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**TRIPPING THE CARBON FANTASTIC: THE CLEAN  
DEVELOPMENT MECHANISM AS ETHICAL  
DEVELOPMENT?**

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## **Abstract**

The spectre of catastrophic climate change has seemingly opened up key opportunities for a renewed interest in the development of the global poor. One of the leading processes for cementing this growing connection between climate change mitigation and development is what is known as the Clean Development Mechanism (CDM). The over-riding logic of the CDM is cost-effective emissions reductions at the same time that ‘value’ is generated out of nature. This paper works to raise questions about the ethics of the CDM in its architecture, processes and outcomes and its potential to allocate resources to the poor as ‘ethical development’.

## **1. Introduction**

In a slightly ironic reversal of fortune, the spectre of catastrophic climate change has seemingly opened up key opportunities for a renewed interest in the development of the global poor. One of the leading processes for cementing this growing connection between climate change [mitigation] and development is what is known as the Clean Development Mechanism (CDM) which came out of Kyoto in 1997, but was firmed up subsequently in the Marrakech Accords in 2001 (see table 1 for key milestones). And yet, this cementing of mitigation and development is of a particularly ‘neo-liberal’ flavour: the CDM (one of several markets in nature) is, at its core, about the creation, expansion and governance of markets designed to sequester carbon out of the atmosphere or reduce its quantitative production. It is a vehicle to, in cleaving to this market-based approach, assign rights to pollute and legitimate carbon trading across international borders to support development in poorer countries at all manner of scales (i.e. local/community, regional and national); it does this through funding such ‘outcomes’ as local tree plantations or renewable energy schemes. Simply put, the over-riding logic of the CDM tacks to those refrains about what is ‘good’ and ‘right’ about all neo-liberal approaches to almost everything, let alone just simply the environment: allocating resources through market relationships means that it will be done in the most efficient, cost-effective and equitable way at the same time that ‘value’ is generated out of nature. Given this framing, the CDM is constructed not only as ‘sustainable development’ but as a contemporary instance of more ‘ethical development’ as a way to ‘right’ (in the multiple senses) a series of current and past environmental and economic wrongs in the harsh light of climate change.

Recent work on the CDM explores the mechanism from an angle of global environmental governance (see Boyd, Boykoff, Newell, *in press*; Lövbrand et al. 2009; Newell et al. 2009, Van Asselt and Gupta, 2009 and Bumpus and Liverman, 2008); sustainable consumption and carbon offsetting (see Lovel et al. 2009); sustainable development (see Gupta et al. 2008 and Karakosta, 2009); and on carbon offsets and inequality (see Wittman, 2009). This existing body of work helps to inform broad insights on the constitution, governance and impacts of the ‘new’ carbon economy (Boyd, Boykoff and Newell, *in press*). Yet it does not engage with evaluating the ethical development of the CDM specifically. Operationalising climate change policy takes place within a highly utilitarian framework focused on allocating permits to abate greenhouse gases (World Development Report, 2010). This is in stark contrast to a human development conception, which can be seen as an ‘anti-economistic’ view of the world “...centering on how people can live as judged by a range of human values” (Gasper and St. Clair, 2010:20).

This paper works to open up and raise questions—both implicitly and explicitly—about the ethics of the CDM in its architecture, processes and outcomes and their potential to allocate

resources to the poor as ‘ethical development’. We define ethical development as the ‘human centred’ imperative in development. In the words of Des Gasper and Asuncion Lera St. Clair (2010):

“Development ethics overlaps to some extent with the concerns raised by the fields of global justice and global ethics that have emerged in the past twenty years in reaction to neoliberal economic globalization.... [This] is based on the growing concern with an unfair globalized world, in which pain and suffering are visible through global media and easy travel, and where many international systems have been manifestly and in major ways biased and [hypocritical]...” (Gasper and St. Clair, 2010:21).

As the climate-development discourse merges and overlaps, it brings climate change economists and development economists closer to an ethic of development. Should the clean development mechanism be guided by a development ethic? And if so how can the clean development mechanism be designed and implemented with principles of fairness, solidarity and self-reflection to better represent the voices of the poor? Are there examples of CDM that contribute to agency locally?

In doing this, the paper is situated within the trajectory of writing that has engaged with and critically explored the neo-liberal managerialism of the environment (e.g. McCarthy and Pruham 2004; Mansfield 2007; Castree 1995) as well as those more specific process of so-called ‘green capitalism’ that McAfee (1999) refers to as the ‘selling of nature to save it’. Yet, the CDM is much beyond this ‘brand’ of the commoditisation of nature in efforts to preserve parts of it; rather, the CDM is about the commodification of ‘newly invented’ aspects of nature—carbon as pollution/emissions and tree plantations as ‘sinks’—in order to ‘save’ and, indeed, rationalise Northern lifestyles *while also* commoditising and (perhaps) securing the livelihoods of the poor in the global South. In short—and most cynically—the globalised environmental risks and impacts of individualised, consumer-oriented lifestyles are socialised onto the poor, their (very often) ‘community’ forestry projects, and their livelihoods, all in the name of sustainable—and now ‘ethical’—development. Clearly, this evokes much deeper questions about the justice of climate change mitigation through the CDM and, thus, the wider framings of what ‘ethical development’ might and perhaps should be in the context of global climatic change (e.g. Corbridge 1998; Crocker 1991; Qizilbash 1996). Climate ‘justice’, especially in the context of past emissions, has been addressed by a number of scholars<sup>1</sup>, but is worthy of much more research and writing and, indeed, traction in popular debates about climate change. That said, what is on offer in this paper, in following Robbin’s (2006) directive that it is important to assess the contemporary practices of climate change mitigation, is an exploration of some of the problems and complications with the CDM in its deployment, operation and structures that work to draw out questions of some of its ethical groundings in the first instance. As an expression of what might be seen as ‘market-led redistribution’<sup>2</sup>, examining the development of the CDM’s normative structures and processes and their implementation—although necessarily selective—brings to the forefront the technical and material complications of bringing carbon mitigation to the poor in the hopes of making their, and indeed, our, collective lives better.

