

The Atmosphere Business

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in organization*



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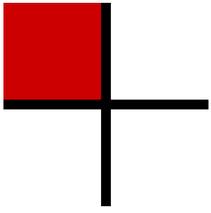
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The atmosphere business

Steffen Böhm, Anna-Maria Murtola and Sverre Spoelstra

Kyoto is dead, long live carbon markets

For two decades now countries across the world have been coming together to discuss the detrimental effects of human activities on the global climate and how to best manage them. Guided by the UN Framework Convention on Climate Change (UNFCCC), the aim has been the ‘stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system’ (UNFCCC, 1992). The first major attempt to curb or at least stabilize greenhouse gas (GHG) emissions was made with the Kyoto Protocol in 1997, the first commitment period of which is coming to an end in 2012, i.e. this year!

The UNFCCC signatory countries meet annually at the so-called Conference of the Parties (the COPs), with recent meetings held in Copenhagen (2009), Cancun (2010) and Durban (2011). The run-up to Copenhagen 2009 (COP15) was promising. The conference was talked up as a potential breakthrough in terms of Northern and Southern countries agreeing a successor to the Kyoto Protocol. As we approached COP15, Newell and Paterson (2010) must have put the finishing touches on their book, *Climate capitalism*, which provides quite an optimistic outlook in terms of the ability of capitalism to decarbonize itself and transform the global economy by embracing a ‘clean tech’ ecological modernization strategy. Around the same time, we (the editors of this issue) started the process of this special edition of *ephemera*. Back then, we were perhaps not as optimistic as Newell and Paterson, but we were certainly more hopeful than we are today. During the editorial process of this issue the political and economic landscape of climate change has changed radically, and we repeatedly felt the need to update the issue with reports on recent events (which has also delayed publication of this issue considerably). In this editorial we shall attempt to provide a brief and accessible overview of these developments, assuming that not all readers of *ephemera* will be familiar with the important and complex debates about, so-called, ‘climate capitalism’.

Newell and Paterson’s (2010) optimism was based on the prospect of a global decarbonization strategy. This strategy would be financed through a range of carbon market tools, which were established by the Kyoto Protocol. Carbon markets are based on the allocation of a given number of GHG emissions permits or allowances, and

polluters can then trade these permits on a market according to their needs, a system often referred to as ‘cap and trade’. The logic behind such a system is to turn GHG emissions into tradable commodities, encouraging efficient market behaviour, and hence the hope was that the immense financing that is needed for investing in green technologies (such as researching and building new renewable energy plants) would come from those big polluters that do not want, or find it comparably expensive, to reduce their GHG emissions. Coupled with this system are various ‘flexibility’ mechanisms, such as carbon offsetting, which allow polluters to compensate for emissions produced in one location by investing in emissions reductions schemes elsewhere.

Newell and Paterson were not naïve, however. Being leading academics and critical commentators on the political economy of climate change, they were very much aware of the emerging (and almost overwhelming) evidence that pointed to the ineffective and corrupt nature of carbon markets, which was comprehensively collected by, amongst many others, Lohmann (2006) and then updated and extended by Gilbertson and Reyes (2009) as well as Böhm and Dabhi (2009) in the run-up to Copenhagen’s COP15. Besides questioning the fundamental logic and efficiency claims made of carbon markets, these critics highlighted their various malfunctions, which came, for example, in the guise of the intense lobbying by big corporate polluters, resulting in the hand-out of free GHG emission allowance in the European Trading Scheme and subsequent windfall profits for these multinational companies. Additionally, evidence emerged that carbon offsetting schemes were often ineffective in terms of actually reducing overall carbon emissions, and corrupt practices were rife, enriching Southern elites and making the lives of Southern communities, particularly those living on subsistence incomes, harder.

That such critiques were not based on armchair thinking, but, instead, embedded in real experiences of how carbon markets actually work on the (Global South) ground, has been confirmed in a dramatic fashion recently. In a rare example of breaking ranks in the carbon industry, an ex-carbon market professional has spoken out against the corrupt and ineffective nature of the Clean Development Mechanism (CDM), one of the cornerstone market tools that the Kyoto Protocol brought to life:

Almost every project I encountered was being been [sic] gamed or defrauded in some way in order to prove additionality. Unorthodox financial engineering, false certificates, false board meeting minutes..., redacted and re-edited feasibility studies, deliberate omission of material information.... These were all tools of the trade if the original documents or numbers didn’t “fit” the rules. At times, when it got really bad we were told to turn a blind eye as our clients created the necessary evidence... Given the above it begs the question: why is there no global investigation taking place? ... Where are the serious fraud offices and Interpol in all of this? A part of the answer, surely, is that UNFCCC Parties (i.e. governments) are complicit in the sham of the CDM. (Roddy3, an ex-carbon market professional, in an anonymous contribution to CDM Watch, 2012: 6-7)

Perhaps partly because of such malpractices, the atmosphere business was a fast growing global industry in the run-up to Copenhagen 2009, encompassing banks and other financial institutions, multinational corporations, carbon traders, and small start-up companies. Brushing the critics somewhat aside, Newell and Paterson (2010) believed that, precisely because of the immense financial incentives involved, a kind of

‘climate capitalism’ would emerge, which would soon crush the ‘old’ fossil fuel oligarchies, putting global socio-economic relations onto a ‘carbon neutral’ and hence more sustainable development path. Their hope was unfounded.

Within a short period, between around October 2009 and March 2010, ‘climate capitalism’ was brought to its infant knees, and since then it has not been allowed to mature and develop further. First, the so-called ‘Climategate’ controversy emerged in November 2009, just a month or so before the start of COP15. The email system of the Climatic Research Unit (CRU) at the University of East Anglia (UEA) was hacked into by yet unnamed individuals, and soon after emails were made public that apparently showed that leading climatic scientists at CRU fudged or misrepresented climate data. ‘Climategate’ was welcome news to those companies of the old fossil fuelled economy, i.e. the ExxonMobils of the world, which have been eager to fund climate change sceptic scientists and think tanks since at least 1998 (see www.exxonsecrets.org). While the claims against UEA scientists have since been discredited and shown to be unfounded by a variety of investigations, climate change denier groups continue to use the incident to spread their message, which has had considerable success in fuelling uncertainty amongst the public, helping to take climate change off the top of the political agenda.

At about the same time, the full effect of the global financial and economic crisis became apparent. Most Northern/ Western economies contracted sharply, millions of workers lost their jobs, and many companies made huge losses. While the run-up to Copenhagen’s COP15 was fuelled by a politico-economic believe that ‘climate capitalism’ was possible, the global financial and economic crisis brought the atmosphere business down to the realities of demand and supply, which are still predominantly governed by a fossil-fuel-led and hence carbon intensive hegemony.

Another factor that played a significantly role, which was connected to the demise of the economic might of the North/ West, was the emergence of the BRICS block of so-called ‘middle-income’ countries that started to flesh their political and economic muscles more at international events such as COPs. The Chinas, Brazils and Indias of the world started to talk back at the North/ West, rather than simply accepting the policies by Western controlled institutions, such as the IMF, Worldbank or the WTO. The BRICS, supported by other ‘developing’ countries, argued at Copenhagen, and all subsequent COPs since then, that they must be allowed to develop, resisting Western calls to include them in any successor treaty to Kyoto, i.e. curbing their emissions in the same way as Kyoto has tried to do with the so-called Annex I, or developed, countries.

The result of these three factors has been that COP15 as well as all COPs in Cancun and Durban since then have been tremendous failures in terms of their inability to agree a new post-Kyoto emissions reduction regime. In fact, as various notes in this special issue argue, a new Kyoto-style global agreement now looks less likely than ever, if the process of trying to achieve a global climate deal is not dead altogether. While the run-up to Copenhagen was fuelled by utopian hopes of the emergence of ‘climate capitalism’, we now need to come to terms with a situation where we seem to have the worst of both worlds. On the one hand, the old fossil fuel hegemony has been on the up, as oil giants are now suddenly not ‘beyond petroleum’ anymore, but, instead try to

squeeze the last drops of oil and gas from the earth crust into our fuel tanks by going into new depth (deep sea drilling), the wild (Alberta tar sands), experimenting with new technologies (fracking and shale gas). The green talk of BP and colleagues that made headline news between 2004 and 2009 has made way to a discourse of energy security, which is promised through the development of questionable, and, as critics argue, dangerous and unjust, technologies, such as carbon capture and storage (CCS) and large scale biofuel production.

On the other hand, Durban's COP17 has made clear that the new kids on the block, the emerging 'climate capitalism' players, have not given up, as they continue to push for the expansion of carbon market tools. Controversial offsetting tools, such as REDD (Reducing Emissions from Deforestation and forest Degradation), are now pushed forward, although they have been resisted by indigenous people, NGOs and other civil society actors, particularly those situated in the Global South, for years. While a global treaty does not seem to be within our reach, carbon market advocates have changed tack to now call for bilateral agreements between Northern and Southern countries, and a massive expansion of the voluntary carbon offset market.

This special issue of *ephemera* takes on the political and economic logic of the atmosphere business, putting it under renewed critical scrutiny. Given the fast moving nature of the climate change discourse and its associated economic and political practices, academics, NGOs and activists need to continuously update their analysis and their knowledge of this emerging process. This special issue is designed to do exactly that, building on the work done by a host of critics, such as Lohmann (2006), Gilbertson and Reyes (2009) as well as Böhm and Dabhi (2009). The contributions collected in this special issue question the underlying ideologies and assumptions, and bring to light many of the contradictions and antagonisms that are currently at the heart of 'climate capitalism'. They offer a critical assessment of the political economy of carbon trading, and a detailed understanding of how these newly created markets are designed, how they work and do not work, the various actors that are involved, and how these actors function together to create and contest the atmosphere business.

The language of the atmosphere business: A short glossary

As Larry Lohmann stresses in his interview with us in this issue, carbon markets seem to be designed *not* to be understood by non-experts. They are by design confusing, non-transparent and complex, despite the claims to the contrary by politicians and the climate industry. One only has to have a look at the catalogue of new terms and acronyms that have been invented for carbon markets. This inventiveness and newness has created an impression of activity in terms of making progress with climate change mitigation, while many critics in this issue and elsewhere have shown that the opposite is often true.

The statistics are quite clear. The only drops in carbon emissions that have occurred over the past two decades were during recessions or some other type of serious economic collapse. For example, the ex-Eastern bloc countries battled with various GDP contractions throughout the 1990s, and then, of course, there was the 2008 global

financial crisis and resulting recession. Both events resulted in considerable GHG emission reductions, while carbon markets have had near to no impact whatsoever, other than creating new business and profit opportunities. This non-progress in terms of making a step-change towards dealing with climate change is covered up by the complexity of the language that surrounds the atmosphere business, which has resulted in a 'black box' of carbon market terminology that only experts can open up and take advantage of.

Thankfully, there have been NGOs, academics and activists who have helped us to make the closed, opaque and self-serving world of the atmosphere business accessible to non-experts, opening it up for engagement, critique and resistance. Here Carbon Trade Watch (e.g. Gilbertson and Reyes, 2009) and Corner House's Larry Lohmann (e.g. 2006) deserve a particular mention for their services to understanding and critically engaging with the emerging political economy of carbon markets. The NGO FERN has also made a decisive contribution, and the following glossary has been almost entirely reproduced from the very good introductory guide on carbon markets by Kill et al. (2010). As many readers of *ephemera* are not necessarily fluent in carbon market 'new speak', we hope that this glossary goes some way towards explaining and introducing key terms used throughout this special issue:

Additionality: The quantity of GHG emissions that have been reduced or removed thanks to an offset project. In quantitative terms it is the difference between the emissions occurring in the baseline scenario (if nothing has happened), and the emissions that occur as a result of an offset project.

Annex I countries: Countries committing themselves specifically to the aim of returning individually or jointly to their 1990 levels of GHG emissions by the year 2012.

Anthropogenic: Resulting from or produced by human beings.

Baseline: GHG emissions from activities that would have occurred in the absence of offsetting policies or projects. Not to be confused with business-as-usual.

Business-as-usual (BAU): GHG emissions which would occur without any climate change specific regulations.

Cap and trade: A policy where a regulatory or international body sets a limit (i.e. the cap) on the amount of pollution (e.g. GHGs) that can be emitted in a certain period by certain entities (depending on the body these entities might represent industrial sectors or a group of nations). The cap is divided into permits for the right to a small part of the capped pollution. The permits have transferable title (ownership) which allows for exchange of permits. Not to be confused with offsetting.

Carbon: An element found in many GHGs, though not all. Carbon dioxide (CO₂), the most significant component in the GHG mix, accounts for about 80 per cent of the total; methane (also a carbon-based GHG) is another important component.

Carbon Capture and Storage (CCS): This refers to a fairly new, and yet untested, technology that attempts to capture CO₂ (for example, in the fossil fuel use in power generation), pumping it into underground geologic formations, primarily those that have previously stored large quantities of gas and oil. While various demonstration projects exist, CCS has yet to be commercially used at a large scale, given the immense cost and still emerging technological base involved. Many critics argue that CCS a) is too expensive, b) deepens our fossil fuel dependence, rather than preparing us

for a peak oil scenario, c) is technologically unproven, d) is geologically risky, and e) potentially increases ocean acidification (not included in the glossary by Kill et al., 2010).

Carbon credits: Offset credits represent the right to emit one tonne of carbon dioxide. Credits can be exchanged between the offset project owner and a company or individual requiring such a credit to offset their emission or can be bought and sold on the international market at the current market price.

Carbon dioxide (CO₂): A naturally occurring gas, also a by-product of burning fossil fuels such as oil, gas and coal, of burning biomass, and of land use changes and other industrial processes. It is the principal anthropogenic GHG and thus the reference gas against which other GHGs are measured.

Carbon dioxide equivalence (CO₂e): There are several gases other than carbon dioxide that have a global warming effect. In order to be able to compare the dangers of each of the gases, their global warming potentials (GWPs) are measured against a metric tonne of carbon dioxide over a fixed period so as to know what mass of the gas would have the same global warming effect. This is known as its carbon dioxide equivalence. The Kyoto Protocol measures carbon dioxide equivalence using a time horizon of 100 years.

Carbon finance: Investments in GHG emission reduction projects and the creation of financial instruments that are tradable on the carbon market.

Carbon offsets: An instrument that aims to allow carbon to continue being released in one place in return for reducing carbon in another place. They are measured and given credits for each metric tonne of carbon dioxide-equivalent (CO₂e) they reduce. One carbon credit represents the reduction of one metric tonne of carbon dioxide, or its equivalent in other greenhouse gases. They are issued by various bodies, with some only accepted in voluntary markets. Only those issued by the Kyoto Protocol are accepted in the EU-ETS.

Carbon trading: The sale and purchase of GHG (or carbon) accounting tokens (permits and credits) including transactions and securities based on these accounting tokens.

Certified emissions reductions (CERs): A unit of GHG emission reductions issued pursuant to the Clean Development Mechanism of the Kyoto Protocol, and measured in metric tonnes of carbon dioxide equivalent. One CER represents a reduction of GHG emissions of one tCO₂e.

Clean Development Mechanism (CDM): An arrangement under the Kyoto Protocol that allows industrialised countries with a GHG reduction commitment to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries.

Climate change/ global warming: A change in global climate which results directly or indirectly from human activity that changes the composition of the global atmosphere and which is in addition to natural climate variability. Global warming is a more popular term that recognises that global temperatures overall have been increasing since the Industrial Revolution.

COP: Stands for ‘conference of the parties’. ‘Parties’ here refer to the signatory countries of the UNFCCC, and they have met annually from 1995 at the so-called COPs to assess progress in dealing with climate change (not included in the glossary by Kill et al., 2010).

Credit: Issued to project owners who prove they have reduced emissions from their baseline level in an industry or country that sits outside of a cap and trade system.

Emissions trading: The sale and purchase of airborne pollution accounting tokens (permits and credits) including transactions and securities based on these accounting tokens.

EU Emissions Trading Scheme (EU-ETS): The ETS is the largest multinational emissions trading scheme in the world, and it forms a major pillar of EU climate policy. Under the ETS, some large emitters of CO₂ within the EU must monitor and annually report their CO₂ emissions.

Greenhouse gases (GHGs): Those gaseous constituents of the atmosphere, both natural and anthropogenic, that trap or in some case repel heat energy such as the sun's rays. This property causes the greenhouse effect. Water vapour (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and ozone (O₃) are the primary GHGs in the Earth's atmosphere. Moreover, there are a number of entirely human-made GHGs in the atmosphere, such as the halocarbons and other chlorine- and bromine-containing substances dealt with under the Montreal Protocol. Besides CO₂, N₂O, and CH₄, the Kyoto Protocol deals with the GHGs, sulphur hexafluoride (SF₆), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

Intergovernmental Panel on Climate Change (IPCC): The leading body for the assessment of climate change, established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) to provide the world with a scientific view on the current state of climate change and its potential environmental and socio-economic consequences. It is staffed by leading academics and representatives of the national members of the United Nations. Although it has been criticised for not being independent, having too many vested interests, for being too conservative or too reliant on incomplete data, it is widely seen by governments as the scientific body that provides them with the analysis of the latest science on climate change and indicates what level of impact can be expected at different GHG concentrations. The IPCC does not produce original research, but synthesises peer-reviewed research in the form of Assessment Reports. It has published four reports (1990, 1995, 2001 and 2007), and the next report is due in 2014.

Kyoto Protocol: An international agreement linked to the UNFCCC. The Protocol sets binding targets for industrialised countries which are signatories to the protocol as listed in Annex 1, for reducing GHG emissions amounting to an average of a five per cent reduction against 1990 levels over the five-year period 2008-12. The UNFCCC 'encourages' industrialised countries to stabilise GHG emissions, the Kyoto Protocol 'commits' them to do so.

REDD and REDD+: Stands for 'reduced emissions from deforestation and forest degradation'. It is a mechanism for paying governments, companies or forest owners in the Global South for keeping and looking after their forests (instead of cutting them down, for example), as forests are seen as important 'carbon sinks', literally capturing and storing CO₂ over long periods of time. There are various versions of REDD (including a REDD+ version); for an introduction and brief overview, see www.redd-monitor.org/redd-an-introduction (not included in the glossary by Kill et al., 2010).

United Nations Framework Convention on Climate Change (UNFCCC): An international treaty to consider how to respond to climate change. Now includes the Kyoto Protocol. Most countries are signatories.

Voluntary Emissions Reduction (VER): A form of offset produced primarily for sale in voluntary offset markets (which are little regulated), while CERs are generated through the UN controlled and regulated CDM. (Kill et al., 2010: 107-112; with minor additions and amendments)

Contributions to this issue

This special issue starts with six notes that contextualize and set the scene for the 'atmosphere business'. As regular readers of *ephemera* may notice, this order (of publishing 'notes' before 'articles') is somewhat unusual. The notes paint the political and economic landscape in which climate change negotiations today take place and point to the myriad of conflicting interests and contradictions involved in its various

facets. Many of the notes are hot off the press in that they take their starting point in the recent United Nations Climate Change conference, COP17, which took place from 28 November to 9 December 2011 in Durban, South Africa. Indeed, during the editing process of this issue we have occasionally been confronted with the limitations of academic publishing when it comes to urgent and timely topics, such as the atmosphere business; hence the decision to open the issue with reflections on and critiques of the latest developments by prominent theorists, activists and commentators.

In the first note, Mike Childs of Friends of the Earth sets the scene from the point of view of a non-governmental organization, which has been (critically) engaged with the politics of climate change negotiations for many years. Childs provides an accessible overview of some of the key points of contention in the negotiations and points to the difficulties and dangers involved in thinking of the atmosphere in terms of property to be owned and divided amongst a number of shareholders in a global market.

Oscar Reyes, in the second note, discusses the state of carbon markets in light of the COP17 negotiations in Durban. He throws us directly into the deep end, as the note tackles the contradictions and shortcomings of various market-based mechanisms intended to solve the challenge of climate change, in particular the Clean Development Mechanism (CDM). As Reyes concludes, despite the evident shortcomings of these mechanisms and the recent collapse of carbon markets, the outcome of the negotiations at Durban still involved an ongoing expansion of trading mechanisms, on the reasons of which he offers some reflections.

In the third note, Gökçe Günel offers an ethnographic account of the climate negotiations in Durban with focus in particular on the controversies involved in the negotiations around carbon capture and storage (CCS). The note provides a rare backstage view into how climate negotiations actually unfold and the various ideas and arguments involved in the deliberations.

In the fourth note, Patrick Bond gives a detailed assessment of the climate negotiations in Durban, naming its winners and losers. Bond puts the negotiations both in a local, South African context and a global politico-economic one. He offers a detailed analysis of the role of critics and climate justice activists at the conference, reflecting in particular on their failure to mobilise people for their cause. Based on his assessment of how the conference proceeded, Bond concludes with a call for a necessary regrouping of critical forces.

Moving on to tackle the 'atmosphere business' from yet another point of view, in the fifth note Tadzio Mueller provides some reflections on the alternative global meeting on climate change that was held in Cochabamba, Bolivia, in 2010 in direct response to the perceived inadequacies of the COP negotiations taking place under the UN framework. Taking his inspiration from Shakespeare, this note sets up the meeting in the context of a play with three acts, in which Mueller reflects on the politics involved. Mueller pays attention in particular to the difficulties in articulating a global, anti-capitalist climate politics and the controversies involved in the 'new extractivism' embraced by the Latin American New Left.

A welcome interlude to the special issue is provided by Larry Lohmann and Steffen Böhm as they engage in a conversation about what it might mean to ‘critique’ carbon markets. In their discussion on the contradictions of the ‘climate commodity’ and the politics of critique, they touch upon a variety of issues from the problems of inequality, incoherence and procrastination to the benefits and limits for political struggles of various theoretical traditions such as actor-network theory, world-systems theory and Marxism.

The first three articles of the issue engage directly with the logic of carbon trading and its underlying structures. The three articles that then follow engage in more detail with the specific problems and challenges of various carbon offsetting schemes. In the first article of this issue, Robert Fletcher develops Naomi Klein’s notion of ‘disaster capitalism’, which refers to the growing trend to see climate change as a business opportunity. Whereas Klein uses this phrase in particular for attempts to capitalize on natural disasters such as hurricanes and tsunamis, Fletcher shows how this notion also speaks to the way the climate crisis is treated at large. In particular, Fletcher shows how the climate crisis has (i) been used for the marketization of formerly public domains and (ii) how climate disasters are used for short-term and long-term financial gains.

Jerome Whittington, in his contribution to this issue, elaborates on the speculative nature of climate capitalism, arguing that the atmosphere business is currently characterized by multiple levels of uncertainty. This uncertainty, Whittington argues, applies for example to what we call ‘carbon’: instead of being a tangible product that can be measured, valued and traded, Whittington argues that carbon ‘is an assemblage of agreements, conventional practices, durable artefacts and rules held among people who operate in very different contexts around the world’ (Whittington, in this issue). It is this uncertainty about the very nature of the ‘thing’ that is traded in carbon which feeds speculation and climate opportunism, hindering the establishment of international agreements.

Ingmar Lippert’s contribution to the issue shows the contingent nature of taken-for-granted facts about corporate carbon emissions. By entering the ‘hidden abode’ of their production, Lippert shows the practical difficulties involved in the accounting practices used as a basis for the representation of a company’s total carbon emissions. The detailed analysis points to the highly political nature of the classificatory practices underlying the creation of carbon emissions as physical facts. Thus, Lippert calls for more attention to be paid to the ‘ontological politics’ of the creation of carbon facts.

Joanna Cabello and Tamra Gilbertson of Carbon Trade Watch provide a detailed review of two recent special issues on the REDD+ mechanism, a carbon offset scheme designed to contribute to climate change mitigation through a focus on the governance of global forests through market means. They point to the many contentious elements involved in REDD+ projects, raising questions about their actual contribution to the reduction of GHG emissions. Cabello and Gilbertson criticise in particular the epistemological assumptions underlying many of the discussions of the REDD+ architecture, which reduce all value to monetary value and assume that further incorporation of indigenous communities into the capitalist markets automatically constitutes progress, thus silencing alternative voices in the process.

Rebecca Pearse's contribution focuses on the governance issues involved in the establishment of REDD projects in the Asia-Pacific. Focusing on the mapping of ongoing projects in the region, and taking a closer look at four projects in particular, Pearse argues that what is often presented as a triple 'win' situation for ecological, economic and social interests is actually riddled with contradictions. Far from being a coherent framework, then, Pearse presents the REDD architecture as continuously contested by a range of actors and calls for more research into the networks of different actors that contribute to the success and failure of the mechanism.

In their contribution to the issue, Esteve Corbera and Charlotte Friedli critically assess eight forestry projects registered under the United Nation's Clean Development Mechanism (CDM), which is a carbon offsetting scheme established by the Kyoto Protocol. Corbera and Friedli pay attention in particular to the local social, cultural and environmental effects of the projects over and above purely economic aspects. They also emphasise the underlying uncertainties with regards to accounting and monitoring practices that are also discussed in some of the other contributions to this issue, and argue for the need for more stringent regulation if the mechanism is to continue to operate. Corbera and Friedli call for more empirical research into the consequences of the carbon offsetting projects currently in operation, and suggest that the establishment of an 'Ecological Debt Fund' would constitute a more effective and just mechanism through which Northern countries can repay their ecological debt to the Global South.

The three book reviews that conclude this issue all deal with the complexity of the question if and how capitalism is able to respond to climate change. Siddhartha Dabhi offers a critical review of Anthony Giddens' *The politics of climate change*. Giddens, in line with his ideas of (and affiliation with) 'third way' politics, suggests that free market capitalism must be controlled by a politics that finds a balance between free market neo-liberalism, on the one hand, and reformist socialism on the other. Dabhi welcomes the book's accessible introduction to some of the most crucial topics in the politics of climate change, but laments its lack of depth: the 'solution' of a third way may only appear as a solution by systematically leaving some of the political tensions unaddressed. Dabhi turns Giddens' thesis that climate change is still waiting for a politics on its head: discussions around climate change are political through and through, whereas the suggested solution of a 'third way' politics denies the complex and often opposing forces that currently make up the political landscape of climate change.

Peter Newell then reviews Patrick Bond, Rehana Dada and Graham Erion's (eds.) *Climate change, carbon trading and civil society*. The book, in Newell's reading, provides an important contribution to debates around carbon markets. He has two main critical comments: its polemic nature (against carbon markets and CDM in particular) occasionally overshadows needed reflections on the dynamics behind the belief in CDM-like solutions and their specific consequences. In his review, Newell's also touches upon what we as editors have experienced: the atmosphere business is moving fast – perhaps too fast for traditional academic outlets such as edited volumes and journal issues.

What Giddens' analysis lacks (see Dabhi's review) is, according to David Levy, one of the main strengths of Peter Newell and Matthew Paterson's *Climate capitalism*: they

provide a nuanced overview of the complexities that underlie the question if and to what extent capitalism is able to provide an answer to climate change. Newell and Paterson, in Levy's words, 'demonstrate a grudging embrace' of carbon markets while recognising its many flaws. While this embrace by some of the leading critical commentators and academics on the political economy of environmental change and development has been a bit of a surprise to some (see, e.g. Lohmann and Böhm, this issue), Levy seems to support their analysis, adding, however, one important caveat. Capitalism may well survive climate change, but in a way that could bring its ugly, authoritarian face to the fore, rather than its (imagined) promise of a harmonious order between man, nature and economic growth. We have been warned!

references

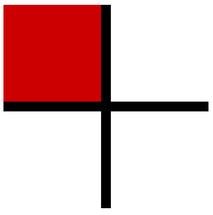
- Böhm, S. and S. Dabhi (eds.) (2009) *Upsetting the offset: The political economy of carbon markets*. London: MayFly [http://mayflybooks.org/?page_id=21].
- CDM Watch (2012) 'An insider's view: Fraud, corruption and environmental integrity of the CDM', CDM Watch Newsletter, issue 19 [www.cdm-watch.org].
- Gilbertson, T. and O. Reyes (2009) *Carbon trading: How it works and why it fails*. Uppsala: Dag Hammarskjöld Foundation [<http://www.carbontradewatch.org/publications/carbon-trading-how-it-works-and-why-it-fails.html>].
- Kill, J. et al. (2010) 'Trading carbon: How it works and why it is controversial' [http://www.fern.org/sites/fern.org/files/tradingcarbon_internet_FINAL.pdf].
- Lohmann, L. (ed.) (2006) *Carbon trading: A critical conversation on climate change, privatisation and power*. Uppsala: Dag Hammarskjöld Foundation [<http://www.thecornerhouse.org.uk/resource/carbon-trading-0>].
- Newell, P. and M. Paterson (2010) *Climate capitalism: Global warming and the transformation of the global economy*. Cambridge: Cambridge University Press.
- UNFCCC (1992) 'Article 2' [http://unfccc.int/essential_background/convention/background/items/1353.php].

the editors

Steffen Böhm is Director of the Essex Sustainability Institute and Professor in Management and Sustainability at the University of Essex. His research focuses on political economies and ecologies of organization, management and the environment. He was a co-founder of *ephemera: theory & politics in organization*. He is also co-founder and co-editor of the open publishing press MayFlyBooks (www.mayflybooks.org), as well as *Interface: A Journal for and about Social Movements* (www.interfacejournal.net). Together with Siddhartha Dabhi he recently published *Upsetting the Offset: The Political Economy of Carbon Markets* (Mayfly, 2009), which has resulted in some interesting debates (<http://climatestrategies.wordpress.com/2012/03/16/carbon-markets-still-controversial-after-all-these-years>). For more information about Steffen's research see: www.steffenboehm.net
E-mail: steffen@essex.ac.uk

Anna-Maria is a member of the editorial collective of *ephemera*.
E-mail: annamariamurtola@gmail.com

Sverre Spoelstra is a member of the editorial collective of *ephemera*.
E-mail: sverre.spoelstra@fek.lu.se



Privatising the atmosphere: A solution or dangerous con?

Mike Childs

In 1833 William Forster Lloyd wrote a pamphlet (Lloyd, 1833), which described what has later become known as the ‘tragedy of the commons’ (see Hardin, 1968). It described how self-interested subsistence farmers would destroy common land by overstocking it with cattle. If you are struggling to feed your family then short-term self-interest is understandable, although there are numerous examples of how communities across the globe have worked collectively to sustain their local environments for hundreds or even thousands of years.

Climate change is often described as the new tragedy of the commons as self-interest prevents countries from living within their fair share of the planet’s atmospheric carbon carrying capacity. Carbon trading is promoted, largely by wealthy countries, as the silver bullet to solve this age old problem. Divide the atmospheric carbon space and allow countries and corporations to buy and sell it (much like some economists responded to Lloyd’s argument by stating that assigning property rights to the commons would solve the problem). Is this a great idea or dangerous con? This note examines this question and concludes that the answer is the latter.

The first question that should be asked in devising an international climate strategy, including setting up a global carbon trading scheme, is how much atmospheric carbon space is left? The next question is how should it be shared out? On the face of it, these appear to be simple questions, but, of course, in practice they are devilishly complex.

Two uncertainties make the maths difficult:

- What impacts will result from different global average temperature increases and what impacts are acceptable.
- Scientific uncertainty on how sensitive the climate is to carbon pollution.

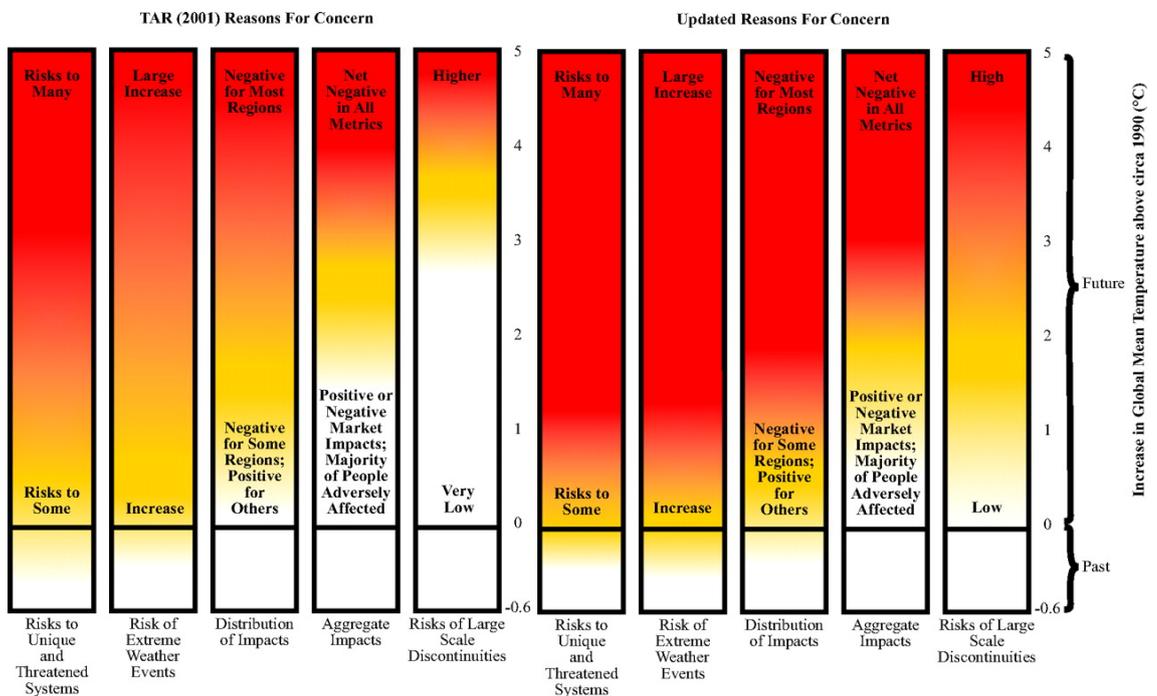
But the greatest difficulty of all is how to share the remaining atmospheric carbon carrying capacity between countries.

The recent Durban UNFCCC negotiations and the almost 20 years of negotiations before them have centred on this last difficulty, which is in essence a political and ethical choice and not a scientific one. It is true that debates on climate sensitivity and what a ‘safe’ level of global average temperature increase consists in have occupied a lot of time and space, but nothing compared to the question of how much pollution rich countries should be able to emit and how much poor countries should be able to.

Size of global carbon budget

What is clear from most analyses of global carbon budgets is that there is not a great deal of atmospheric carbon space left. Rich countries through the G8 have said that to prevent dangerous climate change we need to keep global average temperature increases below 2 degrees compared to the pre-industrial level. By dangerous climate change they mean unacceptable impacts to people and economies as well as too high a risk of positive feedbacks. Positive feedbacks are where increased temperatures create changes on the planet that themselves create further warming, for example warming leading to the release of vast quantities of methane (a powerful greenhouse gas) due to the melting of Siberian permafrost. The choice of 2 degrees was largely informed by scientific research that led to the production of an influential ‘burning embers’ diagram (see diagram 1).

Diagram 1



‘Risks from climate change, by reason for concern – 2001 compared with updated data’
(Smith et al., 2009: 4134)

The G8 are not explicit about the level of certainty they want in avoiding this 2 degree increase. Uncertainties about climate sensitivity have been used to identify risk levels

from different amounts of carbon pollution (Meinshausen et al., 2009). If the G8 want a low risk of avoiding 2 degrees it gives a much smaller carbon budget than a high risk. For example a 50 per cent chance of avoiding 2 degrees gives a carbon budget of around 2000 GtCO_{2e} between 2000 and 2049, whereas an 85 per cent chance of avoiding 2 degrees gives a carbon budget of 1200 GtCO_{2e} (500 GtCO_{2e} has already been emitted between 2000-2010).

Through the work of setting self-imposed carbon budgets as a result of the Climate Change Act, the UK has been more explicit on this choice through setting in law a UK carbon budget that gives around a 50 per cent chance of avoiding 2 degrees if other countries make similar commitments. A 50:50 chance of avoiding dangerous climate change is, however, not great odds if you live on the front-line of climate change, for example if you are a subsistence farmer in Africa.

Many developing countries argue that a safer temperature target is to keep global average temperatures to less than 1.5 degrees above the pre-industrial level. A recent update to the burning embers diagram certainly suggests that this target is more in line with the original thinking behind the setting of the 2 degree target (diagram 1). Again these countries have not been explicit regarding the level of certainty they want to avoid this temperature target. The nature of the debate and the risks faced by their populations would suggest that they want as high a chance as possible of avoiding temperatures above 1.5 degrees. What this means on the size of the global carbon budget is that there is very little carbon budget left.

Sharing out the global carbon budget

As stated above, the bigger debate is around how to share out this global carbon budget. Given that even the G8 target implies very limited atmospheric carbon space, the debates have been fierce.

NGOs and developing countries have argued that it would be wrong to ignore the carbon pollution released by rich countries since the industrial revolution. The US American Government argued at the 2009 Copenhagen talks that historic emissions may be interesting for authors of history books but are irrelevant to negotiations. In effect it is like they admit they have eaten half the cake but that this should have no bearing on how much of the remaining cake they should eat. NGOs and developing countries argue that historic emissions should be taken into account, with some advocating a historic base line of pre-industrial revolution, some 1970 and some 1990.

Furthermore, the US American Government argued that emissions reductions should be set using a bottom-up process of countries setting their own voluntary reduction targets (from which carbon budgets can be roughly calculated assuming steady year on year reductions towards these targets). This was the approach of the Copenhagen Accord. The USA pledge amounted to 4 per cent less emissions than 1990 levels by 2020. This bottom-up approach led to the nonsensical position where the Copenhagen Accord on the one-hand sets an aspiration of keeping the temperature increase to less than 2

degrees but the reduction pledges made were in line with a temperature increase of around 4 degrees (Pew Center, 2010).

NGOs and developing countries have argued for a top down mandatory approach based upon a fair share of the global carbon budget which is itself based on population sizes. This 'fair shares' approach, not surprisingly, requires much higher carbon reduction targets for rich countries than the US American Government or other rich countries are currently willing to contemplate.

Carbon trading

Carbon trading is being pushed strongly by the USA, EU and others as the tool to enable an economically efficient transition to a low carbon economy without breaching any agreed temperature increase. Friends of the Earth, other NGOs and many developing countries have been very critical of this approach. There are four main reasons for this:

- **The global carbon budget to avoid dangerous climate change is too small to allow trading.** If a temperature target of 1.5 degrees is chosen with a reasonable to high chance of avoiding it, then the global carbon budget will be tiny. Carbon trading relies on countries having 'spare' carbon emissions that they can sell to others who do not have enough. Under a tiny carbon budget it is almost certain that no country will have any spare emissions to sell. Rich countries would need to make significant cuts very quickly and developing countries would have to develop predominately through low carbon technologies. The focus on carbon trading is therefore a dangerous distraction from the real job at hand.
- **Double counting.** The IPCC has suggested that rich countries (countries identified in Annex 1 of the Kyoto Protocol) should by 2020 reduce emissions by between 25-40 per cent from a 1990 baseline and developing countries should reduce emissions by 15-30 per cent from their Business-as-Usual trajectories. In the UNFCCC negotiations the UK, EU, USA and others were suggesting that they could use carbon trading to buy carbon from developing countries to meet these targets and in doing so help developing countries meet their reduction targets. This neat arrangement conveniently ignores the fact that the IPCC figures require emissions reductions in both places, not one or the other. In addition to this, rich countries are suggesting that the money transfers resulting from this trade should count towards the finances pledged to developing countries. Whereas developing countries are rightfully arguing that these finances should be additional as they have to pay for the adaption required as a result of climate impacts associated with past rich country emissions. They also argue that additional money is needed as compensation for the reduced carbon space left for developing countries due to over-consumption by rich countries.
- **Failure to meet 'additionality' requirements.** Ongoing international carbon trading is dominated by the Clean Development Mechanism (CDM). Through

this carbon credits are sold by projects in developing countries for the additional emissions reductions or emissions avoided made through the injection of foreign cash. In practice many of these avoided emissions or emissions reductions would have been made anyhow. Examples include:

- Carbon credits trading for constructing hydro-power dams that were already within development plans in China and almost completely built (or even in the most extreme cases already built), the carbon savings here are said to be due to reduced need to produce electricity from fossil fuel power stations;
 - Carbon credits for building coal-fired power stations in India using newer technologies rather than older technologies even though the newer technologies have been used in the same country without the money from selling carbon credits; and
 - Carbon credits for destroying HFCs from refrigeration factories which would otherwise be released into the atmosphere. This sounds acceptable, but because HFC is such a strong greenhouse gas and attracts so much money through selling carbon credits it has been suggested that some factories have been built specifically to create the pollution to make money from then curbing it.
- **Regulatory chill.** The obsession with carbon trading reduces the appetite for using other policy instruments, such as regulation and taxation. In the UK the previous Labour Government was not keen to regulate or increase taxes to curb the growth of international aviation. They used the excuse that carbon trading through the Emissions Trading Scheme (ETS) would result in carbon reductions being made elsewhere, ignoring the excess of carbon credits handed out to EU industries under the ETS or the ability of firms to buy credits from dodgy CDM schemes. In the EU, Commission officials argued that there should be no mandatory target on energy efficiency due to possible impacts on the carbon price. The UK Government's Committee on Climate Change has said that the ETS will not drive down emissions enough in the UK and that other policy instruments should be used.

In addition to these reasons, NGOs and others have also argued against carbon trading as the time required to set up a global system is too long and distracts from the use of faster policy responses, from opposition to the commoditisation of the atmosphere, from finance siphoned away from carbon reduction to make carbon traders rich, and from the risks of private speculators creating a carbon sub-prime market similar to the housing sub-prime market. These arguments are further developed and examples given within Friends of the Earth's report 'Dangerous obsession' (Friends of the Earth, 2009).

State of play

Negotiations on temperature targets are far from being concluded with many developing countries refusing to accept a higher temperature target than 1.5 degrees above pre-

industrial levels and the USA, EU and other rich countries unwilling to accept anything lower than 2 degrees. Reduction targets for countries remain deadlocked with the USA refusing to accept a top down mandatory approach to target setting and the EU not prepared to increase its target to be in line with even a 50:50 chance of avoiding a 2 degree increase. Agreement on whether to include historic emissions also remain deadlocked. And finances pledged at Copenhagen have, on the whole, failed to emerge or are simply rebadged Aid money.

Carbon trading remains the number one policy objective of the USA, EU, other countries and a plethora of carbon trading vested interests, even though its weaknesses are increasingly recognised. The vast majority of developing countries will not accept a global carbon trading regime. They view the proposal as unjust because they see it allowing rich countries to pollute when they instead have to curb growth (under proposals by the American Government trading would allow the USA to increase its emissions until 2030). Whilst some developing countries want to use the CDM mechanism and newer versions, such as sectoral trading, to bring much needed money into their country, many see this as unacceptable or a poor second best to much larger financial flows from other sources. Overcoming these differences looks like a Herculean task.

Conclusion

The 'tragedy of the commons' identified the dangers of self-interest trumping cooperative working to deliver common benefit. Carbon trading is the vehicle by which rich countries are pursuing self-interest pretending that they are willing to work together for the common good. They are using carbon trading to get out of even the paltry reduction targets they are willing to accept. They are using carbon trading to avoid additional financial transfers to developing countries. They are using carbon trading to enable them to remain the global fat cats able to consume the vast majority of remaining atmospheric space.

There are good reasons to oppose carbon trading because in effect it privatises the atmosphere. But perhaps more importantly carbon trading is a dangerous con, which promises to insert massive loopholes in any future international agreement and puts off the urgent task of countries like the UK making the transition to the low carbon economy. What is needed is global political acceptance of the urgency of the problem coupled with the use of policy measures that can be applied swiftly to reduce emissions fast – regulations, tax and spend are policy measures that better fit the bill.

references

- Friends of the Earth (2009) 'Dangerous obsession' [http://www.foe.co.uk/resource/reports/dangerous_obsession.pdf].
- Hardin, G. (1968) 'The tragedy of the commons', *Science*, 162: 1243-1248.
- Lloyd, W.F. (1833) 'Two lectures on the checks to population'. Oxford: Oxford University.
- Meinshausen, M., N. Meinshausen, W. Hare, S.C.B. Raper, K. Frieler, R. Knutti, D.J. Frame and M. Allen (2009) 'Greenhouse gas emissions targets for limiting global warming to 2°C', *Nature*, 458(7242): 1158-1162.

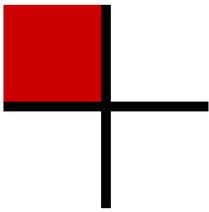
Pew Center (2010) 'Adding up the numbers: Mitigation pledges under the Copenhagen Accord'
[<http://www.pewclimate.org/docUploads/copenhagen-accord-adding-up-mitigation-pledges.pdf>].

Smith, J.B. et al. (2009) 'Assessing dangerous climate change through an update of the Intergovernmental Panel on Climate Change (IPCC) "reasons for concern"', PNAS, 106(11): 4133-4137.
[<http://www.pnas.org/content/106/11/4133.full.pdf>].

the author

Mike Childs is Head of Policy, Research and Science at Friends of the Earth. He has worked at Friends of the Earth for over 20 years, working on issues ranging from factory pollution to water resources to climate change. Prior to working at Friends of the Earth he studied at the Biology Department at the University of York. He also worked for 4 years with an environmental consultancy specialising in the reclamation of contaminated land. He lives in York with his partner and two young daughters.

E-mail: mike.childs@foe.co.uk



Carbon markets after Durban

Oscar Reyes

abstract

The carbon market is in crisis, with offset prices crashing to all-time lows and carbon branded the ‘world’s worst performing commodity’. Yet, as traders withdraw from the market, climate negotiators at COP17 have agreed to expand the scope of the Clean Development Mechanism (CDM) and create ‘new market mechanisms’. This article examines the record of the CDM and the Durban decision to keep it alive in the absence of binding emissions reduction targets. It then examines the reasons behind the creation of ‘new market mechanisms’, arguing that these are locked into international negotiations by a mix of interest, ideology and institutional inertia, as well as being consistent with broader attempts to redefine the international climate regime.

International carbon trading stood on the brink of collapse at the United Nations Climate Change Conference (COP17). On the eve of the Durban talks, the markets crashed to their lowest ever level, with a massive oversupply of emissions allowances exacerbated by a worsening financial crisis in Europe, which drives the majority of the global trade in carbon. Alongside this decline in prices, investor interest had also dried up in the Clean Development Mechanism (CDM), the main UN-administered carbon offsetting scheme. In 2011 it was reported that the number of credits generated by new CDM projects had declined for a fourth successive year, with the scheme shrinking to levels not seen since the Kyoto Protocol came into force in 2005 (World Bank, 2011: 9).

At COP17 itself, however, the fact that carbon had slipped to the status of the ‘world’s worst performing commodity’ did little to deter policy-makers from deciding on various ways to further expand the carbon market (Wynn and Chestney, 2011). This paper sets out the context for these decisions and their likely impact, and is arranged in five parts.

First, it offers a brief account of the record of the CDM to date, finding that it has exacerbated inequalities in how the responsibility for addressing greenhouse gases are distributed globally while at the same time failing to reduce emissions. Second, it surveys the outcomes of COP17 in relation to existing carbon markets. The decision to keep the Kyoto Protocol alive, but in a zombie-like existence without confirmed emissions reductions targets, means that the CDM can continue. It also opened the possibility for expanding that scheme, notably through an agreement to make Carbon Capture and Storage (CCS) projects eligible for offset credits.

Progress on the creation of ‘new market-based mechanisms’ in Durban is of potentially greater long-term significance and forms the basis of the third section of this paper. It outlines plans for the creation of a new mechanism under the UNFCCC, which would allow for the continuation of the markets even if (as most industrialised countries are demanding) the Kyoto Protocol is formally superseded by any agreement resulting from the Durban Platform for Enhanced Action, the new round of negotiations for a post-2020 treaty that was the major outcome of COP17 (UNFCCC, 2011a). If Japan, New Zealand and the USA get their way, this new mechanism would be joined by a series of bilaterally agreed carbon markets whose existence and rules (except for reporting purposes) are unchecked by the UN process. In short, the Durban agreements offer two clear paths to how the architecture of international carbon markets is likely to be redrawn in the coming years.

Fourth, the paper looks at projections on the supply of and demand for emissions allowances from existing and planned carbon market mechanisms. The evidence clearly shows that there is an oversupply of emissions allowances and that measures to expand carbon markets would worsen this problem – keeping carbon prices low for the medium to long term and so undermining the purported rationale of the scheme.

In the fifth and final section, an analysis is offered of the apparent disjunction between the Durban outcomes and the collapsing carbon market. It argues that the development of ‘new market mechanisms’ remains locked into international negotiations by a mix of interest, ideology and institutional inertia. The emergence of bilateral market mechanisms is also shown to be consistent with broader attempts to redefine the international climate regime away from globally binding targets and towards a voluntary ‘pledge and review’ system.

The CDM in perspective: unequal and ineffective

The Durban conference was billed as make or break time for the Kyoto Protocol, currently the only legally-binding international treaty on greenhouse gas emissions. That treaty, signed in 1997, set reduction targets for industrialised countries, while at the same time creating carbon markets that offered these countries an escape hatch from domestic action to reduce emissions through the creation of a system of carbon offsetting (principally through the CDM). This arrangement places inequality at the heart of the international climate regime, since it allows industrialised countries to avoid making their fair share of emissions reductions.

There are two further, damaging distributional effects. First, the CDM is designed to make the cheapest cuts in emissions first, rather than those that are most socially just or environmentally effective. This has led to a series of well documented inequalities and, in some cases, human rights abuses. In one notorious recent example, a project developer in Honduras is reported to have killed 23 farmers who tried to recover land which they say was illegally sold to a palm oil plantation that was seeking to join the CDM project (Neslen, 2011). These concerns were brought to the CDM Executive Board, which decides on whether to register projects, but no action was taken on the grounds that the issues had not been raised by the time of the ‘stakeholder consultation’,

which took place three years before the ‘Aguan Biogas’ project was eventually registered. With such weak and poorly applied rules, it is perhaps unsurprising that no project has ever been rejected on the grounds of human rights violations.

Second, the global distribution of offset projects under the CDM is highly skewed towards more industrialised developing countries. As of October 2011, 45 per cent of projects (generating 57 per cent of credits) were in China, compared to 0.9 per cent of projects (and 0.005 per cent of credits issued) in sub-Saharan Africa (excluding South Africa) (UNEP Risoe, 2011). The imbalances are mainly explained by economies of scale favouring large industries and power stations and the fact that poorer countries already tend to have low emissions levels, and are a problem inherent to leaving the market to decide the priorities and direction of climate financing.

The record of the CDM in terms of its effect on greenhouse gas emissions is similarly woeful. Offsetting via the CDM was designed to offer industrialised countries (and companies based in them) greater flexibility in meeting their new commitments, while theoretically keeping the same net benefit. As the World Bank puts it, ‘greenhouse gases mix uniformly in the atmosphere, which makes it possible to reduce carbon emissions at any point on Earth and have the same effect’ (World Bank, 2005: 5). An emissions reduction in one place came to be viewed as ‘equivalent’ to, and thus exchangeable with, a cut or a compensatory measure elsewhere.

As should be clear from this description, the system of offsetting does not actually reduce emissions, but merely moves reductions to where it is cheapest to make them, which normally means a shift from Northern to Southern countries. But even the accounting firms, financial analysts, brokers and carbon consultants involved in devising these projects often admit privately that no ways exist to demonstrate that it is carbon finance that makes the project possible (Lohmann, 2005). Researcher Dan Welch sums up the difficulty: ‘Offsets are an imaginary commodity created by deducting what you hope happens from what you guess would have happened’ (Welch, 2007).

Since carbon offsets replace a requirement to verify emissions reductions in one location with a set of stories about what would have happened in an imagined future elsewhere, the net result tends to be an increase in greenhouse gas emissions. It has been shown, for example, that projects claiming to destroy refrigerant gases (HFC-23) have actually encouraged more of these gases to be produced, only to then destroy them again and accrue the profit from the surplus credits (Schneider, 2011). HFC-23 projects account for around half of the CDM credits issued to date.

A recently leaked US cable reported from a meeting in Delhi that ‘all interlocutors conceded that all Indian projects fail to meet the additionality in investment criteria and none should qualify for carbon credits’ (US Consulate Mumbai, 2008). These interlocutors included the Chair of the national CDM authority, as well as some of the country’s largest project developers and ‘verifiers’ (private consultants who are meant to check these claims).

The CDM has also been accused of locking in fossil fuel dependency, with a large and growing number of offset credits being granted for building coal-fired power stations on

the grounds that these would pollute at a slightly slower rate than those they are replacing. For example, just five ‘supercritical’ coal plants registered under the CDM could receive over seven times the number of credits issued across the whole of Africa (based on October 2011 figures). Coal mines, oil fields and refineries, Liquefied Natural Gas (LNG) production and gas power stations are also major beneficiaries of a scheme that locks in fossil-fuel dependency.

From Kyoto to Durban: Killing the targets, expanding the markets

The failings of the CDM are now widely acknowledged, but there was little formal recognition of this fact in Durban. A ‘Policy Dialogue’ was launched, whose terms of reference notes that ‘Criticisms of the CDM are prevalent, including allegations that some projects lack environmental integrity or, in extreme cases, have been the scene of environmental and human rights abuses’ (UNFCCC, 2011b). But the composition of the panel is heavily stacked in favour of supporters of the scheme (UNFCCC, 2011c), while the agreements taken in Durban further entrench the carbon market system that Kyoto unleashed.

At the core of the Durban debate lay a struggle about power and equity: who should take on responsibility for reducing greenhouse gas emissions and can states be held to account if they backtrack on their commitments? These were far from abstract considerations: the USA wrote carbon markets into the 1997 Kyoto Protocol but then famously failed to ratify that treaty (Gilbertson and Reyes, 2009). In Durban, it was followed down this path by Canada, which was certain to miss its Kyoto targets and formally withdrew from the treaty following COP17, as well as Japan and Russia, which have clearly stated that they will not lodge new commitments under the Protocol after its first commitment period ends in 2012 (UNFCCC, 2011a: 6). These countries came to Durban to ‘kill Kyoto’, their aim being to replace the regime of internationally-binding emissions reductions targets with a set of voluntary pledges, while at the same time keeping hold of the carbon markets.

Although Kyoto did not die in Durban, an agreement was made that reduces the Protocol to a zombie-like state. The current industrialised country reduction targets expire in 2012, with no guarantee that new targets will be legally adopted at the subsequent COP in Qatar (Horner, 2011). The Durban agreements kept Kyoto’s carbon trading mechanisms alive – a ‘remarkable and unexpectedly positive outcome’ according to lobbyists from the International Emissions Trading Association (IETA, 2011) – although they did little to revive the ailing markets themselves, which crashed to their lowest ever levels at the start of the talks and look likely to remain on life support as the next phase of the financial crisis unfolds.

At the same time, the Durban deal drove more nails into the coffin of binding emissions targets. There remain at least five degrees of legal separation between the reduction pledges ‘taken note’ of in Durban and industrialised countries honouring their treaty obligations to lodge new reduction targets by the end of 2012. New Zealand and Australia have attached significant conditions to their adopting new reduction

commitments and were at the forefront of pushing new loopholes on how land-use, land-use change and forestry (LULUCF) are accounted for. Despite pulling out of the Kyoto Protocol, Russia insisted on keeping hold of its additional assigned amount units (AAUs), the massive surplus of 'hot air' emissions units (as they became known) resulting from the fact that 1990 is taken as the baseline for Kyoto calculations, and does not factor in the reductions that were locked in by the industrial collapse in former Soviet countries in the 1990s. The European Union (represented by Poland, which held the bloc's rotating Presidency) also lobbied to preserve the surplus AAUs as part of any future agreement (Kantha, 2011). The scale of these loopholes is such that they could negate all current industrialised country pledges and allow them to continue with business-as-usual (Kollmuss, 2011).

Carbon capture and storage in CDM

In addition to the loopholes in overall emissions accounting, the Durban conference agreed to make 'carbon dioxide capture and storage in geological formations' eligible as a basis for CDM projects, confirming a provisional decision made at COP16 in 2010 (UNFCCC, 2011d). The early adoption of carbon capture and storage (CCS) is likely to include subsidising 'enhanced oil recovery', a technique to extract more oil from fields reaching the end of their lifespan on which much of the technology underlying CCS is based. Indeed, a project in Abu Dhabi that could be the first to seek CDM registration would operate in precisely this way (Point Carbon, 2012a). The project would claim 'reductions' of emissions of up to 800,000 tonnes of CO₂ per year from an Emirates steel plant, with the captured gases pumped 50 km to increase production at the Abu Dhabi National Oil Company's Rumaitha oilfield. But the far larger volume of CO₂ released into the atmosphere through the extraction and burning of more oil would not be factored into the project's calculations. As has been seen with other CDM methodologies, the 'lock in' effect of subsidising a fossil-fuel-based energy model is not considered relevant to how offset 'reductions' are calculated.

Assessments vary as to the impact of the inclusion of CCS in the CDM. An International Energy Agency report found that 'Widespread uptake of just the short-term CCS opportunities could more than double the current CDM portfolio... [and] could in theory dominate the CDM portfolio in the long-term', causing prices to collapse as the market is flooded with credits (Philibert et al., 2007). Other studies have suggested that CCS could amount to between four and 19 per cent of the supply of CDM offset credits by 2020, which would still exacerbate the oversupply problem (Bakker et al., 2011: 30).

The Cancún decision catalogued a series of risks posed by CCS: including concerns that CO₂ storage is not permanent and could leak from underground geological formations; public health risks posed by CO₂ storage; water contamination and other local environmental threats; the need for 'adequate provision for restoration of damaged ecosystems and full compensation for affected communities in the event of a release of carbon dioxide'; and the question of legal liabilities in the case of leaks or 'damage to the environment, property or public health' (UNFCCC, 2010). Most of these concerns remain unaddressed, although the legal liability question was resolved in favour of making the 'host Party' responsible (UNFCCC, 2011d: 6).

New Market Mechanisms

While keeping the CDM alive, COP17 also discussed a series of ‘new market mechanisms’. Although these were not established in Durban, the deal paved a legal path for two parallel developments. A new market-based mechanism was ‘defined’ under the United Nations Framework Convention on Climate Change (UNFCCC, 2011e). This terminology is a legal compromise lacking the legal force to ‘establish’ the new market, but it is worth noting that article 12 of the Kyoto Protocol used the same phrasing to call the CDM into existence (UNFCCC, 1997). The European Commission is the main proponent of this new mechanism.

At the same time, Japan, New Zealand, Australia and the US want to see offset credits generated from markets outside the UNFCCC eligible toward their mitigation commitments. This is a bit like ‘pledge and review’ – countries would define their own markets, offset rules and accounting mechanisms and then simply report these, rather than operating in accordance with mechanisms defined by the UNFCCC.

Sectoral crediting and related approaches

The new mechanism under the Convention is most likely to take the form of sectoral crediting, sectoral trading, NAMA crediting or some combination of all three. Sectoral crediting would issue ‘credits’ for reductions in pollution relative to a projected baseline after an agreed time period. This baseline (sometimes referred to as a ‘crediting threshold’) is expected to be considerably below the claimed ‘business as usual’ emissions scenario. If this target is not met, no credits are issued but no penalty is incurred – as a result, it is sometimes called a ‘no lose’ target. Sectoral crediting is similar to the CDM, but applied to whole economic sectors rather than on a project-by-project basis.

Sectoral trading would issue ‘permits’ relative to a binding emissions target set in advance. It is likely to involve a country-level target, in relation to which installations (eg. steel plants) will each receive an allocation. These targets are mandatory. If an installation misses its target, it would have to purchase extra permits from other companies within the scheme or from abroad. Sectoral trading is very similar to the European Union Emissions Trading System (EU ETS), although it would most likely apply to fewer sectors at the outset.

Although the precise list of sectors is not yet fixed, scoping studies by inter-governmental agencies (eg. OECD and IEA) and by Parties generally mention manufacturing sectors exposed to international competition – including steel, cement and lime, pulp and paper, aluminium and ‘upstream’ oil- and gas-production emissions (eg. from gas venting and flaring) – as well as the power sector. Such mechanisms may also include economic sub-sectors, such as public transport.

The EU has been the leading proponent of sectoral crediting and sectoral trading. It argues that these would amount to a decisive move ‘beyond offsetting’ and presents them as a means to improve environmental integrity: whereas offsets simply move claimed reductions from rich industrialised countries to developing countries, the new

mechanisms would require developing countries to significantly alter their emissions trajectory before any credits are issued (Hungary and the European Commission, 2011: 54; Lazarowicz, 2009: 61). This would push an additional burden of responsibility onto developing countries, however. At the same time, the overall scale of offsetting would increase, since the new mechanisms would apply more broadly.

NAMA crediting is an approach that envisages some proportion of Nationally Appropriate Mitigation Actions (NAMAs) to be supported by the sale of carbon credits. These proposals are very similar to sectoral crediting, with countries receiving or issuing credits for emissions reductions considerably below a 'business as usual' scenario. It would cover some or all elements covered by a developing country NAMA, although it may use standardised assumptions to approximate the impact of particular policies, rather than attempting to measure emissions on a sectoral basis. South Korea has been the leading proponent of this approach.

The rise of bilateral markets

In parallel to the development of a new mechanism, a work programme was agreed in Durban to discuss the means by which bilateral or unilateral market mechanisms could be counted towards emissions reduction targets under a new post-2020 climate regime. This system would allow countries to 'design, establish and implement' their own trading schemes and count the results towards global targets as long as a few common principles or accounting norms were adhered to (Government of Japan, 2011). This forms part of a broader 'regime change' agenda in international climate negotiations, seeking to downgrade the role of the UN process in decision making and offering a far more decentralised governance structure.

Japan has already created a 'bilateral offset' scheme, with a 130 billion yen (\$1.7 billion) fund to promote Japanese technology exports in return for voluntary carbon credits that Japan would purchase (Young, 2011). Its initial projects are expected to include coal and nuclear power plants in Indonesia and Vietnam and a carbon capture and storage project in Indonesia – at odds with the CDM, which currently excludes both. Japan has already conducted feasibility studies for bilateral crediting in Thailand, Laos and Indonesia and it launched a tender process for bilateral offset projects in April 2011 (De Septibus and Tuerk, 2011: 16).

A proposed carbon trading scheme in California, USA, would also accept bilaterally defined credits. The Californian cap and trade scheme would allow up to 8 per cent of allowances for compliance with its target to come from offsets, but specifies that these must be issued and/or verified by the California Air Resources Board (De Septibus and Tuerk, 2011: 18).

Reducing Emissions from Deforestation and forest Degradation (REDD)

Many of the same dynamics underpinning the debate on 'new market mechanisms' could be found in discussions on REDD in Durban. Although the conference did not formally resolve key financing questions, 'Intense and controversial discussions were had over the role of carbon trading versus non-market approaches to financing REDD; the potential use of offsets; and the need to further explore the impacts of different

finance sources and consider performance metrics beyond carbon' (Dooley and Horner, 2012: 2). Late in the conference, Australia (backed by Japan, Norway and the US) even attempted to insert text into the Durban agreements that would allow REDD+ offsets for national mitigation commitments to be developed outside the UNFCCC – although this was rebuffed (Dooley and Horner, 2012: 2). REDD+ schemes nevertheless continue to be conceived of as the basis for a forest carbon market, as they have been from the outset (Heal and Conrad, 2005).

Scaling up the oversupply of emission allowances

The common denominator of all of the carbon market measures announced at Durban was the continued expansion of trading mechanisms – an apparently surprising move in the context of a collapsing market. Various rationales have been offered for this 'scaling up'. In February 2011, a UNFCCC Secretariat summary on new market mechanisms suggested that the key point was 'to broaden the scope of mitigation' (UNFCCC, 2011a: 7). In the context of this debate, it is frequently claimed that the Kyoto Protocol's flexible mechanisms, most notably the CDM, are unable to achieve the levels of emissions reductions needed to stop runaway climate change.

This is undoubtedly the case, although not necessarily for the reasons put forward by proponents of expanding carbon markets. For example, Richard Baron of the International Energy Agency (IEA) points out that the CDM encompasses fewer than 1.5 gigatonnes of carbon dioxide (GtCO₂) (and claims it will enable 400–600 megatonnes of CO₂ 'reductions') produced in the electricity sector in developing countries, out of a total of 60 GtCO₂ that the sector will produce in the 2000–2012 period that he analyses. Electricity generation alone has seen an 8 percent annual increase in CO₂ emissions. On this basis, Baron concludes that the CDM is 'structurally unlikely to deliver needed mitigation' and that new mechanisms are therefore required (Baron, 2010).

Fundamental questions of equity are overlooked here. While the rise in emissions in developing countries is noted as a potentially alarming trend by the IEA, the historical and present emissions of industrialised countries are not addressed. In detaching emissions trajectories from a broader view of global emissions, the implication is clearly made that climate mitigation actions should be targeted on developing countries. This fails to deal with the underlying structural factors contributing to an increase in emissions in these countries – which include export-led development models that have seen a significant proportion of emissions rise as a reflection of outsourced emissions from Annex I countries (Peters et al., 2011).

The distribution of responsibility for climate action is directly tied to the context in which new market mechanisms are being proposed. 'Scaling up' markets in developing countries is conceived as a means to draw non-Annex I countries into engaging in more widespread mitigation actions. Such proposals assume a 'high-ambition' world in which industrialised countries take bold actions to cut their emissions domestically. Yet, Durban failed to offer anything new in the way of mitigation targets, with the final agreement merely seeking to 'clarify' pledges made at COP16 in Cancún. However, a

report by the United Nations Environment Programme found that there is a ‘gigatonne gap’ of 6 to 11 Gt CO₂ between these pledges and what is needed to keep global warming below 2 degrees, a temperature target which itself is now widely considered to be insufficient (UNEP, 2010).

Scaled up carbon markets are also proposed with the aim of pushing an increasing proportion of climate financing through the carbon market. Such a conclusion was, for example, reached by the UNFCCC Secretariat when looking at the ‘investment and financial flows’ associated with climate change mitigation. In 2007, it estimated that \$90–100 billion per year would need to be invested in developing countries by 2030 (UNFCCC, 2007). The value of the carbon market accounts for only a fraction of that figure, on which basis the report concluded that it ‘would have to be significantly expanded to address needs for additional investment and financial flows’ (UNFCCC, 2007: 6).

In the current context of collapsing carbon prices, however, it is hard to avoid the conclusion that expanding the market – including through the creation of new market mechanisms – would simply exacerbate the problem of an overproduction of emissions allowances. As the IEA pointed out in January 2010,

Current estimates show that the supply of credits through scaled-up market mechanisms could be significantly larger than demand... Some observers point to the risk of market flooding, resulting in lower carbon prices and slower mitigation efforts in Annex I countries. (Aasrud et al., 2010: 118)

These risks continue to increase. In the immediate aftermath of the Copenhagen conference (COP15), Bloomberg New Energy Finance, a major carbon market consultancy, estimated that demand for international offsets would reach 4,280 MtCO₂ over the eight-year period from 2012 to 2019, equivalent to an average of 530 MtCO₂ per year (Turner, 2010: 96). By way of comparison, Bloomberg estimated the supply of international offsets from existing CDM and Joint Implementation (JI) schemes ranges from 2,480 MtCO₂ (310 Mt/yr) to 4,460 MtCO₂ (560 Mt/yr).

