GoI 2008: 5). Invoking arguments over *per capita* emissions and emphasising India's right to development, it claims that:

> … the principle of equity that must underlie the global approach must allow each inhabitant of the earth an equal entitlement to the global atmospheric resource. In this connection, India is determined that its per capita GHG emissions will at no point exceed that of developed countries even as we pursue our development policies. (GoI 2008: 2)

These development ambitions include efforts to provide 'energy for all' by 2012 in a country where over 400 million people do not have access to electricity and over 850 million people depend on non-commercial biomass for cooking (IEA 2010). Meeting the fast growing energy demand for poverty alleviation and for economic and industrial development is estimated to require current electricity capacity to almost double by 2017 to 300 GW, and more than double again to 778 GW by 2032 (Planning Commission 2006). National dependency on coal as the primary energy source is expected to continue, but renewable energy has gained significance in India with growing concern for energy security, particularly regarding the limited availability of (poor quality) coal reserves and a high import dependency of oil (TERI 2006).

It is against this background that we situate our analysis of the governance of clean energy in India and in particular, the role of the United Nations Clean Development Mechanism (CDM). India is second only to China in the number of CDM projects it hosts, with 597 projects registered as of December 2010, 22 per cent of the global total, and an 11 per cent market share in certified emissions reductions (UNFCCC 2010). But Indian CDM projects have also generated the highest rejection rate by the CDM Executive Board, mostly on the grounds of failure to adequately demonstrate the additionality of projects. Additionality refers to the need to prove that the project would not have been viable financially, or have been able to produce the same level of emissions reductions, without the project. It relies, therefore, on a counter-factual assessment of regulatory, technological and financial barriers to the uptake of low-carbon (and carbon equivalent) opportunities.

Given the success of the country in attracting CDM projects and the scale of the challenges it faces in tackling energy poverty and reducing GHG emissions, it is unsurprising that the country has been the subject of a number of studies on the CDM. Previous research has assessed the performance of the CDM in India against its stated aims of GHG reductions and promotion of sustainable development (Sirohi 2007; Castro and Benecke 2008); the performance of specific technologies (Kathuria 2002); forms of technology transfer (Dechezleprêtre *et al.* 2009) sector-based analysis, including of the energy sector, on which we focus here (Dubash 2009; Bhattacharyya 2010). There have also been studies exploring specific policy approaches including unilateral CDM (Krey 2005; Michaelowa 2007) and comparative analysis of firm and investor perspectives on engaging with the CDM (Hultman *et al.* 2010). More directly relevant to this study, some attention has been given to 'carbon governance' in general in India (Benecke 2009; Newell 2010), while comparative work has looked at how India's Designated National Authority (DNA), the main body responsible for overseeing CDM projects in the country, compares with that of China, the world's largest recipient of CDM projects (Ganapati and Liu 2009).

What is lacking is a more detailed understanding of the actors, networks and coalitions that sustain or frustrate particular policy initiatives, and of the structures, institutions and modes of governance that shape outcomes in the clean energy sector in India. Our approach here is to emphasise the way in which decision-making processes associated with the CDM have to be understood in relation to the broader configurations of political and economic power in the energy sector of which they are a part. Such configurations result not just from domestic political arrangements and relations of power, but also from the regional and global relations of power in which India is embroiled and which shape what is possible in the clean energy sector. Our aim then is to advance an understanding of governance in practice: the role of power, politics and decision-making processes in shaping clean development governance. To this end, we consider clean development governance as operating across scales (global to local) and across arenas (public and private). The forms of power at play here are material (control of production, technology and finance), institutional (access to and representation within key decision-making bodies) and discursive (ability to generate dominant framings in policy

discourse and the media). Conceived as such, the CDM is one site of the wider politics of energy, which it must engage and transform if it is to realise its progressive potential.