The paper proceeds as follows: after a brief exploration of the genesis of the connections of climate change and poverty, the next section explores the ‘inner workings’ of the CDM and its approach to poverty reduction; here two specific examples are held up in order to explore some of the more grounded complications and normative quandaries that seem to be quickly

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<sup>1</sup> See, for example, Agarwal and Narain (1991), Baer et al (2007, 2008), Caney (2009), Meyer (2000), Page (2006, 2008), Prouty (2009), Roberts and Parks (2007), Stephenson (2010) and Lohmann (1999, 2001, 2006)

<sup>2</sup> It really is this aspect of the CDM which goes to its ‘ethical’ nature beyond its bid for plain, old ‘sustainable development’

defining normal operating procedure for the CDM in its efforts to bring entitlements to the poor and work to reduce poverty. Section three addresses the complications of the CDM in the context of market-led development and carbon sequestration, most notably in its penchant to re-entrench the general processes of uneven development and re-invent top-down, managerialist approaches to development in the guise of so-called ‘community’ projects. The focus is on projects that aim to bring poverty alleviation to natural resource dependent communities specifically. The paper concludes with reflections on alternatives to neoliberal logic of the CDM, and engages with existing literature that speaks to this, e.g. contraction and convergence hypothesis, and some key questions for future research on the role of the CDM in furthering ‘ethical development’ in the face of a rapidly warming world. Specifically, if climate change is to be thought about as part of a wider global poverty and human security framework, it will be crucial to debate how market instruments feature in the broader governance landscapes of these instances of ‘clean’ development.

## **2. Profiting from carbon?: Entangling development and climate change**

The developing south is increasingly experiencing rapid and complex environmental change. The threat posed by climate change along with associated issues of water, land and food security are expected to impact the lives and livelihoods of millions of people in the developing south. Social systems are also rapidly changing, influenced by ageing populations, urbanization, population growth, and global markets. These changes pose major challenges to poverty eradication and individual livelihoods. Thus have consequences for the way societal and environmental systems are managed and governed. Development has increasingly been tied to the international response to climate change—as embedded in the Kyoto Protocol—setting out collective targets to stabilize green house gas emissions to 5% below 1990 emissions levels. Mitigation of green house gases specifically through market-based mechanisms is a central component to achieving this target and had, in a sense, been ‘over-determined’ by the current neo-liberal governance structures dictated by global political economies and institutions. Increasingly multilateral development banks, policy-makers, NGOs and businesses are looking for ways to engage in multi-billion dollar carbon markets in ways that also bring development benefits to the poor. The World Bank, for instance, actively promotes carbon markets through various green development initiatives in its Community Development Carbon Fund, BioCarbon Fund and the Forest Carbon Partnership. The BioCarbon Fund, for example, delivers carbon finance to developing countries through partnerships between private and public sector entities as a trust fund administered by the World Bank. In addition, the Human Development Report (UNDP 2008, 161) supports carbon finance for development, noting that in addition to regulation and international cooperation, ‘fundamental’ market-based reform is required to avoid dangerous climate change.

The stated aim of engagement by these global institutions is to manage green house gas emissions in ways that assist national and local governments, companies and other organizations to meet the costs of wealthy consumer lifestyles in a cost-effective and credible manner through market-led carbon sequestration. And, in developing countries, given the historical precedent of the underdevelopment in the energy and industrial sectors, it is the land-use sectors of, for example, forestry that have offered up opportunities for investment through carbon financing. The experience of in carbon finance has been mixed, yet despite the challenges encountered thus far the World Bank states that ‘the experience has been rich in learning and proven to be successful. The mechanisms have provided an important catalyst for development finance while simultaneously supporting [green house gas] mitigation and sustainable development’ (World Bank 2010, 7). One of the reason why carbon finance is

considered beneficial and successful is that revenue through the sale of emissions reductions offers the ‘bankability’ of projects to be increased, enhancing the creditworthiness of borrowers and reducing the costs of borrowing. Moreover it offers a way to leverage new private and public funds: ‘Experience shows that carbon finance, alone or in combination with other policy and finance instruments, has made a difference in favor of climate action and catalyzed a shift of much larger amounts of (essentially private) financial and investment flows to accelerate low carbon development in developing countries’ (World Bank 2010, 7). Yet, as the last 20 or so years in development studies indicates, development is a contested concept when put into practice and that, crucially, poverty reduction cannot be reduced to simply greater access to financing and/or markets, carbon or otherwise. Indeed, as Sen (1999) has convincingly shown, poverty is politically, historically and locally situated and that schemes designed to confront poverty must be equally politically, historically and locally situated (i.e. Escobar, 1995). Stated another way, tackling human vulnerability, a situation only set to increase under the conditions of climate change, means ultimately reducing the social and political exclusion of the poor through structures that leverage empowerment, mobility and resilience (Ribot 2009) and not just novel forms of financing.