Fast forward eighteen months and the estimated demand for carbon credits has fallen even further. The World Bank’s *State and Trends of the Carbon Market 2011* estimates a demand of between 2,920 MtCO₂ and 3,910 MtCO₂ of offset credits for the 2013 to 2020 period (World Bank, 2011: 63, 66). The higher end of this spectrum assumes an upward adjustment of the EU’s emissions reduction target from 20 to 30 per cent (compared to 1990 levels) and that none of the large surplus of ‘hot air’ AAUs will be rolled over for use in the post-2012 period – a scenario that the Durban agreements have made less likely. The Bank’s figures, moreover, reflect a ‘maximum theoretical demand’ (World Bank, 2011: 66).

By comparison, the World Bank estimates that 2,500 MtCO₂ offsets will be generated, with 50 to 70 percent of these coming from CDM projects registered before 2012 (World Bank, 2011: 67). The reduction in the projected supply of credits factors in the impact of new restrictions imposed by the EU in the third phase of its ETS, which begins in 2013. The EU ETS will restrict the use of CDM credits to those issued by projects registered prior to 2013, with the exception of projects undertaken in Least

Developed Countries (LDCs). It will also disallow the use of credits from hydrofluorocarbon (HFC) and nitrous oxide (N₂O) industrial gas projects, which account for 67 per cent of the total issued to date (World Bank, 2011: 48). This reflects the stated strategy of the EU for the future of the global carbon market: restricting the CDM to LDCs and developing new market mechanisms in its place to draw middle-income countries into cap and trade schemes related to binding emissions targets. With 97 percent of demand for carbon credits primarily driven by its ETS, the EU can, to a significant extent, force through its position on the future of carbon markets by means of domestic rule changes, irrespective of international climate negotiations (World Bank, 2011: 9).

Comparing these supply-and-demand projections shows that even with the EU's rule changes factored in, the World Bank's 'optimistic' estimate still leaves just 400–1,400 MtCO₂ of demand that is unmet by the existing CDM in the 2013 to 2020 period – at the low end, just 50 MtCO₂ per year. By way of comparison, the emissions from the largest single power plant within the EU ETS (Elektrownia Bełchatów in Poland) are currently almost 90 MtCO₂e per year (European Commission, 2011).

New market mechanisms could lock in a surplus of permits in the longer term. Although the World Bank does not estimate their scale, an IEA/OECD study estimates that sectoral crediting in the power sector alone could amount to 465 MtCO₂ annually (Baron et al., 2009b: 16). Other studies cited by the IEA and OECD project a potential supply of 110–560 MtCO₂ annually for a multi-country power sector scheme including China, India, South Africa, South Korea, Mexico, Indonesia and Thailand; 154–767 MtCO₂ annually if it were to cover only the power sector in China; an additional 460–720 MtCO₂ annually if the cement sector in China, Mexico and Brazil were to fall under a sectoral crediting scheme; and 1 GtCO₂ if the iron and steel sectors in non-Annex I countries were to do likewise (Baron et al., 2009b: 16).

Serious questions therefore need to be raised about the potential demand for the credits generated by new and scaled-up market mechanisms. Without additional restrictions on the use of carbon credits, it is likely that the creation of new market mechanisms would create a surplus of credits that could reinforce the collapse in the price of carbon – further undermining the purported rationale of the scheme.

The Carbon Market zombies stumble on

New market-based mechanisms and an expanded CDM are presented as a means to 'scale up' mitigation actions in the global South. However, increasing the size of carbon markets is not the same as reducing emissions. The evidence of the CDM to date suggests that offsetting *increases* rather than reduces greenhouse gas emissions. New mechanisms risk 'scaling up' these failings, while the growth of bilateralism brings new challenges.

The introduction of new markets in the context of declining global trade in carbon throws this into sharp focus. If new mechanisms start delivering significant quantities of credits in a market with limited demand for them, the price of carbon would likely

continue to collapse. Introducing new markets in a context of unambitious climate action by industrialized (Annex I) countries would, in turn, undermine both climate change mitigation efforts and flows of climate finance.

Another effect of scaling up new market mechanisms, however, is to help industrialized country governments and corporations to delay meaningful domestic action to reduce their greenhouse gas emissions. This is consistent with the corporate competitiveness concerns that guide much of the climate policy pursued by industrialised countries. A by-product of this policy approach is to shift environmental and fiscal responsibility for tackling climate change towards middle-income countries in particular and countries in the global South more generally.

The markets themselves seem rather less keen than governments on these new initiatives, however. With EU economies slipping into a potentially deeper financial crisis exacerbated by austerity measures, production is expected to flat-line — reducing demand for permits and credits from the utilities and industrial producers covered by the ETS. These ‘compliance’ buyers already hold a significant surplus of permits, which a leaked European Commission report suggests could reach up to 2.4 billion between 2013 and 2020 (Point Carbon, 2012b). At the same time, EU measures to limit industrial offset credits after April 2013 have led to their dumping onto the international market, precipitating a price collapse (Wynn and Chestney, 2011). As we have shown, the overproduction of emissions allowances looks likely to remain a problem, further undermining the environmental integrity of the scheme and begging the question: why are governments and international financial institutions still pushing for new markets?

Part of the answer rests with institutional inertia – ‘new market mechanisms’ were initially tabled when the USA was planning a federal cap and trade market, which could have led to an almost tenfold increase in demand compared to the EU ETS. The delays and downscaling of expectations for cap and trade schemes in other industrialised countries are, in part, a response to the failure of legislation on climate change in the U.S. Whereas carbon markets emerged as a ‘plan B’ for governments and corporations looking to avoid restructuring their power production or industrial base, the ‘plan A’ of not legislating on climate change at all has also regained ground (driven on by a climate-sceptic Right in the USA, Australia, Canada and Japan, in particular).

The push for a new carbon market mechanism under the Convention, by contrast, is being driven by the EU. It is worth noting that the negotiating agenda on new market mechanisms is largely controlled by DG Climate Action, whose lead officials and official negotiators made their careers off the back of promoting the EU ETS – and who are unlikely to easily give up on the idea.¹

The ideological commitment to carbon markets also retains a strong grip. Against a growing body of evidence, the proponents of trading continue to present it as the theoretically optimum means to put a price on carbon and to suggest that such pricing

1 DG Climate Action Director-General Jos Delbeke; Head of Policy Coordination Peter Zapfel; and Commissioner Hedegaard’s Chef de Cabinet Peter Vis were key figures in the ‘policy network’ that promoted the creation of the EU ETS (Braun, 2009).

should be central to action on climate change. This is sometimes allied to the view that new programmatic and sectoral carbon market instruments will serve as ‘stepping stones’ to a global cap and trade system (European Commission, 2010; Lazarowicz, 2009).

The less rosy-eyed among them may realise that such a system would entail a patchwork of rules, triggering a race to the bottom in terms of environmental safeguards – although if they do, they are not yet saying so. In fact, Durban saw a renewed push for the extension of existing carbon markets alongside an increased emphasis on the private sector in climate finance. This must be seen in the context of a broader expansion from ‘carbon’ towards broader biodiversity markets, which may continue through to the Rio+20 summit in June 2012.

A final piece of the explanatory jigsaw relates to efforts to expand international carbon markets outside of the UNFCCC framework, which should be seen within the broader framework of attempts to reduce the international climate regime to a mere ‘reporting’ of targets which are based on unilateral or bilaterally entered commitments, rather than multilateral agreements. Although this strips the system of the logic of emissions reductions that was used to insert flexible mechanisms into the Kyoto Protocol, it offers a means for the carbon market zombie to stumble on.

references

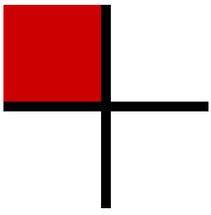
- Aasrud, A., R. Baron, B. Buchner and J. Ellis (2010) ‘Scaled-up market mechanisms: What is needed to move forward?’, in A. Kramer (ed.) *Greenhouse gas market report 2010. Post Copenhagen and climate policy: Where global emissions trading goes from here*. Geneva: IETA.
- Bakker, S., T. Mikunda and R. Rivera Tinoco (2011) ‘Potential impacts of CCS on the CDM’, *CATO-2* [http://www.co2-cato.nl/cato-download/2013/20110420_110421_CATO2-WP2_3-D01-D02-v2011_02_16-Impact-of-CCS-on].
- Baron, R., B. Buchner and J. Ellis (2009) *Sectoral approaches and the carbon market*. Paris: IEA/OECD.
- Baron, R. (2010) ‘Proposals for sectoral crediting, sectoral trading and national appropriate mitigations actions in international negotiations’, EPRI Greenhouse Gas Emissions Offset Policy Dialogue Workshop 7: Sectoral and International Crediting Mechanisms, Washington DC, 25 February [http://www.iea.org/speech/2010/baron_washington.pdf]
- Braun, M. (2009) ‘The evolution of emissions trading in the European Union – the role of policy networks, knowledge and policy entrepreneurs’, *Accounting, Organizations and Society*, 34(3-4): 499–534.
- De Septibus, J., and A. Tuerk (2011) ‘New Market Mechanisms post-2012: Institutional options and governance challenges when establishing a sectoral crediting mechanism’, *NCCR/ Swiss National Science Foundation Working Paper* 2011/55.
- Dooley, K. and K. Horner (2012) ‘Durban aimed to save the market, not the climate’, *Forest Watch* 167 Special Report, January [<http://www.fern.org/sites/fern.org/files/Durban%20update.pdf>].
- European Commission (2010) ‘Linking the E.U. ETS to other emissions trading systems and incentives for international credits’ [http://ec.europa.eu/clima/policies/ets/linking_en.htm].
- European Commission (2011) ‘2010 Compliance Data’, [http://ec.europa.eu/clima/policies/ets/registries/docs/compliance_2010_en.xls].
- Gilbertson, T. and O. Reyes (2009) *Carbon trading: How it works and why it fails*. Uppsala: Dag Hammarskjöld Foundation.
- Government of Japan (2011) ‘Submission by Japan on new market-based mechanisms to enhance the cost-effectiveness of, and to promote, mitigation actions’

- [http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/jp_submission_new_mkt_s.pdf].
- Heal, G. and K. Conrad (2005) 'A solution to climate change in the world's rainforests', *Financial Times*, 29 November.
- Horner, K. (2011) 'The Durban Deal - An initial analysis of the outcomes' [<http://www.foe.org/news/archives/2011-12-the-durban-deal---an-initial-analysis-of-the-outcome>].
- Hungary and the European Commission on behalf of the European Union and its Member States (2011) 'New market-based mechanisms to enhance the cost-effectiveness of, and to promote, mitigation actions', 21 March [<http://unfccc.int/resource/docs/2011/awglca14/eng/misc02.pdf>].
- IETA (2011) 'The consequences of the Durban COP for the carbon market and climate finance', [<http://www.ieta.org/the-consequences-of-the-durban-cop-for-the-carbon-market-and-climate-finance>].
- Kartha, S. (2011) 'Q&A: Sivan Kartha on the Durban climate deal' [<http://www.sei-international.org/news-archive/2207>].
- Kollmuss, A. (2011) 'A new look at loopholes', *CDM Watch Policy Brief*, December [<http://unfccc4.meta-fusion.com/kongresse/cop17/pdf/Briefing%20Paper%20on%20Loopholes-2-Dec-11.pdf>].
- Lazarowicz, M. (2009) *Global carbon trading: A framework for reducing emissions*. London: The Stationary Office.
- Lohmann, L. (2005) 'Marketing and making carbon dumps: Commodification, calculation and counterfactuals in climate change mitigation', *Science as Culture* 14(3): 203-235.
- Neslen, A. (2011) 'Carbon credits tarnished by human rights "disgrace"', *Euractiv*, 3 October [<http://www.euractiv.com/climate-environment/carbon-credits-tarnished-human-rights-disgrace-news-508068>].
- Peters, G., J. Minx, C.L. Weber and O. Edenhofer (2011) 'Growth in emission transfers via international trade from 1990 to 2008', *Proceedings of the National Academy of Sciences* 108(21): 8903-8908.
- Philibert, C., J. Ellis and J. Podkanski (2007) 'Carbon capture and storage in the CDM' *OECD/IEA*, December [http://www.iea.org/papers/2007/CCS_in_CDM.pdf].
- Point Carbon (2012a) 'Masdar eyes CDM for carbon capture project' [<http://www.pointcarbon.com/news/1.1725479>].
- Point Carbon (2012b) 'EU draft reveals vast CO₂ market surplus' [<http://www.commodities-now.com/commodities-now-news/environmental-markets/9708-eu-draft-reveals-vast-co2-market-surplus.html>].
- Schneider, L. (2011) 'Perverse incentives under the CDM: an evaluation of HFC-23 destruction projects', *Climate Policy*, 11(2): 851-864.
- Turner, G. (2010) 'Copenhagen and the implications for supply and demand dynamics in the global carbon market', in A. Kramer (ed.) *Greenhouse gas market report 2010. Post Copenhagen and climate policy: Where global emissions trading goes from here*. Geneva: IETA.
- UNEP (2010) *The emissions gap report: Are the Copenhagen Accord pledges sufficient to limit global warming to 2°C or 1.5°C?* Nairobi: UNEP
- UNEP Risoe (2011) 'CDM/JI Pipeline Analysis and Database, 1 October' [<http://www.cdmpipeline.org>].
- UNFCCC (1997) 'Kyoto Protocol to the United Nations Framework Convention on Climate Change' [http://unfccc.int/essential_background/kyoto_protocol/items/1678.php].
- UNFCCC (2007) *Investment and financial flows to address climate change* Bonn: UNFCCC [http://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/background_paper.pdf].
- UNFCCC (2010) 'Carbon dioxide capture and storage in geological formations as clean development mechanism project activities' [http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_cmp_ccs.pdf].
- UNFCCC (2011a) 'Establishment of an ad hoc working group on the Durban platform for enhanced action,

- [http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_durbanplatform.pdf].
- UNFCCC (2011b) 'Input to the high-level panel for the CDM policy dialogue. Background paper by the secretariat', 22 December
[http://www.cdmpolicydialogue.org/background/CDM_policy_background.pdf#page=1].
- UNFCCC (2011c) 'CDM policy dialogue: Panel members' [<http://www.cdmpolicydialogue.org/panel>].
- UNFCCC (2011d) 'Modalities and procedures for carbon dioxide capture and storage in geological formations as clean development mechanism project activities' [http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cmp7_carbon_storage.pdf]. http://www.cdmpolicydialogue.org/background/CDM_policy_background.pdf - page=1].
- UNFCCC (2011e) 'Report of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention', [http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_lcaoutcome.pdf].
- US Consulate Mumbai (2008) 'Carbon credits sufficient but not necessary for sustaining clean energy projects of major Indian business groups' [<http://wikileaks.org/cable/2008/07/08MUMBAI340.html>].
- Welch, D. (2007) 'A buyer's guide to offsets', *Ethical Consumer*, May/June.
- World Bank (2005) *Community development carbon fund annual report 2004*. Washington: World Bank.
- World Bank (2011) *State and trends of the carbon market 2011*. Washington: World Bank Group.
- Wynn, G. and N. Chestney (2011) 'Carbon offsets near record low, worst performing commodity', *Reuters*, 8 August [<http://www.businessgreen.com/bg/news/1935223/report-japan-promises-usd16bn-clean-tech-exports-investment>].
- Young, T. (2011) 'Japan promises \$1.6bn clean tech exports investment', *Business Green*, 6 January [<http://www.businessgreen.com/bg/news/1935223/report-japan-promises-usd16bn-clean-tech-exports-investment>].

the author

Oscar Reyes is an Associate Fellow of the Institute for Policy Studies, and a freelance consultant specialising in carbon markets and climate finance. His recent work includes *Power to the people?* (on the World Bank's Clean Technology Fund) and the co-authored *Carbon Trading: How It Works And Why It Fails*. He provides research and advice on the economics and politics of climate change to various organisations, including Corporate Europe Observatory, Earthlife Africa and Friends of the Earth UK. He is also environment editor of *Red Pepper*, a magazine that he previously edited.
Email: oscar@ips-dc.org



A dark art: Field notes on carbon capture and storage policy negotiations at COP17

Gökçe Günel

Introduction

I started learning about the controversies surrounding carbon capture and storage (CCS) negotiations during my ethnographic fieldwork on the development of a clean technology and renewable energy sector in Abu Dhabi, United Arab Emirates, between September 2010 and June 2011. The environmental consultants I worked with had been preparing a policy submission to the United Nations Framework Convention for Climate Change (UNFCCC) regarding the inclusion of CCS technology under the Clean Development Mechanism (CDM).¹ My involvement in the project as an anthropologist and an intern allowed me to develop an understanding of how the CDM operated, as well as what CCS technologies comprised. I became further interested in how the CCS issue in the CDM debate would be resolved. In this essay, I trace the unfolding and resolution of the CCS in the CDM negotiations in Durban, South Africa during the COP17. In this way, I hope to present a critique of climate change policy infrastructures, underlining the various incongruities that characterized the negotiations.

CDM is a market-based ‘flexibility mechanism’² that was initiated under the Kyoto Protocol with the intention of encouraging industrialized countries to invest in greenhouse gas emission reduction programs in developing countries, such as

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- 1 The environmental consultants that I worked with have advanced engineering degrees. They come from different countries around the world, and mostly were in the UAE for temporary periods. The individuals who informed this essay – through meetings, interviews or informal conversations – originate specifically from Algeria, Germany, India, Iran, Lebanon, the United Arab Emirates, and the United Kingdom.
 - 2 For a summary of carbon trading and flexibility mechanisms under the Kyoto Protocol, see: Hepburn, C. (2007) ‘Carbon trading: A review of the Kyoto mechanisms, *Annual Review of Environment and Resources* 32: 375-393. Also see: Lohmann, L. (2006) ‘Carbon trading: A critical conversation on climate change, privatisation and power’, *Development Dialogue*, no. 48, special issue [<http://www.dhf.uu.se/Publications/dd.html>].

hydropower, wind energy or solar energy projects.³ This way, the environmental consultants explained to me, industrialized countries could meet their own emission reduction commitments, while fostering sustainable development within host countries. Most importantly, they stressed, CDM projects had to satisfy the so-called ‘additionality’ requirement. In other words, the project proponents had to prove that the given project would not have been initiated without the additional CDM incentive from the UNFCCC. As such, the first step for starting a CDM application to the UNFCCC constituted proving how the project would not have happened without this additional push. The environmental consultants that I worked with produced baselines, estimating future greenhouse gas emissions in the absence of the proposed projects. They suggested that they needed to act like attorneys and defend the proposal as if it were a legal case.

These project proposals would then be evaluated by third-party Designated Operational Entities (DOEs) to guarantee that the project would instigate valid emission reductions. If the DOE gave approval to the project, the proposal would be submitted to the CDM Executive Board within the UNFCCC, waiting to be registered. ‘But the registration of hundreds of Clean Development Mechanism (CDM) projects at the United Nations Framework Convention for Climate Change (UNFCCC) only shows how successful the consultants that work within these procedures are, rather than proving the success of CDM as a program’, a senior environmental consultant that I worked with told me, thereby questioning the legitimacy of the policy infrastructures that they worked with. Upon registration at the UNFCCC, the project would start to produce carbon credits for the involved entities, based on the supposed emissions reductions gained from its implementation.

In this framework, if China decided to build a solar power station, with technology or expertise from a German company, rather than relying on lower cost energy from coal plants, the reduced carbon emissions attributed to this investment could be credited towards the German company’s emission reduction commitment, set by the Kyoto Protocol. The development of a solar power station would also contribute to sustainable development in China, or at least this is what CDM proposed.⁴

However, if carbon capture and storage were to be included under the CDM, the environmental policy consultants explained to me, China could build a coal powered plant, provided that it is equipped with CCS technologies, and still receive carbon credits for it. Carbon capture and storage technology, as my interlocutors outlined, operated by obtaining carbon dioxide from large industrial compounds, such as coal plants, carrying it in solid, liquid or gas form to storage sites, and injecting it into geological formations such as deep saline aquifers, unmineable coal seams or maturing

3 A helpful journalistic account of the workings of the Clean Development Mechanism and carbon trading can also be found at: Schapiro, M. (2010) ‘Conning the climate: Inside the carbon-trading shell game, *Harper’s*, February, 31-39.

4 For some critiques of CDM mechanisms, see: Fogel, C. (2004) ‘The local, the global, and the Kyoto protocol’ in S. Jasanoff and M.L. Martello (eds.) *Earthly politics: Local and global in environmental governance*. Cambridge: MIT Press, and Schreuder, Y. (2009) *The corporate greenhouse: Climate change policy in a globalizing world*. London: Zed.

oilfields, kilometers below the ground. Accordingly, the inclusion of CCS in the CDM would mean that carbon credits would be issued for carbon dioxide sequestered through future carbon capture and storage projects undertaken in so-called developing countries, providing incentives for further investments in this technology.

CCS controversies

Yet, ever since its inception as a climate change mitigation technique, my interlocutors reminded me, CCS had been a controversial technology. ‘Issues such as site feasibility, high operational costs, future safety and unresolved legal liability make carbon capture and storage projects challenging to initiate, implement and operate’, the environmental consultants summarized. In addition, parties who were critical of CCS projects often suggested that including CCS in the CDM could incur a crowding out effect, leading investment away from other climate change mitigation strategies, such as renewable energy or energy efficiency projects. So, rather than building a solar power plant and reducing carbon emissions, developing countries could proceed with coal-powered plants and attempt to use CCS technologies to later bury the emissions resulting from such operations. Surely, this development could negatively influence the flourishing of renewable energy projects around the world. Accordingly, the opponents of CCS in CDM argued, CCS projects do not necessarily reduce dependence on coal or oil, thereby failing to promote the transition from coal or oil based power sources to renewable energy. In this way, it was underlined, CCS is not in line with the main principles of the CDM.

Secondly, the environmental consultants noted, when implementing CCS projects, oil-producing countries could use maturing oilfields as storage locations for the carbon dioxide that they obtained, as these oilfields are considered naturally sealed reserves. And yet, injecting gas into oil reservoirs leads to increased oil production as well, a process commonly known in the industry as enhanced oil recovery (EOR). By injecting carbon dioxide into ageing fields and pumping oil out, oil producers may increase the lifetime of the fields by up to 30 percent, while freeing up the natural gas more commonly used in such processes. The inclusion of CCS as an eligible technology for decreasing carbon emissions then becomes a perverse incentive for further oil production. The entities that earn carbon credits from CCS activities in turn become oil-producing countries.

Regardless of these controversies, the environmental consultants I worked with believed that the 17th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), or COP17, in Durban, South Africa, would be a milestone for carbon capture and storage negotiations, allowing this controversial climate change mitigation technology to be included under the CDM. While Durban negotiations did prove to be a victory for the proponents of CCS in the CDM, in this essay I would like to show that they also highlighted the numerous inequalities that are part and parcel of the production and implementation of climate change policies.

Constructive ambiguity

The longwinded carbon capture and storage deliberations, which officially started at the COP11 in Montreal in 2005, had reached a breaking point last year at the COP16 in Cancun when the decision was made to include CCS in CDM, with the provision that safety and liability protocols could be resolved. In February 2011, parties submitted proposals regarding modalities and procedures guidelines on CCS projects. After collecting the submissions, the UNFCCC secretariat put together a synthesis report. Next, a technical workshop was organized in Abu Dhabi, in September 2011, inviting parties to learn more about the current status of carbon capture and storage technologies. Following the technical workshop, the secretariat published a workshop report and a modalities and procedures draft, which was opened for negotiation in the Durban meeting.⁵ After two long contact group discussions, modalities and procedures guidelines were finally accepted on December 3rd 2011, with liability protocols remaining as the only outstanding issue. The parties had not been able to agree upon whether host countries or carbon credit holders should be liable for the stored carbon dioxide, or if the liability should be shared between the two stakeholders.

During the second week of COP17, the liability provisions were settled as well, requiring that countries hosting projects develop thorough regulations for carbon dioxide storage and liability. It was stipulated that project developers place five percent of the carbon credits earned from CCS projects in a reserve fund. The carbon credits in this reserve fund would be awarded to the project proponents only after twenty years of monitoring, provided that no carbon dioxide leaks from the underground storage site. It was also decided that in case a project participant was unable to go on with the project, liability would automatically be transferred to the host country. Such provisions were expected to mitigate concerns for the uncertainties of CCS technologies, especially in regards to long-term liability.

However, there remained certain inconclusive issues as well. For instance, what did it mean to defer the liability for CCS projects completely to host countries? This type of provision evidenced the current inability to put together an international treaty on the issue, while making it more difficult for future provisions to be produced, as they could potentially contradict host country rulings. Resolutions on transboundary movement of carbon dioxide, which involves capturing carbon dioxide in one nation state, transporting it and storing it in another was also postponed to the COP18 in Doha, Qatar, as it would require defining project boundaries, characterization of carbon dioxide as toxic or non-toxic material, its legitimacy under other international treaties and administering the participation of multiple project proponents. However, as significant as this issue may be for the future implementation of CCS projects, it did not hinder the process for including CCS projects in the CDM. As such, at the end of the Durban negotiations, many parties argued, carbon capture and storage did manage to receive the legitimacy that it sought.

5 The modalities and procedures draft text which started the discussions in Durban is available at: <http://unfccc.int/resource/docs/2011/sbsta/eng/04.pdf>.

While waiting for the Subsidiary Body for Scientific and Technological Advice (SBSTA) meeting where the CCS in CDM decision would be announced, I chatted with three CCS experts, at times working with the secretariat. ‘How big is the damage done, you think?’ one of them asked another. ‘The monitoring criteria were supposed to be *stringent*’, he replied, quoting the initial policy document. When I asked what adjective he would use instead, he laughingly proposed that ‘wishy-washy’ would be a good alternative. ‘What we are trying to achieve in putting together this document is constructive ambiguity’, one of them later told me. Here, ‘constructive ambiguity’ implied a quick resolution of the debates, without producing further controversy amongst the delegates. He understood the production of constructive ambiguity as an aesthetic challenge as well, created step by step through highlighting the document in different colors, bracketing unresolved sentences and finally cleansing the text of colors and brackets.⁶ The application of such constructive ambiguity could eventually result in ‘wishy-washy’ protocols as well, wherein the goal-oriented nature of the negotiations could at times curtail a rigorous analysis of the final policy decisions. Finally, they argued that the inclusion of CCS in CDM was symbolic, more than anything else. ‘It will be technically complicated to implement CCS projects and acquire carbon credits in the next few years, with the given state of technology. So even when CCS is included in the CDM, it’s not like we’re going to have an upsurge of CCS projects’, they summarized with much relief.

Bargaining devices

‘One of the West African countries says they don’t want their country to be used as a video game’, Lisa,⁷ a Greenpeace campaigner, reported after concluding her meetings with various delegates participating in the CCS in CDM policy-making sessions. ‘They say that including CCS in CDM will pave the way for developed countries to test unverified technologies within developing countries’. Through the video game analogy, the West African delegate pointed to how the decision-makers were detached from the actual space and time in which the results of their actions would be experienced. He showed disbelief in the functional purpose of the practices of implementing this specific technology. It was more like a game, where unproven technologies would be experimented with and perhaps later discarded. And then the nation state in which this game had been played would have to attend to the possibly dire consequences.

But Lisa doubted that the West African delegate would state this position during the debates. ‘There must be other countries with opposing views’, she sighed, ‘what about Panama or Jamaica, or maybe Uganda?’ She sat down to write an email to one of these delegates, whom she had briefly interacted with after a contact group meeting, when he asked a question regarding the current state of CCS technologies. ‘A lot of countries don’t have the resources or the time to pay attention to different issues, so they may not know anything about CCS in particular’, Lisa reminded me. If a delegate were unsure or uninformed then Greenpeace would provide infrastructure and give information on policies. ‘In the past year, there have been twelve failed CCS projects in Europe’, she

6 See Riles, A. (2000) *The network inside out*. Ann Arbor: University of Michigan Press.

7 The names provided in this note are pseudonyms.

said, ‘I don’t understand why they want to export a failed technology to developing countries’. She added this argument to the end of her email and wondered if the delegates she had been in touch with would be attending the meetings during the next few days.

Overall, CCS negotiations have been characterized by low levels of participation, with the major stakeholders being Saudi Arabia, Brazil, Norway, the European Union, Australia, the United Arab Emirates, Kuwait and the Alliance of Small Island States (AOSIS) countries. When I asked why this is the case, Michael, a member of the UNFCCC secretariat, who has been following the debates, told me that many countries do not have the technical expertise to participate in the debates on an emergent technology such as carbon capture and storage. Countries that already have full-fledged oil industries, and thereby first class geologists and reservoir engineers, were able to negotiate better, given their access to a more thorough understanding of the subsurface. They could rely upon their oil experts in presenting arguments for and against CCS in CDM. As such, it was not surprising that Brazil’s CCS delegate was an executive at Petrobras, the state-owned oil company, while the Saudi Arabian delegate worked with Saudi Aramco. In this sense, expertise seemed to be highly permeable in the climate change debates, allowing a Petrobras or Aramco representative to temporarily give up his affiliations and to serve as a delegate for his country. While this enabled countries to have stronger and more reliable perspectives on technical issues, it may also raise questions on whose interest becomes represented in the debates.

Many participants to the Durban meetings were curious about why AOSIS countries refrained from engaging with the CCS in CDM negotiations, especially after being strong opponents for many years. When I asked a senior negotiator about the absence of AOSIS countries in the Durban negotiations, he suggested, ‘One of the AOSIS members seemed like it was opposing CCS in CDM but then again, the delegate is not well-prepared, does not really know what he’s saying, so his interventions do not make much sense. It’s not like they’ve studied the issue before’, he underlined, ‘and I mean, they just needed to read eight policy papers in preparing for the meeting here’. The senior negotiator later suggested that AOSIS does not want to invest more time on CCS in the CDM, especially because they are more concerned about general Kyoto Protocol issues and added how they do not have a common understanding of CCS, which prohibits them from intervening further.

When I asked Michael why AOSIS delegations were no longer active, he explained, ‘They cannot really oppose this issue anymore. This is all that Saudi Arabia wants. If it doesn’t get it, then it will put sand in all other negotiations. AOSIS have so many more stakes in the climate debates – they would like to have the support of Saudi Arabia and the other oil-producers’, he argued, and emphasized how the politics behind these debates made him very frustrated. ‘In an ideal world, every issue would be thought through separately, so when producing arguments regarding CCS in CDM, parties would not think about how this decision would impact other climate issues, or see this as a bargaining device. But this is not an ideal world and this is all we have’, he concluded. According to him, participants did not prioritize studying the various problems associated with the issue, such as the reliability of technology or its potential environmental impact, but rather focused on the political power that they would accrue

by bargaining in a specific manner. Likewise, another delegate, who had been actively following the negotiations, suggested how Brazil had been against the inclusion of CCS in CDM for many years, especially because they did not want to divert attention away from unavoided deforestation projects, known as REDD+, which constituted another battleground for inclusion under the CDM. After years of opposition, when finally giving support to CCS in CDM, Brazil also expected that Saudi Arabia would be favourable to the inclusion of REDD+ under the CDM in Durban and next year at the COP18 in Doha, Qatar.

But why was Saudi Arabia so dedicated to CCS in the CDM? The Saudi Arabian delegate explained to me how his country does not have any CDM projects. ‘If CCS is included in the CDM, then Saudi Arabia can also start to play its part in contributing to climate change mitigation’, he added. When I asked him about the role of EOR and whether EOR projects would be included in the CDM, he explained that such projects should be considered on a case-by-case basis. According to him, it did not make sense to produce an international treaty on this issue. EOR, which had been a significant subject matter in the debates on CCS in the CDM, was not mentioned in the final modalities and procedures draft. A secretariat member that I spoke with explained how ‘no one brought up EOR in the debates’, finally leading to the omission of the whole issue from the documents. As the Saudi Arabian delegate told me, it would be considered on a case-by-case basis.

Positions of criticality

‘Do you know what civil society organizations think about the decision’, some secretariat members asked me on the day when the results of the negotiations were going to be publicly announced, ‘how did Greenpeace or CDM Watch react?’ Having had the opportunity to spend time with Greenpeace and CDM Watch campaigners throughout the negotiations, at times helping them with their campaigning work, I explained how these NGOs did not believe that big oil should also earn carbon credits, in addition to the extra oil that they procure through enhanced oil recovery. ‘Well, they are right’, they responded, ‘We really have nothing to say’.

Greenpeace and CDM Watch members worked long hours, developing arguments and communication strategies to oppose to the inclusion of CCS in CDM. Every morning, they picked up recently printed copies of the new policy draft along with the daily program and went through them to underline the changes that had been made during the previous day’s contact group meetings. They tried to identify resisting parties, consulted legal and technical experts inside and outside the conference to find loopholes in the policy documents and looked for ways of manipulating the decision-making process. Pointing out the inequality of resources among different delegations, and showing how certain countries do not have enough staff to follow each climate change issue, they produced material on CCS for delegates to use and rely upon and provided both big picture information and small details. They produced press releases, organized press conferences where they could express their understandings of the context, and briefed individual journalists. Overall, Greenpeace and CDM Watch members had managed to

develop a vast network of contacts and a clear understanding of how the COP works, thereby serving a position of criticality throughout the negotiations.

Besides NGOs like Greenpeace and CDM Watch, other lobbying organizations such as Global CCS Institute, CCS Association or Bellona occupied prominent positions during the Durban CCS debates. Organizing many side events with oil industry representatives, energy ministers, corporate figures or geologists, they managed to give shape to the predominant discourse on CCS during the meeting, framing it as a critical climate change mitigation strategy. ‘We need every bit of energy we can get and therefore CCS is vital. It allows us to consume coal or oil, without worrying about the carbon emissions they produce’, a Shell representative, who had presented at one of the side events, told me later during a short interview, ‘I imagine that if I came back to the world in 100 years, maybe then I could see a place which is fuelled by renewable energy sources, but not before then’, he added. Karen, a geologist from a research university in the United States, who had also participated in the technical workshop in Abu Dhabi in September 2011, concurred and suggested that she does not understand why people are so afraid of carbon capture and storage. ‘CCS is not a dark art’, another CCS lobbyist added.

Yet, most importantly, many underlined, carbon capture and storage would help development continue in countries such as China and India, which still relied upon coal plants. During one of these side events, when a representative from a German NGO got up to explain how and why civil society organizations in Germany were resisting the implementation of carbon capture and storage technologies within the country’s boundaries and proposed that the capital invested in CCS should actually be utilized to improve renewable energy infrastructures, a delegate from a West African country adamantly stated, ‘We can’t improve our industry on solar power. We need to uplift our people and we will need coal for that. Germany has educated its people and now it’s time for it to clean up’. It was time for developed countries to give up their coal plants, but the developing countries would need them for longer, so as to create industrial infrastructures that match countries like Germany. Maybe CCS in the CDM could be helpful in such cases, the representative said. As much as CCS was criticized as a way in which the fossil fuel industry was reinventing itself or testing unverified technologies within developing countries, in this case it was perceived as a desirable means of development.

A new definition of justice

Overall, the carbon capture and storage negotiations in Durban disclosed the many inequalities that parties suffer from both in bargaining for and implementing climate change mitigation techniques. The resources that parties can spare for specific issues, their levels of preparedness, negotiating powers and existing industrial infrastructures all constituted factors influencing decision making.

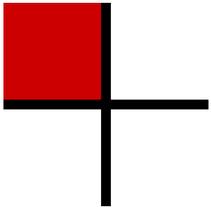
In discussing such incongruities, one researcher I spoke with proposed that we should come up with a new definition of justice, wherein vulnerability would be prioritized, more than anything else. In this framework, the most vulnerable countries’ interests

would be served first, making climate policy relatively simpler. ‘Islands, for instance’, he reminded me, ‘they will be suffering from fresh water problems very soon’. In fabricating climate policy, this understanding of justice would perhaps serve as a useful principle to keep in mind.

the author

Gökçe Günel is a PhD candidate in Anthropology at Cornell University. She is currently completing her dissertation on the production of renewable energy and clean technology infrastructures in Abu Dhabi, United Arab Emirates, specifically by focusing on the UAE’s flagship company Masdar. In the 2012-2013 academic year, she will hold the position of Cultures of Energy Postdoctoral Fellow at Rice University.

E-mail: gg268@cornell.edu



Durban's conference of polluters, market failure and critic failure

Patrick Bond

abstract

The United Nations climate negotiations have failed to address what scientists agree is the world's greatest-ever threat to the human species and much other life on Earth. In Durban, South Africa, the December 2011 summit yet again turned to failing market mechanisms to address emissions cuts, without advancing beyond unambitious 2009 Copenhagen Conference of the Parties targets. As a banker remarked, the Durban deal was like 'a Viagra shot for the flailing carbon markets', but a commentator rebuffed, 'The problem with Viagra, of course, is that it only lasts for a couple of hours'. Carbon markets continued to fall for weeks after the COP17. Tragically, state delegations from the most adversely affected areas failed to speak up when it became apparent no climate-saving deal was possible (as had happened in Seattle and Cancun against harmful trade deals, thus slowing multilateral neoliberalism). And those in civil society observing the planned 'genocide' and 'ecocide', as Durban was appropriately described by the former Bolivian ambassador to the UN, were themselves (ourselves) implicated in the overall failure, insofar as inadequate analysis, strategies and tactics characterized both local and international climate activism. Only regroupment at the scales of national and subnational governments (for regulatory advocacy) and direct action against greenhouse gas emitters – as, after all, the climate justice movement has been pursuing for several years – offer better prospects for transforming the present market, state and social failures into system-wide structural change.

Introduction

Inside Durban's International Convention Centre in December 2011, world elites continued their do-nothing tradition at the seventeenth Conference of the Parties of the United Nations Framework Convention on Climate Change (the 'COP17'). They perhaps don't even realize the extraordinary damage being done through multilateral climate malgovernance, for two months later, in his State of the Nation speech to the parliament in Cape Town, South African president Jacob Zuma (2012) declared, 'Let me take this opportunity to congratulate the inter-ministerial committee on COP17 for making the conference a huge success. The final outcome of COP17 was historic and precedent setting, ranking with the 1997 conference where the Kyoto Protocol was adopted.'

In spite of the backslapping, it was obvious who won at Durban's climate summit. According to the *New York Times*, a top aide to chief US State Department negotiator Todd Stern remarked at the 2012 World Economic Forum in Switzerland that 'the

Durban platform was promising because of what it did not say'. After all, revealed Trevor Houser, 'There is no mention of historic responsibility or per capita emissions. There is no mention of economic development as the priority for developing countries. There is no mention of a difference between developed and developing country action' (Broder 2012).

But neither did civil society respond adequately, in effectively delegitimizing the COP17 as it happened. A few tried. Argued Bolivia's former UN ambassador Pablo Solon (2011), 'The COP17 will be remembered as a place of premeditated genocide and ecocide.' Reiterated Tom Goldtooth of the Indigenous Environmental Network, Durban offered the world 'climate racism, ecocide, and genocide of an unprecedented scale' (Petermann 2012). Added Friends of the Earth International's South Africa chapter groundWork (2012), the COP was a 'pitstop in the fossil fuel journey to global destruction.'

But as argued in this (auto)critical review of the main power dynamics and divergent strategies adopted by negotiators and their opponents (and also allies) in the environmental, community, labour and feminist movements, the overall impact of COP17 was highly deleterious for global-scale progress, leaving local and national scales even more important as sites of struggle for climate justice. However, in the process, African elites were drawn even further into a neoliberal climate policy framework and a project funding strategy based on financial markets that will mainly enrich speculators and impoverish the continent's poorest people. With more than 150 million additional deaths anticipated on the continent in the 21st century due to climate change, Africa will be 'cooked', as Nnimmo Bassey (2011) of the Niger Delta NGO Environmental Rights Action puts it in a new book. According to UN Intergovernmental Panel on Climate Change director R.K. Pachauri (2007), 'crop net revenues could fall by as much as 90 percent by 2100.' Climate damage to Africa will include much more rapid desertification, more floods and droughts, worse water shortages, increased starvation, floods of climate refugees jamming shanty-packed megalopolises, and the spread of malarial and other diseases. The danger is imminent, for eight of the twenty countries which the Center for Global Development expects to be most adversely affected by extreme weather events by 2015 are African: Djibouti, Kenya, Somalia, Mozambique, Ethiopia, Madagascar, Zambia and Zimbabwe. In the Horn of Africa, those affected by 2015 by these storms or droughts are anticipated to include 14 percent of Djiboutis, 8 percent of Kenyans, 5 percent of Ethiopians, and 4 percent of Somalis (Wheeler, 2011: 15).

In 2009, former UN secretary general Kofi Annan's Global Humanitarian Forum (2009: 9-11) issued a report worth citing at length, as it reflects at least a degree of elite awareness of the extent of the challenge. *The Anatomy of a Silent Crisis* provided startling estimates of damages already being experienced:

An estimated 325 million people are seriously affected by climate change every year. This estimate is derived by attributing a 40 percent proportion of the increase in the number of weather-related disasters from 1980 to current to climate change and a 4 percent proportion of the total seriously affected by environmental degradation based on negative health outcomes... Application of this proportion projects that *more than 300,000 die due to climate change every year* – roughly equivalent to having an Indian Ocean tsunami annually. The number of deaths from weather-

related disasters and gradual environmental degradation due to climate change – about 315,000 deaths per year – is based on a similar calculation... Over 90 percent of the death toll relates to gradual onset of climate change which means deterioration in environmental quality, such as reduction in arable land, desertification and sea level rise, associated with climate change.

Market 'solutions'

What can be done to prevent this? The climate justice movement's answer – drawing upon April 2010 Cochabamba, Bolivia conference declarations – includes not only the dramatic emissions cuts required to reverse the damage but also the decommissioning of carbon markets. This would also entail their replacement with a suitable climate debt payment system that directly channels resources to climate victims without corrupt aid-agency and middlemen or venal state elites (such as a basic income grant) (Bond 2012).

Instead, those who followed the COP17 heard that the solution to climate crisis must centre on markets, in order to 'price pollution' and simultaneously cut the costs associated with mitigating greenhouse gases. Moreover, say proponents, these markets are vital for funding not only innovative carbon-cutting projects in Africa, but also for supplying a future guaranteed revenue stream to the Green Climate Fund (GCF), whose design team co-chair, Trevor Manuel (South Africa's Planning Minister), argued as early as November 2010 that up to half GCF revenues would logically flow from carbon markets.

The European Emissions Trading Scheme (ETS) is the main site of carbon trading, following a failed attempt at a carbon tax due to intensive lobbying from resistant companies. Clean Development Mechanism (CDM) projects were created to allow wealthier countries classified as 'industrialized' – or Annex 1 – to engage in emissions reductions initiatives in poor and middle-income countries, as a way of eliding direct emissions reductions. The use of such 'market solutions to market problems' will, supporters argue, lower the business costs of transitioning to a post-carbon world. After a cap is placed on total emissions, the idea is that high-polluting corporations and governments can buy ever more costly carbon permits from those polluters who don't need so many, or from those willing to part with the permits for a higher price than the profits they make in high-pollution production, energy-generation, agriculture, consumption, disposal or transport.

But not only was the Durban COP17 utterly useless for making the vital greenhouse gas emissions cuts of 50 percent by 2020, for ensuring the North's climate debt to the South covers damages under a 'polluter pays' logic, or for establishing a transition path to a post-carbon society and economy. Even within the very limited, flawed strategy of carbon markets, there were mixed outcomes from the Durban COP17. To be sure, the markets were affirmed. South African National Business Initiative CEO Joanne Yawitch – who was a member of Pretoria's negotiations team and formerly the second-ranking climate policy bureaucrat – remarked that 'the most important' of Durban's outcomes is securing Kyoto's 'second commitment period and the carbon market' (Blaine 2011). However, as South African writer Andy Mason (2012) wryly observed, 'According to Aabyd Karmali of the Bank of America in London, the Durban deal was

like “a Viagra shot for the flailing carbon markets”. The problem with Viagra, of course, is that it only lasts for a couple of hours.’

Notwithstanding Manuel's efforts to bring emissions trading into the GCF, where it does not belong, and in spite of the United Nations CDM Executive Board's decision to allow ‘Carbon Capture and Storage’ experiments to qualify for funding, the most profound flaws in the existing market were not addressed. Without an ever-lowering cap on emissions, the incentive to increase prices and raise trading volumes disappears. Worse, in this context of economic stagnation, financial volatility and shrinking demand for emissions reduction credits, the world faces increasing sources of carbon credit supply in an already glutted market. And fraud continues, including in Durban's own celebrated pilot CDM project, the Bisasar Road landfill which converts dangerous methane emissions into electricity, as noted below.

As carbon market specialist Payal Parekh (2012) concluded of Durban's COP17,

Since there is now a second commitment period under the Kyoto Protocol, the CDM is still alive. The problem is that there are still no targets in the second commitment period; Japan, Russia, Canada and USA will not be participating, while Australia and New Zealand are mulling over participation. Given the current low price of the carbon credits coupled with economic downturn in Europe, there is unlikely to be a demand or need for carbon credits. According to the International Emissions Trading Association the Durban outcome did nothing to increase demand for carbon markets, the key issue in their view... The EU would like to have a new market-based mechanism designed under the auspices of the COP to ensure a harmonized global market. Since the EU has also banned the use of CDM credits from projects registered after 2012 in non-LDC countries (projects in non-LDCs that have their crediting period renewed post-2012 remain eligible), it would prefer a new market mechanism under the UNFCCC rather than having to make bilateral agreements with a number of countries... Rather than strengthen commitments to reduce greenhouse gas emissions, the carbon markets are being used to further weaken action on climate change. Given that pledges are so weak, it is quite incomprehensible why developed countries are even putting so much energy into expanding markets, instead of increasing ambition by committing to deeper emission reduction targets and closing accounting loopholes.

In sum, Durban left the world's stuttering carbon markets without a renewed framework for a global emissions trading scheme. Durban left the Kyoto Protocol applicable to only 14 percent of world greenhouse gas emissions, given Canada's retreat within 24 hours of the summit's close. Solon (2011) scolded Durban for turning Kyoto into a ‘Zombie, a soulless undead’. The 1997 treaty's soul was a commitment that emissions cuts would be binding, but several of the richest polluting countries – the US, Canada, Japan, Russia, Australia and New Zealand – won't sign on the second commitment period, and the main gist of the Durban Platform is to delay a potential write-off of Kyoto (likely in Qatar), with the prospect of turning the Copenhagen Accord, or something like it, into a new protocol by 2015. To sabotage Kyoto, Washington continues its voluntary ‘pledge and review’ policy pantomime. Kyoto's original brain contained a species survival mechanism: a pledge to keep the earth's temperature at a livable level. Now, the Durban Platform contains ‘less than half of the necessary cuts to keep the temperature increase below 2°C,’ according to Solon. Then, as the soul-deprived, brain-dead, heartless climate-policy Zombie stumbled off the Durban Platform last week in the direction of Qatar for the COP18 next year, it immediately tripped on the crumpled carbon markets.

Carbon market failure

Emissions trading can be expected to die completely if Qatar's COP18 does not generate more commitments to legally-binding emissions cuts. And judging by Washington's threat, it won't be until 2020 – the COP26 – that the United States will review its own targets: the Copenhagen Accord's meaningless 3 percent cuts offered from 1990-2020. By then it will be too late, because the Kyoto Protocol's mistaken reliance on financial markets means that the period 1997-2011 will be seen as the lost years of inaction and misguided financial quackery – when the world urgently needs the period going forward from 2012 to be defined as an era that humanity took charge of its future and ensured planetary survival.

There are no prospects that the European Union's Emissions Trading Scheme will turn around in the near future, and only a few minor national and subnational trading experiments appear on the horizon. Only the \$100 million World Bank-European Union 'Partnership for Market Readiness' continues the myth that markets are an appropriate strategy, through grants to gullible officials in Chile, China, Colombia, Costa Rica, Indonesia, Mexico, Thailand, Turkey and Ukraine. As even the pro-trading Point Carbon news service (Twidale, 2011) remarked just after the Durban COP17 ended,

such initiatives are essential to ensure new markets get off the drawing board because a nervous private sector has little appetite to invest in new programmes without further political guarantees that someone will buy the resulting credits... the so-called Durban Platform has done little to boost demand by getting countries to further cut emissions, meaning profits for investors will be slim... while a lot of the focus of the last fortnight of UN meetings was on supply of carbon credits, not one country deepened its carbon target, leaving international carbon offset prices languishing at near record lows – something unlikely to entice investors.

Confirmed Reuters (2011) news service,

Carbon markets are still on life support after [the COP17] put off some big decisions until next year and failed to deliver any hope for a needed boost in carbon permit demand... Many traders and analysts said the agreement will do little for carbon prices which are at record lows, as the two main EU and UN-backed markets are stricken by flagging investments, an oversupply of emissions permits and worries about an economic slowdown. 'It's a sedative situation, in which a sick market needs a cure and instead of deciding which cure to use, the doctors keep using pain relief to gain more time to make the final prognosis,' said AitherCO₂ carbon trader Jacopo Visetti.

The EU system was meant to generate a cap on emissions and a steady 1.74 percent annual reduction, but the speculative character of carbon markets gave perverse incentives to stockpile credits, since large corporations as well as governments like Russia (with 'hot air' excess emissions capacity subsequent to their 1990s manufacturing collapse) gambled that the price would increase from low levels to doubled or trebled prices (as promoters continually predicted). Instead, now, with the market collapsing, the next perverse incentive is to flood the market so as to at least get some return rather than none at all when eventually the markets are decommissioned, as happened to the Chicago climate exchange. Those who held shares in the Chicago exchange subsequently sued the high-profile founder, Richard Sandor, for misrepresenting the value of their assets – a strategy that could repeat across the world given the prolific false claims associated with carbon markets.

As a result, no investor believes there is any money to be made by utilizing carbon markets to direct climate-conscious investments. A month after Durban's denouement, it was evident to the French bank Societe Generale that 'European carbon permits may fall close to zero should regulators fail to set tight enough limits in the market after 2020' – and without much prospect of that, the bank lowered its 2012 forecasts by 28 percent (Airlie and Carr, 2012). The 54 percent crash for December 2012 carbon futures sent the price to a record low, just over €6.3/tonne. Worse, an additional oversupply of 879 million tons was anticipated for the period 2008-2020, partly as a result of a huge inflow of UN offsets: an estimated 1.75 billion tonnes. This glutting problem is not only due to the demand deficit thanks to the COP17 negotiators' failure to mandate emissions cuts, but is also in part due to the lax system the UN appears to have adopted. All manner of inappropriate projects appear to be gaining approval, especially in Africa, and even in a site – Durban's Bisasar Road – where there was such intense eco-social contestation that even the World Bank dropped its support.



Photo Credit: Tamra Gilbertson, Carbon Trade Watch, Durban, South Africa, 3 December 2011

Another problem, in the wake of Durban, is that many credits issued by middle-income countries are destined to become 'junk assets' with national governments writing them off by 2013. After assessing UN Data, Bloomberg (2011) news noted both the glut in the market as well as the consequences for 'phased' out stocks: 'A UN program that encourages reductions in greenhouse gases awarded almost twice as many credits this year as in 2010 for projects that destroy industrial gases known as HFC-23 and nitrous oxide...With Europe set to stop recognizing some credits in little more than a year, investors are 'racing to beat' the ban'.

To be sure, the fact that the Kyoto Protocol was nominally extended a few years means that CDMs will continue to be traded, even though from 2007 to 2010 the volume of activity fell by 80 percent. Jonathan Grant, director of carbon markets and climate policy at PricewaterhouseCoopers stated: 'Thanks to Durban, the CDM will live to see another day, but demand for credits for these projects is lackluster. Carbon markets are expected to stay in the doldrums, because of oversupply in the (European carbon) market as a result of the recession' (Reuters, 2011). According to Barclays Capital's lead carbon researcher, Trevor Sikorski, there are vast surpluses of credits – at least a billion carbon credits – and hence 'Supply is still the fundamental problem' (Reuters, 2011). That problem will be exacerbated by pressure on the voluntary markets from new Reducing Emissions through Deforestation and Forest Degradation (REDD) offsets as well as by the UN Executive Board's decision to include Carbon Capture and Storage experimentation in CDMs.

Climate negotiators should have known that carbon trading was a charade that would do nothing to reduce global warming. What was an incentive scheme meant to provide stability and security to clean energy investors had become the opposite. A low and indeed collapsing carbon price – futures at around €4/tonne in mid-December 2011, down from a peak seven times higher six years earlier – was useless for stimulating the kind of investment in alternatives needed: for example, an estimated €50/tonne (at minimum) is required to activate private sector investments in 'carbon capture and storage', the as-yet-non-existent (and extremely dangerous) technology by which coal-fired power stations could, theoretically, bury liquefied carbon emitted during power generation. Substantial solar, tidal and wind investments would cost much more yet. The extreme volatility associated with emissions trading so far makes it abundantly clear that market forces cannot be expected to discipline polluters.

The only real winners in emissions markets have been speculators, financiers, consultants (including some in the NGO scene) and energy sector hucksters who made billions of dollars in profits on the sale of notional emissions reduction credits. As the air itself became privatized and commodified, poor communities across the world suffered and resources and energy were diverted away from real solutions. But one of the most powerful set of critiques came from the inside: internal contradictions which created a tendency to repeatedly crash the market and prevent it from carrying out actual emissions reductions.

Some of these crashes are a function of blatant corruption, such as the Hungarian government's resale of carbon credits, which when exposed in 2010, drove the price of a ton down from €12 to €1 and crashed two emissions exchanges (Pointcarbon, 2010). In December 2010, even the ordinarily pro-trading World Wide Fund for Nature and Öko-Institut (2010) attacked steel producers ThyssenKrupp and Salzgitter as fraudulent carbon profiteers, demanding that 'the EU put a halt to the use of fake offsets'. In late January 2011, the EU ETS was suspended for more than two weeks due to theft of emissions reductions credits from the Austrian and Czech governments, with some of the better-functioning market regulators – e.g. Finland and Sweden – requiring a full two months before resuming operations (EULib.com 2010).

To underline the market's fragility and vulnerability to fraud, the country that has been the biggest supplier of emissions reductions credits, Ukraine, was suspended by the United Nations from carbon trading in August 2011. The move blocked delivery of more than 78 million units from carbon-reduction projects through 2011, because according to the ICIS Heron (2011) consultancy, Ukraine's government 'under-reported its greenhouse gas emissions. Experts advising the enforcement branch said Ukraine had failed to act on earlier warnings and it was in non-compliance. The Ukraine argues that many of its actions have stalled due to lack of funding since the recession.'

By that time, it was obvious that emissions markets were in crisis, as Oscar Reyes (2011: 211) explained:

Trading has become ever more concentrated around the EU ETS, which could well see carbon permit prices drop to zero if the 27-country bloc adopts stricter guidelines on energy efficiency. Overall carbon trading volumes were lower in 2010 than in the previous year. The CDM, the carbon offsetting scheme at the heart of the Kyoto Protocol, has declined for four years running, with fewer credits purchased from new projects than at any time since the Protocol came into force in 2005. The price of CDM credits continues to fall, and they are now 'the world's worst performing commodity.'

These flaws did not prevent the new 'sectoral markets' from being proposed for Durban. For governments from the EU, Japan, Australia and Canada – those advanced economies meant to reduce emissions most under Kyoto but which largely failed to do so – the ideal outcome of Durban would be retention of the Kyoto Protocol's carbon trading mechanism without its emissions-reduction targets. But without the US taking a lead on promoting carbon trading in its vast financial markets, the other major emitters would not do so. With the resurgence of Congressional climate deniers in 2010, the US elite debate over the optimal technical fix to climate change ended, apart from in California where it was delayed by community activists who argued the state's Air Resources Board had not considered other (non-trading) options to comply with state climate legislation.

Rogue pilots and self-destructive sequestration

Durban is an important guinea pig, not only for hosting the COP17, but for initiating SA's lead CDM pilot, the Bisasar Road landfill. There, methane from rotting rubbish is converted to electricity and fed back into the municipal grid. The CDM was set up illegally because it fails the crucial test of its validity for raising international funding, 'additionality'. It was always assumed that the R100 (\$14) million estimated cost of the project would not be justified by the small amount of electricity fed into Durban's municipal supply, and hence that financing would have to come from external sources. But Durban officials now concede that the Bisasar Road methane-electricity project would have gone ahead without the external credits.

After helping set it up, the World Bank refused in August 2005 to take part in marketing or purchasing Bisasar Road emissions credits. The reason was growing awareness of Durban's notorious environmental racism, via activism and an environmental impact assessment challenge. In March 2005, just as the Kyoto Protocol came into force, a *Washington Post* front-page story revealed how community organizer Sajida Khan

suffered cancer from Bisasar Road's toxic legacy (Vidanter, 2005: 1). Back in 1980, the landfill – Africa's largest – was plopped in the middle of Durban's Clare Estate suburb, across the road from Khan's house, thanks to apartheid insensitivity. Instead of honoring African National Congress politicians' promises to close the dump in 1994, the municipality kept it open when \$15 million in emissions financing was dangled. After Khan died in mid-2007 after her second bout with cancer – which she believed was landfill-induced – Clare Estate civic pressure to close Bisasar subsided and Durban began raising €14/tonne for the project from private investors (Bond, 2010).

In late 2011, an *Africa Report* investigation by Khadija Sharife (Centre for Civil Society, CCS 2012) unveiled Bisasar Road's CDM proposal as a scam. The crucial factor in raising funds, according to Durban officials, is that 'Landfill gas offers a viable renewable energy source only when linked to carbon finance or CDM.' Based on the assumption that without outside funds, the project could not be justified, in 2006 the United Nations listed Bisasar Road as an active supplier of CDM credits through at least 2014. On an official tour of Bisasar, journalists from *Africa Report* and San Francisco-based *Pacifica News* interviewed Durban Solid Waste manager John Parkin, who admitted, 'We started the project prior to the CDM. We were already down the road. It just made it come faster because the funding was there.' Sharife interprets:

It is questionable as to whether the project should have been approved as a CDM initiative at all, as approval requires the existence of 'additionality'. According to the UN, 'Additionality is the cornerstone of any credible CDM project, basically answering the question whether a project is additional, or would it proceed anyway, without the CDM.' That is, without qualification as an additionality, the CDM shouldn't be approved. (CCS, 2012)

Parkin confirmed to the journalists,

We already started the project and we were going ahead no matter what. So whether CDM became a reality or not, the project was going to go ahead. We don't have a partner to buy them at the moment. But we'll probably get €8 to €9 if we're lucky. As the City, if we can make some money out of it, I don't see why it shouldn't be done and the whole moral issue is separate from the project. The project is successful. The moral issue, I have no influence on that – as a technocrat, I do my job. (CCS, 2012)

Similar controversy surrounds the Reduced Emissions from Deforestation and forest Degradation programme. In theory, REDD sells investors forest protection. But at Cancún, notwithstanding disagreements in civil society, it was seen as a boon to voracious commercial forestry and a danger to indigenous peoples, given that proper safeguards were not adopted in Cancún. And everyone from EU climate commissioner Connie Hedegaard (a Danish conservative who hosted the 2009 Copenhagen summit) to Greenpeace warned that REDD could wreck fragile carbon markets, not only due to socio-ecological forest controversies but because a fresh glut of credits would again crash the price (Lang, 2009). As Hedegaard put it, REDD 'could undermine the entire carbon market' (Cheam, 2010). Likewise, an emerging idea (mainly promoted by the World Bank) that soil-related carbon sequestration should be rewarded with carbon credits would also flood world markets at a time of both oversupply and receding demand.



Photo Credit: Tamra Gilbertson, Carbon Trade Watch, Durban, South Africa, 3 December 2011

In short, the return of market mania to climate negotiations is a dangerous diversion from a daunting reality: the US, China, South Africa and most other big emitters want to avoid making the binding commitments required to limit the planet's 2000's temperature rise, ideally below the 1.5°C that scientists insist upon. Naturally the (binding) Kyoto Protocol is a threat to the main emitting countries, which have been working hard since early 2010 to replace it with the voluntary, loophole-ridden Copenhagen Accord. This is the easiest way to understand the procrastination and lack of ambition in the December 2011 Durban Platform.

And naturally, the North's failure to account for its vast 'climate debt' continues. To illustrate, Pakistan suffered \$50 billion in climate-related flood damage alone in 2010, yet the total on offer from the North to the whole world was just \$30 billion for 2010-12, according to promises made in Copenhagen. By the time of the Durban COP17, there was no realistic chance that \$30 billion in North-South flows would actually be delivered.

The case for decarbonizing South Africa

It is revealing to explore the host country's carbon-addiction in light of the COP17. Had it been serious about changing course, the South African government had many opportunities to make shifts in policy and projects:

- Halt the \$40 billion worth of coal-fired electricity generators being built by Eskom at Medupi and Kusile (the third and fourth largest in the world) and instead redirect the electricity wasted by the single biggest consumer, BHP

Billiton, which receives the world's cheapest power thanks to apartheid-era deals;

- Shut the world's single largest CO₂ emissions source, Sasol's Secunda plant which makes oil from coal and gas;
- Reverse the \$10 billion heavy oil refinery authorized for construction at Coega, north of Port Elizabeth;
- Deny approval to 40 proposed new coal mines in Mpumalanga, Limpopo and KwaZulu-Natal provinces which are allegedly needed to supply the plants and export markets in coming years, on grounds that – just as at the Cradle of Humankind northwest of Johannesburg, which is suffering threats of debilitating acid mine drainage – these will cause permanent contamination of rivers and water tables, increased mercury residues and global warming;
- Open state-owned renewable energy facilities where the private sector is failing, as called for by the National Union of Metalworkers of South Africa; and
- Offer a Just Transition package to all affected workers, transforming their thousands of lost jobs in fossil fuel industries into employment in renewables, public transport, building refurbishment, appropriate production and disposal, reformed agriculture, healthcare and education, as demanded by labour, environmentalists and communities in the Million Climate Jobs campaign.

Aside from adverse power relations, something stands in the way: the so-called 'false solutions' to climate change promoted by financiers and their allies, especially in South Africa where carbon capture and storage and carbon trading have fascinated former environment ministers Valli Moosa and Marthinus van Schalkwyk. Led by Manuel, the Durban COP17 advanced these approaches, to the detriment of a genuine strategy, with carbon capture and storage now approved as a CDM investment.

For South African elites, with the exception of housing minister Tokyo Sexwale – 'COP17 was a missed opportunity. The agreement we got was only a procedural agreement' (Groenewald, 2012) – it was tempting to ignore the stench of failure and declare Durban 'an outstanding success,' as did South African environment minister Edna Molewa (2011). 'We have significantly strengthened the international adaptation agenda', she explained about the Green Climate Fund (GCF). 'The design of the fund includes innovative mechanisms for bringing private sector and market mechanisms into play to increase the potential flow of funding into climate change responses.' In reality, there is now a GCF, but only a handful of countries made tokenistic contributions, revealing Hillary Clinton's 2009 Copenhagen pledge to find \$100 billion per year as a feint.

The hosts can be blamed because the COP17 chairperson, foreign minister Maite Nkoana-Mashabane, acted whimsically at best, or with the interests of global and domestic capitalists at worst. Those who argue her failure was based on whimsy point out that less than four months before the COP17, she revealed her commitment to the

planet by hiring a R240 000 executive jet to take her from Norway to Bulgaria when she refused to board a commercial flight which required that her handbag be whisked through the Oslo airport metal-detector, as for all such dignitaries. Such frivolity appeared again when Nkoana-Mashabane ignored applications for the Dalai Lama's visa, as far back as June 2011, so he could have attended the October celebration of Archbishop Desmond Tutu's 80th birthday party – reminding us of the same situation 30 months earlier when Beijing proudly announced Pretoria was under its thumb.

The COP17 host's self-interest was, simply, to protect the crony-capitalist 'minerals-energy complex', in which Zuma's family has been dabbling, in the process exhibiting extreme environmental irresponsibility as witnessed by a nephew's and legal advisor's destruction of the Aurora mines, its workers' wage claims and the surrounding environs. This was most explicitly revealed in the blatantly corrupt \$5 billion African National Congress (ANC) deal with Hitachi to supply boilers to the Medupi and Kusile powerplants, a multimillion rand *bonsala* for the ruling party approved by former SA Environment Minister and then-Chairman of Eskom, Valli Moosa. In that deal, SA Public Protector Lawrence Mushwana found in 2009, Moosa 'acted improperly' because he awarded the price-busting contract in blatant conflict of interest, for simultaneously he served on the ANC's finance committee.

That fact didn't bother the United Nations Framework Convention on Climate Change's carbon trading desk, which at a Bonn meeting in February 2012 offered Moosa chair of the 'High-Level Panel on the Clean Development Mechanism Policy Dialogue'. The panel's September 2012 report will almost certainly attempt to justify carbon trading, the privatization of the air, in spite of repeated European emissions-market episodes of fraud and corruption, not to mention a dramatic price crash. Moosa also sits on the boards of Sun International hotels, Anglo Platinum, Sanlam insurance and Imperial Holdings transport and tourism – all major contributors to climate change. When as SA Environment Minister in 2002, he organized the World Summit on Sustainable Development in Johannesburg, next to no mention was made of the climate, aside from carbon trading advocacy. For good measure, Moosa also chairs the World Wide Fund (WWF) for Nature's South Africa chapter, which promotes carbon trading.

As both victim and villain, South Africa is a poster-child for elite mismanagement of the climate threat. A good measure of local economic elites' addiction to fossil fuels is *carbon intensity per capita unit of output*, and South Africa has amongst the world's highest, about *twenty times higher* than even the US. An insignificant contribution to the energy grid – less than 4 per cent in 2010 – comes from South Africa's incredible renewable potential in solar, tidal and wind sources. Instead, electricity produced by burning filthy coal is cross-subsidized so it is the cheapest available anywhere in the world for two of the world's largest mining and metals corporations, BHP Billiton and Anglo American Corporation, as noted in more detail below.

Worse, these are not SA companies reinvesting in the local economy, for the main metals/mining firms export their profits both through illegal transfer pricing – a general practice costing South Africa a fifth of GDP in 2007, according to a recent study (Fine, Ashman and Newman 2011) – and through straight repatriation of dividends to shareholders in London (Anglo) and Melbourne (BHP Billiton), given the relocation of

so many megafirms' financial headquarters out of SA a decade ago. Meanwhile, SA internal consumption of their metals is constrained due to notorious local over-pricing.