2 Governing clean energy in India

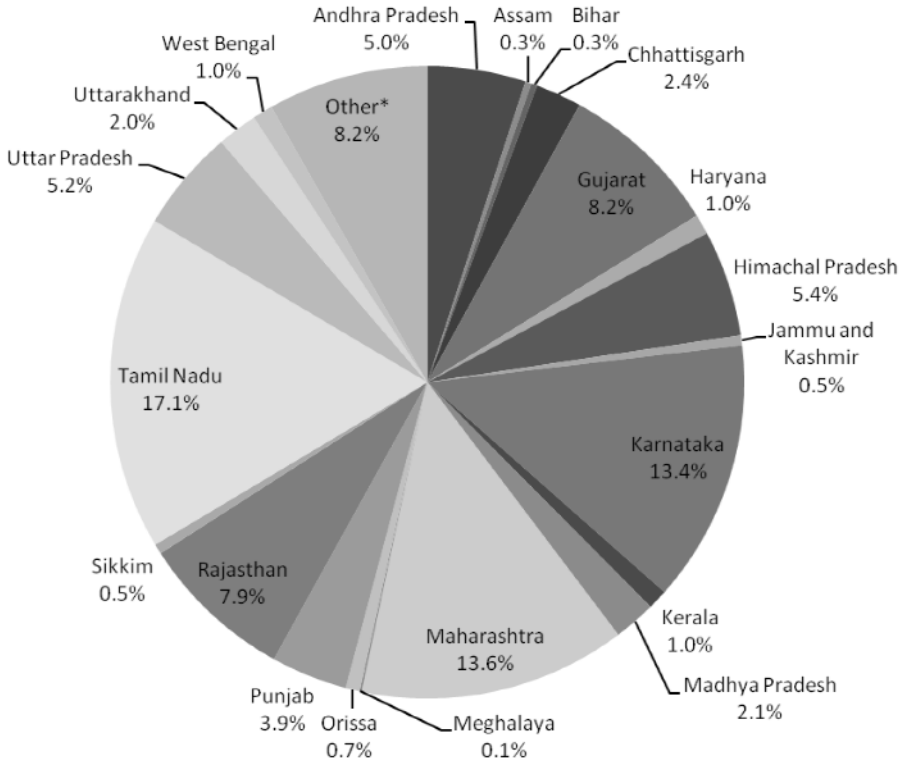
In this section, we show how the way in which international climate initiatives, including carbon markets such as the CDM, are translated and 'domesticated' (Newell 2008) as a function of a series of national characteristics, many of which relate to governance. The process of developing a workable policy instrument in a particular setting is a product of key issues including: the degree of autonomy and policy space that a country has to negotiate terms with powerful state and market actors and influence outcomes with international organisations; the nature of its policy economy/model of capitalist development (how state-led or *laissez-faire* it is); and the structures of governance that exist within a nation (the degree of decentralisation, capacity and synergy across levels of authority). In the Indian context, these factors interact in a way which produces a unique from of clean energy governance that is shaped by a series of key factors.

First, there is the attractiveness of the Indian market and the existence of – and critically a perception of – a positive investment climate. Leading banks such as HSBC have identified India as an attractive location for investment opportunities in the energy sector (Robins 2008; AGCC 2009). This gives the Indian government more leverage with actors hoping to enter the market and sets India up to access a variety of sources of public and private finance for 'clean' energy. There are vast opportunities and substantial incentives to invest in the energy sector through the CDM given the size of the country and the scope for low-risk 'low hanging fruit' investments, making India an attractive location for CDM projects. Comparative studies of CDM host country investment risk commonly cite India as an attractive investment location because of its established CDM institutional architecture and regulatory environment, in addition to the economic environment and large mitigation potential (Jung 2006; Oleschak and Springer 2007). Independent of the CDM, India ranks as the fourth most attractive country to investors in the Ernst & Young Renewable Energy Country Attractiveness Indices (after China, the USA and Germany), with an increasingly favourable regulatory and policy environment and a growing number of entrepreneurs and project developers (Ernst & Young 2010). The high number of CDM projects in the energy sector in India may also indicate the generic trend whereby flows of carbon finance in the CDM market follow Foreign Direct Investment patterns.