This disjointed and indeed rather naive approach to development and climate mitigation by those holding the reigns of carbon financing can, we argue, be attributed to a rather unenlightened and unreflective perspective on poverty (e.g. based solely on neo-liberal norms), which shifts the burden of responsibility from the collective to the individual in society. And, in this case, switches responsibility from the ‘rich’ past and current perpetrators of climate change to the ‘poor’ who are getting a hand in helping themselves out of poverty and the globe out of the climate quandary. This mainstream and, indeed, conservative approach is what Lawson and St. Clair (2009, 36) call the deployment of ‘dominant poverty knowledge’ in the context of working for better human security and critique this approach for not being ‘relational, historically grounded [or] embedded in global political economy’. Thus, the economic ‘managerialism’ (Newell and Paterson 2009) of the simultaneous issues of poverty, development and climate change promises billions of dollars in financial flows from North to South under the watchful eye of the very institutions—such as the World Bank—who have a rather dismal track record of confronting poverty in the first instance. In essence, the bejewelled promise of carbon financing has all but erased the discursive interventions and gains made by critical development practitioners (past and present) to the continuing and very much expanded tune of top-down, managerialist, market-entrenched development and poverty reduction schemes in the CDM’s bid for climate change mitigation.

### **3. Exploring the CDM: The structure and logic of global carbon exchange for development**

Yet, in the context of the history and goals of linking climate change and development through the likes of the CDM, how does it actually work and what are the implications of this form of environmental managerialist practice in economic, social and normative terms? Indeed, just as the CDM is a vehicle for the creation of value out of nature and the livelihoods of the poor, so too is it a vehicle for the transmission of what is ‘good’ and ‘right’ through the medium of various instruments, knowledges, actors and technologies from the UNFCCC and the Global North to the ‘majority world’ of villages and landscapes of the Global South. That is, however, as long as these villages, for example, have the ‘right’ and ‘good’ forms of nature to invest in.

Developers

It is undeniable that the CDM has captured the imagination of project developers and investors through the possibility of large financial flows for investments. This circulation of capital flows set loose in the carbon market and targeted to development is made possible through the creation and deployment of three concepts. The first is known as ‘equivalences’ whereby, for example, one ton of emitted CO<sub>2</sub> is marked as being ‘equal’ to the growth of a certain number of trees in a community forestry project. Second is what is known as ‘leakage’ or, perhaps better the avoidance of leakage which is a situation whereby—through the changing prices for carbon or incentive-based policy mechanisms—there may be an ‘unintentionally’ enhanced profitability and/or opportunity for environmentally harmful activities (Jack et al 2008); in short, cutting down trees may yield more ‘development’ for the community/actors in question than maintaining them as carbon sinks. The third concept, that of ‘additionality’ makes the CDM unique in the context of other carbon finance tools; here the specific instances of ‘development’ (e.g. poverty eradication) must be clearly ‘additional’ to other forms of development assistance. That is, the projects financed through the CDM cannot replace existing aid and the development benefits from the financing must be ‘additional’ to any other existing projects already on the go. Poverty, or better yet, poverty reduction through development, in these carbon finance markets, has an explicitly globalised price. The current and rapidly expanding need of the poor to ‘sell themselves’ as agents of development and climate mitigation, while not entirely surprising these days (cf. Goodman, 2010), is perhaps alarming in its moral ambivalence (if not repugnance) and establishes a dubious set of ethical credentials under something that bills itself as ‘clean development’. The ‘fortune at the bottom of the pyramid’, indeed! (Prahalad 2004).

These last sets of arguments are articulated and supported by the work of Adam Bumpus (2009) who, as detailed in his research on governing carbon offsets in Honduras, states that as the price of carbon has dropped with the global recession, more ‘boutique’ carbon finance development projects, e.g. those that plant ‘indigenous’ trees or focus specifically on women’s empowerment, have become more popular to develop and ‘sell’ as these sorts of projects bring ‘premium’ prices to them on open markets. Many of these are set up with what is known as the ‘gold standard’ in CDM projects; this is described further below.

As of January 2011, over 5600 projects were in the ‘pipeline’, 2761 CDM projects were registered in 70 developing countries and more than 500 million CERs produced under the CDM were issued to 855 projects (UNFCCC, 2011). These projects are expected to reduce global greenhouse gas emissions by up to 2.7 Gt CO<sub>2</sub>-equivalent by 2012 and transfers large sums of money between private actors in the North and carbon projects in the South<sup>3</sup>. As has been highlighted, the CDM is project-based and includes, among other activities, ‘sustainable’ energy projects, afforestation and reforestation, and industrial fossil fuel ‘switch’ activities. CDM projects are implemented in both urban and rural contexts.

#### International institutions

International and more ‘on the ground’ institutional layers govern the CDM. The first layer is the UNFCCC and the CDM Executive Board (EB), which register methodologies, projects and certifies third party verifiers, issues and tracks the movement of credits in the International Transaction Log (See figure 1). The principles of the CDM are outlined in

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<sup>3</sup> In 2009, following the global financial crisis the CDM contracted by 59%, to US\$2.7 billion (€1.9 billion) (Kossoy and Ambrosi 2010).

Article 12 of the Kyoto Protocol, which states that CDM activities should contribute to sustainable development in the host country. The Marrakech Accords emphasized that it is the host country's prerogative to define whether a project contributes to development. In most countries this has meant that a governmental Designated National Authority (DNA) evaluates project documentation against a set of pre-defined criteria, which tend to encompass environmental, social and economic aspects of sustainability (Schneider and Grashof 2007). The CDM evaluation standards are approved by the UNFCCC and the CDM Executive Board. The EB consists of 10 members from parties to the Kyoto Protocol with one representative for each five United Nations Regions and two additional representatives for developed and developing countries and one small island developing state.