At the same time, millions of poor people are regularly disconnected or denied access to the grid due to extreme poverty, affecting nearly half the country's families. Warfare is underway against municipalities and Eskom in the form of ubiquitous 'service delivery protests' whose recent root causes in high-priced electricity can be traced to climate change via the bill for Medupi/Kusile construction, controversially financed by the World Bank's largest-ever loan. The Bank claims Medupi will help the poor, once again standing reality on its head. Moreover, because of backsliding from clean electricity to dirty household energy like coal, wood or paraffin, the passage from HIV-positive to full-blown AIDS status is rapid via respiratory-related opportunistic infections, including the raging TB epidemic, especially affecting women exposed to particulates when cooking over biomass.



Photo Credit: Tamra Gilbertson, Carbon Trade Watch, Durban, South Africa, 3 December 2011

In this context, Zuma's February 2012 State of the Nation address was remarkable, for it offered no relief to poor people and the planet, and mainly expanded a to-do list of climate-destroying investments:

First, we plan to develop and integrate rail, road and water infrastructure, centered on two main areas in Limpopo: the Waterberg in the western part of the province [where Medupi is located] and Steelpoort in the eastern part. These efforts are intended to unlock the enormous mineral belt of coal, platinum, palladium, chrome and other minerals, in order to facilitate increased mining as well as stepped-up beneficiation of minerals... Among the list of planned projects is the expansion of the iron ore export channel from 60-million tons per annum to 82-million tons per annum..., development of a new 16-million-tons-per-annum manganese export channel through the Port of

Ngqura in Nelson Mandela Bay... and expansion of the iron-ore rail line between Sishen in the Northern Cape and Saldanha Bay in the Western Cape. (Zuma, 2012)

Speaking to *CityPress* newspaper after the speech, Zuma elaborated: 'By 2014, I'd want to see the cranes, building, digging everything. I'd like to see people employed. We are looking at a new kind of city at Waterberg. That's how Johannesburg began, as a mining town' (DuPlessis and Haffajee, 2012). Set aside that Johannesburg is the world's least sustainable city, Zuma neglected to consider an alternative infrastructure strategy: simultaneously solving the country's vast national housing shortage and vast surplus of unemployed people, for building homes doesn't require cranes, but does create far more jobs per unit of capital spent. Zuma also neglected to factor in that the largest platinum mining operation, Implats, fired 17,000 workers just a week before his speech, and their only partial rehiring led to massive protests immediately after the speech, with hundreds of arrests and at least one death.

As for non-renewable resources now being drawn from South African soil with only a pittance for communities, workers and the government fiscus, Zuma protected multinational mining capital from ANC youth leader Julius Malema's populist nationalization demands by setting up a commission whose report is already drawing ridicule. Malema, who became exceptionally wealthy in recent years allegedly by influencing Limpopo Province tenders for large payouts, was predictably hostile. As he explained, the lead researcher on the ANC mining research commission, Paul Jordaan, was 'compromised' for opposing 1955 ANC Freedom Charter nationalization promises: 'Jordaan and the research team visited 13 countries and the only conclusion they could come up with are the opinions held by Comrade Paul Jordaan in 2010' (Malema, 2012).

Other critics were just as harsh. Explained University of Cape Town political scientist Anthony Butler (2012), a leading mainstream commentator, 'The document's intellectual quality is uneven. The research "methodology" involves lots of foreign travel and "stakeholder workshops". The study team also makes unacknowledged use of "less scholarly" resources, such as Wikipedia and answers.com. The credibility of the report is damaged by long passages that bear a remarkable resemblance to the work of retired North American mine-tax expert Charles McPherson'. As Butler (2012) complained, in one of many

unfathomable coincidences of word selection and arrangement (such borrowings are far too extensive to set out fully here) both [the ANC and McPherson] call for 'the explicit recognition in budgets and planning documents of the financial and fiscal costs and risks associated with state participation'. Did McPherson help draw up the ANC's report? If so, was the ANC's national executive committee aware that a former oil-industry executive, who only recently ended his career in the fiscal affairs department of the International Monetary Fund, was commissioned to contribute to its study?

Butler (2012) worries that the report still supports elements of Malema's 'phoney nationalization drive', such as transferring mineworker pension funds 'into special purpose vehicles in the service of developmental objectives. In reality, such instruments would be abused to fund corporate welfare for the politically connected.' Indeed under conditions of neoliberal nationalism, the outcome of most public policy in South Africa is inevitably crony capitalism rife with corruption. In February 2012, a 600-page ANC-initiated forensic audit into corruption in the second-largest city, Durban, revealed

massive illegalities especially in \$400 million worth of privatized housing construction contracts under the 2002-11 leadership of city manager Mike Sutcliffe. The overall problem is not housing, though, which remains an area of vast underinvestment. It is the incessant construction of white elephants and prestige projects.

These were what the former trade union leader Ebrahim Patel – now Minister of Economic Development – was reduced to celebrating, to justify the vast infrastructure investments. In his parliamentary response to Zuma, Patel (2012) remarked, 'We took account of the lessons of the 2010 World Cup infrastructure and the growing experience in the build programmes for the Gautrain, the Medupi and Kusile power stations, the Freeway improvement programme and the major airport revamps.' The lesson not to build such infrastructure would have been the logical reaction, for with one exception, the new and refurbished World Cup stadia are all losing vast sums of money on operations and maintenance. The Gautrain's speedy lifts from the Johannesburg airport to the financial district and government buildings in Pretoria are too expensive for the masses. The power stations have already raised the price of electricity by more than 150 percent, with another 25 percent increase scheduled in April 2012. The public-private highway tolling partnership with an Austrian firm is so unpopular that on March 7 the trade union movement will embark upon a strike against it, joined by the Johannesburg and Pretoria petit-bourgeoisie. The utterly unnecessary airport revamps are, again, for elites only.

Zuma's pandering to mining houses is especially revealing. As if to celebrate the state's renewed orientation to big business interests, the 'Mining Indaba' – Africa's biggest such trade fair – in Cape Town in February 2012 was capped with a keynote speech by an extreme climate-change denier, David Evans, whose 'performance' was 'well received by an audience of miners, who come from an industry that often feels the pinch of climate control in the regulation of their industries,' reported the *Mail&Guardian* (Bauer 2012). Zuma's crucial challenge, under such influences, is to continue opposing the rhetoric of an institution he co-chairs, the United Nations High-Level Panel on Global Sustainability, with Finnish president Tarja Halonen. In their summary article about eco-social and economic crises ('Seizing sustainable development') from the report *Resilient People, Resilient Planet*, they suggested a variety of neoliberal fixes ('Pollution, including carbon emissions, must no longer be free') and obvious reforms ('Price- and trade-distorting subsidies should be made transparent and phased out for fossil fuels by 2020') along with sanctimony: 'We need to place long-term thinking above short-term demands, both in the marketplace and at the polling place. Promoting fairness and inclusion is the right thing to do – and the smart thing to do for lasting prosperity and stability' (Zuma and Halonen, 2012).

These words were published on 6 February 2012, three days before his State of the Nation Address, and as that speech demonstrated, nearly everything he and the big corporates are doing in South Africa place short-term demands above long-term thinking, both in the marketplace and at the polling place, promoting unfairness and exclusion, and thus preventing lasting prosperity and stability. It's from such accumulation dynamics that South Africa has come to specialize in 'talk left, walk right' politics. Whether it is the 'Black Economic Empowerment' fronting scams, such as Hitachi and Chancellor House, or the greedy corporations' influence, the ruling party

appears addicted to unsustainable underdevelopment hyped by big-business cheerleading. Illustrating the latter was *Business Day* editor Peter Bruce (2012), who three days after the State of the Nation speech glibly commanded, 'mine more and faster and ship what we mine cheaper and faster.'

Critic failure

In these circumstances, overambitious organisers and their supporters (e.g. Bond, 2011; 2012) argued that a massive confrontation awaited the COP17. We were mistaken, having relied too heavily on Durban's radical traditions and extreme eco-social contradictions, having overestimated popular consciousness in South Africa and internationally, and having also underestimated the SA presidency's specific appeal to a Durban base – which was on display on December 8 at a City Hall meeting where, before Zuma's eyes, three critical activists (from the Democratic Left Front, Greenpeace and ActionAid) were physically assaulted by dozens of temporary municipal employees, simply for holding up posters saying 'Don't sell out Africa'. Aside from that incident, a few Greenpeace arrests and deportations during a foiled banner-hang, and the December 2 protest of around 1000 Rural Women's Assembly and Democratic Left Front activists on the road in front of the Durban Convention Centre, the performance of civil society during the COP17 was rather civilized and pedestrian (Austin-Evelyn, 2012).

Aside from (valid) gripes about conditions for long-distance community activist travelers to Durban (Sacks, 2011), the harshest auto-critique of activist impotence came from radical intellectual Ashwin Desai, author of the book that heralded the arrival of South Africa's new social movements a decade earlier, *We are the Poors* (Desai, 2002). In the wake of the main march of an estimated 8000 people on the Durban Convention Centre on December 3, Desai (interviewed by Saul, 2012) criticized 'big name spectacle NGOs' which dominated: 'The local grassroots organizations were reduced to spectators, and were allowed only the occasional cameo appearance with most often a single line; "Amandla!" [Power!]' That march, complained Desai,

delivered the Minister of International Relations, and COP17 president Maite Nkoana-Mashabane to the masses gathered below. She used the opportunity to say how important civil society was and promised to study a memorandum. She was gracious and generous. I could see the NGOs on the truck preening themselves in the glow of this recognition and probably increased funding.

Desai would be the first to confess how few Durban community activists made the effort to link climate to their most immediate, burning concerns, including rampant electricity prices due to coal-fired power plant construction; severe storms (one causing at least eight fatalities on November 27, on the eve of the COP17); and the local petrochemical industry's regular explosions, such as the Engen oil refinery fire six weeks before the COP17 began, which hospitalized 100 kids at Settlers Primary School in South Durban. For Desai, who assisted with mobilizing there immediately afterwards,

There's a litmus test. In 2001 [at the World Conference Against Racism] there was a huge march here, with some 10,000 people in the streets, a completely different march: militant, scathing of the local ruling class, with swear words on its placards. The Durban Declaration was a visceral

indictment of our ruling class as an agent of global capital and its economic policies which were deepening inequality and increasing poverty.



Photo Credit: Tamra Gilbertson, Carbon Trade Watch, Durban, South Africa, 3 December 2011

Sadly, no matter how hard South Durban Community Environmental Alliance leaders tried to organize in the weeks preceding the COP17 in the city's most radical anti-corporate protest site (where I too am a lay-member and resident), Africa's industrial armpit could not consistently deliver more than a few hundred protesters from the 300,000 victims residing in the vicinity.

The logical question, then, is whether climate change is a hopeless issue with which to motivate the South African masses? The Durban COP17 offered a sobering test about a problem I discussed four years ago (Bond, 2008):

It is tragic but understandable that South African society ranks – with the United States and China – at the bottom of a recent worldwide climate-consciousness survey by polling firm Global Scan: only 45 percent of us believe global warming is a 'serious problem'. Latin Americans polled above 80 percent, and Europeans near 70 percent, while the US's consciousness is at 48 percent and China's is at 39 percent.

It is understandable that we have been kept in the dark, because even in the midst of the worst national energy crisis in South Africa's living memory, the simple act of questioning who abuses our coal-burning power generators is off the agenda. Instead, to get a meagre conservation reduction of 40 megawatts, energy minister Buyelwa Sonjica tells us: 'Switch off all lights in the home when not in use and go to sleep early so that you can grow.'

Critics rightly call this a trivialising blame-the-victim game, whose broader aim appears to be distracting attention from those who are most to blame: the government and crony corporations like BHP Billiton.

In a presentation he delivered to big business on January 21, Eskom CEO Jacob Maroga bragged that at US\$0.03 per kilowatt hour (kWh) for industrial customers after 2007 increases, his prices still remained competitive. That's the understatement of the year, given that US electricity is three times and Danish electricity eight times more expensive than what the average firm here pays.

South African households pay more than double the industrial rate; with BHP Billiton trying to take over Rio Tinto, which is taking over Alcan, Eskom's smelter incentive at Coega will offer even cheaper power, less than \$0.02 per kWh.

So it is not surprising – though something of a secret from the public – that measured by carbon dioxide emissions per unit of per-person economic output, South Africa emits 20 times more carbon dioxide than that Great Climate Satan, the US.

Although most electricity consumers, the service industries, manufacturers and some gold mines have taken a hit, it appears that the foreign-owned electricity-guzzling aluminium smelters have been untouched by the crisis. According to business journalist Mathabo le Roux: 'For the duration of the power cuts, BHP Billiton's Bayside, Hillside and Mozal smelters received their full electricity complement – a formidable 2500MW.'

The smelters' consumption of electricity is hedonistic; their metals prices are 10 percent higher for local consumers than for international markets; they employ only a few hundred workers; their profit streams go to Melbourne; and their employees have, in the past decade, included former finance minister Derek Keys, former Eskom treasurer Mick Davis, and former national electricity regulator Xolani Mkhwanazi.

In four subsequent years of organizing for energy justice, there appears to be no progress on redistributing electricity from BHP Billiton to poor people; indeed, the reverse since low-income residents will suffer a 500 percent price increase from 2008-14 while BHP Billiton retains its late 1980s deals at what local industry expert Chris Yelland (2012) calls 'extraordinarily low prices':

In essence, the price of electricity supplied in terms these special deals would not be determined by Eskom on a transparent, cost-reflective basis, but through a secret formula based on a number of fluctuating variables that are independent of the cost of electricity generation in South Africa, such as the aluminium commodity price on the London Metals Exchange, the US dollar / SA rand exchange rate, and the US PPI inflation rate...

Eskom's electricity prices have risen sharply in response to the new-build programme and increasing capital, primary energy and staff costs. Average annual Eskom price increases of 27%, 31%, 25% and 25% in the years 2008 to 2011, and further increases of 25% per annum for the next three years from 2012 to 2014, indicate an average Eskom price increase of five times over the seven year period from 2008 to 2014. The recently published, policy-adjusted, 20-year, national Integrated Resource Plan for electricity, IRP 2010 – 2030, indicates that further price increases significantly above the inflation rate can be expected for the years 2015 to 2021...

But these massive price increases do not apply to a select few with long-term, commodity-linked pricing agreements with Eskom, and in particular, to BHP Billiton. Despite threats by Eskom to sue the DA, it was revealed in parliament in April 2010 that Motraco, the electricity transmission company owned by Eskom that supplies electricity to BHP Billiton's Mozal aluminium smelter, was paying some R0,12 per kWh for its electricity – significantly below Eskom's operating cost of R0,28 per kWh for the year ending 31 March 2010, while the average price being charged by Eskom to its customers in that year was about R0,32 per kWh. Yet, with Eskom's current average selling electricity price now at about R0,50 per kWh, the price being paid by BHP Billiton for electricity remains a secret, and the special pricing deal for its Hillside aluminium smelter only expires in 2028!...

Some questions the public would like to know the answers to include:

- Why are the details of the commodity-linked electricity deals with a select few kept secret, while all other domestic, commercial, agricultural, industrial and mining customers pay transparent tariffs that are openly published?
- Why should a foreign company get electricity at below cost, while local customers face massive increases that effectively subsidise the losses Eskom incurs on the secret deals?
- Why should thousands of GWh of locally produced electricity be sold below cost for export by a foreign-owned company in the form of aluminium ingots, while security of supply in South Africa is threatened and local industry is starved of electricity?
- Does it really add value to the South African economy when bauxite is mined and refined to alumina elsewhere, then shipped to South Africa with the specific intent to take advantage of subsidized electricity purchased at below cost to convert alumina into aluminium ingots for export?
- Does aluminium production in this way really contribute to jobs in South Africa, when staffing at the smelters is relatively low, and there are no upstream and few downstream value-adding activities?

Unfortunately, though, these are questions asked by a tiny South African 'public' with access to the very few periodicals (e.g. Business Day newspaper) where the matter of pricing is occasionally discussed, and even there it is nearly impossible to identify *climate* linkages between excessive price increases to build more generation capacity (mainly for BHP Billiton's benefit) and Eskom's construction of the world's third and fourth largest *coal-fired* power plants at a time renewable energy is severely underfunded.

On the other hand, there has probably been slight progress on climate awareness amongst ordinary people, although this is subjective since the last global comparative poll taken that included South Africa was in 2008. That poll showed only 47 percent believing that climate change is a 'very serious' problem and another 19 percent believing it is 'somewhat serious' (in combination the second-lowest of the 16 countries surveyed, lagging only Pakistan). This was a slight change from 2006 when, respectively, 44 and 28 percent answered 'very serious' and 'somewhat serious' question (Council on Foreign Relations, 2011).

The raised consciousness required to make dramatic shifts in public policy – such as the 1999-2004 period during which the Treatment Action Campaign defeated President Thabo Mbeki's denial of AIDS medicines to the 5.5 million HIV-positive South Africans – is not yet at the critical mass required when it comes to climate. However, from Cape Town's Alternative Information and Development Centre (AIDC), Thembeka Majali (2012) rebuts this pessimism about popular consciousness by deploying a narrative that was popular in activist circuits during COP17:

People know what climate change is as they relate with that on their daily struggles and they know how to adapt to climate change – droughts, floods that are displacing people [who] migrate to other parts of the continent, unproductive agricultural land and fishing, etc – but they understand that recently this became too much and that they need government intervention for their livelihoods and they now understand this is a threat to human life.

Still, such demands – when made rarely by activists in the major cities (and very rarely elsewhere) – consistently fall on deaf ears. Instead, for Desai (in Saul, 2012), organizing against the COP17 had this depressing result: ‘civil society as meticulously controlled spectacle, reducing people to choreographed cheerleaders, acting as an accomplice to power.’ Bobby Peek (2012) of the leading radical NGO groundWork (SA’s Friends of the Earth chapter) agreed that the timing was all wrong:

... are we going to continue chasing the agenda and dates set by the presently powerful? In the Dirty Energy Week before the COP which we organized with various comradely organizations, it was abundantly clear that trying to engage with the COP agendas and forums in a powerful way needs strong global and local organising that is done much in advance. Not one year, but rather years in advance. And not done in the halls of the prep-coms etc (we have to have some of our comrades there gathering intelligence so we can expose the psychopaths) but by engaging in real struggles on the ground and then working with these struggles to build an effective resistance. It was interesting that in groundWork’s first meeting with community people in January 2012, there was very little mention about climate change but lots about oil refineries, toxic waste, mining, Eskom and electricity. It was strange – as if COP never happened. People deal with real struggles, and the COPS/Rio etc do not have real agenda’s. On the issue of a broad coalition, it was up to the CJ movement at the COP to build and hold an effective coalition based upon CJ principles. We tried – we were not very successful – we all need to take some of the heat for this.

Activists who supported the unifying ‘C17’ coalition of civil society – a network formed at a January 2011 meeting in Durban with representation from 80 organizations – offered all manner of excuses for the weak showing, including erratic funders. Even huge NGOs (WWF and Greenpeace) apparently contributed only staff time but no other resources, and therefore the C17 changed its policy in mid-2011 to accept South African state funding.¹ The large NGOs and others who served on the C17 committee, such as faith communities and some trade unions, held competing events to the C17’s ‘People’s Space’, at locations across town, defeating the purpose of the civil society convergence.

Remarked David le Page of the main religious-justice network, ‘I’m guessing the National Intelligence Agency doesn’t even bother to hire agents provocateur! I can see the report item: “Thanks to infighting in civil society this year, no agents were required for infiltration and disruption.”’ Yet, infighting was, perhaps, logical, for intrinsic NGO conservatism overwhelmed the C17 logistics team, according to radical cultural activist Stephen Murphy (2012), who complained of continual emails offering assistance which went unanswered:

I gave up even trying to get even the smallest tasks delegated, and turned my efforts to OccupyCOP17 and durbanclimatejustice.net – a site which, by the way, with no budget or mandate managed over a thousand more hits than the C17 website, and if you include conferenceofpolluters.com and occupycop17.org which I was also running, more than double.

1 Due, however, to chaotic procurement processes, such funding was not made available to the C17 until just before – and in once case mid-way through – the COP17, rendering large parts of some grants (e.g. from the environmental and foreign ministries and the City of Durban) useless. The C17 spent less than \$500,000 on the three main events: the December 3 march, the ‘Climate Refugee Camp’ that housed more than 1000 visitors from December 1-4, and the poorly attended ‘People’s Space’ alternative summit at the University of KwaZulu-Natal, a site chosen because officials at the preferred Durban University of Technology closer to the Convention Centre and with a working-class tradition charged \$180,000 for their facilities, nearly four times what was paid for facilities at UKZN.

Why? Because we created the space for political positioning and comment, even if we weren't ourselves making those comments.

Murphy's critique of C17 apoliticism was widely shared, given the coalition's failure to take a justice-based stand against climate change. At its main mid-2011 summit in Durban, a list of 26 demands was submitted to forge an overall political manifesto – yet, C17 facilitators somehow agreed that any member of the crowd could veto any single demand, leaving just four left over as the bland lowest-common-denominator. As an original C17 member, Rehana Dada (2012) put it, 'I would dearly have loved to have seen stronger politics and a more organized national climate justice movement but that was not C17's job.' Agreed a key environmental-justice movement intellectual, David Hallows (2012),

It is no good to blame C17 for not leading a political process that they had no mandate to lead. Politics was subordinated to unity, involving not only WWF and Greenpeace but also several of the unions and community groups and movements. This last workshop confirmed that there was and is no coherent climate politics across civil society.

Melita Steele (2012) of Greenpeace replied, during a February 2012 report-back session of 100 activists in Durban, that within C17,

there are differences with some organizations working with business and some being anti-capitalist, which led to difficulties, which meant it was difficult to do messaging. In the July 5 meeting, the political strategy subcommittee was suggested, but that was out of the original mandate and not pursued. So that should have been done. The problem was under-capacity and we were under huge pressure to deliver.

Yet, the excessive breadth of the C17 coalition was a problem that disturbed one of the core radical funders, Jos Martens (2012) of the Rosa Luxemburg Foundation (writing personally not institutionally):

We have to deeply analyse what path (if any) can be followed in the trade-off between trying to reach a broad public through a broad coalition and losing the essence/ the necessity of a much more radical message (in this case with the entrance point as climate change). *Personally, I opt for NOT going the broad coalition way. I think we make the mistake to equate a broad coalition with a) more publicity, plus b) more acceptance by the general public and moreover, c) more 'impact' on the mainstream actors/negotiators.* If a message gets too watered down it loses its essence, its political content: 'Unite against climate change' is as apolitical as the 'Do more, do more' the COP17 president Nkoana-Mashabane tried to coax the crowd to chant at the hand-over of the memoranda (the latter another strategic compromise mistake). To make a big jump: what if Gandhi had compromised on the non-violence principle for the sake of a broader coalition strategy?

What we need in my humble opinion is: *a) more radicalism preferably coupled with very militant non-violence, necessitated in the first place by the other urgency of radical change NOW, b) a clearly worked out step by step strategy on how, what and whom to tackle (a war, also a non-violent one has to be planned and prepared) and NOT let our agenda be determined by the COP, WEF, WTO etc. agenda's, c) an extremely clever, creative, deliberate and high-priority PR strategy and execution* (sometimes I think we love to remain marginal, so little we do to break out of our own small circles). (original emphasis)

From AIDC, one of the foci behind the Democratic Left Front's large presence was Brian Ashley (2012), who also complained of the

... failure to represent and build a political process appropriate and relevant to the global crisis that we face of which climate is a critical dimension. We need a report that deals with why C17 failed to develop a climate justice platform setting the frame for participation of popular movements. The excuse of having to accommodate movements that did not share this perspective lest they split and form a counter process (Greenpeace, WWF) does not wash. The vast majority of organizations participating in C17 held a strong climate justice view. We self-censored ourselves in a useless attempt at ensuring a false unity on no platform. The period leading to COP should have focused on strategy and tactics in relation to the South African government's position on climate change and on the COP. We should have focused on how we collaborate to mobilise an array of social forces and movements. In terms of what was at stake in Durban C17 should have been a facilitator of radical and militant mobilization. Compare C17 to the Brazilian process for Rio + 20 which is ambitious, anti-capitalist and political where the focus is on the challenges of the global crisis of capitalism and the multiple ways that humanity and the planet is at great risk.

In terms of the major component force that were brought to Durban: Rural Women's Assembly, Climate Jobs and the DLF there was very little support from C17 creating huge logistical challenges. C17 failed even at a logistical level. Having to manage logistical crises prevented many of us from doing the politics effectively. Yes, there were challenges in terms of funding, staffing and finalising the venue for the People's Space but they do not explain the hopeless failure to mount a political challenge to the Conference of Polluters. That is what we should have focused on.

To be sure, many activists justifiably praised six core members of the C17 committee for hard work (though 11 others went AWOL). But C17's meager impact – reflected not only in the negotiators' failure to cut emissions but in the broader movement's abject failure to generate momentum for climate justice – doesn't auger well for civil society unity in future campaigns to save the climate and SA economy from the Minerals-Energy Complex and finance ministers. In short, a sober accounting of the disastrous climate summit must also offer an autopsy of civil society counterpower, and hopefully, too, either a diagnosis for reviving that corpse or instead for rejecting contradiction-ridden unity of such breadth as to fuse carbon traders and eco-socialists, when after all, they're much better off engaged in constructive conflict.

Finally, much of critique of critic-failure above relates to the way local South Africans and especially Durban organisers prepared for protest and the alternative climate summit. But what of the Occupy COP17 inside the Durban Convention Centre as well as on a small plot of ground ('Speaker's Corner') just outside? Two autocritiques can be offered, first that these represented stunts with little local grounding, and second that even the climax of such protest – entailing 500 people engaged in disruptive changing on December 9 just outside the door of the main hall with end-of-summit deliberations underway – was tamed. First, Desai (2012) condemns Greenpeace's *modus operandi*:

You can see how the substitutionism works in tandem with the politics of spectacle so beloved of Greenpeace. If people parachute in, do their little stunt, and leave, or get deported [as did several Greenpeace activists attempting a banner hang on a nearby hotel roof] for example, then what do they understand about Durban? What do they understand about the real difficulties of organizing around climate justice? There are real tensions and challenges that people face here, as a stitch between a kind of crony capitalism and African nationalism, but also a kind of rank modernization theory; a 'why the fuck shouldn't we have these things'; 'who tells us we shouldn't have cars and TV sets?'

A hundred people were taken to the hospital after the explosion of the Engen refinery, but large swathes of that community are employed by the refineries, so they can't make the move to ask for their closure. And then the climate justice movement asks for them to be closed. What does it

mean that people have arrived here, marched and never been to the South Basin? There are 150 smoke stacks. Cancer is everywhere. Nearly every kid carries an asthma pump.

By parachuting in and substituting yourself for local struggles, you won't have a sense of any of that. The way the international NGOs conduct themselves is to adopt the same tactics and strategies everywhere. They have flattened the world and in the process our histories and traditions and our subjectivities.

Local struggles need to speak to the global struggle, but does there have to be a slavish copying? In Durban we had a call to 'Occupy City Hall' as a response to 'Occupy Wall Street'. It was very badly supported but there was a photo shoot sent across the world on the networks. No work was done on the ground to make this a popular struggle. But Durban was included as another city in the global day of action! We have become branders, lying about struggles in the most despicable of ways. While we were organizing to 'Occupy City Hall,' the most decrepit of NGOs occupied the social movements.

Second, in complaining of how the insider-disruptive Occupy COP17 protest played out, Global Justice Ecology Project activist Anne Petermann (2012) offered this critique of Greenpeace leadership from the frontline:

After two hours or so, Will Bates from 350.org explained to the group that he and others had arranged with UN security for the protest to be allowed to leave the building and continue just outside where people could carry on as long as they wished. There was vocal opposition to this suggestion. People could feel the power of being in that hallway and were unhappy with the idea of leaving. But the mostly male leadership refused to cede control.

'If you choose to stay', Kumi Naidoo, executive director of Greenpeace, warned, 'you will lose your access badge and your ability to come back into this climate COP and any future climate COPs.' The question was posed about how many people planned to stay and dozens of hands shot up. The leadership then warned that anyone who refused to leave would be debadged, handed over to South African police, and charged with trespass.

In response a young South African man stood up and spoke out. 'I am South African. This is my country. If you want to arrest anyone for trespass, you will start with me.' He then led the group in singing Shosholoza, a traditional South African folk song sung by migrant workers in the South African mines. The hallway resounded with the workers' anthem.

When the occupation still refused to budge, Naidoo, who seemed determined to control the message of the protest, said, 'Okay. I have spoken with security and this what we are going to do. We will remove our badge [he demonstrated this with a grand sweeping gesture] and hand it over to security as we walk out of the building. No one will be able to accuse us of trying to disrupt the negotiations'...

A young woman named Karuna Rana from the small island of Mauritius off the southeast coast of Africa also sat down, saying, 'I am the only young person here from Mauritius. These climate COPs have been going for seventeen years. And what have they accomplished? Nothing. My island is literally drowning and so I am sitting down to take action – for my people and for my island. Something must be done.'

At that point, Naidoo told the occupiers, 'When security taps you on the shoulder, you have to leave. We are going to be peaceful, we don't want any confrontation.' He then led a group of protesters down the hall, handing his badge to UN security. Those who remained sitting on the floor were then taken by security, one by one, down the hallway and out of the building.

As another participant (Bobby Peek) recalled to me, 'Sadly, the very many who were chanting "Save Africa" were not prepared to actually participate in the final sit-in,' nor

were African activists from outside South Africa in solidarity. And outside, there was very little awareness of this last-gasp disruption of what critics considered to be COP17's genocide planning. Durban's depleted community and environmentalist activist ranks were exhausted, and the final gavel on the summit occurred on Sunday the 11th accompanied by no further protest.

Nor can we reasonably expect more in 2012, given the lull in macro climate politics following Copenhagen. The Rio+20 Earth Summit is anticipated to take forward carbon trading (and related gimmicks such as CDMs and REDD) as part of the overall strategy of Payment for Environmental Services, and there will be resistance at a counter-summit but no major change in the balance of forces anticipated. The Occupy movement and related anti-austerity activism will probably continue to see climate justice as an allied struggle, in which different kinds of economy, transport, energy, extraction, production, consumption, disposal and financing systems will be required – and in which the threat of climate change is just one of many compelling reasons to shift the status quo. No matter how inspiring in 2011 we found Occupy, the Spanish 'Indignados', the Greek uprising, the Arab Spring's democratic anti-neoliberal wing, and so many other economic dissents, the most urgent task they face is defeating financial power over politics.

Even by December 2012, no real heightening of conflict between the 1 percent and 99 percent over global-scale climate politics will likely occur at the COP18, to be held in the repressive pro-Western regime of Qatar. The last major such event there, the 2001 World Trade Organization (WTO) ministerial – whose 'Doha Agenda' did at least offer African states an exemption from the Trade-Related Intellectual Property Rights for AIDS medicines – was the recovery round after the disrupted Seattle protest of 1999. But soon enough came the 2003 Cancun denouement, a defeat for the forces of liberalization, from which the WTO never recovered. Finding parallels between global trade politics and global climate governance is indeed appropriate, insofar as the 'deglobalization of capital' required to limit trade (and finance) and to balance economies is also a prerequisite to decarbonizing and transforming economic systems. And this entails the 'globalization of people', as shown in so many international solidaristic settings, such as the struggle for AIDS medicines which could not have been victorious against the US and South African governments, Big Pharma, the WTO and the very notion of intellectual property, were it not for allies across the world.

The downturn in mass climate consciousness (e.g. resistance to corporate 'climate denialist' propaganda) and, as Durban reflected, in global-scale activism about climate change contrasts with hopes immediately following Copenhagen by many optimists (myself included) that the spectacular failure of mainstream strategies – especially elite COP negotiations and the carbon markets – would necessarily generate space for CJ politics. It is revealing to return to a statement two years ago, by European Climate Caravan activist Olivier De Marcellus (2010):

For many of us coming back from Copenhagen full of hope and energy, it was strange to see that many people who followed the summit from afar see what happened there as catastrophic. But it has been clear for some time that 'at best' they were only going to impose their false (but highly profitable) solutions. Clear headed political analysts, like leading scientists such as James Hansen, were already saying that No Deal would be better than a Bad Deal. Finally the deal was so bad that

it was impossible to impose (the so-called Copenhagen Accord was not agreed by all parties). Appalled by our rulers' greed and total irresponsibility, many don't realise that this tragic farce – and the unified action of different grassroots networks – has opened a new political space where real solutions have a chance...

The French Revolution is generally said to have begun when part of the clergy and minor nobility deserted their respective assemblies, which had been convened by the king, to join the assembly of the commoners, the Third Estate... While the world's powers lost all credibility, fighting among themselves to grab as much CO₂ (that is to say as much production and profits) as possible, hundreds of accredited NGO delegates (our modern equivalent to the clergy of the Old Regime), and the governmental delegations of Bolivia, Venezuela and Tuvalu decided to leave the Conference in order to join the People's Assembly and discuss the real solutions. That was our best case scenario.

We never dreamed that our enemies would be so stupid as to dramatise their fear of our action: excluding hundreds of NGOs that they suspected would join us, kidnapping the demo spokespersons and 'leaders', seizing the sound truck and above all using clubs to drive back the demo of official delegates who tried to force their way out to join the Assembly. After the massive police infiltration, the dozens of arrests and the trumped up charges against Ya Basta people during the police attack on the assembly in Christiania two days before, the searches and seizures of all sorts of material (even bikes and banners !), this apparently irrational level of repression probably reflects how much power felt menaced by our project...

The critical point is that this Assembly was not a chance and fleeting moment. It marked a longer term convergence of different networks and political cultures: global networks of movements and progressive NGOs like Climate Justice Now and Our World Is Not For Sale, networks composed more of young northern activists like Climate Justice Action, the Climate Camps, old Peoples' Global Action hands, etc. Political victories aren't just about getting the better of the cops (and even less about the results of the official summit). Victories are about coming out the battle more credible and more united than before. Credible: today, hopefully the people who imagined that it would be enough to pressure our rulers into a 'good' deal, will better understand the necessity of building ourselves the solutions and imposing them through grass-roots popular power. United: since the Zapatistas called forth the anti-globalisation movement 13 years ago, there has never been such a broad alliance of organisations calling for 'system change.'

Conclusion

The global-scale strategy didn't work at Durban, either for the elites or the critics. And indeed notwithstanding what appears to be excessive hopefulness by De Marcellus (2010) in his assessment of Copenhagen, the foundational lesson is quite similar to that many of us in Durban have learned:

Spontaneously, the same proposition came out of the evaluations of CJA and CJN: organise People's Assemblies everywhere, to tackle climate change issues at the local and regional level. These could organise against local sources of CO₂ (in transport, for example) or false solutions (nuclear power, etc.), but also impose or construct directly real solutions (organising local food distribution systems). At the same time, by their links to the other assemblies, they would build a global movement... Now we all have to go home, get the word out and make it happen. Now it's clear that we can only count on ourselves. The challenge is colossal, but everywhere there are people who know that we don't have any other choice.

In short, in spite of the mishaps – many organic and many imported – associated with the excessively 'civilized society' reaction to the opportunity presented by the COP17, we should remind ourselves of the most important features of a future climate justice

politics: in thinking locally, nationally and globally, and also acting in each sphere with the appropriate analysis, strategies, tactics and alliances. The Cochabamba summit in April 2010 laid out a coherent critique and alternative to global climate malgovernance. Since climate justice movement work took on a globally-networked form at the Bali COP13 in 2007, however, the subsequent COPs in Poznan, Copenhagen, Cancun and Durban did not offer propitious conditions for a full-fledged expression of both critique and alternatives. Nor will Doha's COP18 or the COPs that follow.

And that may be the most crucial lesson of Durban's climate summit, one that South African justice activists can (possibly) agree upon: delegitimization of global capitalism's climate policy reformism, especially when reliant upon the self-destructing carbon markets, should have been the starting point for a coherent political-intellectual demolition of the COP17, and a matching activist programme. Without that in place, it makes more sense to dedicate time and energy to the national, subnational and local sources of the crisis, and return to the global scale – perhaps in 2013 or later (although time is running out) – with a formidable array of recent climate justice victories, momentum and cadres.

references

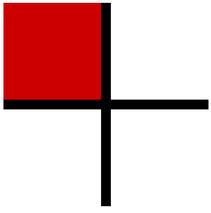
- Airlie, C. and M. Carr (2012) 'EU, UN carbon prices could fall "close to zero", SocGen says', *Bloomberg*, 17 January 2012.
- Ashley, B. (2012) 'C17 report-back: how did SA civ soc do?', 18 February, CJA!SA email listserv.
- Austin-Evelyn, K. (2012) Civil Society at the UN climate change conference: African Activism at COP17, Consultancy Africa, 2 February [http://www.consultancyafrica.com/index.php?option=com_content&view=article&id=946:civil-society-at-the-un-climate-change-conference-african-activism-at-cop17-&catid=91:rights-in-focus&Itemid=296].
- Bassey, N. (2011) *To cook a continent*. Oxford: Pambazuka Books.
- Bauer, N. (2012) 'Global warming or global domination?', *Mail&Guardian*, 7 February.
- Blaine, S. (2011) 'Durban agreement keeps SA in carbon market loop', *Business Day*, 16 December.
- Bloomberg (2011) 'Carbon credits turning 'Junk' as Ban shuts door', 7 December [<http://climate-connections.org/2011/12/07/carbon-credits-turning-junk-as-ban-shuts-door-energy-markets>].
- Bond, P. (2008) 'South Africa in the dark about global warming', *GreenLeft Weekly*, 741, 27 February. [<http://www.europe-solidaire.org/spip.php?article9392>]
- Bond, P. (2010) 'True cost of Durban's waste strategy', *The Mercury*, 2 February.
- Bond, P. (ed.) (2011) *Durban's climate gamble: Trading carbon, betting the earth*. Pretoria: University of South Africa Press.
- Bond, P. (2012) *Politics of climate justice*. Pietermaritzburg: University of KwaZulu-Natal Press.
- Broder, J. (2012) 'Signs of new life as U.N. searches for a climate accord', *New York Times*, 24 January.
- Bruce, P. (2012) 'Thick end of the wedge', *Business Day*, 13 February.
- Butler, A. (2012) 'Second-rate ANC report the result of isolated ways', *Business Day*, 10 February.
- Centre for Civil Society (CCS) (2012) 'The CDM in Africa 'can't deliver the money'', report, February [<http://ccs.ukzn.ac.za>].
- Cheam, J. (2010) 'Ministers expected to speed UN climate talks, forest deal could be delayed', *Ecobusiness.com*, 7 December [<http://www.eco-business.com/news/ministers-expected-speed-un-climate-talks-forest-d/>].
- Council on Foreign Relations (2011) 'Public opinion on global issues', New York, 30 November. [http://www.cfr.org/public_opinion].

- De Marcellus, O. (2010) 'Reclaiming power in Copenhagen: A decisive step towards a global climate justice movement', *Commoner*, 24 January [<http://www.commoner.org.uk/?p=88>].
- DuPlessis, C. and F. Haffajee (2012) 'Zuma interview: His master's loud voice', *City Press*, 12 February [<http://www.citypress.co.za/Politics/News/His-masters-loud-voice-20120211>].
- EULib.com (2011) 'Update on transitional measure: EU ETS registries of Finland, Romania, Slovenia and Sweden to resume operations on 21 March', 18 March [<http://www.eulib.com/18march-2011-update-transitional-measure-registries-13743>].
- Global Humanitarian Forum (2009) 'The human impact of climate change', New York [http://www.global-humanitarian-climate-forum.com/uploads/An___Impacts.pdf].
- Groenewald, Y. (2012) 'Tokyo on ice', *CityPress*, 26 February.
- groundWork (2012) 'The COP in Durban: a pit-stop in the fossil fuel journey to global destruction', 1 February [<http://groundworksmokestack.blogspot.com/2012/02/cop-in-durban-pit-stop-in-fossil-fuel.html>].
- Hallowes, D. (2012) 'C17 report-back: how did SA civ soc do?', 22 February, CJN!SA email listserve.
- ICIS Heron (2011) 'UN suspends Ukraine from carbon trading', 12 August [<http://www.icis.com/heren/articles/2011/08/26/9488161/un-suspends-ukraine-from-carbon-trading.html>].
- Lang, C. (2009) 'New Greenpeace report: Trading in forest carbon would crash carbon markets', *REDD-Monitor*, 1 April [<http://www.redd-monitor.org/2009/04/01/new-greenpeace-report-trading-in-forest-carbon-would-crash-carbon-markets/>].
- Le Page, D. (2012) 'C17 report-back: how did SA civ soc do?', 23 February, CJN!SA email listserve.
- Majali, T. (2012) 'C17 report-back: how did SA civ soc do?', 22 February, CJN!SA email listserve.
- Malema, J. (2012) 'Presidential address to the African National Congress Youth League Lekogtla', Johannesburg, 10 February. [<http://www.ancyl.org.za/show.php?id=8134>]
- Martens, J. (2012) 'C17 report-back: how did SA civ soc do?', 23 February, CJN!SA email listserve.
- Molewa, E. (2011) 'Department of Environmental Affairs outcomes of the international negotiations under the UN Framework Convention on Climate Change COP17 and its' Kyoto Protocol CMP7 – The Durban platform to strengthen the international climate change regime – statement by Minister Edna Molewa', Pretoria, 12 December. [<http://www.info.gov.za/speech/DynamicAction?pageid=461&sid>].
- Murphy, S. (2012) 'Many thanks to C17, and uncivil society', 27 February, CJN!SA email listserve.
- Pachauri, R.K. (2007) 'The time to act is now', *The Times of India*, 23 October [http://articles.timesofindia.indiatimes.com/2007-10-23/edit-page/27972925_1_climate-change-fourth-assessment-report-intergovernmental-panel].
- Parekh, P. (2012) 'What Durban means for carbon markets', 13 January [<http://www.climate-consulting.org/2012/01/13/what-durban-means-for-carbon-markets/>].
- Patel, E. (2012) 'Minister of Economic Development Ebrahim Patel during the State of the Nation Address debate, National Assembly, Parliament', Cape Town, 14 February [<http://www.info.gov.za/speech/DynamicAction?pageid=461&sid=25074&tid=56392>].
- Peek, B. (2012) 'C17 report-back: how did SA civ soc do?', 24 February, CJN!SA email listserve.
- Pointcarbon (2010) 'Hungary lifts lid on controversial CER deal', 14 May [<http://www.pointcarbon.com>].
- Reuters (2011) 'Carbon markets still on life support after climate deal', 13 December.
- Reyes, O. (2011) 'Zombie carbon and sectoral market mechanisms', *Capitalism Nature Socialism*, 22(4): 117-135.
- Sacks, J. (2011) 'The climate change revolution will not be funded', *Indyblog*, 9 December [<http://www.indydependent.org/2011/12/09/the-climate-change-revolution-will-not-be-funded/>].
- Saul, Q. (2011) 'Interview with Ashwin Desai', Durban, 7 December, unpublished.
- Solon, P. (2011) 'Wolpe lecture at the University of KwaZulu-Natal', Durban, 2 December [<http://ccs.ukzn.ac.za>].
- Steele, M. (2012) 'Remarks at C17 report-back', 20 February, Coastlands Hotel, Durban.
- Twidale, S. (2011) 'Durban deal delays debate on new markets', Point Carbon, 13 December.

- Vedantam, S. (2005) 'Kyoto credits system aids the rich, some say', *The Washington Post*, 12 March.
- Wheeler, D. (2011) 'Quantifying vulnerability to climate change,' Center for Global Development Working Paper 240, Washington, DC [<http://www.cgdev.org/content/publications/detail/1424759>].
- World Wide Fund for Nature (2010) 'ETS credibility at stake as industrial polluters profit yet again', 14 December [http://wwf.panda.org/fr/wwf_action_themes/politique_europeenne/?uNewsID=197955].
- Yelland, C. (2012) 'Eskom, BHP Billiton and the secret commodity-linked electricity pricing deals', a presentation to the South African National Energy Association, February, EE Publishers.
- Zuma, J. (2012) 'State of the Nation Address', Parliament of the Republic of South Africa, Cape Town, 9 February.
- Zuma, J. and T. Halonen (2012) 'Seizing sustainable development' [<http://www.project-syndicate.org/commentary/zuma1/English>].

the author

Patrick Bond is senior professor and director of the University of KwaZulu-Natal Centre for Civil Society in Durban (<http://ccs.ukzn.ac.za>) and author of *The Politics of Climate Justice: Paralysis Above, Movement Below* (Pietermaritzburg, 2012), and editor of *Durban's Climate Gamble: Trading Carbon, Betting the Earth* (Pretoria, 2011).
E-mail: bondp@mail.ngo.za



The people's climate summit in Cochabamba: A tragedy in three acts^{*}

Tadzio Mueller

Prologue

Most of the article below was written a year and a half ago, almost immediately after the end of the event described therein – the Global Conference on Climate Change and the Rights of Mother Earth – that was held in Cochabamba, Bolivia, in April of 2010, some four months after the disastrous failure of the ‘COP15’-climate summit in Copenhagen. Given that it was written only a few days after returning from Cochabamba, most of its conclusion necessarily remained speculative, as in: this or that *might* happen, alas, we don't know yet whether it will. To republish it now largely as it stood then, with a new final act, is not primarily a function of the author's laziness. Rather, it is intended to show the distance travelled since then by the global climate justice movement (such as it is), the change in strategic perspectives, its turning away from the kind of globality produced by global summits, counter or otherwise.

The situation then was rather different from the one social movements face in the world today. The slogan ‘we are the 99%’ had not yet captured the world's headlines, there was no Occupy-movement, no Arab spring, no Mediterranean summer, no American autumn. The second ‘dip’ in the double dip recession was not yet just around the corner as it is today. ‘Climate change’ had not been pushed quite as far off the political agenda as it is now and dreams of kicking off another round of Seattle-style protests around the issue still lingered in the movements. China, South Africa and Brazil had not yet been able to gloatingly remind the US and the EU of the need for ‘prudent macroeconomic policies’ in the wake of the latters’ respective downgrades by the rating agencies – the shift in global political power-relations had not yet become as obvious.

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Think, then, of this Prologue as the Chorus in a play by Shakespeare. Its function is to draw you, the reader, into the story that is about to be told, to set the stage as it were: 'A movement and a government, both alike in dignity, in fair Cochabamba, where we lay our scene'... Well, there's a bit more context to it than that. In order to understand the events of Cochabamba, we must first turn our eyes to:

Act I: The run-up

Copenhagen, Denmark, December 2009. The failure of the 'COP15' UN climate summit manages to underwhelm even the already low expectations of the emerging global climate justice movement. Once it becomes obvious that none of the major emitters, neither the US nor the EU, neither Japan nor Australia, has committed to the necessary dramatic emissions reductions, the so-called 'Copenhagen Accord' is being negotiated outside the official processes under the leadership of the United States. (And why should the major emitters reduce their emissions? In a fossil-fuel based capitalist economy, reducing emissions implies a politically unpalatable reduction of economic growth.) The Accord claims it wants to limit global warming to 2° Celsius, but in pursuit of this ambitious goal it proposes only voluntary emissions reductions, without any mechanisms for enforcing these commitments, or for penalising those countries that fail to meet their commitments.¹ It is the resistance of governments from Venezuela, Sudan and Bolivia that ultimately stops the UNFCCC (United Nations Framework Convention on Climate Change) from officially adopting the Accord. Instead, the text it is merely 'taken note of' – as is the quality of the catering at the summit. The worst-case scenario feared by many in the movements and in critical NGOs, that a bad deal might be greenwashed, thus does not come to pass. Only the politically colour-blind could see the Accord as being genuinely green. The supposedly 'last, best chance' to save the planet (Obama) thus passes, after a two-week summit during which the prospect of the disappearance of entire island states under water and the evacuation of their populations had become a new normality that people accepted without flinching.

Yet, not only to those who would prefer no climate deal at all to even a weak one, the two-week summit is far from a complete disaster. Many in the emerging global climate justice movement, especially those who from the beginning took the hope for a 'fair, ambitious and binding deal'² as pie-in-the-sky, can point to successes of their own: the demonstration on Saturday 12.12.09 was probably the single largest explicit 'climate change' demonstration ever (though its political intentions were fuzzy at best, ranging from the 'do something about climate change, please', to the traditionally anticapitalist 'shut down capitalism, now!'); over a two-week period, more than 50,000 people attended Klimaforum09, the counter-summit in Copenhagen, which produced a widely disseminated final declaration that effectively brought together the various political positions in the movement; while the last major action, Reclaim Power, expressed a new relationship between movements on the streets, NGOs and governments, between 'inside' and 'outside', in a way that augured in a new phase of global movement politics

1 Even the 2-degrees target has attracted criticism: whose survival is being prioritised?

2 Greenpeace, Avaaz and the tck,tck,tck-campaign pushed for this goal until the bitter end.

(De Marcellus, 2010). In that sense it mattered that Hugo Chavez, in his address to the UNFCCC, quoted the slogan that the movements had been articulating for weeks in their workshops and chanting in the streets: *Change the system, not the climate!*

Given the obvious failure of official climate change politics on the one hand, and the possible emergence of a new social force on the other, Bolivia's president Evo Morales lays an interesting wager. He calls for an alternative climate summit – more precisely: a 'Global Conference on Climate Change and the Rights of Mother Earth' – to gather all those progressive forces that want to develop an explicitly anticapitalist climate politics. The meeting is to take place in Cochabamba, a city made famous ten years ago in the global movements by the *Guerra del Agua*, the 'water war' that brought together rural irrigators and *campesinos*, urban factory workers, unemployed miners and *cocaleros* (coca leaf growers), who successfully overturned the contract that had privatised the municipal water system and threw the US-based multinational Bechtel out of Bolivia. Much is at stake: so far, the left's response to the failure of official climate change politics consists of little more than the usual moralising appeals and demands, but lacking sufficient social force to implement them. Put differently: it may be technically correct to say that 'capitalism' is to blame for climate change, but it doesn't help us much in light of the continued expansion of the fossil-fuel system – attempts to institute a kind of 'green capitalism' notwithstanding (Mueller and Passadakis, 2010). What might an anticapitalist climate politics look like? How can it be implemented? And maybe most importantly: by whom?

Dramatis personae

In Cochabamba, these and other questions were to be discussed by an almost unprecedented constellation of actors: not since the days of the 3rd International had progressive governments and movements been brought together on such an equal footing, outside the often stifling UN-framework and in the context of such an explicitly anticapitalist discourse.

On the one side, we get the progressive Latin American governments, some of them organised in the ALBA-bloc (Bolivarian Alliance for the Peoples of our America: Venezuela, Cuba, Bolivia, Nicaragua and Ecuador). Of these, the Bolivian is by far the one closest to social movements,³ being itself the result of an intense cycle of largely indigenous social struggles over the course of the last decade. The relevance of this lies in the fact that the movements for climate justice, even more so than other radical left movements, rely strongly on the agenda-setting, the political leadership of often indigenous 'frontline communities' (that is, of those groups who are most directly affected by climate change as well as by the so-called 'false solutions' like emissions trading or agrofuels).

But looking to the 'material basis' of the Bolivian economy, things suddenly look somewhat different. While there is much talk of *Pachamama*, of Mother Earth and its

3 Evo Morales himself hails from the, by now relatively parti-fied, *Movimiento al Socialismo* (MAS), a movement that emerged from the coca-growing communities of the Bolivian highlands. He has been in power since 2006.

rights in the run-up to and during the summit, the left-wing Latin American project is in fact grounded in a political economy that the Uruguayan intellectual Eduardo Gudynas has dubbed the 'new extractivism' (Gudynas, 2010a). To be sure, progressive governments have made significant progress in poverty reduction and have accompanied (that is, have been produced by and have furthered) genuine transformations in social force relations. What is on display in Bolivia and elsewhere in the region is a sort of neo-Keynesian *desarrollismo* (developmentalism), with strongly redistributive policies. But these welcome policies are financed by the exploitation of the very *Pachamama* whose rights are on the agenda in Cochabamba: be it the exploitation of mines (coal, lithium, copper), the construction of dams, the pumping of oil, or the expansion of hyperintensive soy-monocultures. Gudynas argues that 'the progressive governments [in Latin America] reduce economic development to economic growth, which in turn can be achieved primarily by way of the expansion of exports and increasing investments. The new extractivism is one of the central means for reaching these goals' (Gudynas, 2010b: 7).

There are thus two tensions within the Bolivian as well as the broader Bolivarian project. First, a contradiction exists between discourse and material basis (a seemingly old-fashioned, but in this case definitely appropriate distinction): flowery talk notwithstanding, the Bolivian government's capacity to effectively raise living standards within the country largely depends on high prices for natural gas and other raw materials, that is, on a fossil fuel-based, extractive economy. This hardly looks like one of the 'real solutions' so often invoked by the climate justice movement, one that would quickly deliver significant emissions reductions while at the same time beginning to overturn the social relations that produce the crisis in the first place. Second, social conflicts seem to arise almost necessarily around traditional resource extraction. Two quick examples: just days before the climate meeting in Cochabamba, the Bolivian town of San Cristobal saw the occupation of corporate offices and blockades of train lines during protests against a local silver mine. The protesters' demands? End environmental devastation and supply the local communities with water and electricity (Democracy Now, 2010). In addition, intense protests are taking place in southwest Bolivia against hydroelectric power plants that the Bolivian government plans to build together with Brazil.

This neo-extractivist model of development, as well as the need for sometimes repressively controlling the conflicts that arise around it, clearly doesn't sit very well with a conference about the rights of *Pachamama*, where the global movements are supposed to get together with progressive governments to discuss socially just solutions to the climate crisis. What to do? The Bolivian government simply decided to exclude not only these kinds of local and national questions from the conference's agenda – with the fairly ludicrous justification that local questions had no place in an international conference – but also, as a result, those groups and movements critical of the government and its developmental model. Those for whom this move is eerily reminiscent of the cynical positions taken in Copenhagen by the likes of Angela Merkel, who likes to be feted internationally as the saviour of the climate, while continuing to build coal fired power plants at home at an alarming rate, may be forgiven. The exclusion of these questions and voices from the summit led groups critical of Evo Morales and the MAS to create the alternative *mesa 18*, the '18th working group',

where the Bolivian model as well as the new extractivism were openly criticised. To complicate things further, and to briefly jump ahead in the storytelling: the problem with criticising Morales from the left is the political right, which has organised a strong separatist movement in the comparatively wealthy 'Media Luna' region in Bolivia's lowlands, which constitutes a serious challenge to the coherence of the country and the continuation of Morales' government. Thus, when two right-wing members of parliament wanted to join the participants of the mesa 18, they were denounced as fascists and expelled from the proceedings. Why? Because the anti-MAS left has at all costs tried to avoid the impression of joining forces with the right against Morales.

On one side, then, the Bolivian government with all its contradictions – which are in turn a reflexion of the complexity of the 'new left' in Latin America. And on the other side? There we encounter a process that, with a certain dose of Gramscian optimism of the will, can be referred to as the emerging global climate justice movement.⁴ This movement is itself the result of a fusion between parts of the alterglobalist summit protest- and social forum-milieus with radical environmental groups and activists (or those radicalised by the failure of the UNFCCC) at a time when, on the one hand, neoliberalism was rapidly losing its ideological and integrative power, and on the other hand, climate change had begun to force its way onto the political and economic agenda, both as a socio-environmental problem and as a new opportunity for 'green' development and growth (Bullard and Mueller, 2011).

What appears as a new movement from one vantage point, however, is at the same time simply the next phase of global social struggles in an age of what ten years ago was simply called 'globalisation'. The first phase was characterised by the common rejection of neoliberalism ('one no, many yeses'), the rejection of Thatcher's dogma that there is no alternative ('another world is possible') and the widespread refusal to work with institutional left-wing actors, not to mention governments. The World Social Forum's Charter, for example, explicitly prohibits the participation of parties, and one of the most popular leftist theory books of the last ten years was John Holloway's *Change the world without taking power* (Holloway, 2002).

In the second cycle, however, some things are shifting: due to, on the one hand, neoliberalism's waning strength in institutions such as left-wing and Social Democratic parties, trade unions and some governments; and, on the other, because this waning has highlighted the weakness of the anti-neoliberal movement, its inability to institutionalise, i.e. render permanent, its gains and victories, there has lately been a change in the way that the relationship to institutions is being thought in the global movements. Where a crass anti-institutionalism used to reign – which, to be clear, was *entirely appropriate* to the situation – today we encounter openness, questions and new connections (Turbulence Collective, 2009).⁵ One example of this is the *Reclaim Power*-action mentioned above, during the preparation of which (post-)autonomous activists

4 To be sure, there is also a wider 'climate movement', on the right of which we find actors such as Oxfam and others who, some five years ago, organised the rather revolting 'Make Poverty History' campaign.

5 But see the resurgence of a poetic, anti-institutional insurrectionism in, e.g., *The Invisible Committee* (2009).

collaborated, or at least negotiated, with governments and a whole range of actors that 'back in the days' would have been distrusted on account of their (ill-defined) status as 'NGOs' – another example is the movement's unclear relationship to the UNFCCC. A third, obviously, is the conference in Cochabamba itself.

The second strategic difference we encounter in this second cycle refers to the 'one no' and the 'many yeses'. After the end of neoliberalism's hegemony, there is no longer a unifying 'no', while at the same time there is much more political space within which radical, even anticapitalist, positions can be articulated. All this, coupled with the growing urgency of the climate crisis, has produced a situation where there is greater pressure on the emerging climate justice movements to produce 'positive' proposals that can be implemented at a global scale than there was on the alterglobalisation movement.

Building on the work of the environmental justice movement and networks like the *Durban Group for Climate Justice*, the idea of 'climate justice' has thus quickly established itself as an important new discursive common ground for the movement, a discourse that in fact contains a number of 'directions demands' (Trott, 2007): that fossil fuels be left in the ground; that industrial agriculture be replaced with local systems of food sovereignty; that the ecological debt owed by the global North to the South be recognised, among others (Climate Justice Now!, 2007). Obviously, these demands might sound different depending on where they are used and they might be more appropriate for struggles in the South than in the urban regions of the North: does climate justice mean the same thing in Europe as it does in Latin America? The same thing in Bolivia as it does in Brazil? In this sense, even if there is today greater pressure, and space, for positive proposals, one thing has not changed much from one phase to another: then, inspired by the poetry of the Zapatistas, the idea was to 'walk while asking questions' (*caminar preguntando*). While the conference thus gave very few answers, it raised many questions and gave space for problematics to emerge, without being solved – little else was, is, possible at this point. Problematics wouldn't be problematic if they were amenable to easy solutions...

Act II: The conference⁶

More than 30,000 participants, almost 10,000 of them from abroad – mostly Latin American, a surprising number of North Americans. Europe and Asia are badly represented thanks to an Icelandic volcano; representation from Africa is even worse, probably thanks to the absence of funds. Nonetheless: now we are in Cochabamba to talk about the structural changes that we know to be necessary. Government delegations from countries all over the world, summit-hopping autonomists, UN-bureaucrats, Andean coca farmers. In the run-up to the summit, 17 working groups had been created to deal with a multiplicity of topics ranging from strategies for action to forests, from indigenous rights to migration, long discussions were conducted via email-lists. Imagine the difficulties of translation: not just linguistically, also culturally. How do indigenous activists and UN-bureaucrats talk to each other? In this regard it was especially the

6 For a more in-depth, movementist analysis cf. Building Bridges Collective (2010).

central working structures of the conference, the *mesas* (working groups) that were interesting attempts to bring together the different languages, methods and goals of the various actors. In this sense, the *mesas* were certainly problematic: not (necessarily) because they were badly organised, but rather because they were an expression of *problematics*, of open questions marking this new phase of struggles.

Many stories could now be told of this conflictual cooperation. Of the working group on forests, where the movements managed to defeat an attempt by the Bolivian government to get them to support the UN-programme REDD (Reducing Emissions from Deforestation and forest Degradation), unpopular with many indigenous groups for threatening to take control of their ancestral forests out of their hands. Of *Via Campesina's* ultimately successful last-minute move to, together with some international allies, prevent the conference from adopting a document that proposed the creation of a new 'Global Alliance of Peoples and Movements', a kind of new 'International from Above' that would tie up movements' scarce resources while adding little to the already existing concert of international fora and networks. Of the many working groups where these kinds of conflicts did not arise, where either the government's agenda (e.g. to push for an international referendum on climate change), or the movements' agenda dominated (e.g. in the working group on climate financing). But these stories, interesting as they may be, might lead us a bit too far into the event's nitty-gritty details. For more of an overview of the conference's outcomes, it is probably most interesting to take a look at the final declaration. This long text definitely packs some political punch and unites within itself a sometimes confusing multiplicity of demands, many of which come directly from the movements, others emerge straight from the Bolivian government's strategic considerations (which, incidentally, raises the question of what happens to movements' demands that are taken up by governments?).

The 'Cochabamba People's Accord' opens with some choice bits of anticapitalist and anti-growth rhetoric: 'The capitalist system has imposed on us a logic of competition, progress and limitless growth... In order for there to be balance with nature, there must first be equity among human beings... The model we support is not a model of limitless and destructive development' (WPCCC, 2010). This definitely sounds good and is almost certainly useful in the debate about the possibility and desirability of 'infinite growth on a finite planet' that seems to be slowly taking off in parts of the global North (cf. Jackson, 2009). But what are the concrete strategic steps that are being proposed – and where do their problems lie?

The two suggestions emanating from the conference that received the most coverage were the plans to hold a 'global' referendum on climate change and the idea of setting up an international environmental/climate crimes court. On the first proposal: over the course of rather controversial discussions it became clear that the referendum is a project that would make a lot of sense in a Latin American context: there is a long history here of using referenda and *consultas* as tools of *concientización*, of consciousness-raising, for example in the resistance to the Free Trade Area of the Americas. Many activists from the North and from Asia, however, viewed it more critically. How would Europeans respond to questions about climate change and the necessary changes to patterns of production and consumption that dealing with it would

entail? How about North Americans? And finally: how do you hold a referendum in China?

The international climate court is a similarly vexed project. On the one hand, the legal institutionalisation of social movements' demands and successes is certainly an important part of 'winning'. On the other hand, the creation of such an institution would demand an amazing amount of work from all parts of the climate justice movement – and do we really, after 15 years of pointlessly working away inside the UNFCCC, want to direct all our constituent power into this kind of international institutional process?

One central demand of the climate justice movement, which was taken up and further amplified in Cochabamba, has always been that the global North recognise and start making reparations for its ecological/climate debt to the global South. Now the conference has put a figure to this demand: Northern governments are to spend some 6% of their annual GDP on this debt. In principle, this call is a good thing, no doubt. In practice, the demand runs up against some problems – not in principle insurmountable ones, but problems nonetheless. First, by way of which institutional mechanism are these funds going to flow? Not, one hopes, through the World Bank, an institution that has excelled at rebranding itself the new 'Green Bank' while at the same time continuing to pour significant funds into fossil-fuel projects. And indeed, here the proposals of the financing working group are clear: 'a new financial mechanism shall be established under the authority of the UNFCCC, replacing the Global Environment Facility and its intermediaries such as the World Bank and the Regional Development Banks' (WPFCCC, 2010). *Second*, to whom will these funds be paid? (Here, both the question and the answer need to be formulated carefully). To Southern governments? Here, the term 'global South' might be covering up one too many conflicts between governments and sectors of society. Third, given that the payment of climate debt could be framed as yet another reason for draconian austerity measures in Europe and that people, as a discussion at a UK-climate camp once pointed out, are unlikely to riot *for* austerity, how can we turn this into a demand that won't leave us even more marginalised in the political battles raging on the continent? One way out of this would be for the movements to demand that payment of this ecological debt be tied to restrictions on where the money might come from. It would have to come from taxes on polluters that do not involve these costs being passed on to those who, say, need to consume energy to heat their homes.

In general, the 'global North' comes in for much criticism in the conference's final declaration: it is being urged to take responsibility for those displaced by the effects of climate change and to open its borders to them; and to reduce its emissions by 50% from 2013 to 2017, against a 1990 baseline. The text also repeatedly refers to 'indigenous peoples', their economies and their ways of life: on the one hand, as a source of legitimacy and moral anchor, and on the other hand, as a rhetorical anti-growth device. We can only hope that these ways of life and economies not only continue to survive their confrontation with the global North but also with the new extractivism of the Latin American New Left. In this regard it is interesting, although hardly surprising, to note that one central movement demand does not appear in the final document: to leave fossil fuels in the ground. Comrades Evo and Hugo would not have appreciated that one.

Act III: Pessimism of the intellect?

Chorus:

Our revels now are ended. These our actors,

As I foretold you, were all spirits and

Are melted into air, into thin air...

We are such stuff

As dreams are made on...

Back in the future, in early 2012, the political optimism, indeed the cheerleading that dominates the above pages seems somewhat misplaced. To start with, the UNFCCC, after holding yet two more failed summits, is pretty much a dead letter, approaching WTO-status. Opinions diverged on COP16 in Cancun, but the failure of COP17 in Durban was so total that it almost failed to make international headlines – no one expected any different, at least not until, wait for it, 2020 (Harvey, 2011). The flipside of this entirely predictable failure from the perspective of the climate justice movement is that any attempt to use the UNFCCC's globality, its global institutional and discursive reach, to promote an agenda of climate justice and institutional change (such as the creation of an international climate court) is therefore also necessarily a failure. Maybe even more problematically, no strong global climate justice movement has emerged, in spite of activists' repeated attempts to sing it into being (cf. Bullard and Mueller, 2011). Meanwhile in Bolivia, where we had set our scene, conflicts around the 'new extractivism' have escalated and there has been a strong push-back against the Morales government precisely by some of the indigenous movements that helped propel him to victory – whether in the *gazolinazo*, where popular uprisings defeated a measure to reduce fuel subsidies, or in the ever-more protracted struggle around the TIPNIS-road project.

To be sure, there are powerful emancipatory struggles in the world that have managed to create their own globality, their own global resonances (the 'Arab Spring', the Occupy-movement), but it seems like climate change is one of the last things on their minds. In fact, in the global North – that is, in the place where 'mitigation', i.e. drastic greenhouse gas reductions, would have to start more or less yesterday – climate change is slipping ever further down the public agenda in the context of the economic crisis (Lovell, 2011), while it is in the South, battered by an ever-growing number of extreme weather events (Munich RE, 2010) that concern is rising (Lucas, 2011). After briefly pausing their inexorable rise on account of the world economic crisis, greenhouse gas emissions did more than return to their previous growth path. In 2010 they jumped 'by the largest amount on record, upending the notion that the brief decline during the recession might persist through the recovery' (Gillis, 2011). In addition, because the centre of global accumulation seems to be shifting away from (financial) services back to manufacturing, CO₂ emissions are now growing faster than economic growth (PWC, 2011). And to top it off, in an influential 2009 paper a group of scientists asserts that out of nine 'planetary boundaries' within which we would have to stay in order to maintain the benign environmental conditions that have existed for the last roughly 12,000 years, humanity has already passed three: climate change, biodiversity loss and the so-called 'nitrogen cycle' (Rockström et al., 2009). In effect, there is neither real mitigation of, nor effective adaptation to, the global (if socially staggered) threat of runaway socio-

ecological collapse and the social conflict and unrest that are bound to follow in its wake (Parenti, 2011).