This places the Indian state in a positive position to lever the private capital required to fund a low carbon energy transition. Under the 11th Five Year plan (2007–12), India has allocated US$850 million of public finance to support renewable energy, with estimates suggesting that meeting 2012 targets will require leveraging as much as 15 times the budgetary support (Global Climate Network 2010). According to Benecke (2010), the generation of power from renewable energy services is almost 90 per cent in the hands of private parties, even if transmission and distribution of electricity remains in state hands. On this basis, she argues that 'the CDM provides an entirely new mode of governance for RE [renewable energy] that departs from the dominance of state-led steering' (Benecke 2010: 9). The carbon market has opened up opportunities for a new generation of entrepreneurs seeking to finance and establish projects as well as buy and sell carbon credits. Indeed, the business press in India is replete with stories hyping the potential of carbon finance to get people rich quick, creating and reinforcing a powerful discourse about the enormous opportunity that carbon markets present. Headlines such as 'Corporate India to earn Rs 2000 Crores' (*Financial Express* 2010) have helped to establish the idea that the carbon market provides easy pickings for profit hungry entrepreneurs willing to take a chance.

Second, and relatedly, is the proactive role of the state in facilitating investment and creating enabling regulatory frameworks in the ways we describe below. There is a strong sense in which the state still leads from the centre with missions and state plans. Indeed, the Indian economy remains highly regulated despite the neoliberal reforms introduced from 1991 under the stewardship of the current Prime Minister Manmohan Singh during his term as finance minister. The state still casts a long shadow over all aspects of energy production, distribution and regulation. Indian banks, a significant proportion

Figure 1 **Distribution of renewable energy CDM projects in Indian states**



of which remain state-owned, are the largest financiers of energy projects. The State Bank of India is now the most significant global financer of energy projects, investing 95 per cent of its power sector project finance loans in India during 2009 (Santiago 2010).

The government has been proactive in facilitating the conditions for the uptake of renewable energy, a fact which means CDM and carbon finance can play an additional supplementary role – rather than decisive one – in determining the viability of a project. The Ministry for New and Renewable Energy (MNRE 2010), for example, provides financial and fiscal incentives to allow renewable energy to become competitive with other sources of conventional energy in India. Measures adopted to stimulate innovation and investment in the renewables sector include: the REC (Renewable Energy Certificate) scheme; feed-in tariffs; tax incentives for renewables; concessional rates on customs and excise duties for the import of capital equipment; capital subsidies and concessionary financing from India's Renewable Energy Development Agency, as well as exemptions from electricity taxes and sales taxes. Many such measures have been well received by investors. As research by Emergent Ventures India shows, 'even before taking carbon credits into account, renewable energy projects in India are looking increasingly attractive on a risk return basis' (Kadakia and Acharya 2010: 14).

Third, India is characterised by a multi-level governance structure, whereby the central government, state government and *Panchayats* (local government units at the village level) each have an important role to play in the governance of clean energy. As in many countries, there are issues of capacity at the national level that affect the ability to monitor the quality of projects, in particular their ability to deliver sustainable development benefits to host communities. A combination of a reluctance to reject projects in the race to attract carbon finance and a large number of applications that have to be considered at each meeting of the DNA leave little time or inclination to probe the details behind claims of sustainable development benefits, such as employment, access to technology and local sourcing, accruing to communities which host the

projects (interview material). A total of 28 per cent of the CDM projects rejected by the Executive Board worldwide originate from India (42 projects), giving rise to concerns over the quality of Indian CDM projects as well as about the effectiveness or willingness of the Indian DNA to screen poor quality projects before they reach the Executive Board. Studies of the perspectives of companies on the CDM approval process indicate that firms perceive there to be a low risk of project rejection by the Indian DNA (Hultman *et al.* 2010). Critics claim this has resulted in negative social and environmental effects associated with particular projects such as that of a CDM registered HFC-23 destruction project in Gujarat (Ghouri 2009) or Jindal South West's steel industry project (Hannon 2009).