In terms of more 'on the ground' governance through the CDM, a project design document (PDD) must be prepared to produce information for the relevant stakeholders, including the investors, the Designated Operating Entity (DOE) performing validation of the project, the CDM EB, the DNA and the local communities. The PDD works to predict the amount of carbon 'offset' by the project. Once completed the PDD is then validated, approved, registered and transacted. The DNA approves the project for sustainable development and an accredited DOE validates the project design document. After the EB registers the project the DOE verifies and approves issuance of CERS. The EB plays an important role in overseeing the whole project cycle. For example, in 2010 the CDM Executive Board suspended several well-known accredited auditors including TUV SUD, the second largest CDM validator for procedural breaches concerning additionality and qualifications of personnel (Szabo, 2010). The PDD, along with a validation report and an approval letter of the DNA, form the foundation for 'credible' project registration and recognition (UNEP 2008). The PDDs are available for public access. More broadly, actors in the CDM include 'implementers' such as companies, 'sellers' are other intermediary companies, brokers and states (e.g. India, China) and 'buyers' include governments, large private emitters, brokers, traders, carbon funds, and, of course, a whole diverse host of NGOs.

#### NGOs and brokers

The specific involvement of NGOs adds in another layer to this on the ground governance of the CDM: NGOs are able to participate as important actors in monitoring and influencing the standards for CDM (Shin 2010). As well as the standards for the third party verification of CDM, there exist additional voluntary governance standards, which have come to be known as the 'gold standard' for carbon projects<sup>4</sup>; this agreed upon set of criteria, supported by over 60 NGOs such as WWF International, seeks to provide so-called 'high' sustainable development criteria and thus, outcomes in these projects. Here, projects are certified according to set of stringent social and development criteria above and beyond reducing emissions from baselines or the simple removal of carbon from the atmosphere. These instances of seemingly more 'ethical development' in the CDM provide even greater product differentiation within carbon markets and, as indicated above, are beginning to proliferate even during the current recession.

#### Beneficiaries / Recipients

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<sup>4</sup> The gold standard excludes the certification of forest projects because there are no guarantees to ensure permanence in forests, methods of calculation of CO<sub>2</sub> absorbed by forests are inconsistent, there are negative sustainable development impacts of large-scale monocultures, and forest offsets may lead to the continued dependency on fossil fuels for energy demands.

In moving from a description of the institutional and structural arrangements in the CDM to how it supports and develops capital accumulation, the main question is how—and indeed, *does*—this process benefit the poor on the periphery? Market logic dictates that resources will be allocated efficiently if there are functioning institutions such as clear property rights, contractual arrangements and that transaction costs are low (Coarse 1960). As applied in the CDM, a ‘flexible’ mechanism that allocates property rights to carbon emissions, it allows firms the opportunity to include carbon emissions in their calculations of profit and risk as negotiated through the intermediaries of multilateral banks, bilateral institutions and NGOs (Newell and Paterson 2009, 77). Yet, the theoretical economic tools of property rights, contracts and transaction costs do not have much to say to the social dynamics of putting these things into practice, how trust works across agents and the environment and the rigour of regulatory and certification in these networks. One of the inherent tensions in the CDM is its function as a market instrument that essentially dictates communities will forgo almost all other (market) activities in order to protect the globe/Others from climatic catastrophe. This is seemingly another place where the CDM is ethically suspect: communities and the poor, to be part of the CDM must forgo some other, perhaps quite important livelihood activities in the name of ‘ethical development’. As Penna-Firme and Brondizio (2007) have found in the context of biodiversity conservation through the ‘marketisation’ of so-called ‘global’ forests in the South, the value of the intangible goods such as the preservation and support of local identities is almost as valuable (or *more* valuable) to the ‘community’ than the financial aspirations and expectations created by biodiversity markets. In addition, as work on fair trade and organic certification regimes is beginning to show (e.g. Mutersbaugh, 2002; Wilson, 2010), the ‘tyranny’ of certification for environmental and social services can work to destabilise communities—who already have established cultural and political economies at work—as well as relationships between communities as they begin to ‘compete’ against each other for access to markets and financing. Markets create winners and losers at all manner of scales (e.g. local, regional, national, etc) and so, with the CDM, ‘clean development’ winners and losers are created; these processes will only intensify the uneven development that is at the core of the CDM in the future as markets spread and gain momentum (but see Cole and Roberts 2007).

That said, as described previously, there exist a number of different public standards that cover the CDM and other voluntary offset projects to ensure they are ‘working’ for the poor. In the CDM, the auditing and verification is done by DOEs according to the streamlined procedures set out by the UNFCCC. Project certified emissions reductions are monitored and evaluated by verifiers from a handful of internationally recognised companies. Yet, at the domestic level, governments can get caught between developers’ ambitions for low cost abatement opportunities and the need to comply with the EB rules governing the CDM which might not match up to these ambitions in practice. At the same time, the role that the host government plays in regulating carbon markets often remains a black box. For example, the DNA in India adopts a *laissez faire* approach to the market on the one hand yet this is held in tension with the responsibility the state has for ensuring that ethical considerations, such as conducting stakeholder consultations and ensuring additionality. In this case domestic and international NGOs play important roles in monitoring the quality of development benefits to the poor. In reality, the stringency of evaluation in CDM often comes down to the voluntary ‘goodwill’ of an individual company or the other sets of actors in the carbon audit network. Thus, ethical development here depends on companies wanting to pursue ‘good’ social responsibility outcomes and/or if governments are committed to strong social protection measures in CDM projects. Indeed, even in the case of CDM gold standard projects,

developers and verifiers struggle with ensuring and evaluating additional development benefits, which can often simply become an exercise in ticking the right boxes (Vrolijk, pers comm. 2008).