But pessimism of the intellect, the counterpart to the 'optimism of the will' that shone through the pages above, is not the same as simple defeatism. Indeed, it raises more sharply the strategic questions that necessarily arise at the end of this analysis: what is to be done? By whom? And at what scale? To start from the end: the weakening of global regulatory institutions in general and those supposed to manage environmental devastation in particular (cf. Brand and Wissen, 2011), has implied a turn away for climate (justice) movements from the global scale back to regional and national ones. In turn, this has meant that climate justice struggles in the North will diverge further from those in the South. In the South, they are likely to escalate as governments of both the right and the left drive forward rapid industrialisation projects, whether in Bolivia, China or Brazil.

In the North, from where this article is written, many climate (justice) activists have had to face up to the problem that political frames centred around climate change struggle to generate a mass base – both as a matter of empirical experience and based on the analysis here, most people's interests seem aligned with the further destruction of the planet. As a result, they have begun to focus on issue areas where this contradiction is not as clear-cut, trying, for example, to push for more rapid, fundamental and socially just transformations of their countries' energy sectors (Bricke and Mueller, 2011). There is, then, in short, no longer a global climate justice movement to speak of. But that does not mean that the struggle for climate justice has disappeared. Indeed, it is likely to escalate even in the near future.

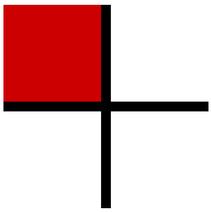
references

- Brand, U. and M. Wissen (2011) 'Die Regulation der ökologischen Krise: Theorie und Empirie der Transformation gesellschaftlicher Naturverhältnisse', *Österreichische Zeitschrift für Soziologie*, 36 (2): 12-34.
- Bricke, M. and T. Mueller (2011) 'Kurze Geschichte einer kurzen Geschichte: die Klimagerechtigkeitsbewegung in der BRD', *arranca!*, 44.
- Building Bridges Collective (2010) *Space for movement? Reflections from Bolivia on climate justice, social movements and the state*. Leeds: self-published.
- Bullard, N. and T. Mueller (2011) 'Beyond the green economy: Global movements for climate justice in a fracturing world', *Development*, 55(1): 54-62.
- Climate Justice Now! (2007) 'What's missing from the climate talks? Justice!' [<http://www.climate-justice-now.org/about-cjn/history/bali-cjn-founding-presse-release/>].
- De Marcellus, O. (2010) 'Failure and victory in Copenhagen' [<http://www.climateimc.org/en/events/2010/01/02/failure-and-victory-copenhagen>].
- Democracy Now (2010) 'As protests mount against San Cristóbal silver mine, Bolivia looks to extract massive lithium reserves, but at what cost?' [<http://www.democracynow.org/2010/4/20/two>].
- Gillis, J. (2011) 'Carbon emissions show biggest jump ever recorded', *The New York Times* [<http://www.nytimes.com/2011/12/05/science/earth/record-jump-in-emissions-in-2010-study-finds.html>].
- Gudynas, E. (2010a) 'The new extractivism in South America' [<http://americas.irc-online.org/pdf/reports/1001theses.pdf>].

- Gudynas, E. (2010b) 'El Modelo de Desarrollo en Debate', *Le Monde Diplomatique*, Edición Boliviana April 2010.
- Harvey, F. (2011) 'Rich nations "give up" on new climate treaty until 2020', *The Guardian* [<http://www.guardian.co.uk/environment/2011/nov/20/rich-nations-give-up-climate-treaty>].
- Holloway, J. (2002) *Change the world without taking power*. London: Pluto Press.
- Jackson, T. (2009) *Prosperity without growth? The transition to a sustainable economy*. London: Sustainable Development Commission.
- Lovell, J. (2011) 'Climate change tumbles down Europe's political agenda as economic worries take the stage', *The New York Times* [<http://www.nytimes.com/cwire/2011/10/13/13climatewire-climate-change-tumbles-down-europes-politica-11610.html?pagewanted=1>].
- Lucas, L. (2011) 'Global warming fears rise in developing world', *Financial Times* [<http://www.ft.com/intl/cms/s/0/9ec3dde6-d17f-11e0-89c0-00144feab49a.html#axzz1nTJC8Xy8>].
- Mueller, T. and A. Passadakis (2010) 'Another capitalism is possible? From world economic crisis to green capitalism', in K. Abramsky (ed.) *Sparking a world-wide energy revolution: Social struggles in the transition to a post-petrol world*. Oakland: AK Press.
- Munich RE (2010) 'Extreme weather events – signs of climate change?' [http://www.munichre.com/en/media_relations/company_news/2010/2010-08-05_company_news.aspx].
- Parenti, C. (2011) *Tropics of chaos*. New York: Nation Books.
- PWC (2011) 'Verkehter Trend: CO₂ Emissionen wachsen schneller als die Wirtschaft' [<http://www.pwc.de/de/nachhaltigkeit/verkehrter-trend-co2-emissionen-wachsen-schneller-als-die-wirtschaft.jhtml>].
- Rockström, J. et al. (2009) 'Planetary boundaries: Exploring the safe operating space for humanity', *Ecology and Society*, 14(2): Article 32.
- The Invisible Committee (2009) *The coming insurrection*. New York: Semiotexte/Intervention.
- Trott, B. (2007) 'Walking in the right direction?', *Turbulence 1* [<http://turbulence.org.uk/turbulence-1/walking-in-the-right-direction/>].
- Turbulence Collective (2009) 'Life in limbo?', *Turbulence* [<http://turbulence.org.uk/turbulence-5/life-in-limbo/>].
- WPCCC (2010) 'People's Agreement of Cochabamba' [<http://pwccc.wordpress.com/2010/04/24/peoples-agreement/#more-1584>].

the author

Tadzio Mueller is a political scientist, climate justice activist and translator living in Berlin, where he works as postdoctoral research fellow for the Rosa Luxemburg Foundation. He has coedited *Contours of Climate Justice*, is a founding member of *Turbulence: Ideas for Movement*, and has published a report on green capitalism, *Grüner Kapitalismus: Krise, Klima, und kein Ende des Wachstums*. His current research focuses on modes of organisation and strategies of social transformation in social movements working on questions of climate justice and energy democracy.
E-mail: tadzio.mueller@rosalux.de



Critiquing carbon markets: A conversation

Larry Lohmann and Steffen Böhm

Steffen Böhm (SB): Larry, you and your colleagues have been at the forefront of the critique of carbon markets for almost a decade now. You have published a great number of books, pamphlets, newspaper articles, blog entries as well as academic articles, all of which you have made available on the Corner House website.¹ Many people from around the world, North and South, have downloaded these contributions, making it one of the key resource centres presenting critical thought on carbon markets. Let me congratulate you for making all of your work available free of charge; it's been invaluable for researchers like myself. Do you have any ideas about the number of people who have downloaded your papers as well as the other material you have made available over the years?

Larry Lohmann (LL): It's hard to say because of the unreliability of the devices that count 'hits' on websites, but wherever I go I'm amazed at the number of people who have made good use of our website and the websites of our colleague organizations.

SB: Do you find, when talking to people about carbon markets, that they know by now the basics about how they work, or do you think there is still a lot of ignorance and lack of information and knowledge about what carbon markets actually are? I'm asking because I must have formally presented and talked about the book I co-edited, *Upsetting the Offset: The Political Economy of Carbon Markets* (Böhm and Dabhi, 2009), more than 20 times over the course of the last two years. This has involved audiences ranging from undergraduate to PhD students, policy makers to business people, and a wide variety of academics, of course. But I'm still getting a sense that most people simply have no clue about what carbon markets are, how they function, who makes money and how, and what their implications and impacts are for people, politics and the environment. Do you think this is still a bit of a niche subject, or do you feel that there is now a broad understanding of carbon markets also amongst non-specialist audiences?

LL: You could almost say that carbon markets are designed *not* to be understood by ordinary people. One of the functions they have come to assume – partly by intention, partly not – is to conceal a lack of effective action about climate change. What is even more striking is the extent to which carbon markets are misunderstood by people that

1 <http://www.thecornerhouse.org.uk/>

you might assume would know better: government officials, parliamentarians, economists, corporations, traders themselves, even many on the left. But maybe this phenomenon is predictable too. In both of these respects there is a parallel with the markets for subprime mortgage derivatives, which not only were designed in a way that foxed average investors but also – as Michael Lewis (Lewis, 2010) and many others have observed – were a site of mass self-delusion among the titans of Wall Street itself for many years. Or maybe ‘delusion’ isn’t the right word, since in both cases what is involved is less belief and disbelief (which falsely implies that all that is needed is ‘unmasking’) than fetishism, fantasy and magical thinking (cf. De Cock, 2009). Then the tipping point arrived, and the respectable, accepted wisdom abruptly switched from ‘this is normal; why are you raising questions?’ to ‘this is crazy; how did this happen?’ Maybe the same thing will happen with carbon markets. But to what extent that would lead to greater retrospective awareness of what has been going on during the past 15 years is – as with the derivatives markets – an open question. One that can only be settled by a commitment to continuing, dedicated activist discussion.

SB: If there are still people out there who have not heard about carbon markets, or know anything about their impacts and implications, how would you introduce them to this topic within a few lines? Recently, climate change has been less in the public’s mind; in the wake of the global financial/economic crisis, people are more concerned about their jobs and food/petrol prices than the price of carbon. So, why should we care about carbon markets today? Do you think it’s still important to talk about carbon markets or has the ‘caravan’ moved on, as it were?

LL: How I introduce a discussion of carbon markets depends on who I’m talking with. There’s no formula. In general, the topic is not hard to get into with villagers and activists from the global South and working-class audiences from the North, because they tend to have a background in the kind of analysis that is necessary. In discussions with (say) forest village leaders in Liberia, junior high-school students in the Philippines, social activists in the Andes or pollution-impacted poorer communities in the US, after 10 or 15 minutes you usually find that the audience is already exploring all of the essential issues involving political inequality, technical equivalences, colonialism, commodification, property rights and so on. And such audiences regularly wind up condemning carbon trading in terms whose strength would probably unsettle many genteel Northern observers, including academics. On the other hand, the concepts are more difficult to grasp for middle-class, highly-‘educated’ people from industrialized societies, so you have to approach the topic in a different way and expect the discussion to follow a different path.

Take for example the equivalence that carbon trading posits between emissions reductions and offsets. Audiences in the South will immediately see the significance of this constructed equivalence and put their finger on all of its contradictions and paradoxes, political and technical. Professional carbon trading practitioners are also aware of many of the issues, if only because it’s they who have to put in the hard graft, day after day, of building the equivalence in the face of forbidding obstacles, negotiating the relevant property rights among various mutually-hostile parties, etc. But your average highly-educated middle-class Northern audiences – including economists, diplomats, political scientists, ‘big green’ NGOs and parliamentarians – are more likely

to be predisposed to ‘black-box’ the processes by which this equivalence is created. They may wonder: Why are you spending time on something that ought to be unproblematic? Why are you challenging self-evident identities and neutral ‘economic instruments’? Why are you indulging yourself in these perverse, Garfinkelish questions? So with them you need to take a gentler, more roundabout route into the issue.

You ask why we should care about carbon markets. Well, that depends on who ‘we’ are. Millions of people in the Global South on the receiving end of the movements of dispossession in which carbon markets are implicated, as well as people in the North on the fence lines of polluting industrial installations, unfortunately don’t have much choice but to care, once they work out what is being done to them. Carbon markets are helping take away the basis for their livelihoods as well as their rights to the earth’s carbon-cycling capacity. Better-off intellectuals in the North, for whom carbon markets may be only an ‘interesting’ news item or a scholarly opportunity for the flexing of neoclassical or Foucauldian or Deleuzean muscles, might not be concerned in the same way. And for ordinary middle-class citizens of industrialized countries, the carbon market discourse might as well have been expressly designed to exclude them.

Regarding whether the ‘caravan’ has moved on, there are at least two questions here. First, are carbon markets on the way out? And second, is social transformation, or the study of it, best conceptualized in terms of ‘caravans’ drifting from place to place?

On the first question, we certainly have reason to hope that the current afflictions of carbon markets are terminal. The incoherence of the whole project is now coming home to many in the industrial, scientific and even banking sectors, as witness the recent pronouncement of one of Europe’s major electricity companies that the EU ETS is ‘dead’. On the other hand, on that strange world that my colleague Chris Lang from REDD Monitor calls ‘planet UN’ (Lang, 2011), it is still unthinkable that, once legislated, carbon markets could encounter any serious problems. Trevor Sikorski of Barclays Capital² noted wryly at the Durban climate talks that it was hard to find a UN negotiator from any country who had bothered to acquire even the slightest conception of where carbon prices were or how they had been behaving – this at a UN conference maybe 75 per cent devoted to negotiating carbon market mechanisms. Similarly, although the European carbon market is collapsing, ‘big green’ Washington NGOs are busily promoting the expansion of other carbon markets in China, Thailand, wherever. This seemingly odd split should alert us to the complexity and diversity of the various functions that carbon markets assume. The superficially spectacular ‘failures’ of carbon markets – to have any effect on climate change, to create a robust new financial commodity, to sustain market actors’ confidence – are, viewed from another angle, spectacular ‘successes’ in terms of their role in creating the need for more ‘technical’ work and in delaying action on fossil fuel use. You have to hope that reports of the impending demise of carbon markets are not exaggerated, but, on the other hand, you also have to learn to apply pretty broad criteria for what counts as ‘dead’.

2 <http://www.thecarbonshow.com/people/trevor-sikorski>

So the current location of the ‘caravan’, if there is one, is a little difficult to specify at present. But even if, as is to be hoped, carbon markets do expire shortly, I suspect that academics will be coming back for a look at them for many years hence. Are you an economist looking to get a handle on how the next financial crisis will unfold? Are you a sociologist trying to grasp the processes and effects of new kinds of commodity formation? Are you a Marxist historian seeking to understand new mechanisms of dispossession and accumulation? Are you a scientist trying to assess the potential of ecosystems services markets to conserve biodiversity, water or wetlands, or the potential of the ‘green economy’ being heralded at Rio + 20? You’re hardly going to be able to avoid delving into the details of carbon markets. Carbon markets are not an ‘instance’ of an abstract approach or historical process which, once understood, makes the detailed study of them superfluous. Like many other contemporary phenomena, they are a constitutive part of the process through which neoliberalism finds itself. Treating carbon trading, complex financial derivatives, deregulatory manoeuvres and the like as incidental to the study of modern politics would be a little like treating what since the Second World War have become known as ‘area studies’ as incidental ‘illustrations’ of economic theory. The carbon market experience is not a ‘place’ that the caravan can leave behind. It is rather one of the wagons that make it up, to which new wagons such as ‘the green economy’ and ecosystems services trading will be hitched as time goes on.

SB: By all the usual criteria, the project of what Peter Newell and Matthew Paterson call ‘climate capitalism’ (Newell and Paterson, 2010) – a regime of capitalism geared towards decarbonisation of the atmosphere – doesn’t seem to be going very well at the moment. The price for carbon has collapsed dramatically recently (*The Economist*, 2012). The global climate negotiations responsible for setting up a worldwide market infrastructure have stalled, to say the least. Firms specialising in green finance seem to be struggling (see, for example, Coelho, 2012). Carbon bankers are decamping in search of other professions. Has ‘climate capitalism’ come to an end before it has even started, or is this just a temporary blip?

LL: There will always be fundamental contradictions with trying to create a climate commodity that go way, way beyond the problems of ordinary commodities or even complex financial derivatives. That aspect of ‘climate capitalism’ never had any chance of achieving success or even of formulating a coherent programme by any of the usual business or scientific criteria. But again we need to look at the deeper game. In the current economic crisis, the last thing business needs is any threat to fossil fuels, which historically have been indispensable to productivity and the extraction of surplus. This is the background that has shaped advocacy of carbon markets, even on the part of supposedly detached technocrats like big Washington NGOs and academic economists. One effect of the advocacy of the ‘necessary but impossible’ project of carbon trading has been 15 years of delay in tackling the issue of how to keep fossil fuels in the ground. That effect may be partly unintended, but it’s certainly a happy outcome for capital. In that respect, ‘climate capitalism’s’ very failure, provided it can be spun out long enough, is a success story for capitalism as a whole.

SB: What do you make of the recent Durban climate change conference, i.e., COP17?³ Would you agree with me that we've basically come to the end of the road of the strategy to get a globally binding agreement through international, UN-led, negotiations? What's next in your view?

LL: Nearly two decades of UN negotiations have taught us that the technocratic attempt to substitute a 'neutral' programme of 'binding emissions cuts' for the needed programme of phasing out fossil fuels can't in the end make the climate action pill any easier for business and state actors to swallow. The 'binding cuts' are not binding when it counts – Canada, the US and other countries have made it clear that they are free at any time to withdraw from any agreement that actually threatens fossil fuel use. Nor are they really cuts, since their primary role is not to help phase out fossil fuels but merely to establish just enough scarcity – and no more – to enable a new commodity market to function. Once again, we're returned, unavoidably, to the painful necessity of mass organizing around the fossil fuel problem. Climate change is not an ozone-type problem that can be addressed by a UN protocol.

Durban brought these contradictions to a kind of climax. Without even much attempt at concealment, discussion moved increasingly to issues such as whether there should be emissions targets at all (how to keep the carbon markets going without targets was, revealingly, one question), or how much more land in the global South fossil-fuelled industry might acquire, through REDD, to absorb its emissions. In a misguided attempt at so-called 'damage control' against this nightmare agenda, many so-called 'progressive' voices, even from the South, were thrown back on the doomed strategy of trying to reinstate yesterday's Northern corporate agenda – imaginary 'binding targets', new export subsidies for Northern industry, 'defending Kyoto' and the rest of it – in place of the one that is becoming dominant today. That of course only reinforced the underlying elite politics that carbon markets represent.

SB: Let's go back in time for a minute. How did you become interested in carbon markets in the first place? What was the trigger for you?

LL: I was dragged somewhat unwillingly into the issue by my Southern activist colleagues in the World Rainforest Movement,⁴ who saw in the late 1990s that carbon markets could serve as a new source of revenue for industrial tree plantation interests, particularly the pulp and paper industry. WRM, many of whose affiliated groups had a history of struggle against these large monocultures, was just launching an international campaign on the issue (which continues today). They thought the carbon issue needed further study. My colleagues and I took up the 'assignment' to look into it, and the more we did, the more we realized that the situation was even more disturbing than we had imagined.

SB: Could you talk a little bit more about your work in Thailand and other countries of Southeast Asia in the 1980s and 1990s? What exactly were the struggles and issues about that you were involved back then?

3 <http://www.cop17-cmp7durban.com/>

4 <http://www.wrm.org.uy/>

LL: The work on plantations that led to my later involvement in climate market issues actually started for me in Thailand, where widespread land and forest disputes developed in the 1980s and 1990s over commercial eucalyptus plantations on lands formally held by the state, but de facto occupied and held by millions of rural villagers. I was also involved in many other issues, including struggles against large hydroelectric dams, such as Nam Choan, which was eventually defeated, and other projects in the Mekong and Chao Phraya basins.

SB: Back in the 1980s, nobody was talking about carbon markets, of course, but do you think there is a relationship between then and now? That is, have the issues fundamentally changed or are there contingencies in these struggles?

LL: The relationship is very close. The political education I received in Thailand in the 1980s has been indispensable to me in understanding the dynamics and conflicts surrounding enclosure, development, investment and finance that are also evident in carbon markets. Of course things are changing all the time, but it's essential to see carbon markets as part of a continuing evolutionary process involving struggles in all parts of the world.

SB: Let's talk concretely: when you look at today's REDD programmes, do you think they are any better than what you saw in Thailand in the 1980s and 1990s? The language used to sell REDD to a variety of stakeholders certainly seems to be all about participation, consultation, respect of rights, etc. So, do you think the forest policy makers and business people have learned to be more responsible, or have they simply learned to speak another, more humane, language?

LL: I don't find it particularly useful to analyse developments in terms of 'better' and 'worse', or in terms of elites supposedly trying to 'learn to be more responsible'. None of the grassroots activists I work with would use such a conceptual framework in trying to plan strategy. Indeed, they would probably see it as a recipe for reinforcing oppression. Of course, REDD-pushers, like the rest of us, will continue to develop their outlook and interests in the course of unfolding new languages, borrowing concepts from their enemies, and so forth. The deceptive language of 'stakeholders', which affects to give equal status to small farmers, extractive industries, private consultants, World Bank officials and government ministries, is one example. But the fundamental struggles won't go away, whatever turf they are fought on.

SB: In the 1990s you came to Britain from Thailand, settling in a small town in rural Dorset. The Corner House is perhaps not your average campaign organization or 'think tank'. Could you tell us a little bit more about it?

LL: Maybe the best way of understanding what The Corner House is, is to look at what we do. Some of this can be seen from our website: www.thecornerhouse.org.uk. We are basically three aging activists each of whom has many friends around the world who are dedicated to social change and who help us understand what contributions it would be appropriate for us, with our particular backgrounds and interests, to try to make at different times.

SB: When reading your work, one is struck by the fact that you have quite a few papers written in an academic style, yet you are not academic; you are not working in a university. You have published in ‘obscure’ academic journals, such as *Accounting, Organizations and Society* (Lohmann, 2009) and *New Political Economy* (Lohmann, 2010). These are clearly publications aimed at academics, rather than the broader public. Why is it important for you to publish in academic journals, which are often not accessible, publishing copyrighted material?

LL: With the exception of maybe one article on Southeast Asia and another on cost-benefit analysis, I’ve only ever written academic articles when the editor of a scholarly journal invites me to. But I’ve found the exercise to be extremely useful for activist work. The interchange with academics entailed by writing a scholarly article can be one contribution to the development of the common analysis of an issue, on a par with, and complementing, the work of day-to-day campaigning, study tours, speaking tours, strategic discussions with other activists, and so forth. The process of writing an article can also help deepen activist links with friends in the academic community, to the benefit of a movement as a whole, and helps signal an intention to make academic research ‘our own’. For me, sitting alone in a room agonizing over a paragraph in some academic paper will usually pay off in long-term campaigning results more than hanging around the UN or government ministries trying to insert sound bites into official discussions. So while it might seem to academics that a journal like *New Political Economy* is ‘aimed at academics’, from the outside I look at the process much more broadly. In this connection, by the way, I always insist on making available any article that comes out of this process to anybody that might want it, through our website, through the photocopying machine, or just through talks and discussions. Maybe in some cases this violates the proprieties of copyright – well, let them come for me with helicopter gunships.

SB: Have you ever thought about working for a university, or do you think your work is incompatible with the academic world? From what you know about universities today, what do you think would prevent you from engaging with carbon markets and other environmental issues in the way you do?

LL: Activist and scholarly work should never be incompatible. I feel that the struggle of my academic friends to maintain standards of social responsibility and responsiveness to public concerns in this era of the privatization and neoliberalization of universities is my struggle as well. In the current context, sure, it may well be easier for activists outside the university world to develop critical perspectives on something like carbon trading than those inside, but only if they are lucky enough to have the time and money to do so. And in any case such activists will, whether they like it or not, remain partly ‘inside’ the university world insofar as they rely on the work done there. I suppose this is where I locate myself – I don’t want to ‘work for’ a university but hope to continue to be part of an intellectual community that includes many academics.

SB: I first met you at a seminar organized by Donald MacKenzie⁵ at Durham University. What do you make of his particular brand of ‘critique’? Is an actor-network

5 http://www.sps.ed.ac.uk/staff/sociology/mackenzie_donald

approach ‘critical’, in your view? I very much value MacKenzie’s contribution and also Callon’s⁶ to describing, in quite some detail, the historical emergence of financial markets, including carbon markets. But that’s it; they are mainly describing them. ANT and the sociology of markets approach are very good at describing the material and non-material processes of how things come into being. They are less good at critiquing them; that is, in my view, they have very little theoretical leverage for saying what might be wrong with this historical development.

LL: I’m not sure I accept the dichotomy between description and critique, or between trying to understand something and doing something about it. The actor-network approach offers many challenges to things like carbon trading that concerned activists can make use of. And intellectuals of a scientific or economic bent have been very sensitive to this.

SB: And how does this contrast with the Marxian approach of people such as John Bellamy Foster⁷ and Jason Moore⁸? Both have not, at least to my knowledge, written about carbon markets, but you seem to have been inspired by their work. To start off with Moore, what do you get out of his work?

LL: One thing that Moore has really pushed me to pay attention to is that every world-historical cycle is ecological as well as political or economic.

SB: The main point Moore seems to make is that it’s not enough to talk about an environmental crisis of capitalism. You have quite a lot of people, probably including myself, who have been saying that capitalism is now turning itself into ‘green capitalism’, because it needs to respond to the environmental crisis, and that all these new market-based instruments – payments for ecosystem services, carbon markets, etc. – constitute the response of capitalism to this crisis, as it is trying to become ‘green’, modernizing itself through ecological modes ...

LL: ... yes, while Moore is saying that capitalism has always been implicated in environmental crises and has always had to be ‘green’ in order to grow.

SB: Exactly. At first sight this seems to be a subtle, minor point, but the more I think about it, this is probably quite a substantial and important reversal of our normal way of thinking. What it does is to get us away from this nature/society dualism, where capitalism is seen as the producer of so-called externalities, such as environmental degradation, which the system is now trying to internalise.

LL: Yes – the idea that there have always been cycles of relations that co-produce capitalist society and nature is important.

SB: That’s right; capitalism has always been what Moore calls an ecological regime, or, capitalism as world ecology.

6 <http://www.csi.mines-paristech.fr/Perso/Callon/>

7 <http://sociology.uoregon.edu/faculty/foster.php>

8 <http://www.jasonwmoore.com/>

LL: That's another thing I like about him, actually, that he follows through on the assumption that what you call the nature/society dualism is constructed and contingent and that we have to problematise it at every point. Other people don't do that so much. As much as I love the work of people like John Bellamy Foster, I think Moore is more subtle in that respect. It's not that suddenly capitalism has reached its limits and now has to confront 'the environment'. We have to problematise these very categories of 'limits' and nature.

SB: Yes. Moore doesn't talk about an environmental crisis of capitalism, but about a continuous cycle of what he calls ecological transformations. It's actually quite interesting that we are here on this ancient mount in the middle of Dorset. Would the ancient civilization that lived on this mount be seen as a socio-ecological regime, in Moore's view? Does every society, capitalist or otherwise, have a (problematic) relationship to 'nature'? I don't think he's saying that. He's making a particular point about how capitalism relates to nature, and capitalism as an ecological regime, so there is something very distinct about capitalism that has altered the nature of the relationship between nature and society. And where does this leave us in terms of thinking about nature? Historically, and also within our current system, not everything is capitalist. So how exactly can we think about another way of relating to nature? Again, the question is; how do we critique our current reality? If everything is always already ecological, then you almost lose the explanatory power of talking about anything, natural or ecological. To use an example of what I mean: you have rich and long experience of travelling, working in Asia, and the so-called less developed world, or developing world. Would you say that that indigenous people, peasants, self-sufficient peasants and farmers in a less highly-developed world have a different relationship to nature? Perhaps what world-systems analyses are not that good at is to see the differences in the way this society/nature relationship is structured, also across different spaces.

LL: I think Jason Moore would be able to talk about the differences that do exist, without appealing to the anachronistic notion of their relationship to 'nature'. I would expect he could find other terms for talking about the different ecological regimes. Of course, most peasant and indigenous groups alive today have learned to talk the language of 'nature/society' as well as anyone else, but in a lot of their practices, they also provide a vocabulary for contesting the 'nature/society' dualism. Forget about 'nature' for the time being; consider the simple question, what is a forest? I think Jason Moore, if you asked him a technocratic question like how to define a forest, could easily go into his routine about the history of the ecological regime in question.

SB: How would an indigenous person look at this?

LL: The Karen of Northern Thailand, to take one example, would probably wind up interrogating the question itself. They might say: What does it mean when you (as an outsider) claim that this particular patch of our territory with trees on it is a 'field' or a 'forest'? Seventy years ago, the place we're standing on was covered with big trees. Sure, that's not the case now, because we've converted it temporarily to agriculture, but it will be trees again in another 70 years. Is it a forest or isn't it? I don't know – this is just the way we do things; we're not under any obligation to slot ourselves into your

categories. Okay, maybe that place over there on that faraway hill will always have trees on it, as long as we're here, but here where we're standing, it depends.

SB: How would you call that place, from an indigenous person's point of view, who has always lived in and with the forest? It's your place, your livelihood, your home, isn't it? It's not 'nature' as such, is it?

LL: Not in the standard sense that 'nature' has assumed in some industrialized societies.

SB: Their relationship is a very practical one. It's a kind of pragmatism almost.

LL: It's not really a question of whether it's pragmatic or not. The nature/society dualism prevalent in industrialized societies is also pragmatic, but for a quite different set of purposes. These contrasts only emerge when you see the conflicts between different societies or different groups, or the way different groups talk past each other, for example forestry department people and indigenous groups, or any different subsets of those groups.

SB: What are the interests of, say, forestry officials in places such as Brazil or Thailand? They are often directly connected to elite groups who want to make money with forests, aren't they? This is what the emerging REDD+ schemes are about, aren't they? What are the interests connected to this piece of land, a forest – and, connecting to Jason's argument, how are these different interests structured?

LL: You have to look at the details. Different forestry officials themselves have different interests, depending on their vocation and their salaries and their background and their job description. In Thailand, there has historically been a general interest maintaining the forestry department's control over land at all costs. There are specific interests connected to deals made with plantation firms or loggers and a long history of symbiosis between official foresters and logging companies, first the colonial logging companies and afterwards domestic logging firms. There's a whole political context, in Thailand at least, connected specifically with logging revenues, the Democrat Party, and forestry officials. It's the usual, extremely complicated story, and I assume Jason Moore wouldn't have any trouble in handling it if he had the time to go into the details. One important question is how the 'nature/society' divide, as remanufactured by forestry department officials, their friends in the World Bank, their other friends in conservation organisations, and so forth, does or does not enter into the story. The only reservation I have about the work of sophisticated theorists of capitalist cycles like Jason is that their resistance to things like the 'nature/society' dichotomy doesn't always extend to resistance to the 'capitalism/non-capitalism' dichotomy. Here my instinct is that Marx himself was not essentialist about capitalism, merely exploring certain aspects of what you might call an ideal type of capitalist logic to see where it went and continuously bringing that into relation with close historical analysis. But I could be wrong about that.

SB: What do you mean by the 'capitalism/non-capitalism' dichotomy?

LL: I think there's a tendency to adopt misleading territorial metaphors with respect to capitalism. People think of there being an 'inside' and an 'outside' to capitalism, with

capitalism ‘bringing things inside itself’ or ‘being resisted and the borders maintained with integrity’. My feeling is that this dichotomy itself has to be resisted. That’s one thing I’ve learned from Latour⁹, Callon and the science studies people, as well as Timothy Mitchell, the scholar of the Middle East.¹⁰ Mitchell is probably the best of the lot in terms of drawing out the conclusions and in helping us see the capitalist/non-capitalist border as itself a construction which is continuously manufactured and remanufactured, often for nefarious purposes, by both our friends and our enemies.

SB: One could reply to that by saying, well, isn’t it equally a problem that the Latourian regime of analysis sees everything as like a big flow, everything being connected ...

LL: I think the retort that we don’t want to say that everything is a big flow in fact derives from the same misleading territorial metaphor. The metaphor of a territory which might or might not have internal boundaries is a problem, I think. I think Latour’s and Callon’s suggestion is to get away from that whole metaphor entirely. Mitchell talks about, not a boundary, but a continuously moving horizon. That’s a different metaphor, which criticizes both the capitalist/non-capitalist dualism and the ‘everything is flow’ picture, by trying to get away from the ideas of ‘inside’ and ‘outside’.

SB: In the book *Pandora’s Hope* (Latour, 1999) and elsewhere Latour is quite scathing about many aspects of Marxism. He sees it as a very specific social, or even artificial, construction. In response to Marx’s conception of commodity practices, he talks about what he calls the ‘factish’, rather than the ‘fetish’. Latour says that there are certain facts, which are material and immaterial (social) at the same time, that become privileged. He wants to understand how these are constructed, and in a way, ‘Marxism’ itself could be seen as such a ‘factish’. So, rather than privileging Marx’s analysis of ‘commodity fetishism’ (Marx, 1976), Latour rather speaks of ‘factishes’ (Latour, 2010).

LL: I’m a big fan of a lot of what Latour writes, but I’m not certain that this doesn’t amount to a caricature of Marx.

SB: I also find the Latourian social constructionism approach very useful, while continuing to get inspiration from Marx. I’m interested in reading both, without necessarily wanting to conflate them. I think Latour basically doesn’t ‘get’ Marx, for a variety of reasons. I think there is something in Marx’s analysis of the commodity that needs to be retained, and that cannot be simply ‘flattened out’, as it were. If Latour has a horizontal ontology, then I still think that the commodity plays a privileged, hierarchical, role in that ontology. Latour is not able to tell us much about how and why the commodity fetish or factish rules the world, and this is where I see the limits of the work of Latour, but also of people like Donald MacKenzie. I value Donald’s work, and I think he probably tries to move it beyond Latour and also Callon. I’ve recently reread the *Accounting, Organizations and Society* (2009) special issue on carbon markets, and I think there’s a stark contrast between the MacKenzie and Callon papers in there. But what neither paper is able to do is to develop any critical logic that tells us about what

9 <http://www.bruno-latour.fr/>

10 <http://www.columbia.edu/~tm2421/>

might be ‘right’ and ‘wrong’ about carbon markets, and why one should support or resist them; who are the losers and winners? Questions of ethics and justice are completely missing in the ANT / science studies world.

LL: I think I know what you mean, but might put it in a different way. I’ve been greatly influenced by ANT and by science studies more generally, but I’m not sure to what extent I would regard Callon or Latour as political comrades in particular struggles. At the seminar you mention, I’m afraid, I couldn’t make head or tail of what Michel’s political programme was regarding French regulation. Donald, too, despite his fascinating work on financial and carbon markets and his very friendly and appreciative attitude toward activists in the field, seems to have a rather insouciant attitude toward the social and environmental implications of the markets. But this may just be my own lack of acquaintance with his work. I remember Donald telling a funny story of how some zealot within the US weapons community read his book on nuclear weapons and kept trying to get him to testify before Congress to help further his point of view on nuclear deployment or some such thing. Donald was rather bemused by this. ‘I would have thought that anybody who read my book would understand my anti-nuclear stance, but this person just didn’t get it,’ he said.

SB: Could a Latourian methodology be complemented with a more critical, or, if you want to call it that, a Marxist approach? Maybe there are inherent contradictions in trying to put these two together, I don’t know. There is a book by Latour, called *The Politics of Nature* (Latour, 2004), in which he battles with these kinds of questions himself. He asks himself, what is politics? What is nature? I think there are complementary territories between say Moore, or a world-systems approach, and Latour. They both want to resist these dualisms between the material and the immaterial, between nature and the human. But, when it comes to politics, Latour is quite ‘wishy-washy’...

LL: ... let’s create a nice parliament where things and trees can be represented along with everybody else.

SB: Yes, that kind of thing. It’s this big mishmash where the human and non-human world comes together, each speaking for itself, and the political act of the investigator is to follow these actors around, and see what and how they speak.

LL: I couldn’t get through the book, partly because I find any kind of idealism or utopianism both boring and dangerous, in an almost instinctive reaction.

SB: There’s a void where there should be an attempt at a concrete understanding of socio-ecological struggles.

LL: I agree, although I usually assume it’s a deficiency in myself to have such a reaction. In a strange sort of way, I find myself more attracted in science studies by the work of someone like Harry Collins,¹¹ who is probably regarded by Callon or Latour as

11 <http://www.cardiff.ac.uk/socsi/contactsandpeople/academicstaff/C-D/professor-harry-collins-overview.html>

still being in thrall to the sociology/non-sociology dualism, or the idea that there is such a thing as society distinct from nature. Collins may also be somewhat idealist in his political programme, but he does make interventions that are often easier for me to understand. One example is his insistence, as I read it, that the prevailing dualistic attitude towards science is a political problem. He's referring to the way we tend to flip-flop between either believing everything that scientists say – once they're through with their research at the laboratory bench and the sanitised, black-boxed result is presented to the public – and, if we are unable to accept what they say, of claiming that the problem must be their 'vested interests' or other 'impurities' sully the disinterested workings of 'scientific method'. How to struggle against this attitude that there is such a thing as a 'pure science' separate from politics? Collins is very clear on the framing of this problem – so is Donna Haraway¹² – if less clear on how to tackle it.

SB: I have a practical question: how could Moore's analysis inform politics and struggle about carbon markets and the new ecosystem accumulation strategies? Sometimes one could read Moore's analysis as saying, well, it's all to do with accumulation cycles, over- and under-production, and financialization, and there's not much we can do about that.

LL: I'm not sure I would agree. I think there are a lot of potential activist uses for a Jason Moore kind of approach. For example, it might help in countering the sort of ahistorical, apolitical approach represented by the Newell and Paterson book you mentioned earlier, which, although it is not intellectually significant in itself, is important in that it represents a kind of view (or perhaps fetish) fairly common among Washington-based NGOs, neoliberal ideologues and certain groups of academics. Newell and Paterson think, for example, that it's great that the financial sector got so involved in carbon trading, because that put another powerful social grouping on the 'right' side in the climate battle. It strikes me that it's easier to destroy that type of superficial argument when you can supplement your own political experience with the historical analysis that someone like Moore provides about how finance actually functions in this phase of an accumulation cycle.

SB: Why do you think Newell and Paterson made that argument, by the way?

LL: I don't know; I would have expected better from them. It's as if they were to say that since small farmers have historically used derivatives contracts whenever they can in order to lock in decent prices for harvests, the fact that investment banks and hedge funds have entangled the world economy so deeply in derivatives means that the interests of Wall Street and small farmers are now at last happily aligned. In my world, you have to go a long way to find naiveté that appalling, but given certain contexts, even the most intelligent people have these strange little blind spots.

SB: I think you let Newell and Paterson off the hook a little bit too easily. I think there's actually something in their analysis which directly leads to their conclusion, which is to do with their particular interpretation of Gramscian thought. The argument goes something like this: there are always particular regimes of accumulation and legitimacy

12 <http://www.egs.edu/faculty/donna-haraway/biography/>

that work together to achieve certain outcomes, and if you want to achieve a particular outcome, then you basically have to align capital, civil society and government in such a way that certain ‘governance’ outcomes can be achieved. And if the outcome desired is to decarbonise the economy, we need to give incentives to capital to decarbonise and get civil society to sign up to this and governments to organise it. I’m simplifying massively, of course, but I think they see this as a pragmatist application of Gramsci.

LL: This is not Gramsci. Gramsci spent too much of his life in prison not to understand the difference between various senses of ‘alignment’. Goldman Sachs and small farmers are not going to ‘align’ in a lasting and politically-effective way just because they both happen to have an interest in futures contracts. Deutsche Bank and La Via Campesina¹³ are not going to ‘align’ around the cause of climate action just because Deutsche Bank has the idea it might be able to make some money out of carbon and La Via Campesina also deploys the word ‘carbon’ in its advocacy of peasant agriculture. Gramsci knew better than to indulge in such ivory-tower abstractions. Have Newell and Paterson ever actually tried to build a movement together with Wall Street bankers? Being able to judge what kind of ‘alignment’ works and what doesn’t comes from years of hard experience and lengthy, detailed analysis. It can’t be replaced by a cartoonish misreading of some book by Gramsci.

SB: It is that Newell and Paterson are distanced from practice in your view?

LL: Not from academic practice, perhaps just from *realpolitik* in the wider world. Maybe when you get a group of people together who are subject to incentives to trap themselves in reified territorial or geographical metaphors about capitalism, it just becomes difficult to use your head or apply your own experience. Suddenly, multiply nonsensical abstractions like ‘we can’t get outside capitalism, so we have to work within it, and working within it means enlisting Wall Street, therefore enlisting Wall Street must be possible’, etc., etc. come to seem reasonable. But who knows?

SB: This brings us back to the ‘university’. I’m working in a business school, where there are very specific requirements, forces and strategies in place to organise research in a particular way. It’s not the same everywhere, of course. Some places are different, and even within the business school system in the UK there are remarkable pockets of advanced critique. The point is that academics are conditioned by the university.

LL: I agree. Just as we’re all conditioned by our surroundings. It’s not that academics never talk to people on, say, Wall Street, but the structure within which they talk to them – a ‘semi-structured interview’ or whatever – can easily encourage them simply to write down whatever the Wall Street person is trying to make them believe that they think, in terms of theories of social change, for example. Of course, the Wall Street person will rise to the opportunity and say, if you want to change society, then you have to talk to me. We will invest here and there, and don’t worry, we can have these legal guarantees and safeguards, etc. This tells you nothing about practical political alliance-building or about how social change actually happens.

13 <http://viacampesina.org/en/>

SB: Can you also reflect about your own position, vis-à-vis the university system? You obviously made a conscious choice to be outside it, but do you think that people positioned in a university are necessarily too narrowly conditioned? That is, do we need more thinkers, rather than academics, who are also ‘organic intellectuals’, if you want to call them that? Thinkers who are actually outside the university, or if they’re in a university, then actively engaged in movement building? Would you say that they need to come outside their traditional academic halls?

LL: Well, we could all do with a bit more of that. The question is how to make it happen. I think it’s worth studying the decline over the 20th century of things like labour union study groups. We talk about ‘organic intellectuals’, but what about the contexts that encourage them? I have no idea about what it was like in the early or middle 20th century in labour movements, anti-Nazi movements, civil rights movements or other movements, but I get an impression of a different kind of intellectual ferment than we have today in industrialized societies, at least in Western Europe and the US. Whole ranges of working people who got together to talk about politics. What might we learn from the longer history of contexts that nurture ‘organic intellectuals’ that could help us cope with this divide today between universities and much of the rest of society?

SB: Well, let me say, Larry, you are one of the few ‘organic intellectuals’ I know, and I would like to thank you for your tremendous contribution to our understanding and critique of carbon markets and the emerging regime of ‘climate capitalism’. Thank you also for engaging in this conversation. All the best to you.

references

- Accounting, Organizations and Society* (2009) special issue on accounting and carbon markets, 34(3-4): 305-548.
- Böhm, S. and S. Dabhi (2009) (eds.) *Upsetting the offset: The political economy of carbon markets*. London: MayFlyBooks [http://mayflybooks.org/?page_id=21].
- Coelho, J. (2012) ‘Climate Change Capital founder sees Bunge deal soon’ [<http://www.reuters.com/article/2012/02/15/carbon-ccc-bunge-idUSL5E8DF82Q20120215>].
- De Cock, C. (2009) ‘What I read about the global financial crisis in 2007 and 2008’, *ephemera*, 9(1): 61-72.
- Lang, C. (2011) ‘REDD and carbon markets: A look at two parallel planets’ [<http://www.redd-monitor.org/2011/11/20/redd-and-carbon-markets-a-look-at-two-parallel-planets>].
- Latour, B. (1999) *Pandora’s hope: Essays on the reality of science studies*. Harvard, MA: Harvard University Press.
- Latour, B. (2004) *Politics of nature: How to bring the sciences into democracy*. Harvard, MA: Harvard University Press.
- Latour, B. (2010) *On the modern cult of the factish gods*. Durham, NC: Duke University Press.
- Lewis, Michael (2010) ‘Wall street collapse a story of “mass delusion”’ [http://www.huffingtonpost.com/2010/03/14/michael-lewis-wall-street_n_498690.html].
- Lohmann, L. (2009) ‘Toward a different debate in environmental accounting: The cases of carbon and cost-benefit’, *Accounting, Organizations and Society*, 34(3-4): 499-534.
- Lohmann, L. (2010) ‘Uncertainty markets and carbon markets: Variations on Polanyian themes’, *New Political Economy*, 15(2): 225-254.
- Marx, K. (1976) *Capital: A critique of political economy. Volume 1*, trans. Ben Fowkes. London: Penguin.

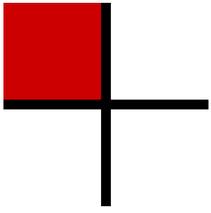
Newell, P. and M. Paterson (2010) *Climate capitalism: Global warming and the transformation of the global economy*. Cambridge: Cambridge University Press.

The Economist (2012) 'Breathing difficulties: A market in need of a miracle', 3 March [http://www.economist.com/node/21548962].

the authors

Larry Lohmann worked with the Project for Ecological Recovery and other organizations in Thailand in the 1980s. Since 1997 he has been based at The Corner House, a UK-based solidarity organization. Among his books are *Pulping the South: Industrial Tree Plantations in the Global Paper Economy* (Zed, 1996) and *Mercados de Carbono: La Neoliberalización del Clima* (Abya Yala, 2012).
E-mail: larrylohmann@gn.apc.org

Steffen Böhm is Director of the Essex Sustainability Institute and Professor in Management and Sustainability at the University of Essex. His research focuses on political economies and ecologies of organization, management and the environment. He is co-founder of *ephemera: theory & politics in organization*, and co-founder and co-editor of the open publishing press MayFlyBooks (www.mayflybooks.org), as well as *Interface: A Journal for and about Social Movements* (www.interfacejournal.net). Together with Siddhartha Dabhi he recently published *Upsetting the Offset: The Political Economy of Carbon Markets* (Mayfly, 2009), which has resulted in some interesting debates (<http://climatestrategies.wordpress.com/2012/03/16/carbon-markets-still-controversial-after-all-these-years>). For more information about Steffen's research see: steffenboehm.net
E-mail: steffen@essex.ac.uk



Capitalizing on chaos: Climate change and disaster capitalism*

Robert Fletcher

abstract

While conservative critics complain that serious attention to anthropogenic climate change will adversely impact economic growth, radical environmentalists contend that mitigating climate change in the long term will require substantial transformation of the capitalist system, if not this system's demise altogether. In the short term, however, addressing climate change has become a boom industry in its own right, a source of substantial growth in a variety of sectors. This provides support for Naomi Klein's (2007a) 'disaster capitalism' thesis, which contends that neoliberal capitalism both precipitates disasters and employs these same disasters (and others) as an opportunity to facilitate its expansion. As a result, far from experiencing the constraint predicted by ecological Marxists, in the present capitalism is actually able to harness crises to which it contributes as a source of further expansion. The long-term implications of this dynamic, however, are unclear, demanding further investigation. I illustrate this analysis through discussion of the exponential growth of financing to address climate change, centered on trade in international carbon markets, following the issue's recent ascendance to become the new 'master concept' within global environmental governance generally.

Introduction

In this article, I suggest that the growing effort to address anthropogenic climate change through carbon markets and other financial mechanisms constitutes a form of 'disaster capitalism' (Klein, 2007) whereby neoliberal policies seek to harness crises to which they themselves contribute as opportunities for continued economic expansion. This thesis stands in stark contrast to much of the critical commentary on climate policy circulating within the public sphere at present. Mainstream efforts to address climate change by the international community are commonly contested by critics on both ends of the political spectrum, who similarly claim – albeit for dramatically different reasons – that sustained economic growth within a capitalist framework is likely incompatible with the systemic societal changes necessary to mitigate the climate impacts predicted by such authoritative bodies as the Intergovernmental Panel on Climate Change (IPCC,

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2007). From the right, for instance, Robinson, a researcher with the ultraconservative American Enterprise Institute, asserts:

Mitigation would have an enormously negative effect on developed economies and would cause a serious setback for emerging nations. . . [I]s it worth wreaking havoc on the global economy to prevent a level of warming to which we could adapt in the course of a century? (2008)

For commentators on the far left, by contrast, the root of the problem lies in the nature of capitalism itself (e.g., Foster et al., 2009; Wallis, 2009). As Foster and coauthors contend:

It is becoming increasingly evident that capitalism, given its insatiable drive for accumulation, is the main engine behind impending catastrophic climate change . . . [N]othing less than an ecological revolution—a fundamental reordering of relations of production and reproduction to generate a more sustainable society—is required in order to prevent a planetary disaster. (2009: 1085)

This thesis builds, of course, upon a longstanding line of thought within ecosocialist literature (see e.g., O'Connor, 1988, 1994; Sandler, 1994), the basic structure of which is well-rehearsed. Capitalism, critics contended, is founded upon the inherent contradiction identified by Marx, the fundamental tension between capitalists' desire to extract maximum profit from a system and the necessity that enough income remain in workers' hands to absorb production so that this profit can be realized. This contradiction periodically results in a crisis of overproduction/overaccumulation during which consumption stagnates and the economy retracts. In order to resolve this crisis, excess accumulated capital must be displaced into productive enterprises once more, forcing capitalists to pursue what Sandler (1994) calls the GOD ('Grow Or Die') imperative. This is accomplished through the spatial, temporal, and or time-space 'fixes' described by Harvey (1982, 1989), by means of which an overaccumulation crisis can be (temporarily) forestalled.

The attempt to resolve an accumulation crisis through expanded production, however, exacerbates what James O'Connor (e.g., 1988, 1994) calls capitalism's 'second contradiction', the opposition between the growth imperative and the limited conditions of production (including natural resources) upon which this growth depends. O'Connor's thesis holds that as conditions of production are increasingly taxed in order to increase output and reestablish a high rate of profit, production costs rise, reducing profit once more and forcing further intensification in order to attempt to raise returns, which merely augments the same dilemma and eventually precipitates a converse crisis of underproduction. Thus, capitalism's two contradictions reinforce one another in an ever-worsening – and inherently unsustainable – feedback loop, one of the consequences of which is continued ecological degradation. Of course, the social and environmental dynamics operating in this model should not be viewed as separate but intricately entangled in a dialectical relationship (pace Moore, 2011).

Mainstream advocates of climate change mitigation policy, on the other hand, increasingly contest claims such as these by arguing that successfully addressing climate change is in fact compatible with sustained economic growth. The influential Stern Review, for instance, calculates that atmospheric carbon concentrations can be stabilized at what the authors consider a manageable level of 500-550 ppm (a quantity

considered excessive by others; see e.g., Foster et al., 2009) with a maximum cost of 1% of global GDP by 2050 in the short term (this figure, however, has been fiercely contested by other economists; e.g., Weitzman, 2007). Even this loss, however, would be ostensibly offset by the creation of new markets in the long term (more on this below), and the Review thus maintains:

The world does not need to choose between averting climate change and promoting growth and development. . . Tackling climate change is the pro-growth strategy for the longer term, and it can be done in a way that does not cap the aspirations for growth of rich or poor countries. (Stern et al., 2006: Executive Summary, i-ii)

Implicit in this statement is an even stronger position, namely that addressing climate change is not merely compatible with economic growth but constitutes a form of economic growth itself. A similar perspective is offered in Al Gore's equally influential book/documentary *An Inconvenient Truth* (2004), in which the former US Vice-President turned celebrity environmentalist (Brockington, 2009) also seeks to counter fears that addressing climate change will compromise economic growth (represented by the striking image Gore presents from a Bush Administration slide show of a scale holding the earth on one side and a stack of gold bars on the other) by outlining the numerous ways in which climate-friendly products and services can be developed and sold to maintain US competitiveness in the global economy.

Such characterizations of the climate crisis as a new business opportunity have multiplied in recent years. As but one of many examples, financier Stanley Fink asserted in September 2008 at a gala banquet in support of Prince Charles' Rainforest Project:

Leaving aside the immeasurable value offered by our rainforests' diversity and water conservation functions, we are facing an almost unfathomably large business opportunity, one which we can share with the Rainforest nations of the world. . . With an estimated 610 billion tonnes of CO₂ sequestered by our tropical rainforests, a vast \$18 trillion business opportunity is before us. (cited in Brockington and Duffy, 2010a: 469)

This perspective – that combating climate change can be not merely compatible with economic growth but a form of growth in its own right – calls to mind investigative journalist Naomi Klein's (2007a) analysis of what she terms 'disaster capitalism', defined as 'orchestrated raids on the public sphere in the wake of catastrophic events, combined with the treatment of disasters as exciting marketing opportunities' (2007a: 6). In Klein's framework, neoliberal capitalism has, since its explosion onto the global stage beginning in earnest in the 1970s (see Harvey, 2005), prescribed what she calls a 'shock doctrine' of endeavoring to exploit the disorientation and confusion attending crises, both 'natural' and social, as a means of expanding free market policies in the course of recovery efforts. She identifies the response to Hurricane Katrina in New Orleans (in the wake of which the public school system was largely privatized, among other neoliberal measures) and the 2004 tsunami in Asia (after which numerous formerly-public beaches were expropriated for development by large hotel chains and local fisher people displaced) as paradigmatic examples of this strategy.

In a similar spirit, Cooper, following Gowan (1999), describes the 'productivity of turbulence', asserting:

The production of monetary and financial turbulence, whether threatened or real, exercises an undeniable political leverage. It enables the international financial institutions to force through the privatization of state industries, welfare and infrastructure, and to further impose forms of debt-financing. . .that are most volatile and most profitable to the institutional investment funds. (2010: 168)

Response on the part of the international community to global climate change concerns appears increasingly amenable to analysis as a form of disaster capitalism as well. Indeed, the Stern Review predicted precisely this in its conclusion, asserting:

Action on climate change will also create significant business opportunities, as new markets are created in low-carbon energy technologies and other low-carbon goods and services. These markets could grow to be worth hundreds of billions of dollars each year, and employment in these sectors will expand accordingly. (Stern et al., 2006: Summary of Conclusions, viii)

While Klein herself alludes to the connection between climate change response and disaster capitalism at several points, she does not develop the analysis. Likewise, two recent articles analyzing the growth of carbon offset markets briefly note this same connection but do delve into it either (Paterson, 2009: 250; Sullivan, 2009: 256). The link has also been discussed in a handful of popular media sources (e.g. Funk, 2010; Thompson, 2010). Cooper (2010), as noted above, offers a somewhat analogous framework, yet, her analysis of how ‘turbulence’ functions within climate change response, described further below, remains nascent as well.

In what follows, then, I describe the various ways in which the international climate change response can be seen as a form of disaster capitalism. I begin with a brief discussion of the originality of Klein’s thesis vis-à-vis an emerging body of literature exploring neoliberalization within natural resource management policy and practice. I then provide an overview of the recent exponential growth of funding to combat climate change, particularly in terms of the rise of markets for trade in carbon emissions credits over the past several years, during which time the climate crisis has become what White and colleagues (2009: 2) call ‘the new “master concept” of environmental governance’. Following this, I describe the ways in which climate change finance has become increasingly tied up with neoliberal capitalism in this period, emphasizing mitigation through market-based mechanisms. I conclude with a call for more assessment of the consequences of this disaster capitalism response to the growing climate crisis, evaluating to what extent it is in fact capable of providing its intended ‘fix’ to capitalism’s looming contradictions.

Neoliberal nature

In a sense, the application of Klein’s disaster capitalism thesis to environmental policy can be seen as a twist on the rapidly growing literature analyzing neoliberalization within natural resource management generally (see e.g., McCarthy and Prudham, 2004; Bakker, 2005; Heynen and Robbins, 2005; Swyngedouw, 2005; Heynen et al., 2007; Smith, 2007; Castree, 2008). This research documents numerous cases in which natural resources previously externalized within conventional commodity markets are themselves commodified as a source of further profit through enclosure and sale within

neoliberal markets. Hence, Castree (2008) describes such activities as providing a series of 'environmental fixes' for capitalism's central contradiction in pursuit of new sources of income to combat falling rates of profit, including: 1) commodifying and trading new forms of 'natural capital'; 2) replacing state control of resources with capitalist markets; 3) intensifying exploitation of a given natural resource to yield increased short-term profits; and 4) transferring resource governance responsibility (and thus revenues) from states to non-state actors. In this sense, neoliberalization of natural resources can be seen as part and parcel of the strategy of 'accumulation by dispossession' that Harvey (2005) finds characteristic of neoliberalism in general, in terms of which wealth is generated less through creating wholly new sources of value than by appropriating resources formerly controlled by others or held in the public domain for the enrichment of a minority elite.

Addressing climate change (which the Stern Review (2006) famously pronounced the world's greatest externality) through creation of carbon markets has been described in just this manner by Bumbus and Liverman (2008). Yet, the majority of the neoliberal nature literature describes attempts to create markets for the sustainable use of natural resources. Climate change response stands somewhat distinct from this, however, in that its aim is, on the contrary, to encourage resources' non-use, by, for instance, leaving forests intact and fossil fuel in the ground to avoid the release of greenhouse effect-inducing carbon into the atmosphere. In this respect, climate change response is best considered as an aspect not of neoliberal natural resource management generally but of neoliberal conservation in particular. As researchers increasingly observe, the global effort to preserve natural resources from extraction and use has itself become progressively neoliberalized over the past several decades (e.g., Sullivan, 2006, 2009, forthcoming; Igoe and Brockington, 2007; Brockington et al., 2008; Brockington, 2009; Brockington and Duffy, 2010b; Büscher, 2010; Fletcher, 2010a), and this practice requires distinct mechanisms for attempting to harness the value of resources in situ (Büscher et al., 2012), as I describe further below.

What Klein's disaster capitalism frame adds to this analysis is an understanding of how the perception of crisis is employed as a strategy to facilitate this neoliberalization of resource control and marketing. And while this dynamic has been alluded to within the neoliberal conservation literature (Brockington et al., 2008; Sullivan, 2009, forthcoming), its application to address climate change response remains little developed (cf. Cooper, 2010). It is this dimension of harnessing the image of climate change as an impending disaster to promote new forms of neoliberal governance and market enclosure that my analysis seeks to highlight.

Importantly, Klein's analysis also suggests an intriguing amendment to O'Connor's (1988, 1994) analysis of capitalism's second contradiction that has recently been highlighted by neoliberal conservation researchers (Brockington et al., 2008; Igoe et al., 2010; Neves, 2010; Sullivan, forthcoming; Fletcher, 2011). While O'Connor's analysis predicted that exhaustion of the conditions of production would eventually raise costs and thus reduce the profit gleaned from capitalist enterprise, Klein's thesis suggests that in the short term, paradoxically, the ecological degradation caused by capitalist production can itself be harnessed as a further source of profit in its own right. Researchers have documented this process, for instance, in the practice of ecotourism,

which is able to generate greater revenue in the form of heightened admission charges as its objects (whales, rainforest, etc.) become increasingly scarce (Neves, 2010; Fletcher, 2011). As I describe below, climate change response via carbon markets displays much this same dynamic.

Climate change stands somewhat distinct from the majority of crises Klein (2007) includes in her analysis, which tend to be concrete, short-term, and relatively localized phenomena (such as hurricanes, tsunamis, and wars) whose impacts are immediate and easily linked with their cause. By contrast, climate change is characterized by great uncertainty concerning both its repercussions and the timeline over which these will occur (IPCC, 2007). Moreover, most of serious consequences that do occur will likely unfold incrementally, over substantial periods of time, and it may be difficult to directly link localized impacts with such a diffuse, global source. Despite these ambiguities, however, climate change is increasingly framed as a disastrous crisis, the consequences of which will likely be devastating if not immediately addressed in a substantial manner (Gore 2004; Stern et al., 2006), and in this respect the climate crisis is amenable to analysis within the disaster capitalism frame. The climate crisis, however, was caused less by neoliberal processes per se than by an industrial capitalism grounded in fossil fuel exploitation originating in the 1700s – for which neoliberalism, indeed, serves as an attempted corrective, endeavoring to internalize natural resources as essential means of production requiring long term nurturance (along with additional value creation) in what Martin O'Connor (1994) calls capitalism's 'ecological phase' (see also Brockington et al., 2008).

Finally, it is important to acknowledge that the effort to exploit climate change as a business opportunity remains the minority response among capitalists, the majority of whom continue to ignore the phenomenon or deny that it exists altogether, as myriad critics lament. This of course reveals that capitalism is not a monolithic entity but a complex system containing diverse and divergent interests and forces. Yet, to the extent that influential actors within the capitalist system do take the prospect of an impending climate crisis seriously it is by and large within the disaster capitalism frame – and this response, as described further below, is increasing by leaps and bounds at present. It is to this response that I now turn.

Climate finance and disaster capitalism

As evidenced in the definition cited earlier, there are two distinct yet interrelated elements in Klein's disaster capitalism concept: 1) the neoliberalization of structures for governing resources formerly within the public domain and/or creation of markets for trade in previously non-monetized commodities; and 2) the exploitation of disasters for financial gain. Let us consider the second of these first.

The *Stern Review* (2006) forecasted future financial markets directed toward climate mitigation and adaptation in the neighbourhood of US \$500 billion, and progress towards this figure appears to be well apace at present. This growth can be observed most centrally in the emergence of carbon trading markets, much of which has been facilitated by the Kyoto Protocol, whose 'flexible mechanisms' (e.g., the so-called

Clean Development Mechanism (CDM)) provide for the creation of such markets. These mechanisms arose largely due to demands from wealthy countries that displacing their emissions to poorer societies by paying the latter to reduce their own emissions would be more efficient than pursuing reductions at home, where the cost would be much greater (Bumpus and Liverman, 2008). Since the Protocol entered into force in 2005, the growth in global carbon markets has been astronomical.

According to World Bank statistics, in 2005 the total global market in carbon trading amounted to approximately US \$10 billion (World Bank, 2007). By 2006, it had tripled to US \$30 billion (World Bank, 2007), doubling to \$63 billion by 2007, then doubling again to \$126 billion by 2008 (World Bank, 2009). In 2009, despite the global economic crisis, the market grew 8% to reach almost \$144 billion (World Bank, 2010). In 2010 (the latest figures available as of this writing), however, the recession (as well as questions concerning the prospects of a post-Kyoto agreement) finally caught up with the carbon market, causing it to drop slightly to just under \$142 billion (World Bank, 2011).

Within the carbon market, the European Trading Scheme (ETS) constitutes by far the largest trading carbon mechanism at present. Totalling nearly \$8 billion in 2005, the ETS market tripled to over \$24 billion the next year (World Bank 2007). Then it doubled in 2008, to \$49 billion, World Bank, 2009), and again in 2009, reaching \$119 billion (World Bank, 2010). In 2010, despite the recession, the market grew very slightly once more to \$120 billion (World Bank, 2011).

Growth in CDM offset trading – including both primary and secondary (in which contracts are traded through intermediaries such as banks rather than directly) markets – has until recently experienced similar growth, standing at US \$2.5 billion in 2005, doubling to \$5 billion in 2006 (World Bank, 2007), more than doubling again to \$13 billion in 2007, then almost tripling to nearly \$33 billion in 2008 (World Bank, 2009). In 2009, on the other hand, the total CDM market fell to just over \$20 billion due to the ‘complexity and changing nature of regulations, inefficiencies in the regulatory chain and capacity bottlenecks’ (World Bank, 2010: 2) and dropped slightly again in 2010 to \$19.8 billion overall (World Bank, 2011).

Of the CDM market, the largest share (approximately 26% to date) is dedicated to funding for hydroelectric projects, which are widely considered a form of clean, renewable energy production with zero greenhouse gas emissions (see Fletcher, 2010b). According to a database assembled by International Rivers, a watchdog NGO, as of 30 December 2011 the CDM had issued 65.9 million tCO₂e (tons carbon dioxide equivalent) in certified emissions reductions (CERs) across 395 hydro projects, and a total of 2083 projects were either registered or had applied for registration for future trading.¹

The global carbon market is predicted to expand even more dramatically in the future. One estimate forecasts that the market will reach \$2 trillion within the next several years (USCFTC, 2010), another that it will amount to \$3 trillion by 2020, and a third

1 www.internationalrivers.org/node/1785

that it will eventually total \$10 trillion (Bloomberg, 2010). Commenting on this potential, Sandor contends, 'We're going to see a worldwide market, and carbon will unambiguously be the largest non-financial commodity in the world' (in Bloomberg, 2010).

Klein's second attribute of disaster capitalism – the spread of neoliberal market mechanisms in the course of disaster response – can be observed most clearly in the growth of a carbon market parallel to government-directed mechanisms such as the CDM and ETS that trades in so-called 'voluntary carbon offsets' (VCOs). Bumpus and Liverman (2008: 137) observe that 'the VCOs have no formal governance structure', relying entirely on individual exchange among individuals and/or firms. Harris (2006) reports a 150% annual growth in VCO markets as of 2006 (cited in Bumpus and Liverman, 2008: 144), by which time, according to the annual assessment issued by the industry groups Ecosystem Marketplace and New Carbon Finance, the total market had reached \$91 million (EMNCF, 2007). By the next year, this had nearly quadrupled to \$335 million, doubling again to \$705 million in 2008 (EMNCF, 2009). As a result of the global recession, on the other hand, in 2009 the market dropped dramatically to \$415 million then rose again slightly in 2010 (the last year for which numbers are currently available) to reach \$424 million (EMNCF, 2011).

VCOs remain a small percentage of the overall carbon market, however, which, as previously noted, was last estimated at \$142 billion. Yet, even in the larger carbon market, in which both national governments and transnational financial institutions play a central regulatory role, a strong trend towards neoliberalization can be found. In this, it is important to acknowledge that neoliberalization does not necessarily equate only with privatization per se, as critics sometimes contend. Rather, as Castree (2008) among others points out, neoliberalization characteristically entails not so much deregulation as reregulation, shifting the locus of resource governance from states to non-state actors, including upwards to transnational financial institutions and downwards to nongovernmental organizations. Within neoliberal markets, however, the state is still required to create and sustain the overarching regulatory framework within which market actors engage in ostensibly free forms of exchange (Foucault, 2008; Peck, 2010). Thus, Foucault (2008: 132), for instance, contends, 'Neoliberalism should not be identified with laissez-faire, but rather with permanent vigilance, activity and intervention'.