At state level, there is uneven take-up of renewable energy projects across states within India with similar resource potential. The unequal spatial distribution of CDM projects at the international level is reflected in the distribution across Indian federal states. Although to date nearly all Indian states host CDM projects, project numbers and CER volumes vary starkly. Figure 1 illustrates the breakdown by state of renewable energy projects, which account for almost two-thirds of registered CDM projects in India. States with the highest number of renewable energy CDM projects are Tamil Nadu (167 projects), Maharashtra (158 projects), and Karnataka (145 projects), while seven states are not host to any projects at all. CDM project distribution appears to be correlated with state income level and factors such as resources, industrial growth and governance type.

State level governance is clearly important and some state governments are playing a catalysing role in the development of renewable energy. Rajasthan and Uttarakhand, for example, have set up single window clearance for renewable energy projects to facilitate rapid approvals and clearances for such projects. The rapid development of wind energy in India has mainly been driven by progressive state-level legislation, including policy measures such as renewable portfolio standards and feed-in tariffs. Wind energy installations have been developed substantially in Tamil Nadu and Maharashtra, which contribute 42 per cent and 18 per cent respectively to the total installed wind capacity in the country.

Below the state level, India's *Panchayat Raj* system creates space for local-level consultations and participation in decision-making. In theory, *Panchayats* could play a key role in facilitating consultations on CDM projects, helping to assure that the sustainable development benefits are delivered in practice and performing important monitoring roles where state capacity will always be limited. In practice, when resources and bargaining with powerful actors are at stake, there are also dangers of corruption, buying-off of local leaders and capture of revenues by *Panchayat* leaders. Many project design documents do not describe the consultation process clearly, and either use formulaic language to describe a lack of comments received on a proposal, or fail to provide evidence that they have undertaken a specific consultation process for the CDM at all.

Fourth, there are features of the policymaking processes that strongly shape priority-setting and the overall form and direction that regulation takes. Strategy management for renewable energy is designated to the MNRE, arguably avoiding some of the common governance problems of overlapping functions and duplicated mandates across government (Liming 2007). This does not, however, mean that energy policy is not subject to competing agendas and uneven power across a broad range of public bodies. These include the Ministry of Power, the Planning Commission, the Ministry of Coal, the Ministry of Petroleum and Natural Gas, the Ministry of New and Renewable Energy, the Department of Atomic Energy and the Ministry of Environment and Forests (MOEF). The as yet unresolved issue of which ministry will ultimately have responsibility for the administration of a new National Clean Energy Fund (to be funded by a small tax on the import and national production of coal) is one example of how competing priorities of tackling energy poverty and energy security are played out between different parts of government. In this context, the CDM and other carbon market opportunities are received into and transformed by this matrix of power and bureaucratic politics.

Layered upon these conflicts are a series of personal and high-profile disagreements involving in particular, the Environment Minister Jairam Ramesh and Shyam Saran, the Special Envoy to the Prime Minister on climate change, over India's negotiating stance at Copenhagen where Saran rejected Ramesh's suggestion that

India was willing and able to accept a voluntary emissions reduction pledge (*Deccan Herald* 2010). Ramesh has also become embroiled in conflicts with the Ministry of Coal over rejection of some major industry projects and the Ministry of Power over the rejection of large hydro projects on social and environmental grounds (Ramesh 2010).

Each of these aspects of energy governance in India strongly shapes, albeit in different ways, the nature of clean development governance: the form it takes and its potential and limitations.

3 Beyond CDM

As already noted, the CDM and carbon markets more generally are just one, in many ways very limited, source of finance for clean energy. They form part of a much broader and more significant landscape of actors and financial flows that affect the financing and regulation of energy in India, as in many other countries. In this case that landscape includes actors such as the World Bank, Asian Development Bank (ADB) and the Renewable Energy and Energy Efficiency Partnership (REEEP).

In relation to investments in energy infrastructure, the PPIAF (Public Private Infrastructure Assistance Programme), a multi-donor technical assistance facility, has a large energy programme, of which India is the largest recipient of investments (US$7 million across its programmes). At a more significant level of financing, the ADB has also been a strong supporter of large-scale projects in the energy sector. Among the largest single disbursements in FY2009, the ADB committed US$700 million to the Second India Infrastructure Project Finance Facility, which will support infrastructure projects structured as public–private partnerships (PPPs), including the energy sector.