By all accounts, it is not easy to assess the intangible social benefits that result from market-based mechanism in general (Kosoy et al 2007) nor specifically from the CDM. The scope of resource and cash transfers to local people remains largely unclear to outsiders. The measurement of vulnerability or social exclusion is not something that is easily accounted for or measured in the PDDs. And, despite public access, it is not possible to assess solely from these documents what the flows of resources and the actual material distribution of benefits across local communities are. Poverty and development, as Yapa (1993, 1996) has explored, are not easy to measure, articulate nor account for through the economic models and structures of managerialist approaches like the CDM. India, for example, until recently did not have a baseline for low-income people in CDM projects. Thus, international standards have had to be used as the norm and, in turn, have not been contextualised in the places and spaces of their application.

We now turn to specific examples of the particularised and complicated practices of the connection of climate change mitigation and development through the CDM community projects in both China and India.

#### **4. Illustrations from the frontlines of the CDM: Grounding its complications and concerns**

This brief section of the paper outlines some of the early findings from CDM projects that aim to specifically contribute to livelihood development on the ground. In general, broad insights from the literature suggest that development benefits have been short-coming in CDM projects. Sirohi (2007), from a review of 65 CDM projects, states that in India CDM has not contributed to development or poverty reduction at all. Some industrial CDM projects such as the Jindal Steel and Power in India provide indirect environmental benefits by reducing emissions on-site, while CDM finance does not bring additional employment or social benefits and in some cases has resulted in local struggles against poor working conditions (Lohmann 2006). Sutter and Parreño (2007) show less than one percent of the CDM projects in their study contribute significantly to sustainable development. Boyd et al (2009) studied a cross section of 10 CDM projects including landfill, fuel switch, sponge iron and renewable energy. They found that a significant emission reductions was gained by CDM projects, however, all projects fell short in delivering direct local benefits except for one case in Peru, which illustrated direct benefits in terms of health and employment. These findings correlate with other studies where there has been limited uptake of development activities by communities due to project design and procedural issues (Boyd 2009; Brown and Corbera 2003).

With these general misgivings in mind and given what we know about the CDM structure, what scope is there for CDM-based development and, as Yunus (2008) argues, can the CDM still be thought of as a new institution that delivers development to the poor? How do new carbon values translate to changes in rules and relationships at the village level and between the villagers, experts and officials more specifically? To illustrate this—but as importantly, how the institutionalised and parallel processes of uneven development in the CDM occur across different project contexts—two examples of CDM projects are contrasted in terms of institutional change and diverse impacts resulting from negotiations between state and local actors. Both projects aim to aid poverty alleviation and to facilitate rehabilitation of

‘degraded lands’ and are supported by multilateral or bilateral institutions. One example is of a CDM project in Guangxi Province in China, which illustrates evidence of various ‘resistances’ to the established CDM structure. China has the largest number of CDM projects second to India, and has taken the largest number of issued CERs to date (Shin 2010). In contrast, a project in Haryana State in India has shown extraordinary levels of engagement by local populations. Here, as Boyd et al (2007) suggest, a valuable focus on low income, rural and natural resource dependent communities may offer important insights into ways that the CDM can be adapted to fit with the needs and priorities of low-income communities to have a better chance of successful delivery of development. The two cases are explored through the lenses of their ‘context’, the institutional arrangements that worked to create them and then the ‘engagement’ of the CDM structures by local populations.

*(1) Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin*

One of the world’s first CDM afforestation projects lies in Guangxi province in China. The Guangxi Watershed Management CDM project aims to reforest 4,000 hectares of multiple-use forest on degraded land for environment and development purposes. The aim of the project is to test the technical challenges to achieve a ‘virtual’ cash crop that is economically credible while also piloting the suitability of addressing livelihoods and rehabilitating the natural environment. The estimated carbon to be sequestered is 0.77 megatons of Co<sub>2</sub> equivalent over a 30-year crediting period (2006-2035) through the planting of six tree species, along with biodiversity and soil enhancement benefits. The project aims to bring livelihood benefits to approximately 20,000 local farmers in 5,000 households living in remote areas. Activities include trees planting, weeding, harvesting timber and resin, and forest management (Gong et al 2009). It is expected revenues from sales of carbon credits will be \$2 million and the sales of timber and pine revenues at the end of the project will be \$3.5 million (Gong et al 2009). The project is governed by a set of actors including the World Bank, the governments of Spain, Italy and China, the Global Environment Facility, and a private forestry firm Guangxi Huanjiang Xinghuan Forestry Development Company Ltd, which will acquire and sell the carbon credits. The verifiers are TÜV SÜD (Hastings 2009) with headquarters located in Germany, who did the verification before their suspension by the CDM EB.

The Guangxi Huanjiang Xinghuan Forestry Development Company will sell up to 50,000 carbon credits per year for fifteen years to the World Bank BioCarbon Fund. The credits are ‘temporary’ in the forestry sector because of the significant risks of forest loss through unanticipated forest fires and disease. In order to reduce the investment risks, the World Bank will buy the temporary carbon credits to buffer the investor’s risk. The World Bank has a contract with the Xinghuan Forestry Development Company, who is an intermediary representing all the sellers under the shareholder system (Gong et al 2009). The shareholder system includes two groups: the local forest companies and local land users from 27 villages (Gong et al 2009). The Forestry Development Company has signed contracts with two other intermediary forest companies, and the three forest companies have contracts with village leaders for communal lands, and for individual lands contracts have been signed with heads of households. The World Bank pays \$4.5/ton of CO<sub>2</sub>eq to the sellers at the moment of purchase of certified emissions reductions. The project has received funding in the form of government funds (\$1,128,913), commercial loans (\$564,465), and subsidies to the local forest companies (\$1,128,913). The funding has been used to encourage small-scale local forest companies to invest in the CDM forest project as a test for future models of incentives and financial flows (Hastings 2009).