In this respect, several researchers have observed within global climate policy in general a strong trend towards neoliberalization over time (Oels, 2005; While et al., 2009; Lohmann, 2009a). Prior to the 1980s, Oels (2005) describes, global warming was primarily construed as a threat to human life and addressed for the most part through a state-centered command and control approach emphasizing prevention via top-down mechanisms. Following the crystallization of the international sustainable development agenda in the late 1980s, however, climate policy went increasingly neoliberal in its reframing of global warming as principally a threat to continued economic growth, consistent with discussion of environmental problems within the sustainable development movement in general (Escobar, 1995). Then, While and colleagues (2009: 83) claim, following the Kyoto meetings in 1997 global climate policy underwent a further round of neoliberalization, evidencing 'a preference for market-based solutions

that establish a price for carbon, expressed in units of cost per tonne of carbon (tco₂), and a system of “cap and trade”, in which permits for emissions are rationed within an agreed limit and auctioned to firms or organizations’. (The authors note a further shift in 2005/6, after which time public discourse concerning climate change grew exponentially around the world, propelling the issue to become the new ‘master concept’ within environmental governance, as related above (While et al, 2009)). In short, the authors claim:

Carbon governance post-Kyoto has thus resulted in a complex and multi-scalar system for controlling carbon emissions, involving a degree of transfer of regulatory power upwards to the supranational level and outwards to markets and nonnational state actors, but also a continued emphasis on the management of carbon flows by nationstates. . . This would appear to be consistent with the wave of neoliberal marketization. (While et al., 2009: 85)

Similarly, Bumpus and Liverman (2008) call investment in carbon markets of whatever form a strategy of ‘accumulation by decarbonization’, building upon Harvey’s (2005) influential analysis of neoliberalism as a means of ‘accumulation by dispossession’, as mentioned earlier. According to Harvey, this strategy entails four interrelated movements: 1) commodification of resources; 2) resources’ financialization through incorporation within international markets; 3) the management of crises in the interest of the private sector; and finally 4) states’ functioning chiefly as agents of redistribution and regulation (rather than direct allocators of resource use) within all of this. Bumpus and Liverman (2008) find all of these attributes in global carbon markets as currently structured. While the bulk of the market remains regulated by governmental and inter-governmental policy, this regulation, consistent with neoliberal principles (see Foucault, 2008; Peck, 2010), serves primarily to establish the market’s parameters while leaving transactions largely to the self-direction of the individual participants. Thus, Bumpus and Liverman (2008: 145) assert, ‘Carbon offsets may be seen as a case of neoliberal environmental governance in which the management of an environmental problem is partly devolved to the market and to the individual but in which the state eventually establishes the rules under which markets operate’. In addition, the authors note that over time these ostensibly government-directed markets have become increasingly infiltrated by private actors, describing:

Enthusiasm for the carbon markets is increasingly driven by market actors who see possibilities for both direct investment in offset projects and indirect opportunities for commodification in secondary markets, such as verification of reductions, derivatives, and insurance associated with trading in emissions. (Bumpus and Liverman, 2008: 142)

All of this suggests that carbon markets should be viewed as an expression of what Peck and Tickell (2002) call ‘roll-out’ as opposed to ‘roll-back neoliberalism’. The authors describe ‘a shift from the pattern of deregulation and dismantlement so dominant during the 1980s, which might be characterized as “roll-back neoliberalism”, to an emergent phase of active state-building and regulatory reform – an ascendant moment of “roll-out neoliberalism”’ (Peck and Tickell, 2002: 384). Carbon markets were first established shortly following neoliberalism’s transition to roll-out status and clearly conform to this strategy in their creation of a novel framework to employ market mechanisms to regulate carbon use on a global scale.

The new frontiers

As a form of neoliberal conservation, climate response via carbon markets involves not merely *commodification* of natural resources but their *financialization* as well (Smith, 2007; Sullivan, forthcoming; Büscher, n.d.). As Büscher (n.d.) shows, this is necessitated by the unique nature of neoliberal *conservation* vis-à-vis neoliberal natural resource management in general. As opposed to resources whose use can be bought and sold within markets, the resources upon which carbon control (like other conservation measures) is based must by definition be preserved in situ, and thus creative means must be found to ascribe exchange value to these resources without granting access to their use. In other words, the ‘fixed capital’ (in the form of the localized natural resources) upon which conservation is based must be transformed into fluid capital that can be abstracted and freely circulated throughout the world. This leads to what Büscher (n.d.), following Marx’s description of financialization with capitalist markets in general as the creation of ‘fictitious capital’ (see Harvey, 1982, 1989), calls a strategy of ‘fictitious conservation’. This is achieved through creation and exchange of what Büscher (2010) elsewhere labels ‘derivative nature’, that is, financial mechanisms that gain their value not directly from the material resources or productive labour upon which they are ostensibly based but from an abstracted notion of what such resources are worth relative to speculative propositions concerning their future disposition. Carbon markets, which derive their value from predictions concerning the future effects of increased atmospheric carbon concentrations, clearly constitute just this type of exchange in financialized, derivative nature.

Financialization through conventional carbon markets is likely to continue its dramatic expansion into the foreseeable future, as described earlier, particularly given the recent endorsement by the UN Framework Convention on Climate Change (UNFCCC) of a global Reduced Emissions from Deforestation and Degradation (REDD+) mechanism, which is commonly predicted to spawn at least a \$30 billion market in the near future (see e.g., Phelps et al., 2010). Financialization of conserved nature via climate change response is currently being taken to new extremes as well, however. First, beyond discrete carbon markets such as the ETS or CDM, we are witnessing the development of more general fora for exchange in derivatives of these markets and other carbon products, including the already-established Chicago and European Climate Exchanges (the latter based in London) and similar emerging initiatives in other diverse locations including Australia, China, and Montreal (Bumpus and Liverman, 2008; While et al., 2009; Sullivan, forthcoming). In addition, Sullivan (forthcoming) describes the emergence of financial investment firms specifically devoted to consolidating and rendering interchangeable environmental ‘investment products across a broad range of asset classes’, as the Inflection Point Capital Management fund (which indeed calls itself ‘the world’s first multi-strategy asset management boutique’) puts it (in Sullivan, forthcoming). Likewise, EKO Asset Management Partners declares itself in the business of ‘discovering and monetizing unrealized or unrecognized environmental assets’ for exchange within and across multiple ‘environmental markets’, including those for carbon, water, and biodiversity (in Sullivan, forthcoming). Sullivan also notes recent exploration of the potential of carbon offset credits linked to population reduction programs in less-developed societies (proposed by Optimum Population Trust), as well as for government-issued ‘index-linked carbon bonds’, in which ‘interest payments are

linked to the actual greenhouse gas emissions of the issuing country against published targets', thereby conferring 'an excess return if the issuing country's emissions are above the government's published target' (in Sullivan, forthcoming).

In a similar vein, Cooper (2010: 170) describes the rise of a 'market for weather risk management' that 'extends beyond carbon trading to include a whole new spectrum of novel financial instruments designed to price and manage the risks associated with extreme weather events, natural catastrophes and unexpected temperature fluctuations'. These include 'catastrophe bonds, securities that manage the risks of improbable but catastrophic natural events, and environmental derivatives, financial instruments that respond to unpredictable fluctuation in the weather' (Cooper, 2010: 175) – both of which clearly conform to Büscher's (2010) 'derivative nature' frame, described above, in that they are specifically 'designed to price and trade both in the uncertainties of the weather and our own uncertainties about the future of climate change' (Cooper, 2010: 176). In this way, uncertainty concerning climate change impacts becomes not a hindrance to marketization but yet another opportunity for profit; both the climate crisis and uncertainty concerning the same become distinct sources of value, a double reversal of James O'Connor's (1994) predictions. Echoing the disaster capitalism thesis again, Cooper (2010: 175) observes of all this that 'the curious effect is that climate change – and the critical or singular events it may engender – has become a speculative opportunity like any other in a market hungry for critical events'.

Climate change's disaster capitalism response has spurred the rise of novel efforts to harness the crisis in the exploitation of more traditional commodity markets as well. Many of these trends are so recent that, to my knowledge, they have not yet been documented within peer-review sources. Funk (2010), for instance, describes a recent series of land grabs around the world by what he calls 'capitalists of chaos' who model climate change's projected impact on agricultural output in order to predict where land will likely increase in productivity so as to purchase it cheaply in the present in anticipation of the global food shortage climate change may precipitate. In this spirit, Funk (2010: 65) estimates, investors have already purchased 19 million acres in China and 6 million in both Saudi Arabia and South Korea. One North American, who has been explicitly accused of engaging in 'hyperdisaster capitalism' (Funk, 2010: 62), has singlehandedly acquired 1 million acres in southern Sudan, 'making him one of the largest private landholders in Africa' (2010: 59).

Similarly, the portion of Klein's official website devoted to 'disaster capitalism in action' describes climate change speculation on the part of multinational GMO manufacturers, relating that recently '[t]hree companies – BASF of Germany, Syngenta of Switzerland and Monsanto of St. Louis – have filed applications to control nearly two-thirds of the climate-related gene families' in order to 'leverage climate change as a way to get into resistant markets' as the growing crisis renders conventional crops increasingly less productive (Klein, 2010). While aimed at conventional commodity production, all of these endeavors are clearly founded in a similar derivative nature strategy as the various financial mechanisms detailed above.

Another curious aspect of the disaster capitalism response may involve ignoring or even actively working to discredit predictions of the impending climate crisis, in order to

harness both current sources of profit potentially compromised by a serious mitigation response and, moreover, to let the crisis unfold in anticipation of the new sources of profit thereby created. Klein asserts:

The disaster-capitalism complex does not deliberately scheme to create the cataclysms on which it feeds (though Iraq may be a notable exception), but there is plenty of evidence that its component industries work very hard indeed to make sure that current disastrous trends continue unchallenged. (2007b)

She highlights ExxonMobil's funding of climate change denial as an example of this trend (Klein, 2007b). GMO manufacturers' anticipation of expanded markets for drought-resistant seeds, noted above, may form another instance. In this way, rather than viewed as opposing processes, attempts both to explicitly harness the climate crisis as a source of profit and to ignore or deny it may, at times, be Janus-faced dimensions of a similar disaster capitalism response.

Conclusion

In the above, I have contended that the contemporary international response to climate change concerns, led by the global trade in carbon credits, increasingly functions as a form of disaster capitalism, exploiting the climate crisis as both a marketing opportunity and justification to expand neoliberal markets and regulatory mechanisms. In the process, carbon markets clearly seek to provide a number of the temporal, spatial, and environmental fixes described by Harvey (1982, 1989) and Castree (2008). In terms of Harvey's framework, carbon markets simultaneously displace capital geographically (e.g., from core to periphery through offset projects) and into the future through investment in 'sustainable development' projects in less-developed societies (e.g., through the CDM). Carbon markets can be seen to pursue at least three out of Castree's four environmental fixes as well: 1) commodifying and creating new markets for trade in carbon; while 2) privatizing emissions allocations through cap-and-trade strategies that; 3) displace state regulation of climate policy in favor of neoliberal mechanisms increasingly directed by market actors. In addition, as I have observed, carbon markets tap another source of profit neither Castree nor O'Connor seem to have predicted, harnessing the very ecological crisis exacerbated by capitalist expansion as a further source of value.

Future research would be useful to assess particular dimensions of this process, exploring how specific carbon markets or offset projects seek to accomplish these various fixes and the extent to which they succeed in this aim. In addition, research is needed to investigate the key question raised by this analysis: To what extent does all of this actually contribute to effectively mitigating the climate change impacts it purports to address? After all, critics question whether carbon markets truly effect a net emissions reduction or merely conceal continued carbon production through sleight-of-hand accounting. Lohmann (2009b: 149), for instance, evocatively argues, 'Carbon trading is one final bloated corpse that needs to be hoisted into a hearse and whisked away quickly before it poisons genuine investment initiatives'. Far from reducing emissions, Lohmann contends,

In their decade of existence. . . they have done precisely the opposite, by offering the heaviest fossil fuel polluters in industrialized societies new means for delaying the steps toward structural change that need to be taken immediately, while simultaneously providing supplementary finance for fossil-intensive industrial pathways in the South. (*ibid.*)

A striking example of the ways in which carbon markets may not merely fail to reduce but actually increase greenhouse gas emissions, despite the surface appearance of reductions, is in their financing of hydroelectric dams as an offset mechanism. As noted above, hydro projects are the most popular mechanism currently financed by the CDM. While hydro power, as mentioned, is commonly considered clean energy with zero carbon emissions by dam builders and their advocates, a growing body of research demonstrates that dams are in fact significant greenhouse gas emitters, primarily through releases of methane from vegetation submerged beneath their reservoirs as well as the energy expended in their construction. Some investigators, indeed, suggest that dams (particularly in tropical areas) may pollute more than equivalent coal-fire plants (see Mäkinen and Khan, 2010 for a survey of this research). Hence, employing hydro dams as offset projects – an increasingly common strategy around the world – has helped to restimulate a dam building industry that was in steep decline a decade ago (see Fletcher, 2010b), but it may be significantly increasing carbon emissions on a global scale as well.

Dynamics such as this demand further investigation in order to assess the extent to which the swiftly growing global campaign to address climate change through neoliberal carbon market mechanisms is in fact capable of contributing to an effective resolution of the impending crisis rather than merely stimulating capitalist expansion. Systematic research in this vein remains nascent (Olsen, 2007), partly due to carbon markets' fairly recent origin, and must be increased substantially in the future. Armed with this information, we will be much better positioned to contribute to deliberations concerning the future of climate change policy in relation to disaster capitalism.

This is particularly pertinent given the current global economic recession, which has provoked substantial contraction in funding for environmental initiatives generally and given rise to widespread predictions that the era of neoliberalism may be drawing to a close (e.g., Broad and Cavanaugh, 2008; Stiglitz, 2008). Disaster capitalism, of course, has been a core neoliberal strategy, serving to facilitate accumulation via privatization and market liberalization (Klein, 2007). If we are truly entering a 'post-neoliberal' era entailing new forms of public regulation over markets and commons (and there remain important questions concerning the extent to which this is in fact occurring), the efficacy of this strategy, for addressing climate change as well as other dynamics, may be seriously compromised. In addition, the recession may adversely impact the ability to generate funds to finance carbon trading (as has already occurred to some degree for the CDM and VCO markets, described above). These prospects, and their implications for the potential to effectively address climate change through carbon markets and other forms of financialization, demand further study as well.

references

- Bakker, K. (2005) 'Neoliberalizing Nature? Market Environmentalism in Water Supply in England and Wales', *Annals of the Association of American Geographers*, 95(3): 542-565.

- Bloomberg (2010) [<http://www.bloomberg.com/apps/news?pid=20601080&sid=aLM4otYnvXHQ>].
- Broad, R., and J. Cavanaugh. (2008) *Development redefined: How the market met its match*. New York: Paradigm Publishers.
- Brockington, D. (2009) *Celebrity and the environment: Fame, wealth and power in conservation*. London: Zed Books.
- Brockington, D., R. Duffy and J. Igoe (2008) *Nature unbound: Conservation, capitalism and the future of protected areas*. London: Earthscan.
- Brockington, D., and R. Duffy. (2010a) 'Capitalism and conservation: The production and reproduction of biodiversity conservation', *Antipode*, 42(3): 469-484.
- Brockington D., and R. Duffy (eds.) (2010b). *Antipode* 42(3). Special issue on *Capitalism and conservation*.
- Bumpus, A., and D. Liverman (2008) 'Accumulation by decarbonisation and the governance of carbon offsets', *Economic Geography*, 84:127-56.
- Büscher, B. (2010) 'Derivative nature: Interrogating the value of conservation in "Boundless Southern Africa"', *Third World Quarterly*, 31(2): 259-276.
- Büscher, B. (n.d.) 'Nature on the move: Capital, circulation and the value of fictitious conservation'. Unpublished article manuscript.
- Büscher, B., D. Brockington, J. Igoe, K. Neves, and S. Sullivan (2012) 'Towards a synthesized critique of neoliberal biodiversity conservation', *Capitalism Nature Socialism*, 23(2): 4-30.
- Castree, N. (2008) 'Neo-liberalising nature I: The logics of de- and re-regulation', *Environment and Planning A*, 40(1): 131-152.
- Cooper, M. (2010) 'Turbulent worlds: Financial markets and environmental crisis', *Theory, Culture & Society*, 27(2-3): 167-190.
- Ecosystem Marketplace and New Carbon Finance (EMNCF) (2007) *State of the voluntary carbon markets 2007*. New York and Washington DC: EMNCF.
- Ecosystem Marketplace and New Carbon Finance (EMNCF) (2009) *State of the voluntary carbon markets 2009*. New York and Washington DC: EMNCF.
- Ecosystem Marketplace and New Carbon Finance (EMNCF) (2011) *State of the voluntary carbon markets 2011*. New York and Washington DC: EMNCF.
- Escobar, A. (1995) *Encountering development: The making and unmaking of the Third World*. Princeton: Princeton University Press.
- Fletcher, R. (2010a) 'Neoliberal environmentality: Towards a poststructuralist political ecology of the conservation debate', *Conservation and Society*, 8(3): 171-181.
- Fletcher, R. (2010b) 'When environmental issues collide: Climate change and the shifting political ecology of hydroelectric power', *Peace & Conflict Review*, 5(1): 14-30.
- Fletcher, R. (2011) 'Sustaining tourism, sustaining capitalism? Theorizing the tourism industry's role in global capitalist expansion', *Tourism Geographies*, 13(3): 443-461.
- Foster, J.B., B. Clark and R. York (2009) 'The Midas effect: A critique of climate change economics', *Development and Change*, 40(6): 1085-1097.
- Foucault, M. (2008) *The birth of biopolitics*. New York: Palgrave Macmillan.
- Funk, M. (2010) 'Meet the new capitalists of chaos', *Rolling Stone*, 27 May.
- Gore, A. (2004) *An inconvenient truth: The planetary emergency of global warming and what we can do about it*. New York: Rodale Books.
- Gowan, P. (1999) *The global gamble: Washington's Faustian bid for world dominance*. London: Verso.
- Harvey, D. (1982) *The limits to capital*. London: Verso.
- Harvey, D. (1989) *The condition of postmodernity: An inquiry into the origins of cultural change*. Oxford: Basil Blackwell.
- Harvey, D. (2005) *A brief history of neoliberalism*. Oxford: Oxford University Press
- Heynen, N., and P. Robbins (2005) 'The neoliberalization of nature: Governance, privatization, enclosure and valuation', *Capitalism Nature Socialism*, 15(1): 5-8.

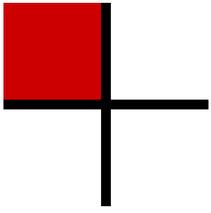
- Heynen, N., J. McCarthy, P. Robbins, and S. Prudham (eds.) (2007) *Neoliberal environments: False promises and unnatural consequences*. New York: Routledge.
- Igoe, J. and D. Brockington (2007) 'Neoliberal conservation: A brief introduction', *Conservation and Society*, 5(4): 432-449.
- Igoe, J., K. Neves, and D. Brockington (2010) 'A spectacular eco-tour around the Historic Bloc: Theorising the convergence of biodiversity conservation and capitalist expansion', *Antipode*, 42(3): 486-512.
- Intergovernmental Panel on Climate Change (IPCC) (2007) *Climate change 2007: The physical science basis*. Cambridge: Cambridge University Press.
- Klein, N. (2007a) *The shock doctrine: The rise of disaster capitalism*. New York: Metropolitan Books.
- Klein, N. (2007b) 'Disaster capitalism: The new economy of catastrophe', *Harpers*, October [http://www.democruptcy.com/disaster-capitalism/].
- Klein, N. (2010) [http://www.naomiklein.org/shock-doctrine/resources/disaster-capitalism-in-action/tags/gmos].
- Lohmann, L. (2009a) 'Neoliberalism and the calculable world: The rise of carbon trading', in S. Böhm and S. Dabhi (eds.) *Upsetting the offset*. London: MayFly Books.
- Lohmann, L. (2009b) 'Climate as investment', *Development and Change*, 40(6): 1063-1083.
- Mäkinen, K., and S. Khan (2010) 'Policy considerations for greenhouse gas emissions from freshwater reservoirs', *Water Alternatives*, 3(2): 91-105.
- McCarthy, J., and S. Prudham (2004) 'Neoliberal nature and the nature of neoliberalism', *Geoforum*, 35: 275-283.
- Moore, Jason (2011) 'Transcending the metabolic rift: A Theory of crises in the capitalist world-ecology', *The Journal of Peasant Studies*, 38(1): 1-46.
- Neves, K. (2010) 'Cashing in on cetourism: A critical ecological engagement with dominant E-NGO discourses on whaling, cetacean conservation, and whale watching', *Antipode*, 42(3): 719-741.
- O'Connor, J. (1988) 'Capitalism, nature, socialism: A theoretical introduction', *Capitalism Nature Socialism*, 1(1): 11-38.
- O'Connor, J. (1994) 'Is sustainable capitalism possible?', in P. Allen (ed.) *Food for the future: Conditions and contradictions of sustainability*. New York: Wiley-Interscience.
- O'Connor, M. (1994) 'On the misadventures of capitalist nature', in M. O'Connor (ed.) *Is capitalism sustainable?* New York: Guilford Press.
- Oels, A. (2005) 'Rendering climate change governable: From biopower to advanced liberal government?', *Journal of Environmental Policy & Planning*, 7: 185-207.
- Olsen, K.H. (2007) 'The Clean Development Mechanism's contribution to sustainable development: A review of the literature', *Climate Change*, 84: 59-73.
- Paterson, M. (2009) 'Resistance makes carbon markets', in S. Böhm and S. Dabhi (eds.) *Upsetting the offset: The political economy of carbon markets*. London: Mayfly Books.
- Peck, J, and A. Tickell. (2002) 'Neoliberalizing space', *Antipode*, 34: 380-404.
- Peck, J. (2010) *Constructions of neoliberal reason*. Oxford: Oxford University Press.
- Phelps, J., E.L. Webb and A. Agrawal, A. (2010) 'Does REDD+ threaten to recentralize forest governance?', *Science*, 328: 312-13.
- Robinson, C.H. (2008) 'Climate for Change', [http://www.aei.org/article/28609].
- Sandler, B. (1994) 'Grow or die: Marxist theories of capitalism and the environment', *Rethinking Marxism*, 7(2): 38-57.
- Smith, N. (2007) 'Nature as accumulation strategy', *Socialist Register*, January: 1-36.
- Stern, N., S. Peters, V. Bakhshi, A. Bowen, C. Cameron, S. Catovsky, D. Crane, S. Cruickshank, S. Dietz, and N. Edmonson (2006) *Stern review: The economics of climate change*. London: Her Majesty's Treasury.
- Stiglitz, J. (2008) 'The End of Neoliberalism?', *Project Syndicate*, 7 July [http://www.project-syndicate.org/commentary/stiglitz101]

- Sullivan, S. (2006) 'The elephant in the room? Problematising "new" (neoliberal) biodiversity conservation', *Forum for Development Studies*, 33(1):105-135.
- Sullivan, S. (2009) 'Green capitalism, and the cultural poverty of constructing nature as service provider', in S. Böhm and S. Dabhi (eds.) *Upsetting the offset: The political economy of carbon markets*. London: Mayfly Books.
- Sullivan, S. (forthcoming) 'Banking nature? The spectacular financialisation of environmental conservation', *Antipode*.
- Swyngedouw, E. (2005) 'Dispossessing H2O: The contested terrain of water privatization', *Capitalism Nature Socialism*, 16(1): 81- 98.
- Thompson, C. (2010) 'Disaster capitalism: Is the planet really warming up? Just ask the corporations that stand to make – or lose – billions due to 'climate exposure'', *Mother Jones*, 19 April.
- United States Commodities Futures Trading Commission (USCFCT) (2010) [<http://www.cftc.gov/newsroom/generalpressreleases/2009/pr5648-09.html>].
- Wallis, V. (2009) 'Beyond 'green capitalism'', *Monthly Review*, 61(9): 32-48.
- Weitzman, M.L. (2007) 'A review of the *Stern Review on the Economics of Climate Change*', *Journal of Economic Literature*, 45(3): 703-724.
- While, A., A.E.G Jonas and D. Gibbs (2009) 'From sustainable development to carbon control: Eco-State restructuring and the politics of urban and regional development', *Trans Inst Br Geogr*, NS 2009: 1-19.
- World Bank (2007) *State and trends in the carbon market 2007*. Washington, DC: World Bank.
- World Bank (2009) *State and trends in the carbon market 2009*. Washington, DC: World Bank.
- World Bank (2010) *State and trends in the carbon market 2010*. Washington, DC: World Bank.
- World Bank (2011) *State and trends in the carbon market 2011*. Washington, DC: World Bank.

the author

Robert Fletcher is Assistant Professor of Natural Resources and Sustainable Development at the United Nations-mandated University for Peace in Ciudad Colón, Costa Rica. His research interests include climate change, development, ecotourism, globalization, environmental governance, and resistance and social movements. He has conducted field research concerning these issues in Chile, Costa Rica, and the United States.

E-mail: rletcher@upeace.org



The prey of uncertainty: Climate change as opportunity*

Jerome Whittington

abstract

In this article I describe the post-Copenhagen moment in carbon markets and climate politics as one characterised by deep uncertainty. Uncertainty describes the social experience of emerging climate policy, but it is also business strategy. Uncertainty is necessary for markets to function. To understand this, I look toward practices of capitalism, which produce the future as indeterminate. Uncertainty is generated by business practices of treating conventions – rules and institutions, but also social conventions such as people’s ‘green’ expectations – in terms of their material opportunities. Treating conventions as always open to negotiation requires an ambitious or speculative ethos. Rather than projecting a stable vision of reality, nature or truth, these practitioners constantly ask, *what can we do with these possibilities?* I project that the near future will involve a proliferation of low-value, nontransparent carbon markets without any binding global cap on emissions.

Introduction

The establishment of global carbon markets by regulatory fiat would mark the triumph of financial hegemony over the politics of climate change risk. Climate finance practitioners have first multiplied in numbers in the speculative lead-up to Copenhagen’s COP15 and then spectacularly retreated to the wings to wait again for the signs of easy short-term profit, an ebb and flow marking new high tide for what Christian Marazzi (2010) has called the ‘violence of financial capitalism’. Even so, the theme for 2010 was how carbon markets might still be a basis for accumulation in the absence of a global market organised around a comprehensive UN agreement.

It has become apparent that a major effect of the United States’ re-engagement with the UN process has been to radically disorganise the agenda established under the Bali road map in 2007. The acknowledgement of the Copenhagen Accord by the conference of parties in 2009 served to substantiate the parallel, non-UN negotiating process organised around the Major Economies Forum in which the US holds a much better

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negotiating position. By the end of the UN meetings in Cancún in 2010, major elements of the US approach to negotiating a weak agreement had been incorporated in the agreed-upon text, and the extension of Kyoto after 2012 had been nearly killed through the work of Canada, Japan and Russia. As Martin Khor (2011) of the South Centre has put it, ‘we now see quite unbelievably an attempt to dismantle even the weaker regime that we now have’. Perhaps most importantly, Kyoto’s organising force as a binding legal agreement based on common but differentiated responsibilities – ultimately on the historical liability of industrialised countries – has been jettisoned.

The increasingly significant language of a bottom-up process, of a politically binding versus legally binding agreement, or of plural institutions signifies to carbon market makers that they cannot simply expect the world’s governments to hand them a global market, ready-made as it were, as the basis for a coherent plan to deal with climate change. Put differently, their ability to define climate policy for their own ends had been called into question.

The disappointment is aptly demonstrated by Richard Sandor, who has sold his stakes in three climate exchanges for about \$600 million, as ClimateWire reports, ‘in light of the roller-coaster ride that now defines climate politics and carbon markets’ (Kirkland, 2010). But disappointment at the rise of ‘regulatory uncertainty’ masks – or perhaps mimics – a deeper problematic of uncertainty at the heart of market mechanisms invoked to confront climate change. Sandor has been a speculator of the first order who staked his own fortunes on carbon market ambition. Moreover, persistent questions about the integrity of Sandor’s approach dogged especially his now-defunct Chicago Climate Exchange. I want to foreground the role of uncertainty in these diverse configurations – ambition, speculation, integrity. These multiple, overlapping modes of uncertainty interact with and compound each other at the heart of the financialisation of climate change, which hinges on volatility and systemic play.

This ‘roller-coaster ride’ of climate politics and carbon markets demands attention, but not only because carbon markets pose a tremendous number of problems for which there may not be any solutions. Sandor notwithstanding, the view from anthropology helps to demonstrate that uncertainty is more than a set of problems needing to be fixed. There are important lessons to be learned for wagering the future of the planet on the promises and practices of speculation. Uncertainty is at the basis of the market perspective itself, especially in its understanding of ‘nature’ as always open to manipulation. Marilyn Strathern (1992: 142) argues that a transformation of Euro-American views of nature has accompanied late capitalism by calling attention to the rise of England’s ambitious ‘plasti-class’, for whom everything is open to negotiation.¹ If, through carbon markets, the atmosphere is becoming an object of management, then this must be understood in terms of the production of uncertainty as a matter of climate opportunism. Following an earlier formulation of Strathern’s, I argue that market ambition relies on a manner of treating rules as artifacts, that is, as ‘things’ that can be worked on, manipulated or ‘followed’ in the sense of following an opportunity rather than fulfilling a requirement. The rules in question are the rules of carbon market policy, including accounting provisions, which become media for new market relations.

1 For the US context, see Martin (1995).

The opportunism of putting diverse relationships to work – including market relationships meant to do the work of regulating the climate – makes a future that is indeterminate.

The financial community, in the wake of the Copenhagen agreement, has begun to reassess its own expectations. ‘Right now the word is uncertainty’, a senior manager at one of the world’s largest banks recently told a workshop of about 40 climate change and finance experts.² In spite of a wealth of diverse concerns at this meeting of minds in Washington, DC, his argument for the day was to take to task the inability of regulators to provide the conditions in which market necessities would define climate policy. ‘What little forward curve there is beyond 2012 has no liquidity because of regulatory uncertainty’, he insisted. It is insufficient to view this statement only as a statement of fact. It is a speech act in the sense that it is vocalised from a specific perspective in order to achieve certain objectives. It resonates with disappointment, optimism, and ambition, each of which marks this man’s relation to the uncertainties he faces as a market actor. In the act, it attempts to define climate change as a problem in terms of the needs of markets. It is a gamble. Not everyone present buys it. Hence, not only does he speak of uncertainty, but his voice also resonates with uncertainty: nobody knows what will happen after 2012. Copenhagen was a failure from our perspective. We are pressuring regulators to come to a decision. We cannot invest until they do, but we do not know if they are able to.

By way of contrast, those who champion climate justice as the basis for a climate agreement often have little patience with the demand for ‘incentivising’ polluters’ actions through market mechanisms. A precise logic characterises climate justice demands presented at The World People’s Conference of Climate Change and the Rights of Mother Earth in April, 2010, in Cochabamba, Bolivia (see also Bond and Dorsey, 2010). ‘This needs not be confusing’, writes one activist. ‘It is simple...50% emission cuts by developed countries – 1990 baseline – No offsets – 1C – 300ppm’. More than a moral position, the logical clarity of many radical demands presents not a politics of risk but a politics of necessity augmented by remarkable demands for new programs of inclusive global democracy. As Anitra Nelson (2010) argues, such claims demonstrate the institutional weakness through which the climate crisis continues to unfold. Global institutions that could constrain polluters do not yet exist. By fiat, the largest polluters have the greatest say in negotiations – as in so many things – while they insist as their prerogative that a host of other political priorities should take precedence.

There is a saturation point concerning uncertainty and climate change. Beyond attempts to deliberately create confusion by undermining climate science, the scientific problem of climate change is almost exclusively a matter of anticipating an uncertain future.

2 Ethnographic material in this paper comes from a workshop ‘Fraud and Corruption in the Carbon Trading Market’ held at the World Bank Institute in Washington, DC on April, 2010; the COP15 at Copenhagen, Denmark, in December 2009; the COP16 in Cancun, Mexico, in December 2010; and in climate finance events not facilitated by the UN. As per anthropological convention, sources remain anonymous unless comments are already part of the public record. Several quotes come from meetings held under Chatham House rules, which stipulate that comments may not be attributed by name or institutional affiliation.

While scientists have done a remarkable job in radically reducing uncertainties in our understanding of climatic processes, for policy purposes climate models are only models (Edwards, 2010). They are not representations of the future; yet, they still allow decision-making in the present. Action takes place in the ambiguity of anticipation. Yet, like corporate sustainability claims, scenarios are too often taken as matters-of-fact. Climate change focuses geopolitical anxieties surrounding military, population and energy scenarios with much higher degrees of uncertainty than atmospheric models. Knowing that things will change, but not knowing how they will change, requires a speculative attitude, but this attitude is itself dangerous.

At the same time, uncertainty goes to the heart of carbon market mechanisms, which differ from carbon taxes, for instance, because they invite speculative anticipation of the future. Moreover, carbon markets are highly dependent on optimising uncertainty in determining the stringency of the carbon cap, how permits are distributed and how carbon is quantified and monetised, each of which has proven extremely difficult in practice (MacKenzie, 2010; Callon, 2009; Lovell and MacKenzie, 2011). When, finally, the basic principles of the UN negotiations were undermined by the Copenhagen Accord, the saturation point seemed to be reached, and all of its 'hope' appeared retrospectively as so much misplaced expectation. In fact, expectation, like climate science or regulatory enforcement, is easily manipulated. The attempt to plan the climate's future for now has failed. Subsidiary uncertainties proliferate from there.

This paper proceeds in two respects. First, I examine several loci of uncertainty that defined debates at the interface of climate and commercial intervention in the wake of Copenhagen's COP15 in December 2009. Each locus demonstrates the interconnectedness of diverse 'uncertain variables' (Whittington, 2008). For instance, investment in renewable energy technology, on the one hand, depends on carbon market speculation, but not in the way coal-powered utilities think it does. On the other hand, it raises the spectre of geopolitical energy security, which in turn points to problems of military climate anticipation. In the second part, I examine expectations market makers have of climate policy makers as a way to characterise the state of carbon markets after the demise of a program to establish a single global market based on a legally-binding cap on global emissions. Understandably, my objective is not to thoroughly analyse each source or locus of uncertainty but to demonstrate uncertain interconnections from the perspectives of the actors themselves working at a particular moment in climate politics. Reciprocally, the basis for the analysis I present is itself always uncertain. Too often, in trying to understand what is happening, we are left to rely on statements that are very hard to interpret in a straightforward manner. In socio-technical systems (Barry 2001), uncertainty is what is left when facts cannot be taken at face value and system integrity is a constant unknown. Increasingly we find highly articulated strategies for working with uncertainty in practice, rather than simply trying to control it at all costs. Actors I describe are grappling with situations they poorly understand, and the play of uncertainty constitutes their sociological experience. Rather than attempt to eradicate interpretive uncertainty or establish factual reliability at all costs, I try to capture the ambiguities actors themselves are faced with.

Loci of uncertainty

Carbon markets are meant to give cleaner industries an advantage over dirtier industries by enabling them to earn revenue from reducing their greenhouse gas emissions.³ From an environmental policy standpoint, the benefit of carbon markets may be seen in comparison with technology-directed environmental regulation, and tax or fee-based systems. Technology-directed regulation mandates which technologies must be used in specific industrial processes, usually by maintaining a list of the cleanest or most advanced technologies available. In contrast, a market-based approach is meant to keep government out of deciding how companies should run their business. Instead it requires emissions measurement, and establishes emissions limits – the so-called ‘cap’ in cap-and-trade – to put a price on those emissions to try to ensure companies will take the requirements seriously. A carbon tax can also be used to put a price on carbon, while a third approach could allow emissions for free up to a certain threshold, and then levy a stiff fine for any emissions over that threshold. In contrast to taxes, markets are meant to let the carbon price fluctuate according to demand by letting emissions reductions be made by those who can do so most cheaply. In contrast to technology-directed approaches, carbon markets are ‘a mode of neoliberal exceptionalism’ (Ong, 2006) meant to keep government out of the details about how specific reductions will be made. As Nikolas Rose (1999) would suggest, carbon markets are a mode of ‘governing freedom’.⁴

It is an oddity of contemporary environmental policy that a primary consideration is for playing on the feelings of polluters.⁵ Out of all of these, carbon markets are the only policy instrument meant to make businesses excited about the prospect of lowering their emissions through incentives and other motivational strategies. By giving businesses the option of buying and selling rights to their emissions, it opens up the possibility of speculation. As far as policy theory is concerned, there are two parts to this speculation. If I am a clean company, not only can I make a little money through technical innovation, but I can make that money off of you, my competitor. Correlatively, if I am your competitor whose equipment is old and outdated, then this new aspect of competition appears as a threat. In either case, opportunities and threats refer to market uncertainties, i.e. relationships that cannot be determined precisely in advance (cf. Newell and Paterson, 2010). This uncertainty is integral to the concept of environmental markets; what management theory calls competitive advantage operationalises the price on carbon.

3 For an overview of carbon markets, see Lohmann (2006) and Bumpus and Liverman (2008).

4 The extensive literature on neoliberalism has detailed governmental prerogatives of relying on market mechanisms, but is much less concerned with the business practices to which they delegate authority. This research attempts to partly fill that gap. It requires a shift from ‘knowledge’ in the governmentality research program toward speculation, ambition and other forms of future-oriented uncertainty. It also helps demonstrate how capitalism poses the future as an irresolvable materialist problem. See Foucault (1991); and for capitalist futures as irresolvable see Polanyi (2001).

5 This inability to say no is an important characteristic, albeit through a different reading, of liberal environmentalism. See Bernstein (2001).

Competition and the uncertainties it entails spill over into global political economy as well (Spash, 2010). A permit or allowance is a government-issued right to emit one metric ton of carbon dioxide, or an equivalent amount of another greenhouse gas, as part of an economy-wide cap set on the total emissions. All permits are issued within a compliance market, meaning that polluters are required to submit the permits in order to comply with regulations; competition is usually among businesses in a single regulatory space and a great deal of ambiguity stems from how that regulatory space is defined. Differently, a carbon offset, also called a credit, represents an 'equivalent' amount of actual GHG that was removed from the atmosphere or prevented from being emitted.⁶ In fact, it represents a quantification of behaviour leading to that reduction. The credit for that reduction is then sold to allow for increased pollution elsewhere, usually another country, but the ability to use an offset for compliance depends on the regulatory space it is being used in. Indeed, the Clean Development Mechanism (CDM) has created a market for a new resource asset class that is solely meant for the purpose of transferring emissions rights from developing countries to Europe, a fact that raises important equity questions given the legacy of colonialism and the importance of fossil fuel emissions to economic growth (Bachram, 2004). Carbon markets, especially offsets, make rights to emit greenhouse gasses into a 'natural' resource asset necessary for economic growth and over which developing countries may in the future need to compete with advanced industrial economies. The EU ETS program already has 'internal' characteristics of this with Poland strongly rejecting the competitive demands of a stricter emissions cap (Krukowska, 2010).

Strictly speaking, carbon credits and permits are not commodities but novel assets whose characteristics depend on the intricacies of how they are created, what they are meant to represent, how they are traded and what they can be used for. A permission slip to pollute issued by the government of Denmark is clearly a very different thing than a ton of CO₂ that has been sequestered in a forest in Cambodia, guaranteed by the UN. Carbon markets enable buying and selling these different products through different carbon exchanges or through private arrangements, including derivative contracts. Yet, for now the details of how they are generated and what they may be used for are often more important than the details of how they are traded. Because of the complexity of how the products are generated, how carbon is measured and how they may be used, very specific forms of uncertainty permeate carbon market systems. It is clear that market makers would very much like a ton of carbon to be treated always as a ton of carbon, equivalent in all cases.⁷ To treat carbon dioxide as a physical commodity would form the basis for a single global market. But, in spite of claims by Lovell and Liverman (2010) and Bumpus (2011), 'carbon' is not a physical commodity even if it includes certain physical parameters. 'It' is an assemblage of agreements, conventional practices, durable artifacts and rules held among people who operate in very different

6 E.g. Bumpus (2011) who, however, in my view is far too concerned with justifying the material basis of offsets technology. See also MacKenzie (2008). In general I find that the actor network theory approach to carbon markets used by Bumpus, MacKenzie and Callon misses or avoids crucial elements of the productivity of 'optimal' uncertainty via manipulation of rules, which I try to emphasise in my argument.

7 See, e.g., the somewhat contradictory discussion of why TerraPass does not use forestry projects for their offsets (Stein, 2007).

contexts around the world.⁸ Permits are a system of monetised rights. Credits or offsets are a quantified, incentivised change in behaviour. Both take their literalised form as data entries in online government registries. Understanding the contingencies of the assemblage is central to understanding the uncertainties at the core of markets (Collier and Ong, 2008).

Outsized ambition

Understanding carbon products in terms of the complexity of how they are made and what can be done with them emphasises the strategies of market makers. Because markets are supposed to drive creative innovation, gaming is not only a possibility but actually is necessary for them to function as intended. While there are clear zones of fraud and clear zones of compliance, there is no line separating fraud from compliance or gaming from not gaming. To understand how markets will operate it is necessary to begin to question how market makers work with uncertainty.

Jillian Button (2008: 572) observes that ‘It is becoming obvious that [carbon] market participation will be driven not only by compliance, but also by speculation’. Button’s understatement is a welcome respite in a world of masculine hyperbole. The corporate lobby for climate policy has been especially intense, and only tangentially connected to a clear concern with limiting warming. At a Silicon Valley off-venue side event in Copenhagen a reporter pushed venture capitalist promoters to be clear about why they were talking about climate change when their prerogatives only revolve around high-risk investment in so-called green tech energy technology. Wasn’t this greenwashing, or at least an opportunistic discursive move? That climate change implies changing the entire transportation and energy sectors is the ‘greatest economic opportunity ever’, said Dan Miller of the Rota group and Solazyme, who runs his Mercedes on algae. Mike Fortun (2008) argues that such forward-looking statements hinge on seduction and promise. ‘I want to be the person who stands out in Copenhagen’, Miller said. ‘We all have healthy egos’. Another argued that in Silicon Valley this relationship to risk ‘is in the water’. Such ambition was echoed in a statement by an earlier presenter, who argued for the validity of what Paul Rabinow (2008: 84) has called the agonism of high profile biotech. One grows up wanting to change the world, to start something big. Failure is a necessary part of the process and, acknowledging a degree of arrogance, Silicon Valley has the smartest people in the world – a great many of whom are not Americans, he insisted. ‘I want to try everything and see what works’, said a co-panelist.

Market makers’ explicit commentary on their own ambition helps describe their relation to uncertainty, emergent within institutional and economic milieus. Techniques of manipulating uncertainty constitute economic and environmental actors, and vice-versa. As Caitlin Zaloom has argued:

8 The best statement of this is Button (2008), who treats carbon as a currency. There is wide variation of views on this question among market practitioners. The clearest demonstration that carbon dioxide is not a physical commodity is that lots of different GHGs are traded as equivalent based on units of ‘carbon dioxide equivalence’ (CO₂-e), expressed in tons, which is actually an equilibration of the gases’ effect on the warming of the atmosphere. It is the gases’ warming effect that has value, whether operationalised as a permit or a reduction.

[F]or speculators, risk taking does not become routine... Traders come to these markets, hotbeds of profit and loss, to try their skill on the financial high wire... Aggressive risk taking is established and sustained by routinization and bureaucracy; it is not an escape from it. (Zaloom, 2004: 65)

For Zaloom, it implies that market makers would not be the people they are without 'aggressive risk taking'. Risk makes them who they are, over time, through the practices they commit to. Risk is a social fact; market makers produce risk while risk produces market makers. In the context of climate change, trading is an environmental practice meant, in its broad application, to manage climate change not by pursuing predictability but through entrusting climate uncertainties to market uncertainties.⁹ It means that markets depend on and are broadly characterised by socio-cultural practices and cannot be reduced to the work of abstract, self-interested market actors. Put differently, market actors always have specific interests, which are historical and socio-cultural (MacKenzie 2006).

Manipulating futures

Second generation biofuels, such as those proposed by Solazyme, participate in an understanding of nature, not as nonhuman other, but as so many material relationships that can be creatively and perhaps indefinitely manipulated (Thacker, 2004). In this capacity, synthetic biofuels may parallel an emergent tendency in the oil industry itself. In presentations at the climate meetings in Cancún, Shell, BP and Chevron each claimed that climate policy has made it possible for them to forego any projection of peak oil. To be clear, they seem to expect to extract oil from the ground indefinitely, but they no longer find meaningful any scenario exercise that projects a future in which oil runs out. Instead, they lobby for a moderate climate policy that will raise prices at the pump, giving them a higher profit margin supplemented by carbon market revenue. In turn, they expect this to stimulate a shift to higher value but lower volume oil use through higher efficiency vehicles, with oil supplemented by conventional biofuels. Such a situation helps them solve a basic limitation of their business model by dampening the need to discover extensive new oil reserves. Rather, they anticipate indefinite extraction using new technologies and unconventional sources like deep water drilling and tar sands. The rise of new technologies of extraction and refinement has allowed them to redefine the nature of oil; carbon markets as social technology allow them to redefine the nature of demand. As with the creation of synthetic organisms meant to drive second generation biofuels, demand management also requires an ethos of creative, imaginative manipulation of durable relationships.

A major difference, however, is that for managing social relations disinformation serves to directly produce uncertainty. Shell's understanding of climate risk mirrors the strategies of the tobacco industry in defining the safety of a product through a strategic redefinition of scientific practice (Oreskes, 2010). In their presentation at the climate meetings in Cancún, David Hone, Shell's sustainability representative, showed a graph to demonstrate that an average global temperature rise of 2°C would probably not occur

9 Lohmann (2010) draws a parallel between risk markets and carbon markets, whereas I try to underscore the ways climate uncertainty and market uncertainty are wrapped up in each other.

until the atmospheric concentration of CO₂ reached 650ppm, a number far higher than most estimates (e.g. Stern, 2009). Moreover, it was rendered on the graph without any statements concerning probability assumptions. Finally, another line on the graph indicated his claim that temperature increases as high as 4°C would probably be the upper limit of ‘safe’, and that this would likely occur around 1000ppm. In these highly implausible claims, the reliability of science itself becomes the target of manipulation. In his talk, Hone claimed the modelling was done by MIT ‘incorporating some of Shell’s assumptions’. Even their hedge against being accused of creating disinformation incorporated an ambitious attempt to back their claims with the name of one of the world’s most prestigious research universities. But the issue here is not what Timothy Mitchell (2002) has called the rule of experts. Mitchell’s argument about the authority of expertise implies that truth claims are taken up and believed as a kind of reality effect, yet it is easy enough to call Shell’s claims into question. Statements such as these can be taken to indicate how Shell will act, not what it believes about reality. Nor is it a simple matter of producing ignorance. Shell’s discursive strategy instead serves to disrupt and confuse, to produce uncertainty in otherwise plausible public discourses. No one needs to believe them for the tactic still to work; reciprocally, insisting on the facts, while necessary, can oftentimes miss the point.

Like the Solezyme investors mentioned above, Shell’s approach manipulates truth claims as readily as it does climate policy instruments. It is easy enough to tweak a story about high-risk investment in renewable energy as a brand of green capitalism sensitive to the demands of climate change. Carbon markets similarly enable Shell to strategically redefine their future in terms of indefinite returns on investment not only by manipulating a narrative but also by attempting to rework the structure of consumer demand. This kind of relational expertise calls attention to the ambitious ethos and risk-taking socio-cultural practices that interpret environmental practices as artifactual or conventional relations open to strategic modification. The question is *what may be done with this relationship?* Or, *what can we get away with?*

Geopolitical gambit

Ambitious repurposing of climate policy has also led to a new global geopolitics of renewable energy. The German minister of environment, Norbert Röttgen, insisted in Copenhagen that protecting old industries was not the point of carbon markets or a global climate regime. Rather climate regulation must be viewed as an opportunity for dominating new energy markets bolstered by global intellectual property rights. In competition with China, India and the US, Germany holds 16% of global clean tech trade (CleanTech Group LLC, 2010), a frontrunner for whom ambitious global targets mean not only reduced costs of emissions reductions but also global control of new materials and technologies, expanded market share and consolidation of intellectual property ownership. That these issues now pertain to control of the global energy supply has only partly been anticipated by the dominance of oil drilling and refining by a few huge global players. Diversification of energy through lots of different renewable technologies offers a glimmer of energy democratisation, yet at the same time global warming threatens potentially pervasive energy control. Climate change has become an accumulation strategy but also a matter of energy security. This point is crucial even if

it is often put forward by climate sceptics defending the national interest. Coal, after all, is a matter of energy independence for many countries; and threat, like risk, is a term that encapsulates a problematic of uncertainty. One country's geopolitical gambit is another's potential military threat.

Resulting geopolitical uncertainty is partly why, as Michael Wara (2007) shows, carbon markets will not easily make countries shift to cleaner energy supplies. 'The CDM, no matter what the price of carbon, is unlikely to convince China that it makes more sense to depend on foreign sources of natural gas than on cheaper domestic coal'. Related to the problem of energy path-dependence, Wara's point has policy implications roughly opposite of Röttgen's geopolitical futurism. Wara argues that good climate policy should build 'agreements to share low-carbon technologies as they are developed and a commitment to fostering resilient energy markets and security arrangements'. Founded on a risk-relationship to the future, Röttgen's speculative play implies inherent energy insecurity if countries must choose between domestic coal and foreign energy dependence. In contrast, Wara's argument suggests a hedge against insecurity and prompts a restrained geopolitics.

That climate change is a potential geopolitical security issue is not lost on those for whom climate risks remain paramount. Indeed, it may be possible to view climate change politics as a demand to preserve some semblance of the ecological security otherwise provided by a stable climate. A recent letter to the UN Security Council from the Pacific Small Island Developing Nations argues that

Sea level rise is the most dire security threat to the region. Recent projections by scientists indicate that a rise in sea level of two meters by the end of the century cannot be ruled out. Such a scenario would redraw political borders and devastate low-lying islands in the Pacific. (Islands First, 2010: n.p.)

Islanders' claims articulate the very terms of uncertainty through which changes to Earth's climate are experienced: threat, projection, 'cannot be ruled out', scenario, and finally devastation.

Twisting rules

Carbon markets can only intensify this strong tension between those who are in a position to 'game' the opportunities of climate change, and those who experience the effects of centuries of open fossil energy extraction as a threat. Let me turn to discuss a Washington, DC, World Bank Institute workshop on fraud and corruption in carbon markets. Part of my objective in describing the flow of interaction at a professional policy workshop is to allow for a description of how multiple overlapping market uncertainties percolate through the work of policy makers grappling with the unknowns of climate change. If market makers play with uncertainty, regulators have a very different affective and professional relationship to how markets function.

Carbon markets from 2009-2011 were rocked by a series of very high profile scams, demonstrating the permeability of markets to ambitious gaming strategies through which some market actors engaged in the fraudulent manipulation of market intricacies.

A very small number of dedicated journalists and activists remain aware that someone must ultimately go to offset projects and try to understand what project developers are doing through time consuming and expensive quasi-enforcement spatial practices. The role of official offsets verifiers, in contrast – the three largest of which have all been suspended at one time or another by the CDM governing board – by now has become suspect not only for their conflicts of interest, but perhaps more basically for the uncertainties at stake in estimating actual reductions.

Debates about these issues easily make anxieties run high. At the DC meeting, a chief auditor indicated that, from his perspective at one of the big four US accounting firms, there is no realistic possibility of performing due diligence in the US for financial assurance for carbon emissions. The methodologies remain fraught with uncertainty. Re-performance tests, in which the same standards are applied by different teams to the same data, have demonstrated unacceptable margins of error. There are standards, he insisted, but not what you would see for financial accounting. In order to monetise carbon you must be able to treat it as closing your books. A Canada-based auditor discussing experience in Alberta told me, ‘they’ll get four qualified auditing companies to re-perform audits on a project, and they’re so far apart they can’t even come to a conclusion’. Asked to address the similar problem of measuring the environmental integrity of international offsets, a US federal environmental crimes officer confirmed that they had no effective way to monitor integrity. At the level of carbon accounting there are no bright lines, the auditor argued, but only large grey areas that must be managed with ‘engineering judgment’, that is, verifiers’ discretion. ‘We don’t even have revenue-grade meters’ – but the carbon being accounted for has immediate financial value, which exponentially raises the stakes of that discretion. ‘The accountants I work with’, he said, himself an engineer, ‘are very uneasy about anything requiring auditors’ judgment, and I have had to explain repeatedly that this is a basic aspect of engineering work’.

‘How does one enforce additionality?’ asked another environmental crimes officer, shifting the debate before anyone was satisfied with its resolution. As a lawyer for a prominent investment firm pointed out, ‘additionality is a fraught concept’. It refers to the process of ensuring that reductions in carbon emissions are due to the policy and not to other factors; it requires that carbon finance is not being mis-spent on projects that are already financially viable. On the one hand, the process is necessary for measuring reductions, while, on the other hand, it is imprecise and subject to manipulation. ‘It may be a bad policy tool but it is not necessarily fraud’, continued the attorney. The accounting concept hinges on narrative, making audit difficult if not impossible. Haya writes, based on interviews with project developers, ‘Validators, tasked with auditing CDM additionality claims, believe that additionality testing procedures are subjective and can be manipulated, with many “knobs you can turn”’ (Haya, 2009: 11). Another financial services advisor described the problem as ‘how do I know this investment wouldn’t happen under business as usual? Additionality requires creating a hypothetical view of the world’. For market makers, the overarching strategy has been to do away with additionality requirements, in a bid to provide more market certainty by increasing climate uncertainty by an unknown and technically immeasurable amount.

The string of stacked-up, related uncertainties here is precisely the point. Unanswered questions beget more questions, a proliferation of similar problems in interconnected fields of practice. From crucial reliance on engineering judgment to the flexibility of standards and the dynamics of different fields of expertise, for billions of dollars of transactions the carbon market turns to rely on a concept that cannot bear much practical emphasis because it involves comparing uncertain measurements with the much less certain estimation of what would have happened in a hypothetical scenario. How would a prosecutor possibly convince a jury beyond reasonable doubt, which is the American legal standard, of criminal intent in such a situation? As a prominent climate lawyer put it to me, ‘making [CDM policy] clearer is good but making it more complicated in order to make it clearer may not work’. Global markets seek to organise this heterogeneity, but they do not tame it. This scenario is what proponents of carbon markets place their trust in.

Complexity and confusion at the level of practice generates the uncertainty necessary for criminal climate fraud. The year 2009 witnessed an explosion of fraud in the carbon markets surrounding three basic strategies. Tax evasion or so-called carousel fraud marked the largest scam in monetary terms. Europol estimated value added tax fraud at about \$7.4 billion in lost revenue (The Guardian, 2009). Perhaps most spectacularly, the Hungarian government found a way to recycle emissions permits that had already been used for European compliance obligations, only for brokers to discover these same permits had resurfaced within European exchanges. Prices collapsed when the news broke and while it turned out that the trades were technically legal, the experience revealed both that Japan was actively allowing companies to submit recycled permits for their voluntary obligations and, more importantly, the European rules allowed for a lucrative form of arbitrage whereby the more valuable EUAs (EU emission allowances) could be recycled provided an equivalent number of the national units, AAUs, were taken out of circulation. Lastly, a phishing scam in which registry accounts were hacked and allowances stolen, then sold back into the market, created a situation in which buyers had no way of knowing whether they held stolen property in their accounts. The spot market closed for three weeks to accommodate the situation, while the European Commission created a new directive such that the account holder of a carbon permit would be held to be the legal owner regardless of the means by which the permits were obtained (European Commission, 2011). Such strategies involve cunning repurposing of the rules or technical opportunities to be exploited. The world’s largest carbon finance institution, Barclays Capital, has called for tighter regulation of European spot markets in carbon because the fraud ‘feed[s] suspicions about the reliability’ of those markets (Carbon Finance, 2010b: 9). This is probably not what RWE climate officer Ludwig Kons meant when he said that carbon markets had ‘awakened the world’s technical imagination’ (Klawitter 2010). As Friends of the Earth (2010) suggests, markets, too, are technical devices subject to ingenious play.

When proposals for market-based solutions are offered up within policy debates, it is rarely appreciated that markets rely on social and cultural practices, which implicate ways of thinking and ethical and political values. Imagine the ethos of commercial practice for this apparently legal game. Summit Energy (n.d.) consulting offers the following description of one of their client services:

In some countries the purchase of ‘green electricity’ (which is brown electricity covered by an equal amount of RECS [renewable energy credits]), leads to a tax reduction. For more than 50 clients we purchased RECS at a cost lower than the tax reduction itself, creating a net benefit of about 1€/MWh and generating savings up to €100,000. A number of clients have also elected to use their ‘green energy purchase’ in marketing strategies.

In other words, companies may receive a tax reduction for buying credits but the reduction is more than the price of the credits, giving everyone involved a healthy subsidy courtesy of European taxpayers. The Kentucky, USA, based consulting firm is suitably forthright about what constitutes green energy as well as how it can play into green marketing campaigns.

Broadly speaking, carbon criminality takes two forms, one related to defrauding markets and another, which directly undermines environmental integrity. While VAT fraud and phishing are nothing new, many of the crimes bear directly on the environmental aspect of cheating the emissions reductions associated with carbon trading, especially concerning forestry offsets and voluntary markets. Arrests for bribery of government officials to secure offset projects belie claims that ‘None of these [fraud] issues have actually increased the number of credits in the carbon markets’.¹⁰ *The Financial Times* reports arrests of a London man in connection with plans to pay Liberian officials \$2.5m for a 400,000 hectare land concession which expected to generate \$2.2b from the sale of offsets (Peel and Harvey, 2010). The nearly thousandfold difference between illegal payments and expected sales reinscribed classic patterns of resource accumulation and, according to Global Witness, the deal also left the Liberian government liable for any offsets shortfalls. It is a risk sharing agreement any investor could get behind. Further questions remain about the permanence of forestry offsets when deals such as this rely on temporary concessions, and about the potential for induced displacements when a full one-fifth of a post-conflict African country’s forests are placed under a privatised conservation concession.

As Global Witness’s Amy Barry noted in their press release, ‘As businesses and governments in developed countries channel “guilt-money” towards developing countries as a way of offsetting their own emissions, the space for carbon-cowboys will open up’ (Global Witness, 2010). Yet, timber industries are notoriously ungovernable, raising a complicated spectre of how exactly a new market in forest offsets will sit atop an industry already saturated with unsolved problems. A climate representative for one of the US’s largest electricity utilities, heavily invested in Amazonian conservation, put it this way: ‘with forestry the issue is not, did I bolt on the new technology, but have I introduced a new livelihood over a tremendous area? Can we trust the local government to protect those people, or do they need some form of non-state protection? NRDC has been a great partner for us. But far flung across the world? The challenges are essentially new’.

The debate at the fraud workshop in DC played out along the lines of whether anyone in the offsets markets has a financial incentive to ensure environmental integrity. Incentives in this case would do the work of self-regulation. But no one at the table could identify any market actors with material interest in insuring the environmental

10 Olivia Hartridge of Morgan Stanley, quoted in Chestney (2010: 6).

integrity of emissions offsets. ‘Well, there are liability issues’, one participant finally pointed out, explaining that a buyer could sue an originator if the purchased reductions were not real and additional. Why buyers would care or who would pressure them to care remained unanswered – especially once markets go to scale – although one academic hoped that NGOs would play the role of quasi-state enforcement. An environmental crimes officer was more direct. Yes, there are liability issues – they could be put in jail. Climate justice, indeed.

But law enforcement will never manage to contain problems inherent in market design. As an apparent carbon developer put it, ‘Almost every project I encountered was being gamed or defrauded in some way in order to prove additionality. Unorthodox financial engineering, false certificates, false board meeting minutes (a classic technique for “proving” prior consideration), redacted and re-edited feasibility studies, deliberate omission of material information (e.g. PPAs). These were all tools of the trade if the original documents or numbers didn’t “fit” the rules’.¹¹ The allegations of systemic violations suggest that the United Nation’s carbon market regulator actively colludes with widespread fraud.

Foreclosed investment

There is no necessary correlation between climate risk and market risk. The two are connected only potentially in the details of climate policy, and those links are tenuous at best. Carbon markets, while promising to tie climate objectives to risk-taking entrepreneurialism, are perhaps more closely aligned with moving around and forestalling investment and innovation. The classic form of this for Europe’s carbon market is the ability of companies to reap windfall profits from the free allocation of carbon permits. But the strategies and consequences of this are often not appreciated.

Summit Energy (n.d.), mentioned above, takes credit for negotiating a €10m carbon credit boon for a Belgian cement manufacturer by selling their carbon permits and relying on cheaper carbon offsets instead. But that is perhaps the most basic strategy for maximizing carbon revenue.

An energy executive for RWE told the crowd at Copenhagen, ‘For countries that rely on coal, until we have CCS [carbon capture and sequestration], the Clean Development Mechanism is our CCS’. CCS for coal has been demonstrated in small-scale prototype projects but the technical and financial hurdles remain vast, especially given the scale needed to confront the issue. Robert Bryce (2010) estimates that, to account for roughly half of US carbon dioxide output, 8.2m tons of CO₂ would need to be stored daily. That logistical problem of scale would be compounded by the geological risk of injecting high pressure CO₂ into geological formations such as depleted oil fields. Yet, what the energy executive seems to have meant is that international offsets are his company’s only hope, or rather that from his position he – as a crucial decision maker – was going

¹¹ ‘An insider’s view: Fraud, corruption and environmental integrity of the CDM’ [<http://www.qiqo.info/cdmwforum/index.php/topic,13.0.html>].

to wait out investment in non-fossil fuel energy sources by relying on reductions from developing countries.

The strategy is both spatial and temporal. ‘A responsibly acting company can achieve a lot by acting worldwide and for us this is 100m tons until 2020’, the executive elaborated. The volume indicates not a lack of ambition – 100m tons has a value of about €1.3b at December 2010 prices – but rather where their ambition is directed geographically, and through what spatial strategies, namely the transfer of emissions to Europe from developing countries. Still, the benefits of plucking low-hanging fruit aside, if offsets represent a pressure valve for the carbon price, when exactly will RWE manage to wean itself of its nearly 70% dependence on coal? As long as offsets can be bought and stockpiled, where is the incentive to invest today in risky and uncertain CCS technologies? And is RWE’s increased reliance on nuclear energy, accounting now for 15% of its electricity generation, the only imaginative hope for different energy sources? These are real questions that remain unanswered and hence are integral to the mode of uncertainty characteristic of market-based proposals. *Der Spiegel* calculates that when Germany ceases to distribute permits for free in 2013, the value of RWE’s greenhouse gas emissions will approach €2b in what RWE Chief Executive Jürgen Grossmann calls ‘the dawning of an uncertain future’ for Europe’s largest utility (Jung, 2010).

Part of the issue is the nature of the speech act when an energy executive justifies waiting it out by pushing responsibility onto different times and places, what might more broadly be called strategies of evasion. In the case of heavy industry, the strategy involves lobbying for excessive and bankable carbon permits. Corporate Europe Observatory has recently released an investigative report into the lobbying practices of Arcelor Mittal steel and Lafarge cement, two energy-intensive firms that have benefitted dramatically from the free allowances distributed for the EU emissions market. In these two cases, bluffs, threats and fear tactics result in the over-allocation of permits.

[E]xcessive allocation is not a one off, or a result of the financial crisis. Nor is it a mistake in the design of the early stages of the ETS, but it is in fact a result of the permeability of the system to industry lobbying. (Corporate Europe Observatory, 2010: 3)

Sandbag (2011), a UK-based NGO, has estimated Arcelor Mittal will close 2012 with a surplus of nearly 100m allowances, enabling them either to sell for windfall profits or to further forestall investment in emissions reductions.

Lobbying speech acts are sometimes wildly inaccurate but are de facto valid to the extent that EU MPs and Commissioners accept them as valid. The report documents Arcelor Mittal’s misleading lobbying claims going back to 2006, while Sanjeev Kumar, of E3G, a controversial pro-market environmental think tank recently argued that ‘there is no evidence to back up industry’s scaremongering’ (Harrison, 2010).

Because of this oversupply, carbon prices are far too low to drive investment in renewable technologies. On the one hand, often questionable speech acts are nonetheless taken as institutionally legitimate while, on the other hand, this forecloses the ability of carbon markets to finance investments in the post-fossil fuel economy.

The International Energy Agency (2011) estimates climate investment postponed beyond 2020 will cost 4.3 times investment now. Lobbying practices such as these spatially and temporally displace responsibility away from polluting energy firms, but they also produce uncertainty by distorting the supply of permits via ambitious commercial strategies. We are left with what Ulrich Beck (1999: 149) once called organised irresponsibility now taking the form of systemic procrastination.

As the Copenhagen Accord was being signed, Mindy Lubber, president of Ceres and director of the Investor Network on Climate Risk, wrote in *The Financial Times*, 'Businesses are clamoring for comprehensive national and international policies that provide certainty that all countries are ready to work together to tackle this colossal challenge' (FT Energy Source, 2009). On the heels of massive profits pocketed by the European utilities as 'costs' passed along to consumers, a sort of stimulus package for industrial lobbying, it is no wonder that American conservative populism views climate change as a scam. The wrong people have been clamouring.

Regulatory disappointment

But the regulatory certainty Mindy Lubber hopes for is no incidental matter. I take references to uncertainty by market makers over the course of 2010 as indicative of a short-term fad emphasising disappointed capital expectations for payouts of the public trust. The Copenhagen agreement failed to establish the legal basis for a market for carbon past 2012; what investors hoped for was a binding agreement to drive an exponential increase in demand. Subsequently, they would be able to more accurately estimate demand for reductions, and hence demand for offsets. On those terms the market would have been relatively calculable; by the same token, the impact on the climate might also have been calculable, albeit with much higher margins of error. On the other hand, finance had expected a major investment of public trust. Considering the collapse of carbon prices in the wake of Copenhagen, the failure of COP15 was a failure in market expectation. We are now living in a world in which carbon markets function normally on much lower demand expectations, in the absence of a binding agreement, and hence a much lower price of carbon. Climate policy now takes the form of a plurality of carbon markets tied to the privatisation of the atmosphere, combined with the absence of legally binding planetary commitments to reduced emissions.

Point Carbon's Arvanitakis (2010) pinpointed the disappointment in Copenhagen as a graphed function of regulatory uncertainty. In a chart labelled 'Copenhagen's impact on certainty and the carbon price', the EU allowance spot price is graphed across the weeks of December 2009, demonstrating in visual form the collapse from 14.5€/ton to nearly 12. Graphically it is impressive, since true to form for a marketing publication the line peaks at the top of the graph and, emphasising its point by manipulating the scale, drops to nearly the very bottom. (For a more responsible representation, the scale should begin at zero, but if it did the price cliff in the graph would look more like a hillock). If the point seems silly, that's because it is silly. Why does business analysis, like green marketing, insist on creative but gimmicky misrepresentation?

Even so, there is no line to graph ‘certainty’, as claimed in the title. Consider the endless talk about ‘Hopenhagen’ propagated by the most commercially invested proponents of a climate deal. Arvanitakis blames the price collapse on regulatory uncertainty, but at the time it was a problem with disappointed speculators.

Perverse incentives

The question is what, exactly, market makers expect of public institutions. ‘The lack of certainty now on the multipliers to be applied in the future (and the lack of certainty as to when these multipliers will be decided) disincentivizes investments very broadly by spreading fear and uncertainty throughout the market about what kinds of projects [and] where will prove to be sound investments if and when these multipliers are finally applied’ (Carbon Finance, 2010a). The quote is from Kim Carnahan, policy leader on the Kyoto Flexible Mechanisms at the International Emissions Trading Association. Its redundancies – uncertainty referred to three times in a single albeit Byzantine sentence – are disconcerting but not incidental. In a bid to tighten the carbon supply and ensure reductions have integrity, the new rule would require submission of two CER offsets per ton of emissions for compliance. Ms Carnahan’s claim is in fact very simple: the proposed ‘multiplier’ rule makes investors less excited about investing their money. The issue is amplified by Carnahan’s reference to investors being ‘disincentivised’. It is a statement about dampened expectations.