At a much smaller project scale the REEEP currently has seven completed projects and 19 active projects in India. REEEP-supported projects, through PPPs with other financiers, aim to fill a niche in terms of the provision of credit and finance, as well as access for pro-poor renewable energy projects in India. Examples include Information and Communication Technologies centres run by solar panels, solar-powered telephone booths and lighting systems or solar-powered sewing machines which increase productivity and hence incomes (Parthan 2007).

In terms of direct support for clean energy from donors, the UN Foundation and UN Department of Economic and Social Affairs (UNDESA) have supported a US$1.4 million project called Commercialising Renewable Energy in India (CREI) to support rural entrepreneurs in southern India to provide energy services for economically productive applications, while RECOMM is a US$3.15 million project supported by USAID to promote commercialisation of renewable energy technologies in India, which has provided technical and financial support to over 30 enterprises and NGOs to set up renewable energy businesses. In many ways, these other forms of public and private energy finance aimed at tackling climate change seek to scale up or go beyond the reach of carbon finance which, as the India-EU Dialogue document notes, is 'piecemeal and subject to global and national economic fluctuations' (AGCC 2009: 15).

Multilateral development banks, in particular, are hugely influential in India in terms of the support they provide to energy infrastructures, promoting PPPs in power transmission as well as renewable energy generation. This currently dwarfs the levels of finance for energy derived from carbon markets and will continue to do so for the foreseeable future, even if some of the proposed efforts to scale-up carbon markets to include sector-wide mitigation actions come to bear. Moreover, large-scale loans to energy projects based on fossil fuels have generated a great deal of controversy. For instance, the World Bank-supported US$4.14 billion coal-powered 'Ultra Mega' 4,000 Megawatt power plant in Gujarat, India will emit more carbon dioxide annually than the nation of Tunisia according to the US Department of Energy (Swan 2008). Such investments clearly circumscribe the effectiveness of government actions on climate change as well as raise questions about the credibility of the Bank's promotion of itself as a clean development bank through its Climate Investment Funds.

4 Conclusions

Approaching the issue of clean development and clean energy from a governance lens has provided, we argue, useful insights into the nature and practice of (clean) energy politics. It captures: (a) governance processes across scales (global to local) involving a range of public and private, state and non-state actors; (b) issues of power and influence that determine the nature

of clean energy governance and who benefits from it. These derive from the access to resources and material power that some actors have, uneven access to key institutions and power imbalances among them and the creation and maintenance of powerful discourses about the potential of carbon markets; (c) areas of un-governance and active neglect such as the failure to integrate sustainable energy and climate considerations into mainstream project lending or government decision-making.

Placing the governance of the CDM in India within a wide context of energy governance and politics has helped to understand the limits and potential of the CDM as a mechanism to reduce GHG emissions and deliver sustainable development benefits. These relate to issues of weak capacity, the challenges of coordination across levels of authority and between different bodies with authority in the area of energy, and the fact that there are many more powerful drivers of energy financing and governance than the CDM such as the multilateral, regional and bilateral donors and private capital. The analysis suggests that efforts to improve the governance of the CDM at the international level, as proposed in Copenhagen and Cancun, or to improve national level governance through efforts to enhance the capacity of Designated National Authorities will only go so far if not combined with an attempt to identify and address other barriers to the uptake of clean energy in India, as elsewhere, which run deeper than carbon markets.

There are proposals to exclude countries such as India from future access to the CDM in order to steer carbon finance more towards parts of the world that have, thus far, benefited least (such as many African countries). It is therefore critical that India engage carbon markets and CDM on its terms in ways which advance other nationally defined goals such as improving energy security or tackling energy poverty, given the vagaries, uncertainties and problems associated with carbon markets. The challenge then for India is to shift the focus from domesticating global initiatives to globalising its own model of low carbon development and ensuring its social and environmental integrity.

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