The villages are among some of the poorest located in remote areas in China. According to Gong et al (2009), the willingness to participate in the Guangxi project has varied greatly at the village level: ‘In spite of the potential profitability, the project has a shortfall of

implementation: [by] the time of surveys in September of 2007, only 55% (about 2210 ha) of the overall plan (4000 ha) had been fulfilled. This low level of participation, if not due to lack of direct financial incentives, must be due to high costs of participation’.

So, while the project has facilitated some participation through carbon pooling and share-holding successfully, a large area of land remains unforested. The low level of village engagement is due to restricted road access, sparse village distribution, and the lack of trust in the forestry companies. In some cases, the unclear ownership of common lands appear to inhibit collective planting on degraded lands, resulting in internal community tensions over property rights. Additionally, in some villages, once abandoned lands gained a new value through carbon, tensions emerged between households about how to use the land. In contrast, in a different village, which happens to be a homogenous minority Miao ethnic group governed by local rules of collective action, managed to fulfil their planting activities successfully. Overall, it appears that to date efforts to build community capabilities in the Guangxi CDM project has been limited and indeed ‘splintered’ as a result of the efforts of the CDM developers to engage with local groups and people. Interestingly, Shin (2010) points out that in China the national government tries to maximise its national interest for a cost effective CDM by adapting the rules and procedures to fit its domestic priorities. Moreover, in China ‘the government does not allow NGOs to participate in the policy process’ (Shin 2010:251). In the case of China, then, CDM projects are adapted to a set of autocratic ‘in house’ rules—set according to national development priorities—with no input from civil society. This raises important questions about whether in some cases domestic institutional arrangements play a greater role in influencing the outcomes for the poor, above and beyond the wider institutional arrangements of the CDM.

*(2) Small Scale Cooperative Afforestation CDM Pilot Project Activity on Private Lands Affected by Shifting Sand Dunes in Sirsa, Haryana.*

In contrast to the previous example, the first ever-registered CDM reforestation project in India has been successful with regards to participation of communities and distribution of benefits, in particular to women and young girls. The CDM project is co-funded by the European Commission and the state government of Haryana as part of the larger Haryana Community Forestry Project (HCFP) and is the first small-scale afforestation CDM project to get certified by the CDM Executive Board in April, 2009. Project stakeholders include Haryana CDM Variksh Kisan Samiti, Ellenabad, Sirsa (project proponent), HCFP (project developer), Institute of Global Warming & Ecological Studies, NOIDA, India (Consultants), and the verifier is the same as in the China case above, TUV SÜD. The Haryana CDM project seeks to reforest lands in the western belt of Haryana, which borders with the State of Rajasthan at the North-eastern margins of the Indian Thar Desert. The project area covers 370 ha belonging to 227 farmers across eight villages comprising degraded cropland that is exposed to windblown conditions. The lands became degraded following the India-Pakistan partition in the 1940s and the subsequent migration. The project is governed by Haryana CDM Tree Farmer’s Society. The Society’s aim is to earn carbon credits, establish three mixed forests, using seven tree species, to improve soil conditions, and to increase income and employment to alleviate poverty. All of the carbon credits, timber and non-timber forest products produced by the project activities are owned by the local farmers, who have the legal title to the lands. These activities have been selected through extensive participatory exercises and the establishment of the local CDM society, in the words of a project consultant: ‘We started with the disadvantages and then moved onto the benefits of the project. Working slowly we won confidence among 22 villages and transparency led to winning the farmer’s confidence...when intentions are clear the farmers are very smart in understanding that people are not fooling them’ (pers. comm. project consultant, Institute of Global Warming and Ecological Studies, 2010). The farmers were positive that the project

may generate opportunities such as additional employment and women engage in the project activities: ‘this was ensured by incorporating byelaws for the CDM society in such a manner that at least one third of members of the Executive body shall always be women’ (PCN 2009, 16).

Overall, the project has a 60-year operational lifetime and a renewing of crediting period of 20 years. The net anthropogenic GHG removals by the sinks as a result of the project are anticipated to be 231,920 tonnes of CO<sub>2</sub> equivalent during the crediting period (from 2008 to 2027). The project is considered ‘additional’ in that no plantation activity was attempted in the past on these lands due to the severe ecological conditions.

One may ask what has contributed to the development of a community-driven CDM project that is owned and managed collectively. There have been a series of land use projects in the region over a period of almost 20 years. A World Bank funded Social Forestry Project was implemented in 1982-1990. Between 1999-2008, the EU supported the Haryana Community Forestry Project (HCFP) to rehabilitate degraded communal lands of 294 villages in southern Haryana with a grant of €23.3 million and €6.8 from the government of Haryana. The HCFP has evolved into the Small Scale Cooperative Afforestation CDM project. Strong local participation was encouraged in the HCFP through activities, such as encouraging women’s centres for skills building and ensuring sufficient wage-earnings and income generating opportunities through nurseries and grass seed collection. Empowerment of local peoples was encouraged through compulsory membership of local village institutions (Village Resource Management Committees) and regular meetings held by female extension workers. As a result, nearly 38000 hectares were rehabilitated by planting and natural regeneration in the Aravalli region. Some describe the project as “mind blowing” (pers. comm. Newman, 2009). For example, the project was successful in relieving common tensions between Muslim and Hindu communities, which is considered exceptional for India.