For emissions traders the multiplier rule proposal loomed as a matter of regulatory disappointment, but it was trumped by an assault on carbon credits generated from the destruction of industrial gases. CDM Watch (2010) reports that nitrous oxide and especially HFC-23, at least in some cases, have been produced deliberately for destruction within the CDM. Fred Pearce (2010) in *The New Scientist* reports that should the CDM ban their use, project proponents have threatened to vent HFC-23, which is 11,700 times more potent than carbon dioxide, directly to the atmosphere. It seems to be the clearest case of climate policy having created a powerful lobby, which works to actively prohibit revision of the policy. The European Union wants these industrial gas CERs prohibited and has taken action to exclude them from the EU ETS in lieu of a UN decision. HFC-based offsets make up about half of all CDM offsets that have been issued, and also enjoy a higher rate of submission for compliance purposes. Limiting the supply of CERs in this way renders moot the purpose of the multiplier rule.

The reason industrial gases are so popular, as the watchdog group EIA argues, is that the profit margin for destroying the gas can approach 700%. The rents are quite literally perverse. HFC-23 is a waste gas, but the value of the offsets it generates can exceed the value of the primary product by 2.8-5.6 times (Environmental Investigation Agency, 2010). Stockholm Environment Institute has argued a similar problem has arisen for adipic acid plants, in which production has shifted to dirtier plants during low production periods in order to maximise the value of the destruction of the by-product nitrous oxide (Schneider et al., 2010).

But CDM Watch's own militant technical criticism has produced uncertainty for investors. The development marks a dynamic innovation in activist practice, similar to work by the group International Rivers (Whittington, 2008) that has proven effective at least partly due to the uncertainty it has introduced into the CDM issuance process. CDM Watch hired DNV, the huge Norwegian engineering standards verification organisation which usually works for project developers, to develop an alternative technical methodology for the destruction of HFCs according to criteria so exacting no projects could feasibly comply.¹² The methodology was then submitted to the CDM board in such a way that it was forced to take very seriously the allegations of gaming. The dynamic of uncertainty was integral to the play of events. CDM Watch's submission had an unclear legal status, an issue that remains unresolved, because the NGO had effectively commandeered the official procedure. 'The UN market is "an increasingly dangerous place to do business"', a Barclays Capital analyst argued (Carr and Arlie, 2010). As Bloomberg reported:

'You don't want investors to think they are having the rules changed at the same time as trying to gear up private-sector investment into clean technologies,' [A Deutsche Bank managing director said]. 'It is vital that the regulatory framework of the market has integrity'. (Carr and Arlie, 2010)

Industry lobbyists could have easily argued that, to succeed and prosper, carbon markets must have vital environmental integrity. Instead they insisted on protecting the existing rules regardless of their perverse implications.

Carbon market makers are less and less excited about the prospect of larger than life rents on developing world offset projects. The wager of the largest conservation NGOs has been whether or not the financial sector could be brought on board as an ally against climate change, but by viewing this as a problem of motivation and incentive the debate has never adequately addressed what it will mean for commercial firms to take climate change seriously. All around the world, those planning for climate change are forced to recognise that their economic interests, their political, health and physical well-being are likely to be greatly diminished over the coming decades. Liberal environmentalism (Bernstein, 2001) has failed in the political challenge of dealing with climate change. 'I'm tired of the suggestion that we need to pay companies to do what they should be doing anyway', notes one prominent climate activist. 'Big polluters should pay when they pollute, not be handed giveaways', reads a recent green coalition statement critiquing the Kerry-Lieberman draft legislation (Climate Reality Check, 2010). For dedicated greens it is a perverse suggestion that coal utilities will receive subsidies for new power plants in order to experiment with carbon capture and sequestration, thereby prolonging and even increasing the use of coal, while in turn the captured carbon will be pumped into depleted oil reservoirs to extract remaining oil. The expectation of and demand for more and bigger payouts for the private sector of the industrialised West suggests a kind of blackmail.

12 DNV's full name is Det Norske Veritas Certification AS. The official documents are available from the UN at <https://cdm.unfccc.int/methodologies/PAMethodologies/revisions/58215>.

Rules as artifacts

The film noir metaphor of blackmail is not incidental; it extends and perhaps completes the gambling image of the wager, with all attendant emphasis on risk. Not only is the uncertainty systemic, but it constantly shifts emphasis. Are the incentives adequate? If incentives produce speculation, is that speculation normal? Are the right people incentivised? Can the developing countries be properly incentivised? Whose ability to capture rents is legitimate? Will the incentives themselves produce unpredictable results? The question of the rationality of market actors is at stake, but the problem is that market actors are hyper-rational, not as a function of human nature but because markets select for and discipline precisely such a speculative ethos. The climate activist who above argues against incentives, in the meantime, insists on a logical identity. If people should not be emitting greenhouse gases, then they should not be emitting greenhouse gases. Polluters should be punished, not paid. That position treats a rule as something to be followed and enforced, whereas those who advocate for incentives treat rules as to be followed in the sense that one might pursue an opportunity or quarry one's prey.

To pursue an opportunity means it is an open question whether one will make good on the possibility it presents. Similar to the ways engineers put to work the laws of physics, the challenge for market makers is to use rules, to push their limits or to manipulate them in such a way that they become instruments or tools (cf. Riles, 2001: 186-7). It implies a kind of literalism. Marilyn Strathern (1980) argues that in certain cases Westerners are apt to view conventions as artifacts, which I suggest may be understood in one light as viewing rules, institutional procedures and durable, physical artifacts like documents as durable, material relations to be manipulated. In precisely these terms, Clifford Mahlung, then-Chair of the CDM Executive Board, replied to concerns about how it is possible for coal power plants to be financed partly through the Clean Development Mechanism:

We have to judge the projects on their own merit; if they satisfy our rules – our requirements – then we can't do anything about that. We have to register them. I think you're concerned that these are not the type of projects that we would prefer. We might prefer the other ones that are also beneficial to the atmosphere.

Note his very careful hedge concerning which projects benefit the atmosphere. To think in terms of opportunities, threats, speculation and incentives implies a completely different relationship to rules as conventions. For law enforcement the question is 'what does this person think she or he can get away with?' – but this secondary, undervalued perspective is nearly an afterthought for policy makers who place their trust in markets. From the perspective of ambitious speculation the issue is, 'What do these rules enable me to do?' This generates the opportunistic relationship to risk.

Investment grade certainty

Demands for what Point Carbon has called investment grade certainty reached aspirational proportions in anticipation of an agreement at Cancún. Market makers broadly acknowledged that there would be no overarching legal agreement in the

medium term, and actively considered how and to what extent market makers could proceed otherwise. Was a legal agreement even necessary? Arvanitakis' (2010) analysis of market expectations mentioned above plays on the aforementioned relationship to rules when he writes that the binding nature of the Kyoto Protocol has not led to compliance anyway. Canada's strategy to avoid its legal commitment under Kyoto is to fail to set a national target in the first place, since that legal step is a pre-requisite for establishing the commitment. This is another instance of the subtle manipulation of procedure. 'So for Canada, the protocol is not politically binding and so its legally binding nature does not bite—at worst it may be a little embarrassing to be out of compliance' (Arvanitakis, 2010: 3). In other words, Arvanitakis proposes that a legally binding treaty may not matter that much since no one can enforce it anyway. Aihwa Ong's concept of neoliberalism as exception (2006) here takes the form of treating legal obligations as guidelines, at least for this elect class of polluters.

One way forward in the absence of a binding regime is that national reductions could be linked to the Copenhagen Accord through so-called 'nationally appropriate mitigation activities' (NAMAs), giving them domestic legal form for investment purposes without making them internationally legally binding (UNEP Risø Centre, 2009). This scenario implies that 'investment grade certainty' would produce conditions for investment only in relatively inexpensive offset projects, with ensured returns at low prices requiring developing country governments to pick up significant investment risks. Driven only by rents, not by stringent compliance demand, markets would be limited to investment in low hanging fruit.

In addition to the dominant role of markets outlined in the UN High-Level Advisory Group of Climate Financing, market makers have placed their hopes in 'procedural' revisions that would change the details of how markets operate. Calls for standardised baselines in the CDM would shift responsibility for proving additionality and measurement of reductions onto developing country governments, effectively shifting the scales (Smith, 1995) at which the most controversial aspects of the CDM operate. Most importantly, this way of guaranteeing efficiency would also virtually indemnify international CDM investors against activism and legal action, since matters of compliance would likely be determined by domestic courts rather than international standards.

Taking into consideration the likelihood that a two track UNFCCC system will remain stagnant in place, the idea is to forego a relatively calculable price regime based on binding commitments in favour of a plurality of regimes which support weak demand for low-value offsets. The value of carbon products is a function of demand, i.e. the legally binding cap, but that cap would be either very weak or largely left open for future determination. The political status of the agreement is now more substantial than the pledge and review arrangement at the heart of the Copenhagen Accord, but binding global emission limits, not to mention equitable distribution of atmospheric space or the decisive demands for ambitious targets at the People's Summit in Cochabamba, are essentially foregone.

Conclusion

The energy bases of virtually all contemporary economic practice have undermined the stability of the climate system, creating new opportunities for what Theresa MacPhail (2010) calls strategic uncertainty. Our knowledge about climate change has called into question the relative predictability of industrial economics and presumed linearity of growth at a time when economics has been at a loss to explain or predict the volatility of the financial system. The risk politics of the 1980s and 1990s is only a scant harbinger of the political challenge climate change poses (Beck, 1999; Callon et al., 2009). Climate change involves a program of rethinking the economic basis of contemporary global society. In effect, climate change is forcing economic practitioners to more fully inhabit the world they have created and, improbably, it is through markets that this is meant to happen. Yet, the emphasis on uncertainty highlights both the immense, unstable complexity of carbon markets and the need for a renewed public involvement in addressing responsibility for climate change. Carbon market proposals have ignored the specific climate justice issues stemming from historical responsibility, risk and vulnerability due to a changing climate, and the historical inequalities of wealth, power and environmental disenfranchisement. Beyond criticism of markets, addressing these problems will be essential to establishing robust and creative climate solutions. There are many as-yet untapped, but not particularly profitable, climate opportunities.

This paper has emphasised systemic uncertainties brought into play through the emergence of carbon markets as the primary technical device for managing greenhouse gas emissions. I have highlighted climate policy in a dynamic, creative moment that is deeply political insofar as it attempts to adjudicate the conditions in which people will live in the near- to medium-term future. I offer less a theory of uncertainty than what I hope is a window into a way of viewing the world that is integral to the very real material uncertainties climate change presents the planet. The view depends on the specific practices and promises of carbon markets, and I have focused on market ambition, the geopolitical push to control new energy technologies, the ability to manipulate scientific discourses, low-end fraud in carbon markets, problems with investment and lobbying, and the role of incentives in markets. I have emphasised market makers' expectations with an anthropological view to demonstrate the importance of uncertainty for relationships that may be creatively manipulated in practice. Finally, I have raised one possibility for investor strategy going into the next round of UNFCCC negotiations, namely the push for policy certainty that would ensure weak demand for offsets without requiring a binding commitment to deal with climate change.

It is not hard to assert with confidence that the people who will suffer the most from climate change are already the world's most marginalised (Roberts and Parks, 2007). But this claim glosses as much as it reveals because in reality what that suffering may entail is a mass of unknowns. The uncertainties faced by the people who will bear the brunt of the ecological effects of climate change are overwhelming. For the people facing desertification, loss of water resources or unpredictable extreme weather events, the uncertainty not only points toward the anxiety of vital exposure (Collier and Lakoff, 2008) but also constantly undermines any possibility for planning, for investing in lives

and families, indeed in any normal social and economic activity. The idea that these uncertain futures have less economic value than those of financial capitalism is an irresponsible excuse. These conditions of uncertainty require preparedness and resiliency measures combined with rapid reductions in greenhouse gases. Most importantly, those most affected by climate change must be thoroughly integrated into the emerging public institutions and decision-making processes through which they will be able to advocate successfully for themselves. It is a matter of whose uncertain futures are given priority.

references

- Arvanitakis, A. (2010) 'Legally binding or just embarrassing?', Point carbon, *Trading carbon: Bonn climate talks*, June: s2-s4.
- Bachram, H. (2004) 'Climate fraud and carbon colonialism: The new trade in greenhouse gases', *Capitalism, Nature, Socialism*, 15(4): 1-16.
- Barry, A. (2001) *Political machines: Governing a technological society*. London: Athlone Press.
- Beck, U. (1999) *World risk society*. New York: Wiley-Blackwell.
- Bernstein, S. (2001) *The compromise of liberal environmentalism*. New York: Columbia University Press.
- Bond, P. and M. Dorsey (2010) 'Anatomies of environmental knowledge and resistance: Drivers of climate justice movements and waning neoliberalism', *Journal of Australian Political Economy*, 66: 286-316.
- Bryce, R. (2010) 'A bad bet on carbon', *New York Times*, 12 May.
- Bumpus, A. (2011) 'The matter of carbon: Understanding the materiality of tCO₂e in carbon offsets', *Antipode*, 43(3): 612-638.
- Bumpus, A. and D. Liverman (2008) 'Accumulation by decarbonisation and the governance of carbon offsets', *Economic Geography*, 84(2): 127-55.
- Button, J. (2008) 'Carbon: Commodity or currency? The case for an international carbon market based on the currency model', *Harvard Environmental Law Review*, 32(2): 571-596.
- Callon, M. (2009) 'Civilizing markets: Carbon trading between *in vitro* and *in vivo* experiments', *Accounting, Organization and Society*, 34(3-4): 535-548.
- Callon, M., P. Lascoumes and Y. Barthe (2009) *Acting in an uncertain world: An essay on technical democracy*, trans. G. Burchell. Cambridge, MA: MIT Press.
- Carbon Finance (2010a) 'CER multiplier proposal threatens investment', 12 May.
- Carbon Finance (2010b) 'Calls grow for better regulation of EU carbon market', 12 May.
- Carr, M. and C. Arlie (2010) 'UN risks "huge mistake" in carbon trading investigation', *Bloomberg*, 10 September.
- CDM Watch (2010) 'UN under pressure to halt gaming and abuse of CDM', Press Release [http://www.cdm-watch.org/wordpress/wp-content/uploads/2010/06/hfc-23_press-release_gaming-and-abuse-of-cdm1.pdf].
- Chestney, N. (2010) 'Carbon market scandals should not harm EU ETS image', *Thompson Reuters: Carbon Market Weekly*, 1 June.
- CleanTech Group LLC (2010) '2010's top 10 major highlights of cleantech in Germany' [<http://cleantech.com/news/5741/top-10-major-cleantech-highlights-g>].
- Climate Reality Check (2010) 'Kerry-Lieberman bill continues dangerous direction for U.S.: 15 groups call on congress to choose clean energy, not Gulf-style disasters and big polluters', 17 May [<http://www.commondreams.org/newswire/2010/05/17-18>].
- Collier, S. and A. Lakoff (2008) 'The vulnerability of vital systems: How "critical infrastructure" became a security problem', in M.D. Cavelty and K.S. Kristensen, (eds.) *Securing the homeland: Critical infrastructure, risk and (in)security*. New York: Routledge.

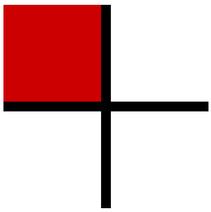
- Collier, S.J. and A. Ong (2008) 'Global assemblages, anthropological problems,' in A. Ong and S.J. Collier (eds.) *Global assemblages: Technology, politics and ethics as anthropological problems*. New York: Blackwell Publishing
- Corporate Europe Observatory (2010) 'Industry lobbying on emissions trading scheme hits the jackpot: The cases of Arcelor Mittal and Lafarge', 21 May [http://www.corporateeurope.org/system/files/files/resource/lafarge_arcelor_mittal_jackpot.pdf].
- Edwards, P. (2010) *A vast machine: Computer models, climate data and the politics of global warming*. Cambridge, MA: MIT Press.
- Environmental Investigation Agency (2010) 'Policy briefing: HFC-23 offsets in the context of the EU Emissions Trading Scheme', 14 July.
- European Commission (2011) 'Commission regulation (EU) No 1193/2011', 18 November.
- Fortun, M. (2008) *Promising genomics: Iceland and deCODE genetics in a world of speculation*. Berkeley: University of California Press.
- Foucault, M. (1991) 'Governmentality', in G. Burchell, C. Gordon and P. Miller (eds.) *The Foucault effect: Studies in governmentality*. Chicago: University of Chicago Press.
- Friends of the Earth (2010) 'Ten ways to game the carbon market' [http://www.foe.org/sites/default/files/10WaystoGametheCarbonMarkets_Web.pdf].
- FT Energy Source (2009) 'Climate experts' forum – the Copenhagen agreement: A disappointment or a relief?', *Financial Times*, 19 December [<http://blogs.ft.com/energy-source/2009/12/19/climate-experts-forum-the-copenhagen-agreement-a-disappointment-or-a-relief/#axzz1h2bdkaC0>].
- Global Witness (2010) 'Global Witness investigation leads to UK arrest over carbon deal in Liberia', press release, 4 June.
- Harrison, P. (2010) 'EU wrangles over whether to deepen emissions cut target to 30%', *Thompson Reuters: Carbon Market Weekly*, 1 June.
- Haya, B. (2009) 'Measuring emissions against an alternative future: Fundamental flaws in the structure of the Kyoto Protocol's Clean Development Mechanism', Energy and Resources Group Working Paper ERG09-001, University of California, Berkeley.
- International Energy Agency (2011) *World Energy Outlook 2011*. Paris: IEA.
- Islands First (2010) 'Drowning islands demand security council action on climate change' [http://www.islandsfirst.org/updates/20100520_pressrelease.html].
- Jung, A. (2010) 'The pitfalls of Europe's new emissions trading system', *Der Spiegel Online*, 30 December [<http://www.spiegel.de/international/business/0,1518,druck-736798,00.html>].
- Khor, M. (2011) 'Climate regime on the brink', South Centre, Bonn, 16 June [http://www.southcentre.org/index.php?option=com_docman&task=doc_download&gid=2027&Itemid=182&lang=en].
- Kirkland, J. (2010) 'Sale of Chicago Climate Exchange to ICE reinforces weak carbon market', *ClimateWire*, 3 May [<http://www.nytimes.com/cwire/2010/05/03/03climatewire-sale-of-chicago-climate-exchange-to-ice-reinfo-362.html>].
- Klawitter, N. (2010) 'Will carbon trading encourage emissions?', *Der Spiegel Online*, 30 December [<http://www.spiegel.de/international/business/0,1518,druck-736801,00.html>].
- Krukowska, E. (2010) 'Poland sues EU over post-2012 free carbon permits allocation', *Bloomberg*, 11 July.
- Lohmann, L. (2006) *Carbon trading: A critical conversation on climate change, privatisation and power*. Uppsala: Dag Hammarskjöld Foundation.
- Lohmann, L. (2010) 'Uncertainty markets and carbon markets: Variations on a Polanyian theme', *New Political Economy*, 15(2): 225-254.
- Lovell, H. and D. Liverman (2010) 'Understanding carbon offset technologies', *New Political Economy*, 15(2): 255-273.
- Lovell, H. and D. MacKenzie (2011) 'Accounting for carbon: The role of accounting professional organizations in governing climate change', *Antipode*, 43(3): 704-730.

- MacKenzie, D. (2006) *An engine not a camera: How financial models shape markets*. Cambridge, MA: MIT Press.
- MacKenzie, D. (2008) 'Making things the same: Gases, emissions rights and the politics of carbon markets', *Accounting, Organizations and Society*, 34(3-4): 440-455.
- MacKenzie, D. (2010) 'Constructing carbon markets: Learning from experiments in the technopolitics of emissions trading schemes', in A. Lakoff (ed.) *Disaster and the politics of intervention*. New York: Columbia University Press.
- MacPhail, T. (2010) 'A predictable unpredictability: The 2009 H1N1 pandemic and the concept of "strategic uncertainty" within global public health', *Behemoth: A Journal on Civilization*, 3(3): 57-77.
- Marazzi, C. (2010) *The violence of financial capitalism*. Cambridge, MA: Semiotext(e).
- Martin, E. (1995) *Flexible bodies: Tracking immunity in American culture from the days of polio to the age of AIDS*. Boston: Beacon Press.
- Mitchell, T. (2002) *The rule of experts: Egypt, techno-politics, modernity*. Berkeley: University of California Press.
- Nelson, A. (2010) 'Carbon emissions: Prices and values', *Journal of Australian Political Economy*, 66: 268-285.
- Newell, P. and M. Paterson (2010) 'Climate for business: From threat to opportunity', in *Climate capitalism: Global warming and the transformation of the global economy*. Cambridge: Cambridge University Press.
- Ong, A. (2006) *Neoliberalism as exception: Mutations in citizenship and sovereignty*. Duke University Press.
- Oreskes, N. (2010) *Merchants of doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*. New York: Bloomsbury Press.
- Pearce, F. (2010) 'Carbon trading tempts firms to make greenhouse gas', *The New Scientist*, 16 December.
- Peel, M. and F. Harvey (2010) 'Police probe as carbon deal hit by bribe accusation', *Financial Times*, 4 June.
- Polanyi, K. (2001) *The great transformation: Political and economic origins of our time*. Boston: Beacon Press.
- Rabinow, P. (2008) *Marking time: On the anthropology of the contemporary*. Princeton: Princeton University Press.
- Riles, A. (2001) *The Network Inside Out*. University of Michigan Press.
- Roberts, J.T. and B. Parks (2007) *A climate of injustice: Global inequality, north-south politics, and climate policy*. Cambridge: MIT Press.
- Rose, N. (1999) *Powers of freedom: Reframing political thought*. Cambridge: Cambridge University Press.
- Sandbag (2011) 'Carbon fat cats 2011: The companies profiting from the EU Emissions Trading Scheme' [http://www.sandbag.org.uk/site_media/pdfs/reports/Sandbag_2011-06_fatcats.pdf].
- Schneider, L., M. Lazarus and A. Kollmus (2010) 'Industrial N2O projects under the CDM: adipic acid – a case of leakage?', Stockholm Environment Institute working paper WP-US-1006.
- Smith, N. (1995) 'Remaking scale: Competition and cooperation in prenational and postnational Europe', in H. Eskelinen and F. Snickars (eds.) *Competitive European peripheries*. Berlin: Springer.
- Spash, C. (2010) 'The brave new world of carbon trading', *New Political Economy*, 15(2): 169-95.
- Stein, A. (2007) 'Science corner: Why carbon sequestration isn't any better than avoided emissions', 30 August [<http://www.terrapass.com/blog/posts/science-corner-1>].
- Stern, N. (2009) *The global deal: Climate change and the creation of a new era of progress and prosperity*. Philadelphia: PublicAffairs.
- Strathern, M. (1980) 'No nature, no culture: The Hagen case', in C. MacCormack and M. Strathern (eds.) *Nature, culture and gender*. Cambridge: Cambridge University Press.
- Strathern, M. (1992) *After nature: English kinship in the late twentieth century*. Cambridge: Cambridge University Press.

- Struck, D. (2010) 'Blowing smoke?', with New England Center for Investigative Reporting, *The Christian Science Monitor*, 26 April [http://necir-bu.org/wp/wp-content/uploads/2010/04/carbon_APR26.pdf].
- Summit Energy (n.d.) 'Sustainability markers of success' [http://www.summitenergygps.com/_assets/files/Summit_Sustainability_Markers_of_Success.pdf].
- Thacker, E. (2004) *Biomedica*. Minneapolis: University of Minnesota Press.
- The Guardian* (2009) 'Copenhagen climate summit: Carbon trading fraudsters in Europe pocket €5bn', 10 December.
- UNEP Risø Centre (2009) 'NAMAs and the carbon market' [http://www.acp-cd4cdm.org/media/161993/namascarbonmarket.pdf].
- Wara, M. (2007) 'Is the global carbon market working?', *Nature* 445: 595-596, 8 February.
- Whittington, J. (2008) 'Intervention, management, technological error', *Parallax* 14(3): 48-61.
- Zaloom, C. (2004) 'The productive life of risk', *Cultural Anthropology*, 19(3): 365-391.

the author

Jerome Whittington is an anthropologist at the National University of Singapore, where he teaches climate change and is a Research Fellow with the Science and Technology Studies cluster. He is the editor of a special issue of *Parallax* on Science and the Political and has published on climate change, business knowledge, uncertainty and resource politics. Previously a postdoctoral fellow at Dartmouth College, he continues to work with the Climate Justice Research Project. He is currently working on two projects, Sustainability Enterprise: Uncertainty Management in Lao Hydropower, and Accounting for Atmosphere: Climate Change as an Anthropological Problem. His PhD is from the anthropology program at UC Berkeley.
E-mail: jwhittington@nus.edu.sg



Carbon classified? Unpacking heterogeneous relations inscribed into corporate carbon emissions*

Ingmar Lippert

abstract

How does a corporation know it emits carbon? Acquiring such knowledge starts with the classification of environmentally relevant consumption information. This paper visits the corporate location at which this underlying element for their knowledge is assembled to give rise to carbon emissions. Using an actor-network theory (ANT) framework, the aim is to investigate the actors who bring together the elements needed to classify their carbon emission sources and unpack the heterogeneous relations drawn on. Based on an ethnographic study of corporate agents of ecological modernisation over a period of 13 months, this paper provides an exploration of three cases of enacting classification. Drawing on ANT, we problematise the silencing of a range of possible modalities of consumption facts and point to the ontological ethics involved in such performances. In a context of global warming and corporations construing themselves as able and suitable to manage their emissions, and, additionally, given that the construction of carbon emissions has performative consequences, the underlying practices need to be declassified, i.e. opened for public scrutiny. Hence the paper concludes by arguing for a collective engagement with the ontological politics of carbon.

Introduction

Grand theories on greening capitalism like to postulate that corporations are well able to account for their impacts on nature. In contrast, this paper argues that we find 'greening' capitalist enterprises means betrayal and silencing of both contested and non-contested realities of these impacts upon nature. To substantiate this claim, this paper unpacks the underlying classificatory work required for a corporation to establish accounts of their carbon emissions. This argument contributes to the aim of the paper: using actor-network theory (ANT) to analyse how classification as part of actual

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accounting practices constitutes a significant moment in the social construction of carbon emissions. To be specific, this paper uses ‘carbon’ as shorthand for ‘CO₂e’, i.e. the accounting equivalent of CO₂ (cf. MacKenzie, 2009a: 443-447; Lippert, 2012). The construction of such emissions may be understood as a specific technology which is often construed as a means for reconciling capitalism with ‘nature’. However, such utopian engagements with reality also need to address the manageability of climate change and, thus, carbon. We will conclude that *how carbon comes to matter* is to be understood as ‘ontological politics’ (Law, 2008).

This story is part of a research project scrutinising the work practices of corporate ‘agents of ecological modernisation’, i.e. those who are supposed to ecologically modernise organisations.¹ Ecological modernisation refers to a rationality-ideology which supposedly reconciles capitalism with ‘nature’. The primary means by which this reconciliation is assumed to take place are with the use of both social and material technologies. Companies are understood as being among the prime actors to render industrialised societies green and sustainable. While ecological modernisation also provides roles for the nation-state, Non-Governmental Organisations and other societal actors, the notion that companies – and through this capitalism itself – will become green, is of uttermost importance. To study these agents and their practices, rather than choosing some green niche company, I chose a multinational player as a research site.² Underlying carbon accounting is the classification of emissions. To engage with this fundamental practice, this paper provides an analysis of three cases of classifying physical information within that company. Collecting ‘physical information’ is considered key to best practice in carbon accounting (Burritt, Schaltegger and Zvezdov, 2010). However, in contrast to Burritt et al., I argue physical information is not an innocent idea. By way of investigating the heterogeneous relations drawn on, strengthened and weakened in the course of classifying physical information, I show that critical scholars and other actors should better not trust black-boxed carbon ‘facts’. We should be cautious about carbon information in three ways. First, even the simplest act of classification includes a qualitative element of betrayal. In the process of information being classified, some parts of the original set of information is disregarded and not made transparent. Second, turning attention to competing possibilities of how to classify a physical entity allows us to recognise the politics of boundary drawing and maintenance between categories. Third, if we zoom into a category and question the relations stabilising its inside we are confronted with ontological politics. This is a politics about what kind of carbon is constructed and, eventually, emitted into social and economic reality.

1 This paper uses the word ‘agent’ to refer to the notion ‘agents of ecological modernisation’ which is developed elsewhere (Lippert 2010a; 2010b).

2 While I accept the view that any corporation could in principle green itself to some degree, this view does not address the issue of what happens within the most successful capitalist organisations when they engage with greening. Studying a large player seemed better suited to study those greening activities which were well compatible with capitalist economy at larger scale.

Some notes on underlying bodies of literature

The reconstruction of corporate carbon emissions has been influenced by these theoretical and methodological bodies of thought: firstly, Ecological Modernisation Theory (EMT), rationalising ecological modernisation, suggests that nation-states and corporations can become green through a greater, rather than a lesser, deployment of market-driven science, technology and expertise (Buttel, 2000). If indeed the rationalisation of the environment leads to the rationalisation of boundaries of markets, industry may then want to ecologically modernise by making ‘environment’ accountable (Christoff, 1996: 486). Howard-Grenville (2006) points to the significance of opening the black-box of corporate environmental practice. Often literature on EMT focused on grand social actors while having lost sight of the actual workers (pre)supposed to put the environment neatly into the accounting boxes. In line with Howard-Grenville’s ethnographic approach to scrutinising actual members’ practices and cultures, I consider a study of the classificatory practices (aimed at rationalising environment) to be a promising one.

Secondly, to inform my ethnography I have drawn upon Emerson, Fretz, and Shaw (1995) whose approach to structuring observation and analysing ethnographic field-notes is informed by Grounded Theory. My analysis amounted to about 300 pages, qualitatively coded using TAMS (Weinstein, 2006) following Emerson et al. (1995), and resulted in 1704 codes structured into 77 code families. This paper follows partial connections within the field – rather than posing my presentation as drawn from an omniscient god-like perspective. Analytically I have been informed by ANT, a theory which is sensitive to the relevance of non-human elements as constituent parts of social reality. Participant observation took place in a financial services company over 97 days during a period of 13 months. Research subjects were aware of my role as a researcher studying the culture, interactions and achievements of their everyday environmental management work.

Thirdly, according to Szerszynski and Urry (2010: 4), descriptions of climate change entail normative prescriptions about society. The tradition of Science and Technology Studies (STS) has been engaging with questions of climate change increasingly intensively (Shackley and Wynne, 1995; Lohmann, 2005; Lohmann, 2009b; Abramsky, 2009). Recent work by STS scholars and other social scientists on the economic instrument of carbon markets (MacKenzie, 2009a; Böhm and Dabhi, 2009) implied a need for empirical studies of carbon accounting (Lohmann, 2009a; MacKenzie, 2009b: 130; Lovell and MacKenzie, 2011) requiring investigation of the classification practices which underlie any accounting.

Thus, while EMT provides the framework of environmental politics within which this paper’s subject matter performs, an ANT-inspired ethnography seems apt in order to scrutinise this particular set of practices presupposed by EMT: the correct classification of environmentally relevant consumption. By this we contribute to the social scientific discourse on the materiality and performativity of carbon economics. This text also speaks to those interested in performing realities through carbon emission construction. Those who normally black-box the question of how workers would actually bring about practices of ecological modernisation, may read this paper as a contribution which

questions their assumptions about the reality of corporate environmental monitoring. Similarly, it provides an alternative language with which to analyse environmental management practices.

Vantage point

To situate the vantage point of this paper, let us briefly consider carbon reports in the financial services sector. The Bank of America Environmental Progress Report 2010, for instance, claims that the corporation has reduced its carbon emissions by 18 per cent over the past five years. In 2010 an AXA website introducing their greening activities suggested that their Environmental Management System (EMS) was being put into practice with the help of a network of environmental managers. Many companies normally produce their reported carbon emissions within such an EMS. I visited one of the world's largest financial services providers to study their environmental managers. This paper is about those at the bottom, literally in the basement, who provided the numbers which were assembled to represent the corporation's carbon emissions. We will focus on a set of practices located there which fundamentally constrain how carbon emissions come into business existence: quantities of goods and services consumed were classified in accounts, and attached to these classifications were carbon conversion factors.³

This paper proceeds in the following manner: in the next section, I briefly introduce you to the sites of research, my access to it and the theoretical as well as methodological framing. Subsequently the main part of this paper consists of an introduction and analysis of three cases of classification practices. While reconstructing these practices my analysis also provides an introduction on a case-by-case basis of what I perceive to be the practices' complexity. Finally, I conclude by way of summarising the cases and point to their implications in terms of struggling for collective control over production.

Positions

In the following I provide a number of coordinates for the reader to be able to locate the author, the company and the cases discussed. To begin, I introduce the field site and my position within it. Subsequently, I turn to the relation of the company to carbon emissions and to the rationality of an Environmental Management System. This section ends by introducing the methodological and theoretical apparatus mobilised for this paper.

3 The practices of the carbon accounting system discussed here may be significantly shaped by the fact that the financial services sector has not been addressed by the Kyoto Protocol as a polluter. Rather, the corporation participated in the Voluntary Carbon Market (VCM) to "neutralise" emissions. Under the European Union (EU) Emission Trading System (EU ETS) those polluters who are obliged to reduce their emissions are grasped through their installations. This paper does not investigate the environmental and carbon accounting systems of installations' operators. These may be structured very differently and, thus, may imply very different translation practices compared to the ones observed in this study.

Field site

The account of this story is based on ethnographic fieldwork in the heart of one of the world's largest corporate groups in the financial services sector. I shall call this corporate group *Global Finance Quality* (GFQ).⁴ Equipped with gigantic resources, GFQ is linked to tens of thousands of customers in over 50 countries, having far more than 10,000 employees. GFQ reported these business key performance data in a late year of the first decade of the 21st century: turnover totalled over 120,000 million United States Dollars (USD), its profits summed up to more than 7,000 million USD and its assets met the 1,000,000 million USD mark easily.

My position

To gain access to GFQ, I had to engage contractually with their CSR unit as a low-paid worker. This access legitimised my presence in the corporation and allowed me to study GFQ's agents of ecological modernisation. The prime field site was GFQ's head quarters (HQ) which was located in a major city of one of the G8 states. I undertook further field work at the margins of the centre of carbon construction – on two continents - visiting some of the GFQ subsidiaries. The period of my empirical work paralleled the development of the global financial crisis of 2008 to 2009.

From the point of view of the corporation, my primary task was to help them out with a database which members used to collect environmental data. The database was designated *Environmental and Social Data Reporting* (ESDR); I will refer to it later in this paper. As a trained environmental manager with IT skills, I tested the software, coordinated its update and configured it according to users' wishes. Thus, acting as a white-collar worker, I interfaced between corporate environmental managers and the IT company which developed and maintained the database. Of course I also co-produced all the situations which I observed. When my boss, Victoria Miller, was introducing me to other corporate actors she would first of all explain my technical job and then say that I was also doing doctoral research on cultural aspects of environmental management. My double role was accepted. Towards the end of my fieldwork, superiors of GFQ asked me to continue working on the environmental database job. This can be understood as an indicator that my work performance was perceived as sufficiently native. Thus, we may assume that my position and observations from there fit well into the field.

GFQ's relation to carbon

The location from which my narrative sets out is the unit of the company that was concerned with sustainable development, corporate social responsibility and corporate citizenship. The mandate of the unit states that its aim was, according to Artefact 2.1 (an anonymised verbatim copy),

4 The group's name, all data revealing its identity as well as all the names of members central to the study have been made anonymous.

implementing the [GFQ] strategy for sustainable development by leveraging worldwide integration of environmental stewardship [...] into business practices.

Artefact 2.1: Mandate on Sustainable Development

Without going into the buzzwords of sustainable development, environmental stewardship and the idea that an organisation is capable of leveraging change on such a scale, I shall immediately turn to the key of this text.⁵ GFQ used the language of carbon emissions to analyse the extent to which their sites were operating on a green basis. To shed light on the situation of the corporation vis-a-vis CO₂, quoting another document is useful: here is a presentation devised for showing in a nutshell why GFQ needs a programme to reduce its carbon footprint. The presentation was targeted at local environmental managers during their internal training, and included statements such as (an anonymised verbatim copy):

[We] announced a voluntary reduction of [our] own CO₂ emissions until [2015] by [25%] (baseline [2006]) group wide with the following objectives:

- Demonstrating [our] commitment to climate change mitigation
- Securing the top position in ratings (DJSI, FTSE 4 Good, etc.): 20 - 30% of the rating weight derives from environmental area.

Artefact 2.2: Making the Case for Carbon Foot-printing

To put this into perspective one should also note that while top managers of the corporation considered carbon neutrality as an aim, the first bullet point sets the goal: carbon foot-printing was to be implemented in order to show that GFQ cares for climate change. Their commitment was demonstrated by quantitative reduction targets and corresponding emission measurements. For the latter, GFQ was employing measuring devices. This paper engages with these below. In advance, let us visit the economic context. The second bullet point referred to two indexes, the *Dow Jones Sustainability Index*, listing in its own words 'leading sustainability-driven companies worldwide' and a FTSE index, listing 'companies that meet globally recognised corporate responsibility standards'. While the first bullet point does not provide for any measurable target, the second does. Activities leading to higher scores in such rankings can be measures to improve environmental performance, decreasing the environmental footprint or environmental considerations in investments.

Why are these rankings and indexes of relevance? The multinational I studied is active in the financial services sector, is one of the biggest global actors in this sector and is regularly listed among the top 100 of CNNMoney.com's Fortune list. To keep its position the multinational aimed to attract investments of other investors. DJSI and other rankings provide banks with information about which corporations are green. These rankings construe companies as comparable. Both, private and public customers specifically invest into such green funds. Many such customers would try to invest in

5 For introductions to critiques of so-called sustainable development see Banerjee (2003) and for studies of the role of Environmental Management Systems in corporate practice see e.g. Boiral (2007).

packages which are both green and profitable. Thus, to attract such investments the multinational I worked for tried to show itself as high in the rankings as possible.

To reach a high rank an organisation has to show its environmental performance and its green trajectory. In order to demonstrate these credentials, a modern organisation takes a safe choice when using numbers as the language which indicates their greening reality (Latour 1987, Köhler 2010). My research focussed on those actors who were employed to produce such numbers by means of an Environmental Management System.

The presumed rationality of an EMS

An Environmental Management System (EMS) is an organisational structure which supposedly helps the organisation to move onto a trajectory of change towards incremental greening.⁶ It can be considered an archetypical instrument of ecological modernisation (Buttel, 2000: 58). Its promise is the economic and transparent rendering of environmental effects of a business into a firm's rationality. Several schemes of EMS exist such as the International Standardisation Organisation (ISO)'s norm 14.001, or the EU Environmental Management and Audit Scheme (EMAS) as well as many national standards. Rationally managing environmental 'goods' and 'bads' presupposes, within the schemes' logic, quantitative knowledge of the state of environmental impacts. In order to gain this knowledge corporations have to create new information. At GFQ this new kind of information was based on consumption data.

The EMS-Team (i.e. the team co-ordinating the network of environmental managers and their greening activities at the level of the multinational) asked local environmental managers from globally distributed subsidiaries to submit information about the consumption of a variety of goods and services during an earlier year. These local agents had been asked to collect data on five so-called key performance indicators: how much water, energy and paper had been consumed at a subsidiary, how far they had travelled and how much waste they had produced. Local agents had then collected the data and submitted it by means of a centralised database called ESDR. Each year, HQ agents would ask local agents to submit such data and later on HQ based EMS-Team assistant Elise Richards would analyse the data, sum it up and produce so-called environmental balance sheets for each subsidiary as well as for the total corporate group, GFQ. These balance sheets provided the carbon emission figures which were then reportable to the public. When visiting one particular West Asian subsidiary my aim was to learn about how a local agent would gather the piecemeal data about the environment.

Methodological underpinnings

Before turning to these managers and their relations to data, let me outline the methodological approach which underlies this paper. The field is populated by a heterogeneous set of things, workers, texts, information and the complex relations between them. To ensure that this study does not make ontological assumptions rendering any of them a priori more significant than others, I tried to analytically

6 Cf. Fineman (2000) vs. Rikhardson and Welford (1997) discussing greening businesses in general.

approach all of them at the same level. The method-sensibility actor-network theory (ANT) seems particularly well suited for this approach. Studying the set and its relations with this approach allows the question of ontology to be the central consideration of the study, rather than its starting point.

Here is how I enlist ANT. The approach is fundamentally based on the notion of translation (Law, 1992: 2). Callon (1999: 67) characterises this sociology of translation as studying ‘the simultaneous production of knowledge and construction of a network of relationships in which social and natural entities mutually control who they are and what they want’. Thus, how power and agency is distributed among all kinds of entities was an open question (Callon and Latour, 1981: 280). Such a use of this kind of sociology follows actors’ practices and investigates the ways in which they relate to other humans and non-humans. With ANT we may study how actors gain power. For example, Latour (1987: 71) likens a shop steward acting as a spokesperson for the workers on the floor with a scientific author presenting them self ‘as if he or she were the mouthpiece of what is inscribed on the window of [an] instrument’. Both speak for other entities. ANT designates anything which is represented or acts as an actant. This allows one to treat all kinds of entities analytically and in symmetry. If a scientific article makes a certain statement, the latter can be treated as an *actant*. Thus, actants are not limited to those with material bodies but are often semiotic actants. If you zoom into such an actant, i.e. construct the actant analytically as a black-box which you are opening, you will find further actants inside which are somehow related to each other. Thus, ANT treats an actant as existing as ‘a patterned network of heterogeneous relations, or an effect produced by such a network’ (Law, 1992: 4). To gain more power an actant would have to speak for more entities, i.e. black-box them and take a seat on top of the box. If this spokes-entity successfully finds a position such that others need to speak with it in order to relate to what the spokes-entity represents, we may call this position an Obligatory Passage Point (OPP). Any kind of access to the matter behind the OPP passes through it (Callon, 1999). The actants behind this point are positioned ‘backstage’ (Law and Callon, 1992: 51). To bring about this configuration the actor on top of the black-box had to enlist those now backstage. This refers to the process in which entities are constructed as allies by an actor. The success of such an endeavour depends on whether the entities in question allow for such an enlistment or whether they dissent. An actor may increase her chance to enlist other entities by making them interested in being represented by her, i.e. construing a position of herself as spokesperson in the interest of the entities.

Drawing on this terminology we conceptualise, follow and describe in detail actants involved in classifying environmental data. Following Law (2007: 2), this approach cannot be expected to provide grand theoretical explanations. Rather, this paper may contribute to a re-conceptualisation of the relations and ethics underlying carbon business.

Epistemologically, this approach entails social constructivism. However, even though all knowledge is assumed to be socially constructed, the real exists. Most social constructions are dependent on reality to materially carry the construction. Thus, all knowledge is constrained and enabled by those bodily material actors which it refers to and which produce it (Haraway, 1991). To follow how humans, texts and material

interact, methodologically, then, the paper is based on participant observations and an analysis of artefacts encountered in the field. Using these methods seemed apt because they allowed analysis of the ways observer and observed were materially situated. The quality of the analysis has been documented according to Flick (2007: 134-136). The field note extracts and artefacts presented in the following section have been identified in a process of iterative coding and thematic focusing (Emerson et al., 1995). One of the resulting foci represented practices of classifications. This paper analyses three contrasting cases of classification identified with this method.

Classifying consumption – creating carbon?

This section serves to present the analysis of three cases of classifying consumption. The first case, concerning the classification of electricity consumption, can be read as what is normally taken-for-granted: neither did members question its classification nor did any actants dissent. The second case opens up a range of modes to classify a package of paper. Finally, the case of water consumption makes explicit how the choice and design of a class is related to carbon emissions.

My boss, Victoria, had asked a West Asian subsidiary to welcome me in order to support my study as well as to ensure their participation in the data collection process which was key to the EMS. When I arrived at the site of the subsidiary, I met Simon Jacobs. He had been the addressee of my boss's request to have them welcome me. Simon was one of the top officers of this subsidiary, occupying a large office, with a glossy wooden desk and several square meters of windows at the top of the building.

Early in our meeting Nick Xi joined us and presented a list of numbers to Simon. Later on I learned that Simon had asked Nick, who was the site's engineer, to collect the environmental data which the HQ had asked for. Subsequently, Nick showed me around at the site, and, finally, we went to his office, located in the building's basement.

Electricity: a clear-cut case

In the windowless room I recognised six work places. Nick's beige desk was equipped with two land line telephones, a computer screen, mouse and keyboard and an opened guideline issued by the HQ prescribing the parameters of GFQ's environmental data reporting. Some of the words were neighboured by scribbled translations into Nick's native language. The wall behind his red chair was supporting (or supported by?) a picture of the national leader. He offered tea and I asked where he got the numbers from that he had earlier presented to his boss. As a response he got out a file folder. Opening the folder, Nick presented its content:

Electricity invoices of 2008 and 2009. He pointed out that the invoices include the amount of kilowatt-hour (kWh) consumed by highlighting the data. Thus, he had seen the numbers, not only calculated.

Field Note Extract 3.a (Measuring electricity consumption)

This presentation of electricity supply invoices indicates several key elements, which we need to keep in mind to fully understand their social and environmental

implications. This subsidiary consumed electricity for which it had to pay. An invoice listed the amount of consumption for which the subsidiary was charged. By showing the invoices Nick pointed out that he relied on measured data of the consumption, rather than on a more abstract calculation. Within GFQ it mattered whether data was designated as ‘measured’, rather than ‘calculated’. The Head Quarters’ EMS-Team was observing – what they called – ‘data quality’. They considered measured data to be of higher quality than calculated data. The guideline, supposed to orient Nick, included a hierarchical order of data qualities (see Artefact 3.1, a verbatim copy):

Level of data quality:

3 = Data based on exact measurement

2 = Data based on calculation / detailed estimate

1 = Data based on rough estimate

0 = Data not reported

Artefact 3.1: Data Quality

Furthermore, note that Nick’s highlighted data represented those kWh consumed which had been billed. Thus, the measurement has neither been carried out nor observed by Nick.

Drawing on ANT, we are able to unpack the relations involved in this moment in even more depth. The extract above provides us with a range of diverse actants having largely contrasting qualities. Let us visualise them in Figure 1.⁷

First, we encountered Simon who acted as the environmental manager of the subsidiary. His task was to report environmental data to the HQ, represented by Victoria. To do this he had asked Nick – an engineer – to collect the respective data. Thus, Nick started to check where he may get the data from. He found data in invoices and provided selected information of these to Simon. To legitimise the numbers presented to Simon, Nick pointed to the ‘facts’ shown on the monthly invoices. Following Latour (1987: 23), a so-called fact is something which does not invite to question ‘ownership, construction, time and place’. Further, he suggests: ‘A sentence may be made more of a fact or more of an artefact depending on how it is inserted into other sentences. By itself a given sentence is neither a fact nor a fiction; it is made so by others, later on.’ (*ibid.*: 25) In the case we are exploring Nick had enlisted the authority of the invoices to speak for the consumption of electrical energy. By that he gave more weight to an element of the electricity provider’s statement while deleting contextual information from the facts, which enacted a dichotomy of content and context. Nick quoted the class, quantities and the units – but did not refer to the author of the consumption counts nor did he investigate how these counts were constructed. The invoices, thus, were a carrier of a

7 Note, this figure – as well as those below – indicates actants through the colour orange, a description of their relation in green. Actants which I have not directly observed are shown in violet, their relations into the field under study is represented in grey boxes. A rounded rectangular depicts human actors and organisations. I use octagons to point to (digital) materials and ellipses to informational actants.

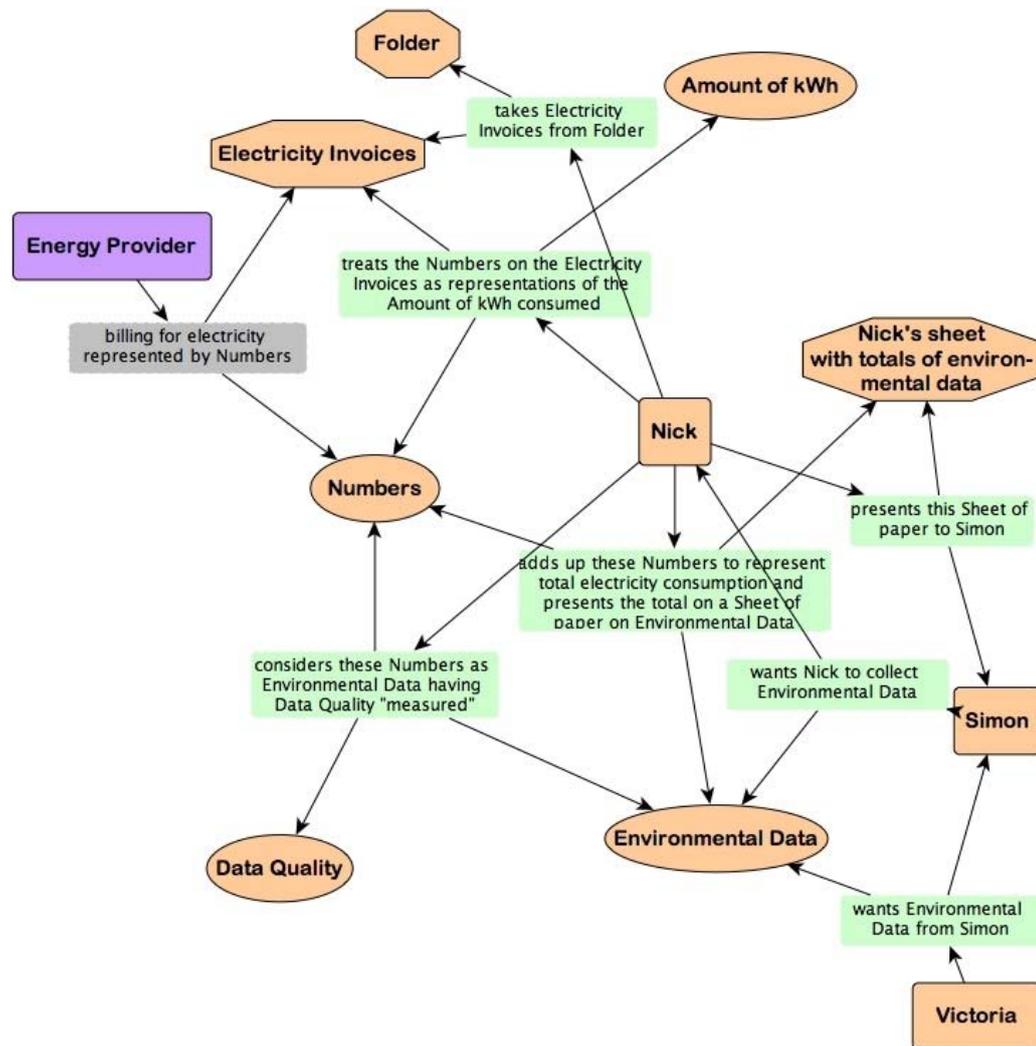


Figure 1: Using amount of electricity billed for to speak for environmental effects

range of information, some of which was translated to the sheet which Nick had used to present the number to his boss. Latour conceptualises the context of a statement as its modality (1987: 22). A modality is a qualifying and, by that, modifying statement associated to the former statement. Another take on Nick's act of demodalsing is to understand it as a form of purification (Latour 1993). The invoices' offers of text were processed by Nick, first purifying its information, resulting for each invoice in a single number, its unit (kWh) and class (electricity consumption generated by hydropower), adding the numbers up and copying this to Nick's sheet which he used to collect the environmental data. The effect of purification is that traces of the hybridity (in this case e.g.: authorship, materiality, historical position and economic relation between provider and customer) of the entity in question are silenced. (Note, GFQ was asking data collectors, i.e. Nick in this case, to assign any numbers reported a single value for data quality. Thus, later he continued altering the modality of the statement by assigning to the single number the data quality signifier 'measured', and by that informing the HQ that the number has been read off a measuring device.)

Drawing on Latour (1987: 109-121), this set of relations performed by Nick can be understood as translation. By using a single number to represent the electricity consumption Nick created a fact which all other actants had to use. No actor attached to GFQ's EMS who had knowledge about this subsidiary's electricity consumption as a goal would look again at the invoices or look out for alternative facts. Nick's translation to the sheet made his fact indispensable. He became the macro-actor on top of the black-box called electricity consumption (Callon and Latour, 1981: 284). The implication is not politically innocent. Any translation is rendering two statements equivalent and, thus, shifts the meaning. (This, of course, includes the translations undertaken by the author of this text.) Law (2007: 4), therefore, points out that translation also implies a dimension of betrayal. According to this then, analytically, Nick and the electricity consumption number can be understood as allies. He allowed the energy provider's statements to circulate even further in the world and attached his power to translate the invoices into a single number. And the invoices allowed him to translate some of their elements such that he could consider his job done.

How did this 'information' gain the possibility to travel? Latour (1987: 68) uses the concept of inscription to rethink the material fundamental for the mobility of information. The energy provider inscribed selected information into the invoices sent to the subsidiary. An invoice, thus, can be understood as the 'visual display' of the electricity consumption. Latour refers to anything or any institution which provides such displays as inscription devices. Nick inscribed the electricity consumption number onto a sheet of paper, thus performing a further inscription device. Or, seen the other way around, Nick's environmental data sheet transformed – as Law (2004: 20) points out – the material, i.e. here the invoice's information is transformed into a purified form which was more apt to usage for the worker. The effect was simple enough: only traces of the originally rich invoices were left for the next level of translation. Most information of the invoices was deleted by Nick's application of this specific inscription device. The associated implicit claim was that the product of the translation represents the reality of the subsidiary's electricity consumption. Latour (1987) points to two further competencies of a statement which would strengthen it: combinability and stability. The invoices' numbers were easily combinable by Nick; he had to perform the mathematical operation called addition. At the same time, these numbers were stable. Neither was there a reason to question them, nor did they seem prone to erroneous copying.

This discussion showed that the simple administrative practice of adding up numbers provided by invoices, in order to represent the total amount of kWh billed for, has to be understood as consisting of constitutive and emerging relations giving rise to a specific configuration of power: among these was Nick gaining the power to construct, a fact which was not questioned in itself by anymore. To be more precise: the fact has not been altered during my field work and I see no reason why it should be; except, maybe, if this analysis shifts light to its conditions of existence. This analysis shows that even the simplest case of classifying physical information is intrinsically problematic: to achieve the classification act, a worker has to betray all the 'Other' which was entangled with the 'physical'. Demodalising is necessary for accounting and is not normatively neutral.

While this first case did not question the class onto which the kWh consumed were to be mapped, let us now look into Nick's practices and the relations he co-performed when they had to deal with the question of what type of environmental data some numbers are related to.

Paper: classification contested

Another type of environmental data which GFQ was interested in was the amount and type of paper consumed. When Simon and Nick sat together and I introduced them to the database which GFQ used to collect environmental data, paper was the example to understand the database's functionality.

Simon was logging in into ESDR and I showed them how ESDR tasks work by pointing to different categories of paper.⁸ Simon was getting up and fetched a 500 page package. He asked: what paper is it? And he looked at the labels but could not find much information. Then Simon suggested to looking at the producer's website. After a short while, Nick claimed it to be recycled paper. Simon replied: no. This isn't recycled paper. We will recycle it. Finally, Nick agreed.

Field Note Extract 3.b (Paper Case)

Let me use this extract to emphasise a key assumption in the field: using paper, just like electricity, causes carbon emissions – depicted in Figure 2 on the next page. However, paper does not necessarily equal paper. Different production processes and kinds of disposal are associated with different emissions. GFQ, thus, differentiated several types of paper, e.g. chlorine-bleached and recycled paper. Simon and Nick undertook an act of classifying the paper they normally used. For that, Simon briefly went to his secretary, getting a package of paper. This material object had not been assessed by them based on some form of scientific/laboratory analysis, but rather, they questioned the object in two senses. Latour (1987: 89) suggested that in science in action things are 'defined by their performances [where] each performance presupposes a competence' (quoted without emphases). In our case the paper package's performance was questioned with respect to globally and temporally distributed competencies. First, Simon asked the object's label to reveal its class, and when that failed, he suggested retrieving the required information from the producer's website. Second, Nick enquired into the near future of the object and found that it will be recycled.⁹ While Nick concluded thus, that the object has to be classified as recycled paper, Simon opposed Nick's understanding. Thus, temporarily Simon and Nick were allies to competing claims. This needed to be resolved? Rather than using the object's future as the indicator of its class, Simon implied, we should categorise the object based on its past. None of the two competing claims can be considered intrinsically right. Instead, drawing on MacKenzie (2009b: 26-30), we may conceptualise categorisation through finitism. A finitist take allows focus on the factors constraining the in-principle flexibility of classification-in-the-making. In this case, the constraining factor may be interpreted as the combination of formal authority of Simon in relation to Nick and the recognition of Simon's better understanding of English language. In both respects, Simon was able to exhibit control because he related closer than Nick to the sources of

8 An "ESDR task" refers to a form in the database. See the subsequent section on the water case.

9 A note for the Northern/Western reader: In this particular situation it was not self-evident what the English term 'recycled paper' conventionally refers to.

formal authority within the company and to the language in question. Thus, they moved on to enquire backwards in time. As they did not find any hint of the paper having been produced using recycled materials, they finally concluded the act of classification by deciding for the class ‘new fibres elementary chlorine bleached’.

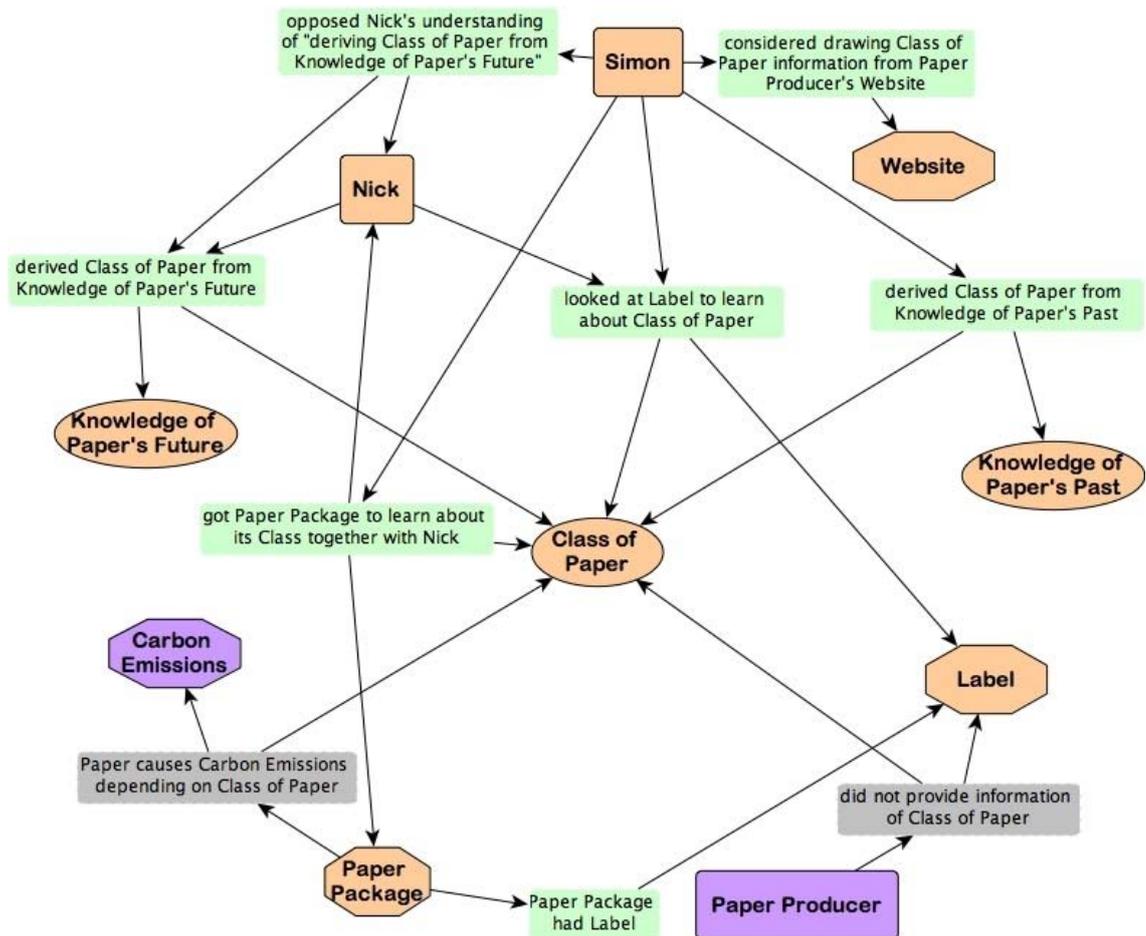


Figure 2: Establishing the Class of a Package of Paper

Yet, another effect of their interaction is that which we may call enculturation. With Latour (1987: 201) we are able to think of disputes over classification claims as signifying the boundaries of a culture: “‘culture’ is the set of elements that appear to be tied together when, and only when, we try to deny a claim or to shake an association’.

In our case, Simon performed a ‘boundary’ of a culture offering Nick to join. The former tied together the term recycled paper to a temporal view, i.e. determining whether a given paper object is recycled paper through its past. Under the circumstances of capitalist work-relations, Nick probably did not see much of a choice as to whether to accept his superior’s offer. In this new culture for Nick it is possible to be green by means of switching from chlorine bleached paper to recycled paper. Porter (1995: 42-45) points to the significance of such effects. An account category may transform business practices such that the company performs well in this new dimension.

Having made explicit the actants and their relations involved in this case allows us to recognise the political quality a) of the boundaries between categories, b) of the

epistemological uncertainty as well as c) of the cultural stabilisation associated with classifying the ‘physical’. Figure 2 indicates a further aspect of the social practices of constructing carbon emissions. It depicts how the conversation between Nick and Simon is related to carbon emissions. The classification of the paper they use is linked to the carbon emissions which they were about to construct as being caused by their paper usage.

In the next case we focus on the mode of existence of carbon emissions. Above, we learned that to file an object it needed to be classified first. This implied giving voice to one modality while black-boxing alternative modalities. We also saw that boundaries between categories needed to be actively performed to matter. It remains to discuss what happens if the available system of classification fails. This discussion will open a view onto the hinterland (Law, 2004: 27) of classification implications.

Water: how a category silences matter

When Nick approached filing water consumption, he diligently gathered data from different sources of water consumption, including a well, tap water, and, a huge amount of drinking water. However, then I had to interrupt his endeavour:

15:50: I told Nick that Elise was saying that drinking water is tap water. Nick asked: What shall I do? I replied: I can only inform you. I cannot decide. You have to decide. I told Nick that the HQ does not need the drinking water data that he had collected. But, I suggested, he could collect the data for his subsidiary.

Then Nick was calling the canteen and cafeteria to ask how much drinking water they use. He added this information in the ESDR task [see Artefact 3.3].

Field Note Extract 3.c (Water)

This situation was backgrounded by GFQ using the database ESDR to collect environmental data from all over the globe. Members of the EMS team administered the database. Nick, as a local agent, put data into the database – by means of a form referred to as ‘task’ (see Artefact 3.3). At the HQ, superior (in terms of the organisational hierarchy) team members were able to access the data. I had stayed in close email contact with Elise (one of the HQ colleagues) in order to ensure the data which Nick constructed during my visit fitted the EMS’s requirements. This is how the story unfolded: at 14:50 I had sent her an email differentiating the consumption of water according to different types of sources (a well, bottled water, tap water). At 15:01 she replied and dealt with the different classes of water. Her email provided, firstly, a quote from my original email to her, and secondly, an answer (a verbatim, anonymised extract):

[My text:] They are having a) a well (natural water), b) drinking water (in large cans – in heaps), c) tap water. What is tap water – which account are we supposed to use?

[Her reply:] Drinking water in cans is not included into the calculation, merely the water got from taps ([use the account] drinking water). Well water is natural water. This account is correct.

Artefact 3.2: Email at 15:01: Drinking Water defined

Key to understanding this email is first of all recognising the means which Elise and I draw on: accounts. ESDR can be understood as an effect of an accounting culture. Within this, ‘environment’ was managed through an accounting system which associates each consumption data set to an account. Such an account was characterised through an ‘explanation’, drawing out, i.e. defining, the class (see lower part of Artefact 3.3). Elise, interpreting the definition, thus, specified that water received by means of a system of pipes, rather than by means of transportable cans, had to be filed in the account ‘drinking water’. Water received through cans was to be excluded. Yet, after I informed Nick at 15:50 about Elise’s filing prescription, he decided to collect the data on bottled water anyway. Thus, this underlines that any definition needs to be actually translated into the intended practice to produce the targeted effect.

Task Owner	[REDACTED]		
Period	2008		
REPORTED DATA			
Value	426	Unit (value)	m3
Cost	35137	Unit (cost)	[REDACTED]
Energy / CO2 Factor	World average		
Comment	[REDACTED] and [REDACTED] office use 154 m3 drink water. (800 employees) I calculated 1299 employees drink water and price. I add them. Dining hall and cafeteria are outsource company. (Use drinking water with bottle 171 m3.)		
Data Quality	1 = estimated	This Dataset is finished	yes
		DATA COLLECTION BY MAIL + CLOSE	EDIT CLOSE
REVIEW (Updated on Save)			
	Last Period	Current Period	Deviation
Value	0,0 (not available)	426,0 m3	0,0 %
Reference Account		0,3	0,0 %
Cost	0,0	24.128,4 EUR-Euro	
Explanation			
Drinking water: purified water with drinking quality, withdrawn from groundwater, water sources or surface water water consumption includes water use for: - sanitary installations - air conditioning - cooling systems - cafeteria, garages, sporting areas - indoor plants - external areas, e.g. parks The use of water for cooling or heating purposes where it is led back to its source without treatment is not water consumption as defined in this section.			
Last modified	27.03.2009 14:13:21 [REDACTED]		

Artefact 3.3: ESDR Task for Water Consumption

Furthermore, an account was specified by logical and quantitative criteria, including its carbon conversion factors. Let us briefly focus upon this fragment of the network. The respective factor stored in ESDR for the drinking water account was 0.3747kg of so-called scope-3-emissions for each consumed cubic metre. This refers to indirect emissions caused in the life cycle of a product. GFQ sourced this number from the

voluntary industry specific environmental reporting standard called Standard of the *Verein für Umweltmanagement in Banken, Sparkassen und Versicherungen* (VfU). This is a standard organised by several large international banks and insurance companies and is freely available to everybody. Study of this document shows that the number generated is the sum of two factors 0.283 and 0.0917. The former factor is presented as being derived from the emissions associated with waste water treatment in Switzerland and the latter factor with the production of drinking water. Further, the document refers to two sources, 'Althaus (2003)' and 'Doka Gabor (2003)'. The latter presents himself as a Life Cycle Assessment (LCA) practitioner based in Switzerland and provides a variety of statements on ethics, including this one – which contains a comment on epistemology (a verbatim extract from <http://doka.ch/ethics.htm>, last accessed 17/10/2011):

Contrary to popular belief an LCA study is never objective or provable. Subjectivity occurs in all phases of an LCA study. In that struggle I always take the side of the environment. With precaution I strive to make sure potential burdens are not lost from view.