The HCFP began life as a standard forestry project, which focused primarily on the value of timber. The experience of this led to local women’s inclusion, which occurred at an early stage of the HCFP, through, for example, the establishment of the Haryana Women’s Association. Experts suggest that the HCFP’s successes were achieved by linking the economic benefits to gender and inclusive procedural approaches, as well as by encouraging good monitoring and evaluation and including criteria of behavioural change in the project’s framework (pers. comm. Newman, 2009). Other factors that contributed to the success of the community project were the strong commitments that people demonstrated to the project. An important intermediary was the company that facilitated technical assistance early on, called the Fountain Renewable Resources. This company facilitated technical assistance and contributed the tools to mediate between communities, NGOs and government departments in ways that went beyond its terms of reference. The CDM project has, through private sector engagement, stimulated what looks like an opportunity for the communities to devise their own development plan in support of marginal groups and women’s engagement through Village Resources Committees. The project also reaches out to around 700,000 people in over 110,000 households which are linked through Village Resource Management Committees at the village level.

### **5. Harnessing clean development for the poor through the CDM?**

What to make, then, of these examples that—in engaging with the seemingly efficient, cost-effective, equitable and ‘ethical’ forces of the CDM through its market-led approach—show the very different normative and effective outcomes of the CDM as sustainable development? First, the old adage that ‘place matters’ and matters to the livelihoods and environments of local people caught up in transnational networks of development and environmentalisms in very is particularly acute here (e.g. Bebbington 2000, 2004; Bebbington and Kothari 2006;

Castree 2003). The desire to impose knowable and similar market structures through CDM financing is producing and can equally produce rather troubling ‘differential geographies’ (Castree 2004); thus, the ‘good’ and ‘ethical’ structures of the CDM are creating ‘bad’ and ‘unethical’ outcomes in some places and, alternatively, ‘good’ and perhaps ‘ethical’ outcomes in others. To carry this a bit further, the ‘good’ or ‘right’ combination of factors—such as extensive and long lasting NGO involvement in a seemingly already strong civil society in the case of the institution of carbon markets/financing in Haryana—are, here, essential for the ‘good’ economic, social and normative outcomes of this specific carbon ‘intervention’. In a sense, a strong, already established and supported communitarian ‘ethic’—a rather non-neo-liberal move in the face of neo-liberalism— may be needed to account for and buffer against the more divisive and complicating factors inherent in carbon markets (cf. Escobar 2001). This has certainly been the case in fair trade markets, were, those communities of farmers that have had early and continuing support from NGOs to build up the community’s ‘capital’ and capacity (see, specifically, Raynolds et al 2004) have succeed greatly in maintaining and extending their presence in these markets. Second, building on this point, the role of intermediaries—least of all as ‘ethical’ agents—is incredibly important to consider and evaluate and, especially their growing power to mediate relationships between CDM markets and local people. For example, the private timber companies in the case of Guangxi play a new role as intermediaries between the State and marginal communities and they were fundamentally important in steering the goals and outcomes of the project given the lack of trust many of the villagers had in them. Yet, in the case of Haryana, local agency (popular action and engagement) has been expressed through the facilitation of intermediaries where there was institutional intervention and capacity building for longer periods of time.

Overall, how power flows and why in the often complex, transnational networks of carbon markets needs much further exploration in the context of the interface of local communities, their embedded histories and relationships with intermediaries, nature and monetary flows. Indeed, intermediaries will only become more important as states continue to overlook community development in terms of the public provision of goods and services and turn to the private sector through CDM activities. Finally, as with these two examples and as others have pointed out (Boyd et al 2009; Liverman and Boyd 2008), the CDM institutionalises and accentuates the processes of uneven development for structural as well as environmental reasons. Both local capacity to access markets—based on social relations and ‘connections’ as much as anything else—as well as ecological resources—if you don’t have the right ‘nature’ to invest in, then it is not going to attract the capital—are at play here at a very general level. In the China example, local capacity and ecological resources worked against the project, while in India, they worked for its success. Thus, doing ‘right’ and ‘good’ by global ecologies and markets, means that resources flow to those places that do ‘right’ and ‘good’ institutionally and ecologically. Indeed, the case of Haryana project in India looks as if by assigning a value to carbon it could lead to local development by assigning a new meaning to the social production of nature in carbon sequestering trees. Yet, this model is distinct in that it is not necessarily replicated easily; it is clearly an example of a bottom-up initiative where local people seem to have a vested interest in the project design and management or dealing with the excess carbon emissions of those half a world away.

As David Harvey (2006, 82-83), like many others (e.g. Rushkoff 2009), notes, almost everything that we now eat and drink, wear and use, listen to and hear, watch and learn comes to us in a commodity form and is shaped by divisions of labour, the pursuit of the ‘product niche’ and the general evolution of discourses and ideologies that embody precepts of neo-liberal capitalism. The conditions for the market are, in Harvey’s view, constructed by the

institutional arrangements that societies—or at least those in power—chose resulting in a strategy of accumulation that even pertains to those populations trying to subsist on less than US\$2 a day and who are often viewed and treated as if they are disposable and redundant populations. Yet, while in the CDM, the first sets of statements hold true and guide its drive to ‘ethical development’ through the commodification of carbon, the last—that the poor are disposable and redundant—does not. Indeed, in the CDM the poor are an invaluable resource in managing the global climate through mitigation strategies, so much so that their very livelihoods and their support is commodified and tied to the price for carbon through carbon financing. Yet, more specifically, there is a sort of ‘double move’ going on here: the generic nature and livelihoods of the poor are now, again through the market mechanisms and logics of the CDM, made indispensable, while the more specific livelihoods and natures of specific communities and individuals are not: they are seemingly ‘substitutable’ as long as some set of poor people are sucking carbon out of the atmosphere in the name of ‘clean development’. Thus, the underlying need of the CDM to keep the poor around, yet also still poor and in dire need of carbon-market-led development to the direct benefit of the rich goes perhaps to the heart of the ethical and moral contradictions embedded not only in markets but also the way we have structured the processes of fundamentally dealing with climate change.