Artefact 3.4: Fragment of the Ethics Statement on Fairness

We need to note that while carbon emissions assigned to drinking water production and sewage treatment are included, the covering of the multiple additional emissions of bottled water is uncertain (and must remain for now an open question).¹⁰

When mapping this water case, in Figure 3 on the next page, note the contested area. The highlighted (dashed black-boxes) relations were those performances which were giving the ultimate shape to what water consumptions were filed in the database, ESDR.

This shape exists now as carbon matter in social and economic reality, which may be linked to environmental reality 'outside'. Law (2008: 10-14) refers to practices which perform such shapes as *mattering*, enacting matter. The reality perceived is shaped by effects of performances of 'mattering'. Struggles over the real are inherently political. Thus, these practices are performances of ontological politics.

By my act in the field of asking Nick to decide about the inclusion of bottled water I tried to prevent too early a closure of the dispute. Rethinking this moment with MacKenzie's approach to finitism allows for seeing a view of how an implicit decision necessary to carry out the act of classifying has gained the possibility to play itself out more explicitly. Thus, in Artefact 3.3 Nick hinted in a 'Comment' that he added 171 cubic metre of bottled water in the account. Thus, the 64 kg CO₂e emissions assigned to this water (however, maybe not those to the bottles) were, eventually, included in GFQ's carbon emissions count. In that respect, Nick acted as a dissident as formulated by Callon (1999). Nick did not let himself, and through that the product of his translation (the reported amount of water consumption), become enrolled by Elise; a betrayal took place – and I was an accomplice. Elise's act of purification was not completely successful. While she had the formal authority within the organisational

10 The emissions were in multiple ways additional because, first, Elise asked to exclude water from cans and, thus, emissions associated with this water. Second, this exclusion also leads to not accounting for the emissions caused by the synthetic cans.

structure of the EMS to interpret the definition provided in the form and to inscribe its application in a directive email to me, the relations involved did not lead to the prescribed effect. And, now, one might ask who or what was betrayed? Several actants are thinkable – among them the imaginary actant of GFQ or so-called nature. Analytically seen, the network of Nick, his data sources represented in various inscription devices, ESDR, me and our collective performance constituted an OPP. Any water consumption fact of this subsidiary had to pass through the classification and translation filters of this network. However, from the point of view of HQ actants this network would normally only be perceived in a punctualised form. This resembles the punctualisation referred to by Law (1992: 5) who suggests that normally a TV is perceived in a punctualised form; the network producing the TV effect remains behind the stage.

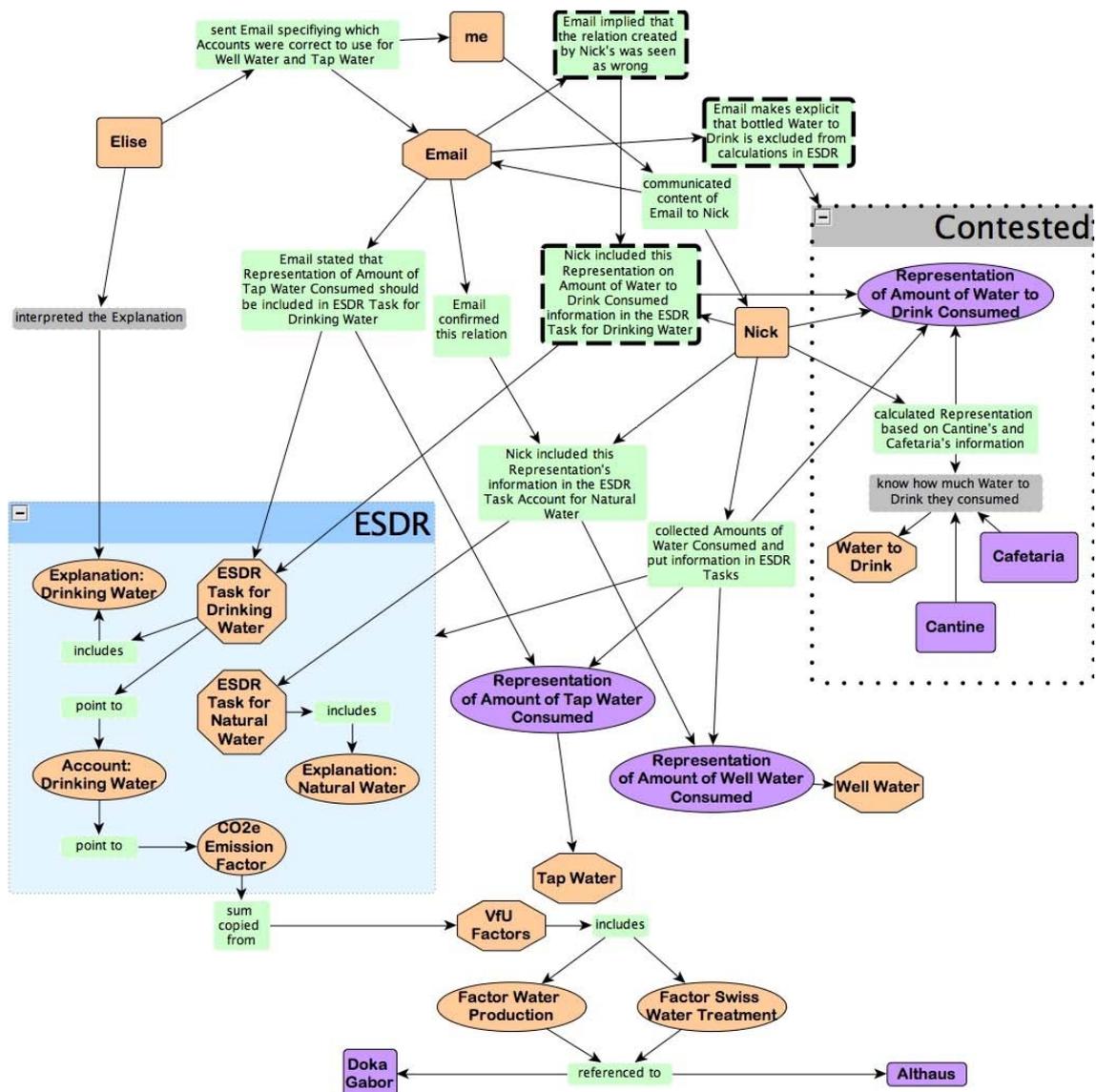


Figure 3: Establishing the Right Choice of Accounts to File Water Consumption

In Figure 3, above, we are more specific than in the prior figures: What we previously referred to as ‘Environmental Data’ we are now detailing as ‘ESDR tasks’ which constitute the form in which the data was contained. ESDR was a significant part of the machinery in constructing carbon emissions.¹¹ The accounts were linked to conversion factors which were used to calculate the amount of carbon emissions for the amount of water consumed. These conversion factors, as in the case of the paper (Figure 2), were often specific for each class of material consumed, i.e. in this case differentiated for three types of water. The statements produced by the Swiss LCA practitioner Doka Gabor had been enrolled by an enterprise which was in charge of producing the nitty-gritty for the VfU standard. Thus, this case followed the chain of translations further than the prior cases and, in this course, came across an exciting modality of ethics, which has been completely neglected in the public statements of GFQ and similar companies.

And, we may recognise in this case, similar to the case depicted in Figure 2, that culture – as introduced drawing on Latour above – is key to certain understandings which are drawn on in the practices of translating. At this time it was significant that in this culture, materialised in its infrastructure, water to be drunk was normally not obtained through a system of pipes, i.e. tap water, but through bottles and cans. This understanding was not shared between Elise and Nick. Their approaches to how elements were to be associated with the term ‘drinking water’ exhibited a discrepancy.

To carry the analysis a final step further, I like to point to the agency of Artefact 3.3. The local environmental manager’s job was, ultimately, to produce and provide figures that can be inserted into this form. And this form asked for a number to quantify the good/service consumed and its unit; further, it allowed to relate costs and a comment to this data set. If Nick was to provide the data such that it fits this form, he needed to strip off all kinds of modalities from the numbers which he extracted by means of purifying the information he had access to. Not only were documents reduced to a couple of figures but so were a range of alternative interpretations silenced. In GFQ, water bottles did not matter; and nor did any deliberation about water use practices.

Conclusion

This paper aimed to show how classificatory practices giving rise to corporate carbon emissions are performed. These practices were concerned with classifying consumption of goods and services into accounts of an environmental reporting database. Following the relations revolving around such practices by a local environmental manager of a globally operating financial service provider allowed us to grasp the load of relations needed, reproduced and – to a large degree – silenced.

For that we investigated three cases. In the electricity case we problematised the *translations* which are part of all described performances of classification. We can now see that physical information is not a given but has to be generated. In the course of translating information into physical information, betrayal takes place. The corporation

11 For a more detailed discussion of the notion of machine, see Lippert (2011).

was not interested in giving a full account of their relationships with the material and services they consumed. Rather, and this can be assumed to be generally the case, carbon accounting is premised upon the reduction of selected parts of the world to a few numbers, quantities and qualifiers. Everything – the Other – which does not end up in the ‘physical’ is left out of the carbon report.

The paper consumption case added further layers to the problematisation of classificatory practices. Beyond the silencing of alternative modalities, we encountered the conceptualisation of boundaries between categories as a site of political contestation. A variety of meanings can be linked to boundaries. There is no intrinsically correct way of classifying the ‘physical’ into a proper category. While members may experience this reality as epistemological uncertainty, we also recognise that boundaries would not exist if they were not performed. In the case observed we see how the classification practices interfere with enculturation into wider discourses of greening and the performance of hierarchical work-relations.

By means of opening the black box of carbon conversion factors, the water case allowed a voice to be given to the *matter* which was silenced by the specific configuration of a category. The environmental consumption accounts within the corporation were linked to carbon conversion factors. Only those (assumed) realities represented by these factors were translated into matter. Those carbon emissions which were not envisioned by the constructor of the emission factors and by the standard, which the corporation used, did not materialise.

With both latter cases we may agree with MacKenzie (2009b: 120) expecting that ‘the most detailed rulebook will on its own be insufficient to determine the practice of bookkeeping and accounting’. The practices observed gave rise to new facts about the carbon pollutions of the multinational. These facts still perform – and can be expected to continue performing – as part of the corporation’s emission history tables. Furthermore, even for those partial realities ‘well’ governed by the rules and regulations about carbon accounting, we have to accept that the resulting carbon is intrinsically political. As the first case showed, even if all agreed that a classification act was performed perfectly all-right, quantitative accounting silences the modalities of facts and betrays all the information considered not ‘physical’.

Yet, while the local acts of classification enabled the global counting of carbon emissions it also provided a locus for subversion. Quantifiable consumption information could be summed up. In that respect the combinability of quantitative facts provides for possibilities to add numbers quite freely. In this study we observed a local agent being able to increase the count of water consumed. As Law (2008: 11) suggested: ‘[I]f we attend to [practices consistently], then we start to discover alternative forms of materialisation’. This paper points to such alternative forms and, subsequently, competing ontological outcomes of materialising carbon. Thus, the engineer was not only drawing on and embedded in heterogeneous relations. The study showed how he was also doing ‘ontological politics’ by the practice of mattering consumption data into carbon emissions where alternative ways of mattering resulted in different ontological states of carbon emissions of the multinational. Engaging with this

kind of politics can be producing mappings similar to the ones provided above and involve adding further actants and shaping relations.

Another global effect co-produced by these local practices is the strengthening of specific carbon conversion factors. Each classification which assigns consumption data to accounts of the corporate database strengthens the associated carbon conversion factor. A quantum added to an account implied the translation of the carbon factor once again, thus, propelling the agency of the factor to global scales.

We also found that the global reporting mechanism of the multinational required local agents to perform in that moment and at that place a dichotomy of content and context. They had the task to filter, purify, the information at the local level and only translate those bits of information which fit in the form. At the same time some informational entities which could have fitted in the form were not always exactly those which were desired to be recorded in the form. Agents had to interpret the classes of the accounts, ascribing meanings to what kind of entities an account asked for and what kind of entities they knew. The corporation's global carbon monitoring system provided labels for the accounts; and these labels may introduce new or strengthen/weaken existing local concepts. While Howard-Grenville (2006: 68) shows that multiple interpretations on environmental issues may co-exist in an organisation, this paper questions the ethics of the existence of such a multiplicity, how it is silenced and how only limited interpretations are translated, to end up in a highly condensed statement of a company construing their carbon emissions. We saw how the very process of bringing in consumption representations as environmental data created both 'insides' and 'outsides' (Lohman, 2009a: 502). Performing classification co-constructed global carbon emissions (in so far as they are perceivable through carbon reports). To put this into perspective, note that these emissions are designed to figure as economic agents. They are created to steer corporate decision making, they may be read as demands for buying carbon emission rights on carbon markets. If betrayals are necessarily involved in the processes of translating towards the network effect of 'carbon emissions', the affected should have a chance to voice their perspectives or to have them voiced. Such levels of analysis and interpretation are missing from the analysis of Burritt et al. (2010). A reason for that might be that interviewing agents of ecological modernisation does not suffice to scrutinise the *practices* presupposed by Ecological Modernisation Theory (EMT). Insofar as EMT or CSR and sustainability discourses claim that capitalism can be greened, they miss out the nitty-gritty reality of how environmental reality is brought into social and economic existence. Organisation scholars encountering carbon 'facts' need to address the politics entangled with the production of this kind of information.

Claims about transparent communication between publics and organisations need to be interpreted as very restricted if the organisational machinery does not allow multiple interpretations to be articulated and developed. Automatising the provision of accounts of environmental impact is, in that respect, counterproductive vis-à-vis a careful, situated interpretation and reaction to multiple socio-techno-natural relations. This is especially relevant with respect to Abramsky (2009: 7) arguing for emancipatory and collective control of the means of production. Situated strategies for changing the running of production need – within such local decision-making – to question the processes of accounting for 'environments'. This implies investigating the ethics, e.g.

voices silenced or inscribed materiality in the means of production (such as in databases which reduce 'environment' within the production process to neat boxes in user interfaces). A question arising from this paper, then, is how agents of ecological modernisation can engage with the complexities encountered and how they can contribute to collective control over the alternatives of mattering environment within production. Further research should also reconsider how ontological complexity relates to the conditions for ideal speech situations postulated by Habermas (1991). Maybe carbon realities cannot be ethically correctly addressed by multinationals and their regulators. Going beyond the standard suggestions of putting the responsibility to engage with these complexities onto the shoulders of individualised actors (like environmental managers, auditors or enlightened citizens) might involve re-engineering the economy and materiality of production processes towards decreasing their complexity. To conclude, I would like to stress the minimal political consequence of this paper: ontological engineering of carbon emissions ought not to be a classified issue.

references

- Abramsky, K. (2009) 'Energy transition: Towards degrowth and the democratization of key means of production and reproduction', *Soziale Technik*, 4: 6-8.
- AXA (2010) [<http://www.axa.com/en/responsibility/environment/environmental-reporting>].
- Banerjee, S. B. (2003) 'Who sustains whose development? Sustainable development and the reinvention of nature', *Organization Studies*, 24(1): 143-180.
- Bank of America Environmental Progress Report 2010 [http://environment.bankofamerica.com/assets/pdf/RPT-06-10-0774_Report_9-10_WEB.pdf].
- Böhm, S. and S. Dabhi (2009) *Upsetting the offset: The political economy of carbon markets*. London: MayFly.
- Boiral, O. (2007) 'Corporate greening through ISO 14001: A rational myth?' *Organization Science*, 18(1): 127-146.
- Burritt, R. L., S. Schaltegger and D. Zvezdov. (2010) 'Carbon Management Accounting – Practice in leading German companies', Technical Report, University of South Australia and Centre for Sustainability Management, Leuphana University.
- Buttel, F. (2000) 'Ecological modernization as social theory', *Geoforum*, 31: 57-65.
- Callon, M. (1999) 'Some elements of a sociology of translation: Domestication of the scallops and the fishermen of Saint Brieuc Bay', in M. Biagioli (ed.) *The Science Studies Reader*. New York, London: Routledge, 67-83.
- Callon, M. and B. Latour (1981) 'Unscrewing the Big Leviathan: How actors macrostructure reality and how sociologists help them to do so', in K. Knorr-Cetina and A.V. Cicourel (eds.) *Advances in social theory and methodology: Toward an integration of micro- and macro-sociologies*. Boston: Routledge & Kegan Paul, 277-303.
- Christoff, P. (1996) 'Ecological modernisation, ecological modernities', *Environmental Politics*, 5(3): 476-500.
- Emerson, R., R. Fretz, and L. Shaw (1995) *Writing ethnographic fieldnotes. Chicago guides to writing, editing, and publishing*. Chicago, London: The University of Chicago Press.
- Fineman, S. (2000) 'The business of greening: An introduction', in S. Fineman (ed.) *The business of greening*. Number 8 in Routledge Research in Global Environmental Change Series. London, New York: Routledge.
- Flick, U. (2007) *Managing quality in qualitative research*. Sage Publications: Los Angeles.
- Habermas, J. (1991) *Moralbewusstsein und kommunikatives Handeln* (4 ed.). Number 422 in Suhrkamp-Taschenbuch Wissenschaft. Frankfurt/Main: Suhrkamp.

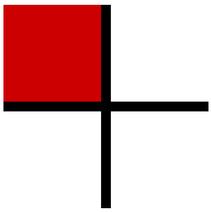
- Haraway, D. (1991) 'Simians, cyborgs, and women' in *Situated knowledges: The science question in feminism and the privilege of partial perspective*. London: Free Association Books.
- Howard-Grenville, J. (2006) 'Inside the "black box": How organizational culture and subcultures inform interpretations and actions on environmental issues', *Organization & Environment*, 19 (1): 46-73.
- Köhler, B. (2010) 'Chapter Macht der Zahlen, Herrschaft der Statistik – Eine machttheoretische Skizze', in C. Lau and W. Bonß (eds) *Macht und Herrschaft in der reflexiven Moderne*. Weilerswist: Velbrück.
- Latour, B. (1987) *Science in action: How to follow scientists and engineers through society*. Cambridge, Massachusetts: Harvard University Press.
- Latour, B. (1993) *We have never been modern*. New York, London: Harvester Wheatsheaf.
- Law, J. (1992) 'Notes on the theory of the Actor Network: Ordering, strategy and heterogeneity' [<http://www.lancaster.ac.uk/fss/sociology/papers/law-notes-on-ant.pdf>].
- Law, J. (2004) *After method: Mess in social science research*. London: Routledge.
- Law, J. (2007) 'Actor Network Theory and material semiotics', version of 25th April [<http://www.heterogeneities.net/publications/Law-ANTandMaterialSemiotics.pdf>].
- Law, J. (2008) 'The materials of STS', [<http://www.heterogeneities.net/publications/Law2008MaterialsofSTS.pdf>].
- Law, J. and M. Callon (1992) 'The life and death of an aircraft: A network analysis of technical change', in W.E. Bijker and J. Law (eds.) *Shaping technology/building society. Studies in sociotechnical change*. Cambridge, London: The MIT Press.
- Lippert, I. (2010a) *Agents of ecological modernisation*. Tönning/Lübeck/Marburg: Der Andere Verlag.
- Lippert, I. (2010b) 'Disposed to Unsustainability? Ecological Modernisation as a Techno-Science Enterprise with Conflicting Normative Orientations', in A. Bammé and G. Getzinger and B. Wieser (eds.) *Yearbook 2009 of the Institute for Advanced Studies on Science, Technology and Society*. München: Profil, 275–290.
- Lippert, I. (2011) 'Extended carbon cognition as a machine', *Computational Culture*, 1 [<http://computationalculture.net/article/extended-carbon-cognition>].
- Lippert, I. (2012) 'Carbon dioxide', in C. A. Zimring (ed.) *Encyclopedia of consumption and waste: The social science of garbage*. Sage Publications: New Delhi.
- Lohmann, L. (2005) 'Marketing and Making Carbon Dumps: Commodification, calculation and counterfactuals in climate change mitigation', *Science as Culture*, 14(3): 203-235.
- Lohmann, L. (2009a) 'Toward a different debate in environmental accounting: The Cases of Carbon and Cost-Benefit', *Accounting, Organizations and Society*, 34: 499–534.
- Lohmann, L. (2009b) 'Neoliberalism and the calculable world: The rise of carbon trading', in S. Böhm and S. Dabhi (eds.) *Upsetting the offset: The political economy of carbon markets*. London: MayFly, 25–37.
- Lovell H. and D. MacKenzie (2011) 'Accounting for carbon: The role of accounting professional organisations in governing climate change', *Antipode*, 43(3): 704-730.
- MacKenzie, D. (2009a) 'Making things the same: Gases, emission rights and the politics of carbon markets', *Accounting, Organizations and Society*, 34(3-4): 440-455.
- MacKenzie, D. (2009b) *Material markets: How economic agents are constructed*. Oxford University Press.
- Porter, T. (1995) *Trust in numbers*. Princeton, New Jersey: Princeton University Press.
- Rikhardson, P. and R. Welford (1997) 'Clouding the crisis: The Construction of corporate environmental management', in R. Welford (ed.) *Hijacking environmentalism: Corporate responses to sustainable development*. London: Earthscan.
- Shackley, S. and B. Wynne (1995) 'Mutual construction. Global climate change: The mutual construction of an emergent science-policy Domain', *Science and Public Policy*, 22(4): 218-230.
- Szerszynski, B. and J. Urry (2010) 'Changing climates: Introduction', *Theory, Culture & Society*, 27(2-3): 1-8.

VfU Standard (2010) [http://www.vfu.de/vfu/userdata/File/Downloads/update%202007/VfU_Indicators_2005_Calculation_File_February_2007.xls].

Weinstein, M. (2006) 'TAMS analyzer: Anthropology as cultural critique in a digital age', *Social Science Computer Review*, 24(1): 68-77.

the author

Ingmar Lippert is engaged with studying agents of ecological modernisation in corporate and governmental contexts. He studied environmental and resource management at Brandenburg University of Technology (Cottbus) and Bosphorus University (Istanbul) as well as environmental sociology and science and technology studies at Lancaster University. This paper is a partial result of his PhD in sociology at Augsburg University. He has been a founding member of the Environment, Management and Society Research Group. His research interests include qualitative research methodology, feminist techno-science studies, studies of (un)sustainability and libertarian theory.
E-mail: ingli@ingli.de



A colonial mechanism to enclose lands: A critical review of two REDD+-focused special issues

Joanna Cabello and Tamra Gilbertson

abstract

This review essay critiques two REDD+-focused special issue journals: *Environmental Science and Policy*, ‘Governing and Implementing REDD+’, and *Forests* (2, 2011). This is an effort to address the varying assumptions from the academic journals – that REDD+ can be fixed with more governance, finance and/or community engagement – through a critique of the wider neoliberal climate regime, issues of ‘governance’ as an unproblematised category, and by exploring, from de-colonialist and environmental justice perspectives, the issues of real participation and sustainability. We conclude that REDD+ is framed within an epistemological understanding of forests and lands which supports the domination of nature by humans for economic profit, regardless of financial input, governance and/or participation from communities, and therefore will not be a successful means of climate mitigation or forest protection. In addition, the essay stresses the goal that any climate change policy should include: keeping fossil fuels in the ground, and devising just and effective ways to protect the environment, lands, forests and peoples. Finally, emphasizing that deforestation is a complex socio-political and economic event, the article strongly voices other knowledges opposing REDD+ projects, which are largely marginalized in these discussions, especially those from Indigenous Peoples and forest-dependent communities.

The REDD proposal allows the powerful capitalist countries to maintain their current levels of production, consumption and, therefore, pollution. They will continue to consume energy generated by sources that produce more and more carbon emissions. Historically responsible for the creation of the problem, they now propose a “solution” that primarily serves their own interests. While making it possible to purchase the “right to pollute”, mechanisms like REDD strip “traditional” communities ... of their autonomy in the management of their territories.

Letter from the State of Acre, October 2011
In defense of life and the integrity of the peoples and
their territories against REDD and the commodification of nature ¹

A loud silence prevails within the debate on Reducing Emissions from Deforestation and forest Degradation, conservation, sustainable management of forests and enhancing of carbon stocks (REDD+). Although thousands of people are directly affected by

1 http://www.wrm.org.uy/subjects/REDD/Letter_from_Acre.html

REDD+ projects around the world and continue to resist these projects, their voices are silenced by elites who categorically believe that REDD+ will not only protect remaining forests and mitigate climate change but also, at the same time, be a lucrative business opportunity. This belief is rooted in the same structures and interests which made it possible for polluters to avoid any real actions for reducing emissions at source and brought about the privatization of greenhouse gas through carbon trading.

Although the REDD+ architecture is still being debated in the United Nations climate change negotiations, many projects are already underway in the global South. Proponents believe not only that REDD+ can help mitigate climate change but also that it will provide enough funding to address a wide range of deeply entrenched forest conflicts. These issues range from land tenure and land rights to concessions, extractive industries, road building, large-scale infrastructure projects, community involvement, governance and transparency, land use change, biodiversity protection, agricultural practices, land use changes and so on.

While REDD+ is being designed and implemented as the premier international package to address deforestation and forest degradation, the underlying structural challenges in trying to 'fix' current unsustainable forestry and land practices remain unaddressed. Many proponents of REDD+ tend to gravitate towards the belief that although there are inherent problems with REDD+, they can be solved by securing large sums of money in order to improve 'governance', safeguards, and/or increase local communities' participation. However, these arguments are framed within a specific epistemological understanding of forests and lands: the domination of nature by humans for economic profit. Market-mechanisms and institutions frame cultures, politics and 'other' cosmovisions, which understand nature as a central part of human beings, as non-modern or unproductive, pushing communities into the dominant epistemological ideal of constant economic growth (Walsh, 2010).

Above all, REDD+ is aimed to set in motion a new commodity: carbon stored in forests and soils. Grassroots groups, activists and social movements have pointed out that these entrenched issues will not be solvable through a one-size-fits-all REDD+ package, and that REDD+ is being constructed in a way that is likely to exacerbate existing social, economic and structural problems in the South. As the Indigenous Peoples from the Armador Hernández region in Chiapas, Mexico, declared, in August 2011, in relation to REDD+, 'we call [out to others] to be alert to the double intention of these programs, dispossessing us while changing our culture with the purpose of disorganizing us and neutralize our resistances' (Otros Mundos Chiapas, 2011).

Meanwhile, the REDD+ debate has also entered the academic circles, from which understandings about the inclusion of forested lands into the carbon markets are being influenced. This review essay is based on two recent REDD+-focused special issues in academic journals. The special issue of *Environmental Science and Policy*, 'Governing and Implementing REDD+', centers largely on the complexities of governance and implementation. More specifically, this issue looks into models for carbon payments to communities, methodological analysis of past and current experiences, and the dilemmas of carbon accounting and monitoring, to name a few. It also brings insights from case studies in Peru, Uganda and Brazil. All contributions from this special issue

advance the argument, in different degrees, that REDD+ can and should be fixed or improved. The special issue of *Forests* (2, 2011) is also largely centered on governance issues, especially in Brazil, Mexico, Costa Rica and Peru. The articles of this issue analyze ways to improve governance, assess the economic conditions that shape forest management, and the role of decentralization and REDD+ as a governance mechanism, to name a few. Again, the authors, scholars in social science and business studies, concentrate on ways to improve REDD+. Thus, we consider it important to engage with these debates in an attempt to unpack some underlying assumptions.

This review essay divides its critiques into three sections covering cross-cutting themes. First, we take a look at the wider neoliberal climate regime from which REDD+ emerges in order to contextualize implementation challenges and threats as well as to understand why REDD+ is being pursued so enthusiastically. In the second section, we reflect on the issue of 'governance', with a focus on the role of the World Bank. The review will conclude by exploring, from de-colonialist and environmental justice perspectives, the issues of participation and sustainability, especially as related to Indigenous Peoples and forest-dependent communities. This paper aims to dispute the frameworks from which the two mentioned special issues are analyzed and to challenge the consistent conclusions of the authors which tend to undermine their own research.

REDD+ and the neoliberal climate regime: same idea, different name

The international climate change agenda, driven by neoliberal and corporate-friendly ideas, is dominated by approaches that emphasize trading carbon-'equivalent' emissions as a means of solving the climate crises. How did the international negotiations, instead of finding ways of reducing emissions at source, end up focusing on ways of measuring, owning, governing, and compensating for the liabilities of carbon commodities?

As Thompson et al. argue in one of the reviewed journals, 'REDD+ is already functioning as a form of governance, a particular framing of the problem of climate change and its solutions that validates and legitimizes specific tools, actors and solutions while marginalizing others' (2011: 100). This framing comes largely from international bodies seeking technical and market fixes for the current crisis, leaving little space for discussing how to start transforming the very structures that created this problem in the first place (Driesen, 2008). For this reason, a historical overview of the climate regime under which the marketization of the climate is being negotiated and established is a key starting-point to better understand how it has been instrumental for advancing a neoliberal framing that only allows for solutions and actors who comply with the mantra of liberalization, deregulation and privatization.

The Kyoto Protocol, adopted in 1997 by the United Nations Framework Convention on Climate Change (UNFCCC), entered into force in February 2005. Due to their greater historical responsibility for greenhouse gas emissions, the Protocol sets industrialized countries' emissions reduction targets at a minimum of 5.2 percent below 1990 greenhouse gas levels by 2012, while imposing no formal emissions limits on Southern nations. Emissions trading, a mechanism combining 'cap and trade' and 'offsetting' and

designed to save costs in achieving this target, was pushed by the United States in response to heavy lobbying by technocrats, economists and corporations during negotiations in the 1990s.² Emissions trading partitioned global carbon-cycling capacity and instituted the buying and selling of ‘permits to pollute’ alongside other international commodities, opening the door for industrialized countries and ‘their’ corporations to buy their way out of already weak emissions targets. Although the George W. Bush administration later pulled out of the Kyoto agreement, emissions trading has remained its cornerstone.

Under the ‘cap and trade’ mechanism, polluters are given a number of emissions permits which they can use to comply with their targets and/or trade in the carbon markets. Carbon offsets, meanwhile, are generated by ‘emissions-saving’ projects implemented in the global South, who sell credits to Northern polluters, who use them to ‘compensate’ for their emissions. In other words, if a polluter chooses to emit above its permitted level, it can buy credits to cover the excess. Similarly, a polluter that manages to decrease its emissions below the cap can sell its spare credits to another polluter or to a trader (Lohmann, 2006). The UN’s Clean Development Mechanism (CDM) is the largest offset scheme, although there are also offsets being traded in other, non-UN-backed voluntary carbon markets (Cabello, 2009).

As many critics have argued, emissions trading secures the property rights of heavy Northern fossil fuel users over the world’s carbon-absorbing capacity while creating new opportunities for corporate profit through trade. As such, it is part of a longer historical wave of neoliberalism, which establishes new property rights regimes and fights regulation in an attempt to reduce the power of national governments, labour unions, social movements and local communities over corporate activity (Gilbertson et al., 2009; Coelho, 2009; Lohmann, 2008).

Early attempts to fit Land Use, Land Use Change and Forestry (LULUCF) into emissions trading entailed many uncertainties and complexities that led to extensive debates over how to measure the carbon dioxide molecules associated with forests. In 2000, a 377-page report, issued by the Intergovernmental Panel on Climate Change on LULUCF, outlined how carbon credits could be generated from ‘carbon sinks’ (IPCC, 2000). Hone et al. (2007) note how specific rules of forest carbon accounting, accepted in 2001, had to cope with numerous difficulties, including:

- While LULUCF activities can remove carbon dioxide from the atmosphere (referred to, in the climate jargon, as *removals by sinks*), this removal can be reversed and result in emissions, i.e. by fires. This is referred to as ‘non-permanence’.
- Estimates of LULUCF emissions and removals are much more uncertain than those from fossil fuels, since they rely on biological variables.

2 <http://www.carbontradewatch.org/issues/cap-and-trade.html>;
<http://www.carbontradewatch.org/issues/carbon-offsets.html>.

- Forestry emissions and removals may still occur many years after a project or intervention happens, while emissions from fossil fuels occur immediately when the fuel is burnt.

As a result of 2003 agreements, carbon sinks under the CDM were confined to afforestation and reforestation (A/R) activities. These offsets are restricted to areas in Southern countries that were not forested in 1990 and are also supposed to be in addition to what would have happened without the project. The A/R generated credits can be used by Northern countries for up to a level of 1 per cent of their base year emissions. This was regarded as a major set-back in the struggle against the expansion of large-scale monoculture plantations in the South which entail heavy social, economic and environmental impacts, particularly since plantations of genetically modified organisms (GMOs) were also approved for carbon offsets (World Rainforest Movement, 2000). However, the European Union Emissions Trading Scheme excluded the use of any of these credits in the first commitment period of the Protocol.

A new process was initiated in 2005 to discuss ways to Reduce Emissions from Deforestation (RED) in Southern countries (following from LULUCF in Northern countries). After intense debates, Parties agreed that Southern countries be encouraged to undertake voluntary actions to reduce emissions from deforestation, with international organizations and other stakeholders to support capacity building, development of appropriate methodologies and demonstrations of carbon forestry activities in Southern countries. Later on, an additional D was added to the acronym, signifying 'forest Degradation'.

Under REDD, many of the same uncertainties and loopholes of LULUCF remain. Yet, during the negotiations in Bali in 2007, the UNFCCC, pressured by heavy corporate and consultancy lobbies, repackaged the concept of forestry offsets (Coelho, 2009b). The new 'Bali Action Plan' called for: 'Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries', referred to as REDD '+' (plus) (UNFCCC, 2007: paragraph 1b-iii).

'Conservation' has, however, historically been linked to the establishment of parks that involve evictions of local communities and Indigenous Peoples and, as a recent study shows, performed worse than community-managed forests in controlling deforestation (Porter-Bolland et al., 2011; Oilwatch and World Rainforest Movement, 2004). It is interesting to note that none of the papers in the two journals acknowledge the historical performance of 'conservation', and only a few recognize monoculture plantations as being different than a forest (Nasi et al., 2011; Caplow et. al., 2011; Kanowski et. al., 2011; Peskett et. al., 2011).

'Sustainable management of forests,' in REDD+, opens the doors to commercial logging operations in old-growth forests, and Indigenous Peoples' and forest-dependent communities' territories (Global Witness, 2009). 'Enhancement of forest carbon stocks', meanwhile, could result in, as is already being experienced in Indonesia, in the conversion of lands – including primary forests – into industrial tree plantations, with

serious implications for biodiversity, soils, waterways, forests and livelihoods (Lang, 2011b). This reference to ‘enhancement’, moreover, requires some historical referencing. In the REDD+ debate, such eventualities are often later blamed on ‘bad governance’ rather than on the corporate political pressure to which REDD+ is structurally vulnerable (Morris, 2010).

Despite public opposition and the lack of a final UN agreement on REDD+, the World Bank launched its Forest Carbon Partnership Facility Fund (FCPF) and, the following year, the UN launched its own UN-REDD programme, both asserting that they would set up pilot projects. Since then, the FCPF has played an important role in building the architecture of REDD+. The FCPF consists of two funds: the Readiness Fund and the Carbon Fund. The former supports countries in developing a national REDD+ strategy (phase 1 and 2), while the Carbon Fund, a public-private partnership that became operational in July 2011, facilitates actual trading in forest carbon credits (phase 3). The British Petroleum (BP) oil giant recently became the first company to join the FCPF Carbon Fund, enabling itself to offset its own emissions or to trade offset credits in the carbon market (Vidal, 2011).

In 2009, a document was drafted by a small group of countries behind closed doors which claimed the need for the ‘immediate establishment of a mechanism’ to enable REDD+ (UNFCCC, 2010). Due to opposition, however, it was not formally adopted by the UN assembly but only ‘noted’. In response, the president of Bolivia called for a World People’s Conference on Climate Change and the Rights of Mother Earth, which eventually released a People’s Agreement stating: ‘We condemn market mechanisms such as REDD and its versions + and + +, which are violating the sovereignty of peoples and their right to prior free and informed consent as well as the sovereignty of national States, the customs of Peoples, and the Rights of Nature’ (Peoples’ Agreement, 2010).

During the climate negotiations of 2010, Bolivia stood alone against REDD+ and as a result was marginalized in the process – accused of being obstructionist for raising serious concerns. While other Southern countries made critiques of REDD+, it was clear that they would support REDD+ as long as it was kept out of the carbon market – which may have been one reason why the UN was forced to postpone decisions on financing and REDD+ (Gilbertson, 2011).

The UN’s REDD+ text is unfinished and many key issues remain unresolved. Although not yet explicitly connected to UN-backed emissions trading schemes, even those REDD+ initiatives currently being supported through public money are generally designed to help jump-start forest carbon markets (Climate Connect, 2011; Harvey, 2011). This is troubling, since a look at some of the main actors involved, and the financial interests at play, suggests that REDD+ could arguably set in motion the most reckless land grab in history (No REDD Platform, 2010).

Despite the lack of international agreement, most of the authors of the special issues reviewed agree that the legitimacy of REDD+ is already in question or, as stated by one author, that REDD+ is ‘morphing into a slew of unorchestrated, multi-level, multi-purpose and multi-actor projects and initiatives’ (Corbera et al., 2011: 91), with several

pilot projects, national and sub-national programmes, bilateral and multilateral agreements and ‘readiness activities’. The latter are activities carried out through a World Bank fund to ‘help countries get ready for future systems of financial incentives for REDD+’ (FCPF, 2011). An inventory from one of the special issues of REDD+ readiness and demonstration activities showed that at least 100 readiness activities and 79 pilot projects had been undertaken by October 2009 (Cerbu et al., 2011). Some of the generated credits are already being sold in the voluntary carbon markets. In this context, REDD+ is ‘becoming one of the key pillars of a post-2012 international climate regime, particularly regarding developing country mitigation efforts’ (Corbera et al., 2011: 89).

This overview of the neoliberal climate regime highlights how the same narrow vision that resulted in the Kyoto Protocol becoming a set of climatically and socially ineffective market mechanisms is repeating itself now in the REDD+ debate (The Munden Project, 2011), while other possible structures to address deforestation and degradation are constantly silenced and marginalized. Consequently, the failures of REDD+ should not be treated only as governance, policy, corruption or managerial challenges. Left behind in the special issues are discussions of fossil fuels, social justice or power relations, and, in particular, the need for structural changes to address the real drivers of deforestation (Moussa et al, 1999; Global Forest Coalition, 2010; Mery et al, 2011; Gilbertson, 2011).

(Re)structuring territories: REDD+ governance and markets

When challenges to the effectiveness of REDD+ are attributed to problems of ‘governance’, specifically in the South, ‘corruption’ and ‘lack of policing’ are treated as primary obstacles to REDD+’s smooth functioning. Further, proponents of REDD+ assert that the mechanism will flourish if money becomes available for the state to guarantee better governance – and lots of it. However, this logic fails to take account of what ‘governance’ really means and of the lessons learned from other forest projects, the work of the actors involved in designing its architecture, and past experiences of benefit flows from such forest initiatives.

In line with the majority of scholars, most of the papers in both special issues under review treat ‘governance’ as an unproblematised category, without looking carefully into how specific knowledges, actors, practices and territories are transformed by being turned into objects of governance. Further, ‘governance’ seems to remove the ideas of direct authority and power from ‘government’ while disguising it as an apolitical ‘practice’. Taking the focus of *governing* away from only the ‘government’, the practice of governance allows many other actors to enter the decision-making processes. Corporate lobbies, multilateral banks and conservationist NGOs, to name a few, are some of the actors that have gained political leverage in the climate regime in this way. Yet, the same questions of legitimacy and representation usually raised about governments can be raised here. ‘Governance’, hence, entails a political process which determines whose authority and power establishes and plays with the ‘rules of the game’ and, as a result, who will gain and lose.

For example, in one of the special issues reviewed, Thompson et al. conclude that, if the interests of all the stakeholders are not aligned, ‘REDD+ will come to represent another addition to a long history of marginalization of vulnerable groups of people by development and conservation projects’ (2011: 108). Yet, is it even possible to align the interests of all stakeholders under REDD+? The editors of the same special issue argue that REDD+ ‘permeates through multiple spheres of decision-making and organization, creates contested interests and claims, and translates into multiple implementation actions running ahead of policy processes and state-driven decisions’ (Corbera et al., 2011: 90).

And there are indeed many players with specific interests in and claims on REDD+, from logging and soy industries to power and service sectors. Financial actors are keen to increase opportunities for speculation. Mining companies also want to get in on the REDD+ action. As Rio Tinto, infamous for violating human rights and causing environmental destruction, states: ‘REDD+ is used as an economic tool to offset the carbon footprint of Rio Tinto’ (Rio Tinto, 2009). Powerful fossil fuel companies support and finance REDD+ projects, while ‘conservationist’ NGOs are also among those who stand to make millions of dollars from REDD+ (Ecologist, 2011; Lang, 2011c). It would be surprising if one mechanism could ‘align the interests of all stakeholders to these broad goals [conservation and enhanced carbon stocks] ... through significant engagement with these [affected] communities’ (Thompson et al., 2011: 108). The authors fail to address an important question, i.e. what does ‘significant engagement’ really mean to profit-based actors?

Another paper states that REDD+ is primarily a financial, not a governance, mechanism (Larson et al., 2011). The article continues by stating ‘If REDD+ is to be successful in supporting the alignment of policies across state entities, it will require the development of coordination and conflict negotiation mechanisms under top-level political leadership’ (*ibid.*: 105). The study concludes by assuming that these hurdles can be overcome as long as there is money: ‘An investment today is likely to determine whether REDD+ will be efficient, effective and equitable in the long run, or whether it will be accommodated in a business-as-usual governance and development model’ (*ibid.*).

‘Governance challenges’ cannot be separated from the wider political-economic agenda. Managerial discussions, although important on their own, do not address the fundamental changes that are needed to start dealing with the complex and entrenched problems related to deforestation. High-level finance, market mechanisms and technological fixes leave unchallenged, and feed the logic of, a system based on unlimited growth (Lohmann, 2011). In addition, most of the authors fail to address the demand for forest products, agriculture and extracted goods that largely benefit the North. Even when addressed, the conclusions fail to recognize the evidence. Larson et al. state: ‘For example, globalization and macroeconomic policies such as trade liberalization and structural adjustment have stimulated deforestation in lowland Bolivia, due to dramatic increases in investments in industrial production of soy, wheat and sorghum’ (2011: 92). But later, the conclusions seem to ignore the power relations explored earlier in the research: ‘REDD+ requires clear and secure rights and exclusion of those who cause deforestation and degradation. This is an opportunity to clarify and

secure rights...of people living in the forests and thus engage them in REDD+ for both their benefit and the benefit of the forests' (*ibid.*: 97). Thus, the epistemology that REDD+ embodies prevents looking closely at processes of human domination and management *over* nature and the planet.

As one of the biggest Indigenous organizations in Peru notes:

There is pressure from the State, companies and certain NGOs onto indigenous peoples to blindly support REDD policies and projects with promises, and without analyzing the conflicts created by REDD in the world, related to the disappointment of communities due to the fact that these receive scarce benefits while intermediaries' benefits are much higher; limitations to their livelihoods due to control over forests; land invasion by third parties to negotiate REDD contracts, and also the immorality of multinational companies that continue to pollute and destroy land and the Amazon, and pay little or nothing for others to collect the garbage they produce. This 'carbon market' is another face of the privatizing model of Mother Earth, that has led to the brink of a planetary suicide. (AIDSESEP, 2010)

In commodifying and quantifying emissions as an end in themselves, we are losing sight of what is required for meaningful climate change mitigation: reducing greenhouse gases at source. The reviewed article from Corbera et al. (2011) recognizes how mechanisms, such as the laborious and problematic process of laying the methodological and technological foundations for analyzing forest cover and changes in carbon stocks, place dominant economic interests in advantage over environmental and social aims, pushing the latter to the back of the climate regime's agenda. However, another reviewed article, Grainger et al. (2011), advocates for a global network of national carbon assessment, reporting and verification systems, operated by governments and facilitated by independent science-based bodies, aimed at providing a basis for trade but not necessarily any real reduction of emissions. Palmer Fry (2011), from another perspective, advocates for community/locally based monitoring as one critical element of accounting activities. And following the same line, Skutsch et al. (2011) propose a system based on paying local communities to measure and monitor their forest carbon stocks. Although many of the articles under review have strong opinions on how monitoring, verification and reporting could be done, the papers do not acknowledge historical attempts at managing forests nor the pressures being exercised on local peoples – at both the project site in the South and the pollution site in the North – for prioritizing carbon accounting, a commodity which will largely benefit other private actors (Carbon Trade Watch, 2011). Such proposals for community-led forest monitoring often encounter setbacks when put into practice.

An example from the Joint Forest Management (JFM) programme is useful to highlight in this context. Large-scale concession loans from the World Bank were used in the 1990s to scale up JFM but have failed in several states. According to Marcus Colchester, 'Forestry Department officials have resisted what they see as an erosion of their authority. Joint Forest Management schemes have thus been implemented half-heartedly, with inadequate community preparation and with too much authority being retained by officials' (Colchester, 2002).

Palmer Fry argues that locally based monitoring generates 'jobs and income', and thus, REDD+ 'should include alternative livelihood possibilities for those whose employment is affected by the introduction of the scheme' (2011: 184). However, the assumption

that communities have already been or want to be inserted in waged labor economies is not challenged. Losing control over lands, resources and traditions, forest-dependent and Indigenous Peoples are often forced to enter different types of mostly underpaid wage labor. This can set in motion, or worsen, a cycle of poverty, internal migration and displacements, and dependence on markets.

In many of the articles under review, Indigenous Peoples and forest-dwellers are viewed as having nothing to lose and everything to gain from REDD+ because their way of life, customs, and livelihoods are not valued monetarily. For example, Pacheco et al. state that ‘there are important differences across landscapes since, for example, landholders linked to agribusiness have higher land-use opportunity costs, compared with cattle ranchers or indigenous people (sic), whose opportunity costs are relatively low’ (2011: 18). The implicit assumption here is that the *value* of the forest is restricted or reduced to *monetary value*.

Yet, while many REDD+-type projects do provide a combination of jobs, services, and/or cash payments to affected community members, these ‘benefits’ can be less than the worth of sustenance derived when people have free access to forests (Morgan, 2010; PBS/Frontline World, 2009). While some projects provide payments to meet basic needs, or services like health clinics or schools, and still others offer gifts like laptop computers and fuel-efficient cooking stoves, by buying people out of their forest-dependent livelihoods, REDD+ could in many cases leave forests more vulnerable to predatory interests. Moreover, as some critics have argued (Friends of the Earth International, 2008; Indigenous Environmental Network, 2009), commodifying forest carbon is inherently inequitable in that it discriminates against people, and especially women, who previously had free access to the forest resources they need to raise and care for their families, but cannot afford to buy forest products or seek alternatives.³

Globalized forests – Enter the World Bank

The World Bank is at the forefront of implementing national readiness strategies and REDD+ demonstration projects with the intention of getting countries ‘ready’ for privatizing the carbon in their forests in order to sell on the market. Surprisingly, none of the articles from the two special issues deal with the role the World Bank and its influence (or imposition) for dealing with this new forests ‘governance’.

The World Bank’s Forest Carbon Partnership facility states:

3 See for example the Mandate of Manaus from the First Regional Amazon Summit (Brazil, 15-18 August 2011) which declared, ‘the hypocrisy and contradictions in the global and national policies on forests, where next to declarations, plans and little ‘sustainable’ projects; the depredation, deforestation and degradation is going further due to mining businesses, fossil fuels, large-scale hydro dams, extensive agriculture, soy, agribusiness, ‘agrofuels’, highways of colonization, transgenic, pesticides, superposition of protected areas in Indigenous territories, biopiracy, and the theft of ancestral knowledges. In need for better forestry practices, the best of all is to deeply change the macro policies of the neoliberal globalization’. Posted in:
<http://www.coica.org.ec/cumbre2011/index.php/using-joomla/extensions/components/content-component/article-categories/218-resoluciones>.

[The Carbon Fund] will provide payments for verified emission reductions from REDD+ programs in countries that have made considerable progress towards REDD+ readiness... The Carbon Fund is intended to play a catalytic role for REDD+... In the year ahead, the FCPF will advance its work on critical issues at the interface between readiness and carbon finance, in particular reference levels and MRV [monitoring, reporting and verification] for sub-national emission reductions programs, and valuation approaches for emission reductions. (FCPF, 2011)

The FCPF has initiated REDD+ Readiness Preparation Proposals with 37 tropical forest countries, although only 24 of these had been submitted as of June 2011 (FCPF, 2011b): 15 in Latin America, 14 in Africa and 8 in the Asia-Pacific region. This is happening despite the fund dispersing little money to date (Climate Funds Update, 2011).

These national Readiness Preparation Plans have been heavily criticized for failing to implement measures that would protect community rights and reduce deforestation (FERN and FPP, 2011). They neglect requirements for the Free and Prior Informed Consent (FPIC) of Indigenous and forest-dependent Peoples and for adequate land titling. The few that do mention FPIC appear to confuse it with 'prior consultation', which, in the end, translates as 'prior communication'. The proposals do not address land conflicts, prioritise state ownership over forests, and tend to blame local communities for deforestation and degradation without a real analysis of the real drivers of deforestation (Lang, 2009).

Meanwhile, new forest inventories (that is, accounting of carbon stocks) have been completed in four Central American countries (Costa Rica, Guatemala, Honduras, Nicaragua) and are underway in four South American countries (Brazil, Ecuador, Peru, Uruguay) (Larson, 2011). Online information systems have been created in numerous countries, including Mexico, Nicaragua, El Salvador, Colombia, Peru, Bolivia and Panama, which means 'advances' in the monitoring, reporting and verification activities. In this sense, with REDD+, as with previous UN initiatives on global warming, the climate agenda presents itself largely as a managerial and technical project of calculating, standardizing and exchanging objects referred to as carbon-dioxide 'equivalents'.

Local peoples and the power of decision

Many authors in the two special journal issues under review argue that forest-dependent communities and Indigenous Peoples will benefit from REDD+ if they engage with it (Peskett et al., 2011; Palmer et al., 2011; Skutsch et al., 2011; Hajek et al., 2011; Cronkleton et al., 2011; Larson et al., 2011, Van Dam, 2011). However, experiences to date with the Clean Development Mechanism (CDM) and voluntary carbon offsets indicate little reason for optimism, especially for communities in forests already living under pressure. As demand for land and 'carbon stocks' increase, people are being pushed off their existing territories. If REDD+ aggravates this situation by significantly increasing the economic value of forests, it is likely to have extremely detrimental impacts (Kron, 2011; Nhantumbo, 2011). This is a key concern in relation to REDD+, regardless of where REDD+ funds are generated.

Often having no formal land title, many people have already been forcibly and even violently evicted from their ancestral territories (Bodenham et al., 2011; Dixon, 2010; First Peoples Worldwide, 2011). If the financial value of standing forests increases, local peoples are more likely to face governments and companies willing to go to extreme lengths to secure rights to the carbon.

From an indigenous and human rights perspective, REDD+ could criminalize the peoples who protect and rely on forests. Meanwhile, carbon traders eager for the large sums of money offered by REDD+ schemes are already forcing Indigenous and forest-dependent Peoples to sign away their land rights (Acción Ecológica, 2010). Furthermore, it is not outlined how the protection of the rights of Indigenous Peoples and forest-dependent communities could be guaranteed or enforced through the REDD+ safeguards at the national or sub-national level (No REDD Platform, 2010).

An important proportion of biodiverse territories where REDD+ aims to intervene are located in forest-dependent and Indigenous Peoples' territories. Nonetheless, these areas, whether or not the rights have been recognized, have been constantly subject to threats and impositions in the name of 'development' or 'progress'. It is crucial to unwrap this new set of property rights and contracts under REDD+ and to ask questions about who 'owns' the carbon stored in the forested lands, who holds the liabilities in case of carbon lost (for example, in case of a fire), who benefits from it, and in what ways and what are the conditionalities or restrictions of using the resources in these lands? The legal implications of the carbon commodity at the international, national and sub-national levels, especially for forest-dependant and Indigenous Peoples, are also an area of debate (Lyster, 2011; Skutsch, 2011; Louman et al., 2011).

As one of the articles reviewed affirms, REDD+ could give states perverse incentives to 'postpone' legal recognition of peoples' land rights, or even worse, to transfer their lands to third parties for profit (Van Dam, 2011). Moreover, another paper asserts that the institutional and policy changes required under readiness activities are 'associated with the political economy of resource access and use which largely favor economic development over conservation and elite capture of forest-derived wealth over more equitable outcomes' (Kanowski et al, 2011: 113). In other words, REDD+ is not positioning itself as an ally to many of the groups that have resisted the real drivers of deforestation most vigorously. On the contrary, according to the REDD+ inventory presented in another paper under review, as of 2009, 'local/Indigenous communities are involved in only one demonstration activity and no readiness activity' (Cerbu, 2011).

Hajek et al. (2011) analyze 12 REDD+ projects which aim to sell credits in the voluntary carbon markets in the south east of Peru. While advocating 'bottom-up construction of REDD+ as a strategy to encourage innovation and flexibility', the authors at least recognize that 'many local and indigenous representatives (sic) view REDD+ with suspicion, and as a means for international intermediaries to benefit from their forest resources' (2011: 214). In another article, Peskett et al. research three carbon projects in Uganda to explore the actors, rules and links to existing institutions. They unwrap the many challenges for local communities to access any benefit from REDD+ projects and conclude that 'considerable progress needs to be made in balancing the interests of project financiers with those of the communities involved' (2011: 216).

Here, as in several papers under review, the researchers unfold many layers of problems and dangers that REDD+ involves while concluding the articles by undermining their own research. The ‘solution’ to the challenges explored are purported to be found where the problem is rooted and by default locks out any other knowledge framework. As shown by de-colonialist theorists, the historical power asymmetries produced by colonialism, imperialism and capitalism has led to the imposition of these epistemologies, separating humans from nature, imposing competition over cooperation or individuals over collective action (Santos, 2009; Quijano, 2000). This epistemic privilege has been instrumental for suppressing other knowledges that are not considered legitimate or even existing in western ‘scientific’ modes of *thinking*. The cosmovisions of those who are most negatively affected by unequal power relations become a key theme within resistance whereby this knowledge is central to survival for Indigenous and forest-dependant Peoples, and ultimately aids in advancing the struggle for social and climate justice against forces reflecting relations of domination and structural dependences on world markets (Walsh, 2002).

The difficulty of imagining different possible world views is attached to the prevailing colonialist thinking whereby ‘the other’ is invisible and therefore ‘non existent’ (Santos, 2009). This is related to the epistemic order of modern politics that is based in separating nature from humans and individuals from collectivities (Escobar, 2010). Thus, there is a widely held assumption that Indigenous and forest-dependent communities have to ‘learn’ and enhance their ‘capacities’ to become part of the same economic-political model that has already proven to be unsustainable (Gudynas, 2010). Global discourses regarding climate change stress that ‘standardized’ carbon units can be produced through sequestration projects in developing countries in order to be efficient, and hence, ‘in order to economically benefit from global institutions, the local must accept its construction as compliant, homogeneous and safe, which is to say, as absent’ (Fogel, 2004: 111).

Not only do many proponents of REDD+ preserve a similar colonial belief, that forest peoples should be compliant to market forces by opening their territories and ways of life to a commodification agenda, but also, as stated above, voices against REDD+ mechanisms are also actively marginalized and silenced. One of the articles under review recognizes that REDD+ was opposed by the Peoples’ Agreement created in Bolivia in 2010 (Van Dam, 2011: 404), but few others even acknowledge that REDD+ has been clearly rejected by many other movements, organizations and communities throughout the world.

This structural suppression of opposing voices was also evident during the UNFCCC summit in December 2010, when UN security ordered non-governmental observers wearing ‘No REDD’ stickers to remove them. The Indigenous leader Tom Goldtooth, director of the Indigenous Environmental Network, refused to remove the sticker, leading to the temporary suspension of his accreditation. Other representatives of low-income communities of color from California who were also critical of REDD+ experienced a similar treatment, ‘I came to [the summit] representing the public health concerns of low-income communities of color living in Los Angeles being impacted by toxic emissions’, said Sunyoung Yang of the Los Angeles Bus Riders Union. ‘Throughout the past two weeks I have seen how the (...) meeting has systematically

limited and suppressed voices of dissent to programs being promoted through the UN such as REDD which will only increase the poisoning of the communities I represent back home' (World Rainforest Movement, 2010).

Powerful voices against REDD+ continue to persist for their rights. Octavio Rosas Landa, from La Via Campesina and the National Assembly of Environmentally Affected Peoples, stated in Cancun in 2010, 'We have the same message: we don't want the false solutions that COP16 stands for, we don't want REDD, we don't want them to carry on poisoning us with their lies and their false solutions' (La Via Campesina, 2010). Moreover, the position on Women and REDD+ after the Cancun Summit stated that 'the commercialization of life and carbon markets are incompatible with traditional and indigenous cosmologies and a violation of the sacred. Women, as holders of at least half of all traditional knowledge, are integral to the preservation and living practice of this knowledge. Many indigenous tribal traditions in their historic responsibility protect the sacredness of Mother Earth and are defenders of the Circle of Life which includes biodiversity, forests, flora, fauna and all living species' (Women and REDD, 2010).

Movements from Canada resisting tar sands; communities in Chiapas, Mexico and Acre, Brazil organizing against REDD+; communities against fossil fuel extraction in Nigeria and Ecuador; women's movements; Indigenous Peoples' organizations around the world; environmental justice movements from West Virginia and Durban; labor unions in countries such as Argentina and South Korea; forest peoples in India and Indonesia – all continue to organise against the commodification of water, lands, health services, education, electricity, forests and life, and support ways of organizing societies outside of neoliberal and colonial agendas. There is a crucial need within scholarly debates related to forests and lands to bridge Western knowledge to existing knowledges which have protected these forested lands for centuries.

Conclusions

The articles reviewed for this essay represent a collection of challenges for improving REDD+. One of the special issues highlights 'entry points for a REDD+ research agenda which is both scientifically and politically relevant' (Corbera et al., 2011: 97). However, while the articles relay some strong criticisms about REDD+ by warning, for example, that the 'emphasis on carbon emissions under REDD+ could also lead to bureaucratic management that parallels that of logging permits rather than promoting the multiple values of forests' (Larson et al., 2011: 98), all articles seem to ignore their own findings by concluding that REDD+ is a good option as a tool to addressing climate change and deforestation. Further, the studies take no notice of the voices of those most affected which are almost completely absent in the special issues.

Deforestation is a complex socio-political and economic event that responds to pressures coming largely from outside the forests. An analysis – or at least, a recognition – of the wider neoliberal climate agenda and its failings is precisely what is needed in order to 'reflect on critical aspects for governing and implementing the emerging regime' (Corbera et al., 2011: 91). Moreover, the debates over a 'better functioning' REDD+ works off the basic assumption that such a mechanism is implicit.

Thus, reflections on REDD+'s managerial, technical and governance problems, interesting as it may be theoretically, should not make us lose sight of the goal that any climate policy should include: keeping fossil fuels in the ground, and devising just and effective ways to protect the environment, lands, forests and peoples. As stated in this paper, REDD+ is driven by profit interests and is structured to allow polluters to continue polluting while increasing profits and enclosing lands. This paper is an attempt to challenge the frameworks from which knowledge is being analyzed and to stress the need to hear the many voices which are largely marginalized in these discussions.

references

- Acción Ecológica (2010) 'REDD+ and the Ecuadorian sociobosque program: An award for deforestation and massive usurpation of territories', in Carbon Trade Watch and Indigenous Environmental network (eds.) *No REDD, a reader, Mexico: Tres Perros* [<http://noredd.makenoise.org>].
- AIDSEP (2010) 'Without indigenous territories, rights and consultation no REDD, forests, oil and environmental services concession is possible', posted 02-11-2010 to *REDD-Monitor* [www.redd-monitor.org/2010/11/02/indigenous-peoples-organisation-in-peru-demands-an-indigenous-redd-outside-of-carbon-market-negotiations].
- Bodenham, P. and Cubby B. (2011) 'Carbon cowboys', *The Sydney Morning Herald*, 23 July [www.smh.com.au/environment/conservation/carbon-cowboys-20110722-1hssc.html].
- Cabello, J. (2009) 'The politics of the clean development mechanism: Hiding capitalism under a green rug', in S. Boehm and S. Dabhi (eds.) *Upsetting the offset: The political economy of carbon markets*. London: MayFlyBooks.
- Caplow, S., P. Jagger, K. Lawlor and E. Sills (2011) 'Evaluating land use and livelihood impacts of early forest carbon projects: Lessons for learning about REDD+', *Environmental Science & Policy*, 14 (2): 152-167.
- Carbon Trade Watch (2011) 'Key REDD+ Players', posted 17-06-2011 [www.carbontradewatch.org/publications/some-key-redd-players.html].
- Cerbu, G., B. Swallow and D. Thompson (2011) 'Locating REDD: A global survey and analysis of REDD readiness and demonstration activities', *Environmental Science & Policy*, 14 (2): 168-180.
- Climate Connect (2011) 'Norway, Germany commit \$80 million to carbon fund; REDD+ to benefit', posted 22-06-2011 [www.climate-connect.co.uk/Home/?q=node/805].
- Climate Funds Update (2011) 'Forest Carbon Partnership Facility' [www.climatefundsupdate.org/listing/forest-carbon-partnership-facility].
- Coelho, R. (2009) 'Pollution for sale: made in the USA', paper presented at the II Doctoral Meeting, Université de Montpellier, France, 21 August.
- Coelho, R. (2009b) 'Rent seeking and corporate lobbying in climate negotiations', in S. Boehm and S. Dabhi (eds.) *Upsetting the offset: The political economy of carbon markets*. London: MayFlyBooks.
- Colchester, M. (2002) 'India: Indigenous people and joint forest management', *World Rainforest Movement Bulletin*, 63.
- Corbera, E. and H. Schroeder (2011) 'Governing and implementing REDD+', *Environmental Science & Policy*, 14(2): 89-99.
- Dixon R. (2011) 'Kenyan tribe slowly driven off its ancestral lands', *Los Angeles Times*, 4 January. [<http://articles.latimes.com/2010/jan/04/world/la-fg-kenya-forest4-2010jan04>].
- Driesen, David (2008) 'Sustainable development and market liberalism's shotgun wedding: Emissions trading under the Kyoto Protocol', *Indiana Law Journal*, 83(1): 21-69.
- Ecologist (2011) 'Conservation International caught in greenwashing scandal', posted 11-05-2011, [www.theecologist.org/tv_and_radio/tv/883129/conservation_international_caught_in_greenwashing_scandal.html].

- Escobar A. (2010) 'Una minga para el postdesarrollo', in ALAI and SODEPAZ (eds.) *La agonía de un mito, ¿cómo reformular el desarrollo?*, España, Editorial SODEPAZ [http://memoria2010.sodepaz.org/data/publicaciones/reformular_desarrollo.pdf#page=65].
- FCPF (2011) 'Forest Carbon Partnership Facility: Introduction', [www.forestcarbonpartnership.org/fcp/node/12].
- FCPF (2011b) 'Forest Carbon Partnership Facility: R-PP Submissions – Most Recent' [www.forestcarbonpartnership.org/fcp/node/257].
- FERN and FPP (2011) 'Smoke and Mirrors: a critical assessment of the Forest Carbon Partnership Facility', posted 18-03-2011 [www.fern.org/smokeandmirrors].
- First Peoples Worldwide (2011) 'In new Kenya, old guard 'land-grabbers' attack key leaders: Ogiek land activists survive assaults', 1 March [<http://firstpeoplesblog.files.wordpress.com/2011/03/ogiek-land-activists-survive-assaults.pdf>].
- Friends of the Earth International (2008) 'REDD Myths', posted 02-12-2008 [http://action.foe.org/pressRelease.jsp?press_release_KEY=445].
- Fogel, C. (2004) 'The local, the global, and the Kyoto Protocol', in S. Jasanoff, M. Martello, P. Haas and G. Rochlin (eds.) *Earthly politics: Local and global in environmental governance*. Cambridge, Mass: MIT Press.
- Gilbertson, T. and O. Reyes (2009) *Carbon trading: How it works and why it fails*, Critical Currents, 7. Uppsala: Dag Hammarskjöld Foundation.
- Gilbertson, T. (2011) 'Outcomes of REDD+ in Cancún: A flawed plan for the world's remaining forests', posted 20-01-2011 to *Carbon Trade Watch* [www.carbontradewatch.org/articles/outcomes-of-redd-in-cancun-a-flawed-plan-for-the-worlds-remaining-fo.html].
- Global Forest Coalition (2010) 'Getting to the roots: Underlying causes of deforestation and forest degradation and drivers of forest restoration', Global Forest Coalition, Amsterdam, Netherlands.
- Global Witness (2009) *Trick or treat? REDD, development and sustainable forest Management*. London, UK.
- Grainger, A. and M. Obersteiner (2011) 'A framework for structuring the global forest monitoring landscape in the REDD+ era', *Environmental Science & Policy*, 14 (2): 127-139.
- Gudynas, E. (2010) 'El día después del desarrollo', in ALAI and SODEPAZ (eds.) *La agonía de un mito, ¿cómo reformular el desarrollo?* España, Editorial SODEPAZ [http://memoria2010.sodepaz.org/data/publicaciones/reformular_desarrollo.pdf#page=65].
- Hajek F., M. Ventresca, J. Scriven and A. Castro (2011) 'Regime-building for REDD+: Evidence from a cluster of local initiatives in south-eastern Peru', *Environmental Science & Policy*, 14 (2): 201-215.
- Harvey, F. (2011) 'Forests in danger as study warns UN funding is unlikely', *The Guardian*, 28 June [www.guardian.co.uk/environment/2011/jun/28/forests-un-funding].
- Hone, N., S. Wartmann, A. Herold and A. Freibauer (2007) 'The rules for land use, land use change and forestry under the Kyoto Protocol: Lessons learned for the future climate negotiations', *Environmental Science & Policy*, 10(4): 353-369.
- Intergovernmental Panel on Climate Change (2000) 'Land use, land-use change and forestry', posted 2001 [www.grida.no/publications/other/ipcc_sr/?src=/climate/ipcc/land_use/019.htm].
- Kanowski, P., C. McDermott, and B. Cashore (2011) 'Implementing REDD+: Lessons from analysis of forest governance', *Environmental Science & Policy*, 14 (2): 111-117.
- Kron, J. (2011) 'In Scramble for land, group says, company pushed Ugandans out', *The New York Times*, 21 September [www.nytimes.com/2011/09/22/world/africa/in-scramble-for-land-oxfam-says-ugandans-were-pushed-out.html?_r=1].
- La Via Campesina (2010) 'Foil the carbon market plan, says La Via Campesina in Cancún', 6 December [www.viacampesina.org/en/index.php?option=com_content&view=article&id=989:foil-the-carbon-market-plan-says-la-via-campesina-in-cancun&catid=48:-climate-change-and-agrofuels&Itemid=75].
- Larson, A. and E. Petkova (2011) 'An introduction to forest governance, people and REDD+ in Latin America: Obstacles and opportunities', *Forests*, 201 (2): 97-103.