Furthermore, markets in nature, environmental services and, indeed, livelihoods, backed up by the specific processes and structures of the CDM, ensure that uneven development is at the centre of climate change mitigation. But as we tried to point out here there are contractions and complications. On the one hand, in the case of the institutionalisation of carbon financing in India, the community engaged with the processes of the CDM seemed to flourish and exhibit a clear case of ‘ethical development’ in its ability to build local capacity and support the ethical goals set out by and expanded and expanding local community. On the other hand, without clear institutional support at the local level that includes trust in intermediaries, organisation and support mechanisms designed to translate carbon financing into ‘real world’ outcomes sensitive to local contexts as in the case of China, carbon sequestration might go sorely off track and become, in a sense, ‘unethical development’. In short, the growing and continuing economisation of climate change—of which the CDM is just one component—works to (in some cases) take carbon out of the atmosphere but at the price of papering over the ‘hurly burley’ of life (Peet and Watts 2004) as markets are so want to do. Here the extraction of value through carbon markets—whether that be of economic value or the value of less climate change—needs to not only be buffeted by regulatory structures as perhaps Polanyi (1944) would put it (see also Guthman 2007), but also tempered by the power of the local (cf. Castree 2004) in strong communities, themselves already advocating and working towards ‘ethical development’.

## **6. Conclusions**

Given all of the above discussion about the normative and social complications of the CDM, we wish to close with several key questions and areas of further investigation that we feel should be at the continuing core of the debates of the CDM and climate change mitigation more broadly. First, how can better safeguards be built into the CDM to ensure and regulate its bid for sustainable and ‘ethical’ development at the local level? This seems particularly apropos the agreement reached in Copenhagen in 2009 that national governments pledged to contribute aid flows of US\$100 billion for climate aid by 2020. Second, if indeed, the money does continue to flow like this in carbon markets, what series of factors or characteristics works to promote a successful ‘culture of carbon sequestration’ at the local level and in the wider networks of carbon financing? Clearly more research and engagement with ‘actually

existing' carbon markets (cf. Castree 2005) designed in the name of 'ethical development' is a requirement here to understand this combination of factors and work to support them in other places to equal out the drive to uneven development in carbon markets. Third, serious consideration and critical engagement needs to be had with respect to market-led climate change mitigation more broadly. Are there other pathways to 'ethical development' outside of climate change finance that might poke even more holes in it as a solution to one of the biggest environmental problems facing the globe? Indeed, what are the moral underpinnings of neo-liberal development here that have led us to where we are and is it indeed not more 'ethical' to look for solutions beyond the model of development that has worked to continue to enrich the few at the expense of the many? What is needed is the fundamental creation of even more climate change 'winners' rather than the entrenchment and expansion of losers—whether this be in terms of the environment or humankind—which, as we have tried to show here is more suspect than anything else in the case of the CDM.

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**Table 1. CDM origin and key milestones**

<b>UN meetings and events</b>	<b>CDM related milestones</b>
1997 Kyoto Protocol agreed	The Kyoto Protocol includes the CDM introduced originally by Brazil and adapted by the United States. The Kyoto Protocol Article 12 states that ‘The purpose of the CDM shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, to assist Parties included in Annex I in achieving compliance with their quantified emissions limitations and reduction commitments under Article 3.’
2000, COP 6, The Hague and Bonn	The debate about what types of activities to include in the CDM is highly contentious and the issue of forests in the CDM divides governments and contributes to the need for a follow up meeting later that year.
2001, COP7, The Marrakech Accords	In 2001 governments decide on the operating rules for the CDM and members are appointed to the CDM Executive Board.
2002, COP 8, New Delhi	The Delhi ministerial declaration on climate change and sustainable development is adopted, which emphasizes the importance of sustainable development for the global south.
2005, ratification of the Kyoto Protocol	The first CDM project is officially registered.
2006, CDM investment takes off	CDM projects have rapidly developed from 1 project in early 2006 to over 2000 registered projects in 2010 (UNFCCC.int.de)
2009, suspension of auditors and COP 15, Copenhagen	In early 2009 the CDM Executive Board suspends the first of several auditors for breach of procedures. At Copenhagen, encouragement is given to the CDM EB to, among other things, improve transparency of decision-making processes; as well given guidance on how to improve regional distribution of CDM projects and advance funding for countries hosting less than 10 CDM projects.
2010, CDM pipeline projects reach over 4200	CDM is anticipated to produce CERs amounting to over 2.7 billion tonnes of CO2 equivalent in the first commitment period 2008-2012.

**Figure 1. The CDM Project Cycle**

Source: E. Boyd, N. E. Hultman, T. Roberts *et al.* , ‘The Clean Development Mechanism: an assessment of current practice and future approaches for policy,’ *Tyndall Centre Working Paper* , no. 114, October (2007).