- Lang, C. (2009) 'Destroying with one hand, taking with the other: Biomass, REDD and forests', *World Rainforest Movement Bulletin*, 145.
- Lang, C. (2011) 'A wolf in sheep's clothing: REDD questioned in Cross River State, Nigeria', posted 15-04-2011 to *REDD-Monitor* [www.redd-monitor.org/2011/04/15/a-wolf-in-sheeps-clothing-redd-questioned-in-cross-river-state-nigeria/].
- Lang, C. (2011b) 'The emissions-reduction strategy being eyed by the Indonesian Ministry of Forestry is focused on planting rather than a moratorium', posted 01-02-2011 to *REDD-Monitor* [www.redd-monitor.org/2011/02/01/interview-with-elfian-effendi-greenomics-indonesia-the-emissions-reduction-strategy-being-eyed-by-the-indonesian-ministry-of-forestry-is-focused-on-planting-rather-than-a-moratorium/].
- Lang, C. (2011c) 'WWF scandal: Bears feeding on toxic corporate waste', posted 27-07-2011 to *REDD-Monitor* [www.redd-monitor.org/2011/07/27/wwf-scandal-part-1-bears-feeding-on-toxic-corporate-waste/].
- Lohmann, L. (2006) *Carbon trading: A critical conversation on climate change, privatization and power*. Development Dialogue No. 48: Dag Hammarskjöld Foundation.
- Lohmann, L. (2008) 'Carbon trading, climate justice and the production of ignorance: Ten examples', *Development*, 51(3): 359-365.
- Lohmann, L. (2011) 'Capital and climate change', *Development and Change*, 42(2): 649-668 [<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-7660.2011.01700.x/abstract>].
- Louman, B., M. Cifuentes and M. Chacón (2011) 'REDD+, RFM, development, and carbon markets', *Forests*, 201 (2): 368.
- Lyster, R. (2011) 'REDD+, transparency, participation and resource rights: the role of law', *Environmental Science & Policy*, 14 (2): 118-126.
- Mery, G., P. Katila, G. Galloway, R. I. Alfaro, M. Kanninen, M. Lobovikov and J. Varjo (2011) 'Forests and society: Responding to global drivers of change', Vienna, Austria: International Union of Forest Research Organizations.
- Morgan, B. (2010) 'REDD and community engagement', in Carbon Trade Watch and Indigenous Environmental Network (eds.) *No REDD, a reader*, Mexico: Tres Perros [<http://noredd.makenoise.org/>].
- Morris, L. (2010) 'Fears of corruption as REDD forest-protection schemes begin', *The Ecologist*, 13 October [www.theecologist.org/News/news_analysis/629681/fears_of_corruption_as_redd_forestprotection_schemes_begin.html].
- Moussa, J. and H. Verolme (eds.) (1999) 'Addressing the Underlying Causes of Deforestation and Forest Degradation, Case Studies, Analysis and Policy Recommendations', Biodiversity Action Network, Washington, USA
- Nasi, R., F. Putz, P. Pacheco, S. Wunder, and S. Anta (2011) 'Sustainable forest management and carbon in tropical Latin America: The case for REDD+', *Forests*, 201 (2): 203.
- Nhantumbo, I. (2011) 'Climate conversations – REDD+ in Mozambique: A new opportunity for land grabbers?', *AlertNet*, 4 October [www.trust.org/alertnet/blogs/climate-conversations/redd-in-mozambique-a-new-opportunity-for-land-grabbers].
- No REDD Platform (2010) *No REDD: A reader*. Carbon Trade Watch and Indigenous Environmental Network (eds.) *Mexico: Editorial Tres Perros* [<http://noredd.makenoise.org/>].
- Oilwatch and World Rainforest Movement (2004) 'Protected Areas. Protected Against Whom?' H. Fonseca (ed.) posted 09-10-2004 [www.wrm.org.uy/subjects/PA/protected.html].
- Otros Mundos Chiapas (2011) 'Declaración del Foro Regional en Contra de la Brecha Lacandona y el Despojo Capitalista de la Selva Lacandona', posted 02-09-2011 [<http://otrosmundoschiapas.org/index.php/indigenas/66-indigenas/1053-declaracion-del-foro-regional-en-contra-de-la-brecha-lacandona-y-el-despojo-capitalista-de-la-selva-lacandona.html>].
- Pacheco, P., M. Aguilar-Stoen, J. Borner, A. Etter, L. Putzel and M. Diaz (2011) 'Landscape transformation in tropical Latin America: Assessing trends and policy implications for REDD+', *Forests*, 201 (2): 18.

- Palmer Fry, B. (2011) 'Community forest monitoring in REDD+: the 'M' in MRV?', *Environmental Science & Policy*, 14 (2): 181-187.
- PBS/Frontline World (2009) 'Brazil: The money tree', Carbon Watch and Centre for Investigative Journalism [www.pbs.org/frontlineworld/stories/carbonwatch/moneytree/].
- Peoples' Agreement (2010) presented at the World Peoples Conference on Climate Change and the Rights of Mother Earth (WPCCC) Cochabamba, Bolivia, 22 April 2010 [<http://pwccc.wordpress.com/2010/04/24/peoples-agreement/>].
- Peskett, L., K. Schreckenberg and J. Brown (2011) 'Institutional approaches for carbon financing in the forest sector: learning lessons for REDD+ from forest carbon projects in Uganda', *Environmental Science & Policy*, 14 (2): 216-229.
- Porter-Bolland, L., E. A. Ellis, M. R. Guariguata, I. Ruiz-Mallén, S. Negrete-Yankelevich and V. Reyes-García (2011) 'Community managed forests and forest protected areas. An assessment of their conservation effectiveness across the tropics', posted 05-2011 to *CIFOR* [www.cifor.cgiar.org/nc/online-library/browse/view-publication/publication/3461.html].
- Quijano, A. (2000) 'Colonidad del Poder, eurocentrismo y América Latina', Argentina.
- Rio Tinto (2009) 'IUCN – Rio Tinto Facilitated Workshop Summary', paper presented at the Rio Tinto Headquarters, 3-4 November, London [cmsdata.iucn.org/downloads/workshop_summary.pdf].
- Santos, B. (2009) 'Refundación del Estado en América Latina', *Instituto internacional de Derecho y Sociedad*, Lima, Perú.
- Skutsch M., B. Vickers, Y. Georgiadou and M. McCall (2011) 'Alternative models for carbon payments to communities under REDD+: A comparison using the Polis model of actor inducements', *Environmental Science & Policy*, 14 (2): 140-151.
- The Munden Project (2011) 'REDD and forest carbon, market critique and recommendations', USA: The Munden Project.
- Thompson, M., M. Baruah and E. Carr (2011) 'Seeing REDD+ as a project of environmental governance', *Environmental Science & Policy*, 14 (2): 100-110.
- UNFCCC (2007) 'Bali Action Plan, Decision -/CP.13', presented at the Conference of the Parties to the UNFCCC (COP-13), Bali, Indonesia, December [unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_action.pdf].
- UNFCCC (2010) 'Report of the conference of the parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009', FCCC/CP/2009/11/Add.1, Paragraph 6, March 2010 [<http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf>].
- Van Dam, C. (2011) 'Indigenous territories and REDD in Latin America: Opportunity or threat?', *Forests*, 201 (2): 407.
- Vidal, J. (2011) 'BP among founding members of World Bank carbon fund', *The Guardian*, 31 May [<http://www.guardian.co.uk/environment/2011/may/31/bp-world-bank-carbon-fund>].
- Walsh, C. (2002) 'The (re)articulation of political subjectivities and colonial difference in Ecuador: Reflections on capitalism and the geopolitics of knowledge', *Nepantla: Views from south*, 3(1).
- Walsh, C. (2010) 'Development as Buen Vivir: Institutional arrangements and (de)colonial entanglements', *Development*, 53(1): 15-21.
- Women and REDD (2010) [www.wrm.org.uy/subjects/women/Position_on_Women_and_REDD.html].
- World Rainforest Movement (2000) *Climate change convention: Sinks that stink*. Uruguay, posted 2000 [www.wrm.org.uy/actors/CCC/sinks.html].
- World Rainforest Movement (2010) 'Statement from members of Global Grassroots Justice Alliance and Youth for Climate Justice who were expelled from COP-16', Cancun, Mexico [www.wrm.org.uy/COP16/Statement_from_the_expelled.html].

the authors

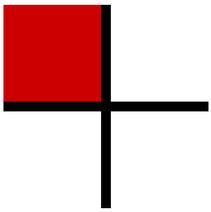
Joanna Cabello is an activist-researcher and part of the Carbon Trade Watch collective for over two years. She has been active in environmental and social justice matters since 2000. She holds a Master in Politics of Alternative Development and a Bachelor Degree in Social Communications. Her focus for the

last five years has been the implications of carbon markets and the financialization of nature over other knowledges.

E-mail: joanna@carbontradewatch.org

Tamra Gilbertson is one of the founders of Carbon Trade Watch, was the Coordinator of the Environmental Justice Project of the Transnational Institute (TNI), and has been active in the project since 2001. She was a founding member of the Durban Group for Climate Justice. She has degrees in Biology and Zoology as well as training in photography, film-making and journalism. She is currently working on a Master's in Public Health at the Universitat Pompeu Fabra in Barcelona, Spain.

E-mail: tamra@carbontradewatch.org



Mapping REDD in the Asia-Pacific: Governance, marketisation and contention*

Rebecca Pearse

abstract

This paper maps the sites of forest carbon market development in the Asia-Pacific region. Institutional architecture for the forest carbon market is fast developing amidst a chorus of claims that it is, or will be, a win-win-win apparatus for ecological, economic and social outcomes. However the various experiments in forest offset projects and inter-state agreements for REDD lurch forward in the midst of growing evidence of governance failure and corruption. The claimed victories and simultaneous crises of legitimacy faced by REDD initiatives in the Asia-Pacific exemplify the impacts and tensions behind carbon market extension into the world's forests. Points of contention over seminal state-led pilot initiatives as well as corporate REDD projects for the voluntary market in Indonesia and Papua New Guinea are considered as early signs of the trajectories of REDD marketisation. This review of REDD in the region opens up questions for future investigations into the shifting modes of authority that make this process possible.

Introduction

The carbon market is here. The market's expansion appears inevitable, and at the same time, highly uneven and contested. Prospects for market growth persist, albeit attenuated, since the impasse in the United Nations Framework Convention on Climate Change (UNFCCC) at Copenhagen 2009 and paltry outcomes in Cancún 2010 and Durban 2011.¹ The slow, cumbersome multilateral negotiations over climate change mitigation, particularly securing a post-Kyoto Protocol agreement, are an important

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1 In 2008, the global carbon market was estimated to be worth US\$126 billion, more than double the total market value in 2007, with a much smaller rise to US\$143 billion in 2009 (Capoor & Ambrosi, 2009; Kossoy & Ambrosi, 2010). Market growth stalled across 2010-2011 in the context of regulatory uncertainty with aggregate value at US\$142 billion over 2010 (Linacre, Kossoy & Ambrosi, 2011). The total value of the forest carbon market is US\$133 million and has more than doubled in volume riding the wave of enthusiasm for REDD offsets. It has expanded from 30.1 Mt CO₂-e exchanged in primary and secondary markets in 2009 to 74.7 Mt CO₂-e in 2010, largely from voluntary market transactions (Diaz, Hamilton & Johnson, 2011).

potential mandate for carbon market extension, as are domestic trading schemes. After three failed attempts, Australia has passed legislation for an emissions trading scheme starting July 2012. Other key OECD nations such as Japan, the United States and Canada are still debating the prospect of installing national carbon markets for climate change mitigation. There have been numerous efforts to anticipate these decisions and install the machinery for a new market in tradeable carbon rights. Outside the UNFCCC and national debates, three parallel processes are driving the market. These are located in UN agencies and the World Bank; proxy inter-state deal making; and the voluntary market initiatives undertaken by corporate and civil society actors. Market extension to include credits from forest carbon is being built on each of these interlocking fronts and has been gaining pace since 2005.

The unwieldy frontiers of this new market entail initiatives to develop so-called REDD carbon offsets. The acronym REDD refers to schemes aimed at Reducing Emissions from Deforestation and Forest Degradation in developing countries. Deforestation and forest degradation accounts for between 10-20% of atmospheric greenhouse gas (GHG) emissions (IPCC, 2007; Quéré et al., 2009; van der Werf et al., 2009), making these trends significant contributors to global climate change. In addition, forests are understood as important terrestrial 'sinks', or containers for carbon, approximately 650 billion tonnes of carbon worldwide (FAO, 2010b). REDD projects, hosted predominantly in low and middle income developing nations, are those which sequester carbon over time, by securing the continued existence of forest land scheduled for acts leading to deforestation and forest degradation such as logging, or changed land use. The projects are deemed to have a mitigating effect on future carbon emissions. Emissions reductions created through REDD projects are calculated as the difference between the project's activities and a counterfactual baseline i.e. the emissions estimated had the project not been undertaken.

Within multilateral negotiations most signs point toward the marketisation of REDD finance in some form. That is, tying all or part of REDD funding to the carbon market (Corbera, Estrada & Brown, 2010; Okereke & Dooley, 2010). Marketisation broadly refers to 'the assignment of prices to phenomena that were previously shielded from market exchange or for various reasons unpriced' (Castree, 2008: 142). In the case of REDD, marketisation entails the commodification of carbon stored in forested land which is at risk of being depleted. The purpose of carbon trading is to change the cost structure of production using a price signal.² This involves creating tradeable property rights to the carbon embedded in vegetation and perhaps soil in REDD project sites for sale on the carbon market. REDD is under the process of definitional expansion to 'REDD+' in multilateral negotiations. REDD+ activities include other forms of land use that are deemed to enhance existing carbon sinks such as changed agricultural practices

2 The epistemology behind emissions trading is environmental economics. The fundamental assumption in environmental economics is that ecological degradation and pollution is a consequence of market failure. That is, the social cost of depleting the world's forests we bear collectively is a 'market externality' not reflected in the price of goods bought and sold via the functions of competitive markets. In order to 'internalise' these costs, environmental economists suggest market-based regulatory measures be installed to redress problems such as climate change (e.g. emissions trading or pollution taxes). Emissions trading and taxation use the price signal to send information to producers and consumers.

(Campbell, 2009).³ Firms with obligations to reduce their emissions under an emissions trading scheme, or those wishing to engage in corporate social responsibility activities, may buy credits generated by REDD activities to compensate for continued emissions in their operations. In textbook terms, the right balance of supply and demand for REDD offsets in the carbon market will set a price that acts as an incentive for conservation and a disincentive for production that exploits forest reserves. This form of finance for climate change mitigation is underwritten as the most feasible course of action in the absence of adequate and consistent public funding into the future (O'Sullivan et al., 2010).

Marketised REDD is conceived in three ways by economists and policymakers: as a financial incentive for forest conservation, a least-cost measure for climate change mitigation, and a source of alternative livelihood for forest communities (Stern, 2007; Eliasch, 2008). The claim here is win-win-win in ecological, economic and social terms. This understanding of REDD offsets reflects the near consensus assumption in climate politics – that decarbonisation, economic growth, and development can be reconciled (Bäckstrand & Lövbrand, 2006). However, this new round of commodification is not easily realised. Ongoing crises of legitimacy are persistent features of the market for forest offsets (Paterson, 2010). Notably issues of regulatory design, emissions measurement and verification have been hotly debated since REDD's first formulation (Streck et al., 2008). In addition to concerns over REDD offsets being 'hot air', there is significant contention over the prospect of flooding the carbon market with cheap credits, thus undermining mitigation efforts on an aggregate international level (Karsenty, 2008; Leach, 2008). Further, it is increasingly reported that indigenous peoples and forest communities may not see the financial benefits of REDD mechanisms, and seem set to lose their already precarious hold on land tenure and sovereignty (Griffiths, 2007; Dooley et al., 2008; Cotula & Mayers, 2009; Goodman & Roberts, 2009; Hall, 2010). Finally, these issues rest against the persistent conflict involved in demarcating responsibilities for climate mitigation and adaptation between developed and developing nations. The scientific, economic, ethical and legal vagaries of forest carbon offsets are numerous, manifesting differently across political, geographical and institutional locales. REDD developments in the Asia-Pacific⁴ region demonstrate some of the most controversial aspects of REDD inside and outside formal institutional channels.

This paper is a survey of the activities instigating marketised REDD in the Asia-Pacific region. It considers key victories and failures claimed by carbon market proponents and their antagonists respectively. I identify the modes of authority establishing REDD as a carbon offset, and the central points of contention over REDD's implementation. Processes of governance and legitimation are of interest here. Governance of human affairs is broadly understood as an ongoing process, inclusive of, and 'beyond' the actions of nation-states:

3 For simplicity's sake I refer to REDD, not REDD+.

4 Defined here as those nations lining the Pacific Ocean which are east of Myanmar and south of Japan.

Governance is the sum of many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and co-operative action taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interest. (Commission on Global Governance, 1995: 2f)

Carbon markets as a form of climate governance includes the shaping of governing rules and norms via implementation of market activities by actors not vested with 'formal authority' (Rosenau, 2002; Okereke, Bulkeley & Schroeder, 2009). Importantly, contestation over the legitimacy of governing authorities is constantly in play in the process of carbon market creation (Paterson, 2010). The marketisation of REDD is reflective of an 'ongoing dynamic of legitimation and delegitimation as norms and institutions vie for legitimacy within the wider institutional contexts' (Bernstein, 2005: 162).

There is a heterarchy of institutions and actors involved in negotiating the governance of market-based REDD and its ongoing crises. The degree to which order and coherence can be construed in the array of institutional and political practices is an ongoing point of tension for governance scholars (Dingwerth & Pattberg, 2006). Rather than ask quantitative questions about the order or disorder in political and social processes, I begin by recognising ongoing fragmentation of REDD governance and its marketisation. The data presented here shows that this fragmentation plays out in the crises and failures of REDD. The term governance failure focuses on the process of decision-making and range of institutions involved in the (mis)-management of a problem (Jessop, 2000; Bakker et al., 2008). It is used here to think through the multiple and potentially conflicting forms of authority behind REDD marketisation. This paper considers the responses of REDD advocates to various conflicts which have emerged in sites of REDD implementation. REDD market failures must be understood by reference to the full configuration of actors and institutional architectures involved in the marketisation of REDD.

Social and political science analyses of REDD should establish the links between the hybrid and multi-scalar governance of REDD inclusive of its marketisation, and the impacts and outcomes of this dominant vision for REDD. The current scholarship on REDD spans a range of disciplines concerned with the viability of REDD as a means to mitigate greenhouse gas emissions. Scholars and practitioners have queried the technical aspects of REDD (Gaveau et al., 2009a; Gaveau et al., 2009b); outlined governance challenges in host developing nations (Phelps, Webb & Agrawal, 2010); critically appraised the role of international institutions (Dooley et al., 2008; Griffiths, 2008); as well as uncovered the implications of inter-state negotiations and various cultural and domestic influences in deciding the legal structure of REDD (White & Martin, 2002; Fry, 2008; Lyster, 2010b, 2010a). However, to date no account has been provided of the full arrangement of organisational forms working to extend the carbon market into forest offsets. Nor has there been attention to how these diverse forms of authority have dealt with the ongoing questions about REDD's viability. This is a large task given the range of intersecting programs, organisations and actors with an interest in REDD. By offering this map of the efforts to develop forest carbon offsets this article

seeks to open up questions for critical scholarship into carbon market extension into REDD credits.

The first section introduces the raft of intersecting organisational and regulatory forms promoting, and indeed installing market-based REDD in the Asia-Pacific. The second and third sections of this article discuss four case studies from Indonesia and Papua New Guinea. Data is taken from policy documents, annual reports, online media and public statements of key actors and organisations.

REDD frontiers

The Asia-Pacific region is host to 18.6% of the world's forest area, consisting of a variety of ecosystems including temperate and tropical forests, coastal mangroves, mountains and deserts (FAO, 2009: 12). These have immense importance for biodiversity conservation, forest and indigenous community livelihoods, and play numerous roles in eco-social stability such as being vital watersheds warding against soil erosion and increased flooding. The causes of deforestation and forest degradation are complex and interwoven, varying across and within geographic regions. Key proximate factors (immediate actions at a local level) causing deforestation and forest degradation have been grouped along the following lines: agricultural expansion, wood extraction and infrastructure extension (Geist & Lambin, 2002). These in turn are driven by underlying macroeconomic, institutional and policy trends, each with highly variable impacts (e.g. fluctuations in agriculture prices, but also external debt, foreign exchange rate policy and trade policies over sectors linked to deforestation) (*ibid.*; Kanninen et al., 2007).

Commercial logging has been the greatest proximate factor to tropical forest degradation in the Asia-Pacific (Dauvergne, 1998, 2001). The rate of deforestation in the Asia-Pacific nearly doubled across the 1980s. By the 1990s the volume of original forests in most nations became a fraction of their original state. Indonesia has the highest rate of deforestation in the world (FAO, 2010b). The majority of logging in Indonesia, and PNG is considered unsustainable and illegal (Shearman et al., 2008; Shearman et al., 2009; Lawson & MacFaul, 2010).

In addition, a key proximate cause of deforestation throughout the region is agricultural expansion for industrial and food crops, which in turn are related to increasing global demand for biodiesel, foodgrain and cash crops such as rubber, sugar cane and coffee (Wertz-Kanounnikoff & Kongphan-Apirak, 2008). Particularly in southeast Asia, establishment of large-scale pulpwood and oil-palm plantations to meet demand for pulp in China and crude palm oil in Europe have been underlying factors (Kanninen et al., 2007). Over the last three decades, the total area of land allocated to cultivate oil palm has increased more than threefold worldwide, reaching nearly 14 million hectares in 2007 (Sheil et al., 2009: 1). Most of this expansion has occurred in Indonesia (*ibid.*).

Finally, governance of the forestry industry, weak law enforcement, and land tenure are themselves considered to be bound up with drivers of deforestation (Eliasch, 2008). Unclear land tenure and land use rights underlie degradation, as forest-dependent

peoples often do not have autonomous power to manage land sustainably over the long term. In a survey of 25 of the world's most forested nations, 67% of forest resources in the nine Asia-Pacific nations included are currently state owned (China, Australia, Indonesia, India, Myanmar, Papua New Guinea, Japan, Thailand, and Cambodia) (RRI, 2009). Variation of tenure across the region is great. Government landownership ranges from 100% in Myanmar to 3% in PNG (White & Martin, 2002).

Indonesia and Papua New Guinea (PNG) are now currently host to the largest tracts of intact tropical forest, largely due the volume of original forests prior to intensive extraction. These remaining forests have emerged as new frontiers in a regime characterised by a frantic search for 'least cost' solutions to global climate change. The political and ecological importance of the Asia-Pacific region to the climate regime is widely recognised (ADB & RECOFTC, 2010; FAO, 2010a). Through measures to avoid deforestation and forest carbon stock enhancement, the region is estimated to have the potential to contribute approximately 40% of the total global REDD activities (ADB & RECOFTC, 2010). Economic analyses by the transnational consultancy firm McKinsey have built the economic case for REDD as an inexpensive program for climate mitigation, although not without criticism. Based on an opportunity cost analysis, the McKinsey Report (Naucler & Enkvist, 2009) estimated 2 gigatonnes (gt) of CO₂-e could be reduced globally from 'slash and burn' agriculture conversion at a cost of less than €2 per tCO₂-e (pp. 120f). Using the same cost-curve, the Indonesian National Climate Change Council estimated that stopping forest conversion to smallholder agriculture is the single largest opportunity for abatement at slightly more than 190 Mt CO₂-e, achievable at US\$1 per tCO₂-e (NCCC, 2010). These models have been questioned. Critical reports have highlighted the lack of accuracy in the modelling, including erroneous baseline assumptions, misrepresentation of the causes of deforestation, exclusion of transaction and implementation costs, governance challenges, and under-valuation of non-market activities such as subsistence farming (Dyer & Counsell, 2010; Greenpeace International, 2011). McKinsey has also been employed by the PNG government to plan REDD development.

A hive of activity in the region on a number of institutional fronts is underway in anticipation of the prospect of 'least cost' abatement through REDD offsets. The political processes behind REDD are moving at great pace, on multiple scales and through politically and ecologically diverse sites. Four key institutional and political drivers are shaping the marketisation of REDD: the UNFCCC process; bilateral partnerships; programs devised by inter-governmental organisations; and voluntary market projects undertaken by private entrepreneurs and NGOs. Table 1 represents these interlocking, and in many respects unwieldy fronts of REDD market formation. Each dimension is contingent upon, and informs the others in complex ways, rescaling and regearing the political economy of Asia-Pacific forests.

In one sense, the mandate for carbon market extension into REDD credits needs to come from above. Without a mandate through the UNFCCC, demand for the supply of offsets will drastically reduce. A fundamental normative plank upon which the carbon market has been built is the UNFCCC, and Kyoto Protocol, which is, among other things, a framework for inter-state emissions trading. The ongoing negotiation of a Post-Kyoto agreement is tenuous. Nevertheless, negotiations over the future structure for

REDD are a point of departure from the disarray of negotiations. Cooperative activity around a future UNFCCC-auspiced REDD framework is the one thing stakeholders in multilateral negotiations seem most willing to embark on together.⁵ The intent is to arrive at an international regulatory apparatus to install and govern REDD measures for emissions abatement. This process is slow moving. REDD negotiations stalled in Bangkok April 2011, and a comprehensive REDD agreement which includes design of the funding mechanism is not likely at the UNFCCC meeting in Durban.

Deep-seated disputes continue alongside the edifice of goodwill within official interstate negotiations. Themes in the deliberation concern the source, volume and vehicles for North to South REDD finance, technological support for monitoring, reporting and verification (MRV), safeguards to protect rights of local communities, future emissions reduction responsibilities for developing nations, definitions of what will count as sanctioned REDD activities and on what scale – national or subnational (Fry, 2008; Lyster, 2010b). These are seen as technical and political questions for state actors and the ever growing community of corporate and civil society agents invested in the prospects for market extension into REDD credits. Each question about the viability of REDD is vital for its economic, ecological, and social success as an addition to the carbon market.

Parallel to the UNFCCC bilateral partnerships channelling climate finance toward REDD pilot projects and capacity building are proliferating across the Asia-Pacific region. Key donors in the region are Norway, Japan and Germany (see Intergovernmental Taskforce REDD+ Partnership, 2010). Bilateral aid donations are the major source of climate finance dedicated to REDD activities in the region, outstripping World Bank and UN funds. The core activities from these funds are described as governance support and in some instances used to develop pilot REDD projects in partnership with local government agencies, NGOs and in some cases corporate partners (Australia and Germany have pilots underway already). Norway has emerged

5 Measures for avoided deforestation and forest degradation were not included in the 1992 UNFCCC document, the Kyoto Protocol in 1997 or the Marrakesh accords in 2001. In 2005, Costa Rica and PNG put in a submission on behalf of the Coalition for Rainforest Nations (CfRN) proposing that countries who succeeded in reducing rates of deforestation from baseline rates should be rewarded with financial incentives such as tradeable carbon credits (UNFCCC, 2005). This was a primary driver behind the renewed multilateral support for inclusion of REDD into the UNFCCC. The 2007 Bali Action Plan, negotiated in the order of creating a shared vision for the post-Kyoto agreement, proposed consideration of ‘policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries’ (UNFCCC, 2007). In the meantime, the Subsidiary Body for Scientific and Technological Advice (SBSTA) has been charged with drafting methodological guidelines. Proposals for REDD have been developed through the UNFCCC Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA). The AWG-LCA is the process of creating a new legal arrangement for international cooperation over climate change. The design and progression of REDD mechanisms in the AWG-LCA, is a ‘tripping point’ in the multilateral process. REDD is at the centre of a constellation of political barriers and bargaining chips that nations must eventually fit together in agreeing on the form and nature of mitigation strategies (Jinnah et al., 2009: 1). As a potentially large source of low-cost offsets REDD may play a role in coaxing the United States and reluctant Annex I nations into stronger emissions reduction targets in the parallel Ad Hoc Working Group on Further Commitments by Annex I Nations (AWG-KP) (*ibid.*).

as the largest donor for REDD development, with a US\$1 billion commitment via the Norway-Indonesia REDD+ Partnership announced in March 2010 at the Oslo Climate Forests Conference. There are approximately 79 REDD projects being undertaken by a variety of project developers in the Asia-Pacific, 35 of which are funded in total or partially by development aid. Twenty of the aid funded projects are hosted in Indonesia, with an additional 18 from projects developed by corporate actors and NGOs alone. Total commitments from bilateral donors to Indonesia are between US\$2 billion and US\$2.7 billion (Wood, 2010). The next largest host of REDD projects is PNG which has ten projects all for the voluntary market. Four of these have been pledged a small amount of funding from Australia.

Key intergovernmental programs in operation are the World Bank Forest Carbon Partnership Facility (FCPC) and UN-REDD Programme. These IGOs are also secretariats for a multilateral state partnership to build consensus over REDD outside the UNFCCC. The REDD+ Partnership was established in April 2010 at the Oslo Forest Climate Conference. The Partnership is a political alliance of 71 nations seeking to implement REDD via an 'interim platform' for REDD pilot activities and leveraging finance. REDD market extension through intergovernmental organisations (IGO) such as the World Bank and UN are prompting a new round of state reform in developing nations. The activities of these IGOs are facilitating a variety of new agencies and legislative changes to make way for REDD in host nations. Nations enlisted in REDD programmes appear to be in the process of re-centralising forestry governance under federal government authority, regearing governance toward monetizing forest carbon (Phelps, Webb & Agrawal, 2010).

At the frayed edges of state and inter-state institutions, carbon market entrepreneurs have long been installing market infrastructure, embarking on projects of self-regulation and developing offset projects for the voluntary carbon market. On the back of state commitments to REDD established from 2005, a tide of voluntary forest offset projects has emerged in the region. Table 1 lists the number of projects submitted for verification to certification agencies. Behind these initiatives are corporate and civil society project developers.⁶ Many of these companies are Australian in origin, including firms involved in ongoing controversy about their activities (e.g. Carbon Conservation, Carbon Planet, Rainforest Management Alliance, and Shift2Neutral). What is most striking in these cases is the claimed connection to UNFCCC and national REDD programs project developers use to frame their activities. These links and contestation over these projects in Indonesia and PNG are discussed below.

An introduction to the frontiers of REDD market formation has been given here. REDD developments are typical for the increasing fragmentation of climate governance (Bäckstrand, 2008; Biermann et al., 2009). In the configuration of these initiatives, there is a self-organised steering of multiple agencies operationally autonomous from one another, yet structurally interdependent (Jessop, 1998). Carbon market installation as a result is being established in an unruly fashion. This has dampened the hopes for

6 Data was taken from national government, World Bank and UN agency websites. Information regarding voluntary market REDD projects underway was derived from voluntary standard registries detailing the progress of projects applying for verification.

globally integrated markets. Top-down carbon market design and implementation is considered by Christian Flaschland and colleagues to be the benchmark for ecologically effective and 'least cost' outcomes (Flaschland et al., 2010). They consider bottom-up initiatives to be plagued by limitations in environmental effectiveness and legitimacy. However, the political process behind REDD marketisation illustrates that this is a near impossibility. In considering the prospects for market integration, it seems that at best the future of the market will entail cooperative fragmentation and at worst, markets will be siloed in disjointed schemes (Flaschland et al., 2010). Rather than asking questions about the likelihood of coordination here, I wish to explore the disordering logics of the carbon market. It seems that the instabilities, contingencies and uncertainties in market extension into REDD credits are the means through which the market is 'governed' (Pellizzoni, 2011). Rather than buckle under the weight of barriers to market extension into REDD, entrepreneurial initiatives continue to thrive in the indeterminate context of creating a viable market in forest carbon. The picture of REDD developments in the Asia-Pacific is uneven, manifesting differently across various sites and institutional forms. To gauge the impacts and points of contention over these developments on the ground, I discuss four case studies below.

Forest carbon in Indonesia: Contestation and shifting modes of authority

In this section I explore the role of differing agents in the process of market extension into REDD credits with reference to the seminal REDD pilots hosted in Indonesia. This is done through a discussion of two REDD pilots: the Kalimantan Forests and Climate Project (KFCP) and Ulu Masen REDD Demonstration project. The case studies illustrate dynamics at play within and between the various frontiers of REDD marketisation. Further, this analysis shows the role of bilateral partnerships and private actors in promoting REDD schemes, and explores the ways in which contestation over these schemes has contributed to problems in the negotiation of market governance and viable implementation.

As part of the Australian International Forest Carbon Initiative (IFCI) funds have been used for demonstration activities in preparation for participation in international carbon markets. The IFCI is a pledge of AU\$273 million to Indonesia and PNG. Though it is a small amount of money compared to some larger European donors, the Australian program is of political significance in the process of pursuing marketised REDD. The IFCI is explicitly intended to anticipate the marketisation of the pending UN framework on REDD. A REDD pilot project in Indonesia is being developed to validate a market-based approach to financing (DCC, 2008b). The submission by Australia and Indonesia to the UNFCCC states:

[The KFCP] trials innovative, market-oriented approaches to REDD financing and REDD implementation measures. Australia and Indonesia will provide lessons learned from the KFCP into the UNFCCC negotiations on REDD. (UNFCCC, 2008)

Table 1. Frontiers of forest carbon market formation

	Multilateral negotiations	Bilateral partnerships	IGO-led capacity building	Host state regulatory initiatives	Voluntary market
Sites	UNFCCC SBSTA AWG-LCA AWG-KP Copenhagen Accord High Level Advisory Group on Climate Change Financing (AGF) UN Permanent Forum for Indigenous Peoples	International Forest Carbon Partnership (Australia 2007) Indonesia-Australia Forest Carbon Partnership (2008) PNG-Australia Forest Carbon Partnership (2008) International Climate Initiative (Germany 2007) Norway-Indonesia REDD+ Partnership (2010) Hatoyama Initiative (Japan 2009) Climate Change Loan Program (France)	Biocarbon Fund (2004) Global Environment Facility Sustainable Forest Management and REDD+ Program (2007) World Bank Forest Carbon Partnership Facility (2008) World Bank Forest Investment Program (2008) UN-REDD Programme (2008) Asia Development Bank Carbon Fund (2008) World Bank Partnership for Market Readiness and World Bank Carbon Fund (2010) Interim REDD+ Partnership (2010)	Indonesian National Carbon Accounting System and Indonesian REDD+ Task Force (2010) PNG Office of Climate Change and Environmental Sustainability (OCCES) Cambodia Technical Working Group on Forestry & Environment (TWG F&E) Philippines Climate Change Commission Lao PDR REDD+ Office and REDD+ Taskforce Cabinet Committee on Climate Change National REDD+ Network and REDD+ Working Group National Advisory Committee on Climate Change	18 projects in Indonesia 6 projects in PNG 5 in Cambodia 5 in Philippines 2 in Lao 3 in Malaysia 1 in Vietnam 1 in Vanuatu
Actors	States, experts, civil society	Federal and provincial state agencies, research institutions, NGOs and corporate partners	IGOs and state agencies, NGOs	Federal and provincial state agencies	Corporate and civil society organisations, provincial governments
Core Activities	Negotiating an unanimous international agreement for a UNFCCC auspiced REDD framework	Pilot REDD+ projects convened by officials from host and donor states with civil society and corporate partners. Often planned for sale on voluntary market first.	Trustees for institutional capacity building grants and future payments for REDD+ VEMs generated (funding from ODA and additional climate finance)	Install new national and provincial governance architectures for REDD+	Projects developed for sale in the voluntary carbon market (some claimed to be developed as pilot projects for future UNFCCC REDD framework)
Political agency	Parallel forums for post-Kyoto agreement, long-term cooperative action and REDD methodologies	Grants for institutional capacity building (funding from ODA and additional climate finance)	Institutional learning: coordination and verification of REDD readiness programmes	Forestry departments in making commitments to governance reform	Design and implementation of new standards, verification before sale
	Top-down mandate for market extension	Kick start for forest offsets	Global managers of forest carbon	Laissez faire eco-development	Bottom-up market entrepreneurs

The KFCP Partnership (AU\$47 million) is jointly administered by the AusAID and the Australian Department of Climate Change and Energy Efficiency (DCCEE), with a range of private and public partners involved in implementation.⁷ The World Bank acts as a financial intermediary for a small amount of funding with \$8.7 million to provide 'performance based payments to beneficiaries' (World Bank, 2010). Across 2009-2012, project development is planned to enable access to the voluntary carbon market (phase III) before integration into the anticipated Post-Kyoto compliance regime under the UNFCCC (DCC, 2008a).

The KFCP aims to avoid deforestation, reforest and re-flood approximately 100 000 hectares of degraded peat swamp forest in Central Kalimantan. The site for the KFCP is a small section of the former Mega Rice Project which aimed to convert one million hectares of peat swamp forest to rice paddies in 1996-1998. It was a failed attempt by President Suharto to realise self-sufficiency in rice production for Indonesia with significant ecological consequences such as increased forest fires. Approximately 9,000 people live on the project site, most of whom are Ngaju Dayak in 12-15 villages along the Kapuas River who use the land for food crop and rubber cultivation, harvesting timber, non-timber forest products, and fishing (Australia Indonesia Partnership, 2009). The logic of the project as expressed by AusAID officer Neil Scotland is typical of representations of REDD:

What we hope to achieve is a win-win situation where we achieve emissions reduction targets but also improve local livelihoods through support for improved farming practices and the potential to generate incentive payments through REDD. (interviewed by Allard, 2009)

The likelihood of these outcomes occurring has been put into question. The Aliansi Rakyat Pengelola Gambut (ARPAG) and Yayasan Petak Danum Kalimantan Tengah (YPD) have worked in partnership with the national environment organisation Wahana Lingkungan Hidup Indonesia (WALHI) and Friends of the Earth Australia to contest the project since 2009. In 2009 the groups released statements and a report criticising the project as a means for the Australian government to establish marketised REDD, and as a potential threat to livelihoods and rights of local people to access natural resources (ARPAG, 2009; Goodman & Roberts, 2009; Mann & Surya, 2009).

The debate over this project entered a new phase in November 2010 when YPD and WALHI activists visited Australia to build a campaign against the project with Friends of the Earth Australia. The tour consisted of public meetings and lobbying, where the groups aired criticisms of the KFCP and its implementation to parliamentarians, policymakers and NGO staff involved in the project (Dehm, 2010). Since then, YPD has sent an open letter to the Australian officials convening the KFCP (YPD, 2011). They claim that the project threatens community access to resources for livelihood; that through collaboration with the national government, the project exacerbates ongoing

7 Palangkaraya University, Wetlands International, Borneo Orangutan Survival Foundation (BOS), CARE, and World Wildlife Fund for Nature (WWF). When the project was first announced by the Howard government in 2007 BHP Billiton was a founding partner (AusAID, 2007). The company's affiliation is no longer clear.

tensions with the Indonesian government over land tenure and the rights of the Dayak people; that the free and informed prior consent has not been secured by NGOs involved; finally, they point out that the climate mitigation outcomes of this project are questionable. Other NGO researchers have reported that palm oil firms have been illegally clearing land in Central Kalimantan in a nearby moratorium zone established under the Norway-Indonesia REDD+ Partnership (EIA/Telapak, 2011). This highlights the persistence of illegal deforestation in Indonesia, and the potential for local and national carbon leakage. In response to the YPD letter AusAID stressed that extensive community consultation has been undertaken as part of the KFCP to incorporate community views into the design and implementation of the project. They further stress that the Australian government 'will not receive any tradable carbon credits from the project' (Australian Embassy Jakarta, 2011).

The latest development in contention over this project has centred on conflicting statements in June and July 2011 from 25 *mantir adat* (custom keepers) from the Kapuas District who first criticized the KFCP, and then issued a second statement declaring the previous one is not true (AMAN Kalteng, 2011; Lang, 2011). Like the YPD statement, first letter of the *mantir adat*, calls to halt project implementation until land resource access is guaranteed, and complex issues of land tenure are resolved. The circumstances of the changed position are unclear. This conflict highlights the ways in which REDD implementation risks adding confusion to the already complex situations of unresolved land tenure and customary rights (Galudra et al., 2010).

An equally contentious, but internationally revered REDD project in Indonesia is the Ulu Masen Project in Aceh Province north of Sumatra. It has been under development since 2007. The Ulu Masen Project was instigated by carbon trading company Carbon Conservation in partnership with Flora and Fauna International, Oxfam and the Sumatran governor Irwandi Yusuf. It is the first in a range of REDD projects developed for the voluntary market which have been embarked upon across Indonesia. The project seeks to reduce deforestation by 85 percent, avoiding 3.3 million tonnes CO₂-e/year over 30 years, and provide alternative livelihoods to loggers and communities in the region (CCBS, 2007). Value estimates for the project are US\$432 million over the 30 year period (Asian Green Governors Roundtable, 2009). Merrill Lynch (now Bank of America) pledged a US\$9 million investment into the project over four years, however the status of this finance is uncertain (Mattioli, 2008; Lang, 2010a).

Since submitting for validation through Climate, Community and Biodiversity Alliance Standards (CCBS), it was awarded silver rating, missing out of the gold standard due to inaccuracies in methodologies for evaluating deforestation rates and level of forest cover, and failure to demonstrate adequate means to alleviate risks and distribute benefits to communities (Smartwood, 2008). In its short history, criticisms of the project have come from many corners. Conservation scientists have brought into question the capacity of this project to halt pressures on oil palm plantations in Aceh and note that a large area in the project region is protected de facto due to inaccessible terrain (Gaveau et al., 2009b). Nearby, but outside of the project boundaries, new roads are under construction and oil palm companies are converting lowland forests into oil palm (*ibid.*). The scientists are also concerned with carbon leakage, criticising the project-level scale of REDD as opposed to a whole-of-landscape approach.

Like the KFCP, contention over consultation and complex issues of customary rights has occurred in the Ulu Masen Project. Community consultation has been shown as rushed and incomplete (Clarke, 2010; Gené & Aliadi, 2010). Legal analysis has revealed that new REDD regulation and the state's rights of control have subordinated the existing system of *adat* (custom) land tenure in Aceh (Dunlop, 2009). The Aceh Civil Society Forum for Sovereignty of the Mukim have since protested the project on the basis of it being an elite initiative with poor consultation, and that land tenure rights have not been resolved (McCulloch, 2009; Acehnese Civil Society Forum for the Sovereignty of Mukim, 2010). Among other concerns, WALHI (2009) has questioned the over-emphasis on monitoring, dispute and conflict resolution and the heavy-handed means of land surveillance. The project developer reported that the project site will be guarded by 1000 heavily-armed former Free Aceh rebels (ABC, 2008).

However, it seems with contention also comes aggrandizement. Dorjee Sun, CEO of the Australian company Carbon Conservation was lionised in the film *The Burning Season* (2009) directed by Kathy Henkel, and listed among Time Magazine's (2009) *Heroes of the Environment* that year. In these public displays, a responsabilisation of the market is evident. The story of Sun told in the film is one of hope and determination wherein his persistence in lobbying state officials and funders on either side of the Pacific is couched in highly moral terms, as is the benefits to a local farmer starring in the film. Moralisation of economic action accompanies the economisation of the political (and ecological) (Shamir, 2008). Again WALHI contested this film and their representation in it. Members of WALHI were included in the film but no mention of their opposition to REDD as a carbon offset or the risk to land rights of indigenous and forest dependent people was mentioned (WALHI, 2009). This controversy illustrates the ways in which representation is central to the legitimisation and contention over REDD.

In more political economic terms, the origins and continuation of these projects can also be understood in terms of the relationship between the voluntary and compliance carbon markets regulated by state and international bodies (e.g. the European Commission and the CDM Executive Board). Overall, the voluntary carbon market holds only a fraction (1%) of the value of the compliance market (Hamilton et al., 2010). The voluntary market runs parallel to the CDM and JI offset schemes which are attached to the UNFCCC Kyoto Protocol. It preceded compliance emissions trading schemes with beginnings as early as 1989 when the first offset deal was brokered by AES Corp invested in an agro-forestry project in Guatemala (Bayon, Hawn & Hamilton, 2007: 11). The voluntary market generates carbon credits through a range of project types including methane capture, renewable energy and soil sequestration. Forest carbon offsets are 24% of market transactions (Hamilton et al., 2010). Its regulatory structure is much less centralised, uniform and is dispersed across a range of private regulatory programs compared to governance of the CDM and JI markets (Bumpus & Liverman, 2008). Emissions abatement credits (Verified Emissions Reductions, VERs) produced from voluntary projects are sold directly to companies and individuals seeking to make their activities 'carbon neutral'.

At the same time, however, public authority is entwined in the voluntary offset market. Voluntary offset projects are testing grounds for REDD marketisation as seen through the plans to produce credits from the publically funded KFCP for sale on the voluntary

market before transitioning to the UN-compliance market project developers hope for. The voluntary market is also in many respects shaping the form of compliance markets. For instance, the UK, US and Australian federal governments have each developed carbon offsets standards citing voluntary market standards in their methodologies. Standards offered by CCBS, Social Carbon, Plan Vivo, VCS and American Carbon Registry Forest Carbon Project Standards are all likely to influence the development of legally binding standards for REDD offsets within the UNFCCC (Lyster, 2010b). Newly developed REDD+ Social and Environmental Standards by CCBS and Care International tabled for public review in July 2010 are central to the legitimisation of most REDD pilot projects that are under development through the KFCP project (CARE, 2010b, 2010a). Voluntary efforts at market regulation serve as mechanisms for extension into compliance carbon markets. These are quite explicitly a legitimisation exercise for market actors, particularly in the case of those with an interest in forest offsets (Aalders & Hamilton, 2009). Legitimation in other words is an accumulation strategy (Paterson, 2010).

The case studies highlight a complex relationship between public and private authority in the implementation of REDD. It also exposes the different parts of civil society involved including professionalised NGOs working to develop projects, teams of researchers weighing in on debates over REDD policy, and project design and implementation, as well as social movement organisations pushing back against REDD marketisation.

Forest carbon in PNG: Confusion, consignments and signs of collapse

The disputes over REDD offset programs in PNG highlight similar, and some distinct issues in regard to the actors and institutions involved in marketisation. Stark instances of corruption have emerged through the reporting of journalists and civil society in the nation. Two projects subject to criticism are detailed here. These examples are discussed in terms of the explanations we might explore over the nature of REDD governance failure.

PNG was a founding member of the Coalition of Rainforest Nations (CRFN) formed in 2005 at the COP11 and has been actively involved in securing financial compensation for REDD programs in the UNFCCC. The nation is host to a number of REDD pilot projects, and set up an Office of Climate Change and Environmental Sustainability (OCCES) on the 15th May 2008 to anticipate REDD developments. However, due to controversy surrounding these projects, the PNG national government has distanced itself from projects initially pegged as official pilot models. A host of media reports have shown carbon trading entrepreneurs and local government officials have been fraudulently securing carbon rights to forest land.⁸ The April Salomei Sustainable Forest Management and Kamulo Doso projects have created confusion and contention

8 For voluminous information about REDD market developments in PNG, see Chris Lang's reporting at <http://www.redd-monitor.org/category/countries/papua-new-guinea/>, Illya Gridneff's reporting with AAP, and Natasha Loder's blog at <http://natashaloder.blogspot.com/>.

amongst communities involved. The PNG government has responded with patchy reproach of these activities and dismissed their status as official REDD pilots. As a result, the REDD agenda in PNG has shifted to project development for the voluntary carbon market.

Carbon trading firms have from the first moment operated in close quarters with PNG government officials, securing guarantees for project investments. For example, James Kond, the vice-president of PNG's ruling National Alliance (NA) party, allegedly liaised with Australian businessman Kirk Roberts and the firms Carbon Planet, Nupan and Forest Top over future projects. In April 2008 James Kond signed a Memorandum of Agreement with Forest Top, Roberts, and Nupan, assuring '10% of the net cash flow generated from carbon credit sales' (Gridneff, 2008). Documents obtained by AAP show the money came from Carbon Planet through the Hong Kong-based company Forest Top, that then paid a number of entities including Australian Roberts and his PNG company Nupan and Kond (Gridneff, 2009a). *The Economist* (2009) reported that as early as 3rd November 2008, the OCCES had pre-emptively issued up to 39 'credits' for 1 million tonnes of carbon, in anticipation of the pending UNFCCC REDD mechanism. Among these credits were agreements for the Kamula Doso REDD project developed by the Australian firm Carbon Planet and Nupan and the April Salomei Project developed by Rainforest Management Alliance (RMA) to be undertaken as official REDD pilot projects.

Controversy over the Kamula Doso project was brought to international attention in 2009. Kirk Roberts became known as a 'carbon cowboy' – a popular nickname for carbon trading dealers (Al Jazeera, 2009). Roberts has been accused of coercing local communities into signing contracts. One report about the project included a member of a local landholder group who claim he was forced to sign documents at gunpoint (SBS, 2009). The man in question, Abilie Wape, director of Tumu Timbers Limited, later retracted his statement saying the Australian news company had in fact bribed him to make these claims (PNG Post-Courier, 2010). Brian Thomson, SBS TV Senior Correspondent denied claims about bribing in the Post-Courier (Lang, 2010c). Nupan has submitted a project document for voluntary market accreditation of Kamula Doso. In the public commentary section of the CCBS website a petition signed by fifty ILG chairmen of the Kamula Doso states that landowners were not consulted and consent claimed is fraudulent. Emotions run high over the prospect of the project, the group declares: 'We do not wish to hand over our inalienable rights and future prosperity to rich white criminals who only wish to exploit [sic] what is rightfully ours' (Powe, 2010). Questions of coercion aside, the project development is occurring in spite of an ongoing court injunction preventing carbon trade project development as well as a land dispute in process over the Kamula Doso forest (Papua New Guinea EcoForestry Forum, 2009; Greenpeace, 2010).

The April Salomei Forest Management Project in the Hunstein Range is no less controversial. The project is being developed by Rainforest Management Alliance (formerly EarthSky). Theo Yasause director of OCCES endorsed EarthSky as potential

investors. Yasause also recognized a landowner company⁹ Hunstein Range Holdings Ltd. as representative to act on behalf of the landowners to negotiate the production of carbon credits in the April Salomei area despite the fact that Hunstein Range Holdings has been rejected by April-Salomei communities (Leggett & Lovell, 2012). Again, we see the exacerbation of existing conflict over land tenure in the process of producing property rights to forest carbon. Research interviews with communities of this area have shown that despite the advanced stage of the project, they have little to no understanding of the proposed REDD project, and the proposal for benefit sharing in the project proposal does not ensure equitable distribution of funds (*ibid.*). Matthew Leggett and Heather Lovell also highlight faults in the way traditional cultivation practices are accounted in the project design.

As a result of these controversies, the OCCES has shifted in position, consigning the problem to rogue carbon trade project developers. In June 2009, Theo Yasause was suspended, and an internal investigation was carried out. A corporate planning adviser was placed in the OCCES office for three months as part of the \$3 million pledged under the Australia-PNG Forest Carbon Partnership (Gridneff, 2009b). Both Nupan and RMA's submissions to CCBS for project verification have been rejected by the OCCES (Papua New Guinea Post Courier, 2010). The outcome for these projects is mixed. CCBS validation process of the Kamula Doso project is still underway. The April Salomei project has been validated by CCBS in May 2011 at gold level.

For this clamour and confusion Roberts blames the 'byzantine world of environmental politics in PNG' (Cubby & Wilkinson, 2009). He is most certainly right. However the failures are multiple and compounded. They are attributable to a confluence of institutional failures alongside confusions apparent in public discourse. PNG has been a participant in both the World Bank FCPF and UN-REDD Programme in order to secure funds for REDD activities. In May 2008 PNG's R-PIN¹⁰ to the FCPF was approved despite an independent review concluding there was insufficient consultation with community groups. The subsequent FCPF R-PIN review raised issues relating to community consultation both in the R-PIN composition and in the REDD governance framework proposed (FCPF, 2008). The status of the UN-REDD Programme in PNG was unclear for some time, only recently re-engaged. PNG submitted a National Programme Document (NPD) in October 2010. World Resources Institute (WRI) analysis of the NPD assessed it as providing little or no information about how

9 Incorporated Land Groups are formed under the Government of PNG's Business Groups Incorporation Act and Land Groups Incorporation Act 1974. These laws give legal status to indigenous landowning groups to manage the acquisition, use and disposal of customary land and to conduct internal affairs and settle disputes in accordance with custom (Power, 2008). An additional piece of legislation should have accompanied these Acts but was not presented to Parliament at the time. This legislation would have allowed customary groups to register their land and hold group title (*ibid.*).

10 To secure funding, potential REDD nations must first submit a Readiness Plan Idea Note (R-PIN) outlining the causes of deforestation and forest degradation and plans to address these via REDD projects, followed by a Readiness Preparation Proposals (R-PPs) to secure grant funding (up to US \$3.6 million). An R-PP is a plan of preparation activities necessary to implement REDD+ schemes. These documents are often written by, or in consultation with pro-market ENGOs and consultants whose principle clients are forestry companies (Dooley et al., 2008).

consultation with forest communities and civil society will be undertaken, no mention of a dispute mechanism installed, efforts to combat corruption or independent monitoring of REDD projects schemes (Goers et al., 2010). The UN-REDD agency has recognised these problems.

Where countries are corrupt the potential for REDD corruption is dangerous. [In Papua New Guinea], people have tried to take advantage of the market in an unacceptable way and carbon cowboys are trying to get the benefits. We can expect more of this as REDD develops. (Tiina Vahanen, a senior officer at UN-REDD Programme, interviewed by Vidal, 2009)

Nonetheless, a revised NPD was approved by the UN-REDD policy board in April 2011 and opens up US\$6.4 million in funding to the Office of Climate Change and Development (formerly OCCES).

What sense might we make of this mixed picture? The UN-REDD commentary goes some way to explain the failures of REDD in PNG. The Somare government certainly played a role in undermining the efforts toward regulation and thereby REDD legitimisation. This has in fact come out in the state's approach to international negotiations. On the 27 May 2010, at the Oslo Climate and Forest Conference, the former PNG Prime Minister Michael Somare announced plans to further develop REDD in PNG as a model for other prospective nations, but was dismissive of the IGO programs. 'The World Bank and the United Nations tangle us in endless process and conditionality's. Therefore, the "Interim REDD+ Mechanism" must break from the past and deliver both finance and results!' (Somare, 2010). Somare made further claims to these impediments and conditionalities in Cancún (Gridneff, 2010c).

The roles of different actors and institutions in constituting and re-negotiating REDD governance in moments of crisis are difficult variables to locate. On the one hand, we might put the vagaries of REDD down to resource capacity and poor governance in PNG (Greenpeace, 2010). However, the developmental pace and priorities of marketised schemes for REDD is also at the heart of the problem. Other REDD analysts have noted the ways in which the gold rush mentality and rolling, experimental nature of REDD projects is driven by the pursuit of profit over development and human rights (e.g. Clarke, 2010; Melick, 2010). Neither a macro, nor strictly local view of REDD failure in PNG will suffice. I discuss this significant analytic task in the concluding remarks below.

Conclusion

To recap, this article has mapped REDD initiatives in the Asia-Pacific demonstrating the ways in which they serve as sites of carbon market extension. I have proposed that the picture of REDD is one of incoherence, not a lucid program of action, nor an integrated institutional architecture. Importantly, marketisation in the form of emissions trading does not mean blanket and unfettered market expansion – a triumph of capital over state (Engels, 2006). It is evident that it is a multifarious project spanning a range of sites and institutional forms. Each frontier of marketisation seeks to legitimise and socialise carbon market architectures, albeit with mixed results. The socialisation of marketised REDD is an unruly process punctuated by ongoing contention. Rather than

one cogent front, extension of the carbon market into Asia-Pacific forests is developed through a heterogeneous range of actors and strategies to legitimate REDD offsets. They in turn attract different forms of resistance as demonstrated through examples in Indonesia and PNG. Thus the negotiation of REDD's form, extent and structure must be understood in terms of the interplay between the full range of actors propagating, resisting, and/or reforming it.

The entanglement of state, corporate and civil society actors is in fact making the REDD market possible. This of course is a truism for political scientists dedicated to analysing carbon market formation. Much ground has already been made in detailing the relationships between private and public authority in climate governance (Bernstein & Cashore, 2007; Andonova, 2010; Bernstein et al., 2010; Stripple & Lövbrand, 2010). Less understood are the ways in which hybrid modes of authority serve to socialise and legitimise carbon market extension in the face of so many problems, across and between numerous fronts. The cases discussed here indicate the impossibility of the promised win-win-win outcomes for REDD offsets. Amidst the clamour and confusion of REDD development, the assembly of market initiatives continues to build. How is this possible?

There is much more work to do in uncovering and theorising the ways in which these web-like networks of actors invested in REDD's success, deal flexibly with resistance to the market and clear governance failure in some instances. This mapping exercise indicates that the vast network of actors and institutions participating in REDD's marketisation are ultimately serving the resilience of this idea. In the words of Francesco Martone, Forest Peoples Programme campaigner 'advocacy on REDD+ is akin to confronting a hydra, the mythological animal with a big body and many heads. Once you manage to cut one head two, then more heads grow up' (Martone, 2010: 8). From this, there are questions pending for critical scholars: how might we account for the role of these actors and institutions in propelling marketised REDD? What is the relationship between these different forms of authority in this process? How might a view of the hybrid nature of REDD initiatives illuminate the flaws in REDD offsetting and its social, ecological and economic impacts on local and indigenous communities? In turn, what forms of political agency have been realised for social movement collectives seeking to break the logic of REDD marketisation? This map of the frontiers of carbon market extension into REDD may assist in developing answers to these questions.

references

- Aalders, E. and K. Hamilton (2009) 'Lessons from the voluntary forest carbon markets: Applications to emerging compliance markets', *Carbon Finance Speark Series at Yale*. Center for Business and the Environment, Yale University.
- ABC (2008) 'Carbon scheme will help save Aceh forest', *ABC Rural*, 11 April.
- Acehnese Civil Society Forum for the Sovereignty of Mukim (2010) 'Press Release: Local community, the forgotten host: Governors' Climate and Forests (GCF) meeting in Aceh' [<http://www.redd-monitor.org/2010/05/18/local-community-the-forgotten-host-governors-climate-and-forests-gcf-meeting-in-aceh/>].
- ADB and RECOFTC (2010) *National REDD+ strategies in Asia and the Pacific: Progress and challenges*. Mandaluypong City: Asia Development Bank and Center for People and Forests.

- Al Jazeera (2009) 'Carbon cowboys', *People and Power*. Papua New Guinea, J. Ruhfus.
- Allard, T. (2009) 'Plan to revive peat forest tests waters for trading system', *Sydney Morning Herald*, 15 December.
- AMAN Kalteng (2011) 'Statement of concern on REDD+ in Central Kalimantan, Indonesia' [<http://www.redd-monitor.org/wordpress/wp-content/uploads/2011/06/AMAN-Kalteng-17-Juni-2011-on-REDD+-EN.pdf>].
- Andonova, L.B. (2010) 'Public-private partnerships for the earth: Politics and patterns of hybrid authority in the multilateral system', *Global Environmental Politics*, 10(2): 25-53.
- ARPAG (2009) 'Open letter of ARPAG for the International Meeting UNFCCC' [http://www.redd-monitor.org/wordpress/wp-content/uploads/2009/11/ARPAG_October_2009.pdf].
- Asian Green Governors Roundtable (2009) 'Supporting rural development and improved environmental management through Reduced Emissions from Deforestation and Forest Degradation (REDD)', *Asian Green Governors Roundtable*, Marina Mandarin, 12 November.
- AusAID (2007) 'Indonesian forests and partnership to reduce greenhouse gas emissions' [http://www.usaid.gov.au/media/release.cfm?BC=Media&ID=2020_9057_2766_2273_327].
- Australia Indonesia Partnership (2009) *Kalimantan Forests and Climate Partnership (KFCP) Design Document*.
- Australian Embassy Jakarta (2011) *Community Concerns with the KFCP*, Muliadi S. E. Executive Director Yayasan Petak Danum Kalimantan Tengah,.
- Bäckstrand, K. (2008) 'Accountability of networked climate governance: The rise of transnational climate partnerships', *Global Environmental Politics*, 8(3): 74-102.
- Bäckstrand, K. and E. Löybrand (2006) 'Planting trees to mitigate climate change: Contested discourses of ecological modernization, green governmentality and civic environmentalism', *Global Environmental Politics*, 6(1): 50-75.
- Bakker, K., M. Kooy, N.E. Shofiani and E.J. Martijn (2008) 'Governance failure: Rethinking the institutional dimensions of urban water supply to poor households', *World Development*, 36(10): 1891-1915.
- Bayon, R., A. Hawn and K. Hamilton (2007) *Voluntary carbon markets: An international business guide to what they are and how they work*. London: Earthscan.
- Bernstein, S. (2005) 'Legitimacy in global environmental governance', *Journal of International Law and International Relations*, 1(1-2): 139-166.
- Bernstein, S., M. Betsill, M. Hoffmann and M. Paterson (2010) 'A tale of two Copenhagens: Carbon markets and climate governance', *Millennium - Journal of International Studies*, 39(1): 161-173.
- Bernstein, S. and B. Cashore (2007) 'Can non-state global governance be legitimate? An analytical framework', *Regulation & Governance*, 1(4): 347-371.
- Biermann, F., P. Pattberg, H. Van Asselt and F. Zelli (2009) 'The fragmentation of global governance architectures: A framework for analysis', *Global Environmental Politics*, 9(4): 14-40.
- Bryan, D., D. Nielsen and L. Tangle (1997) *The last frontier forests: Ecosystems and economies on the edge*. Washington: World Resources Institute.
- Bumpus, A.G. and D.M. Liverman (2008) 'Accumulation by decarbonization and the governance of carbon offsets', *Economic Geography*, 84(2): 127-155.
- Campbell, B.M. (2009) 'Beyond Copenhagen: REDD+, agriculture, adaptation strategies and poverty', *Global Environmental Change*, 19(4): 397-399.
- Capoor, K. and P. Ambrosi (2009) *State and trends of the carbon market 2009*. Washington D. C.: World Bank.
- CARE (2010a) *CARE makes carbon finance work for poor and marginalised people*, CARE Australia.
- CARE (2010b) *Equitable and effective REDD in Central Kalimantan: Partnership to reduce greenhouse emissions in Kalimantan forests*, CARE Australia.
- Castree, N. (2008) 'Neoliberalising nature: The logics of deregulation and reregulation', *Environment and Planning A*, 40(1): 131-152.

- CCBS (2007) *Reducing carbon emissions from deforestation in the Ulu Masen ecosystem, Aceh, Indonesia ~ A triple-benefit project design note for CCBA audit, The Provincial Government of Nanggroe Aceh Darussalam (Aceh)*, Fauna & Flora International and Carbon Conservation Pty. Ltd.
- Clarke, R. (2010) 'Moving the REDD debate from theory to practice: Lessons learned from the Ulu Masen Project', *Law, Environment and Development Journal*, 6(1): 36-60.
- Commission on Global Governance (1995) *Our global neighbourhood*. Oxford: Oxford University Press.
- Corbera, E., M. Estrada and K. Brown (2010) 'Reducing greenhouse gas emissions from deforestation and forest degradation in developing countries: Revisiting the assumptions', *Climatic Change*, 100(3): 355-388.
- Cotula, L. and J. Mayers (2009) *Tenure in REDD: Start-point or afterthought?* London: International Institute for Environment and Development.
- Cubby, B. and M. Wilkinson (2009) 'I am a top foreigner in Papua New Guinea, says carbon kingpin', *Sydney Morning Herald*, 4 September.
- Dauvergne, P. (1998) 'Globalisation and deforestation in the Asia-Pacific', *Environmental Politics*, 7(4): 114-135.
- Dauvergne, P. (2001) *Loggers and degradation in the Asia-Pacific: Corporations and Environmental Management*. Cambridge: Cambridge University Press.
- DCC (2008a) *Indonesia-Australia roadmap for access to international carbon markets*. Canberra: Department of Climate Change.
- DCC (2008b) *Indonesia-Australia forest carbon partnership*. Canberra: Department of Climate Change.
- DCC (2008c) *Papua New Guinea-Australia forest carbon partnership*. Canberra: Department of Climate Change.
- DCCEE (2011) *Australia's fast-start finance update report*. Canberra: Department of Climate Change and Energy Efficiency.
- Dehm, J. (2010) 'Indonesian activists speak out against Australia's forest carbon offset schemes', *Chain Reaction*.
- Dennis, R.A., J. Mayer, G. Applegate, U. Chokkalingam, C.J.P. Colfer, I. Kurniawan, H. Lachowski, P. Maus, R.P. Permana and Y. Ruchiat (2005) 'Fire, people and pixels: Linking social science and remote sensing to understand underlying causes and impacts of fires in Indonesia', *Human Ecology*, 33(4): 465-504.
- Diaz, D., K. Hamilton and E. Johnson (2011) *State of the forest carbon market 2011: From canopy to currency*, Ecosystems Marketplace.
- Dingwerth, K. and P. Pattberg (2006) 'Global governance as perspective on world politics', *Global Governance*. 12(2): 185-203.
- Dooley, K., T. Griffiths, H. Leake and S. Ozinga (2008) *Cutting Corners: World Bank's forest and carbon fund fails forests and peoples*. Brussels: FERN and Forest People's Programme.
- Dunlop, J. (2009) *REDD, Tenure and local communities*. Rome: International Development Law Organization.
- Dyer, N. and S. Counsell (2010) *McREDD: How McKinsey 'cost-curves' are distorting REDD*, Briefing. London: Rainforest Foundation.
- EIA/Telapak (2011) *Caught REDD handed: How Indonesia's logging moratorium was criminally compromised on day one and Norway will profit*. London: London Environmental Investigation Agency (EIA) and Telapak.
- Eliasch, J. (2008) *Climate change, financing global forests: The Eliasch review*. London: Earthscan.
- Engels, A. (2006) 'Market creation and transnational rule-making: The case of CO₂ emissions trading', in M.L. Djelic (ed.) *Transnational governance: Institutional dynamics of regulation*. Cambridge: Cambridge University Press.
- FAO (2009) *State of the world's forests 2009*. Rome: Food and Agriculture Organisation of the United Nations.
- FAO (2010a) *Forests and climate change in the Asia-Pacific Region*. Rome: Food and Agriculture Organisation of the United Nations.

- FAO (2010b) *Global forest resources: Assessment 2010*. Rome: Food and Agriculture Organisation of the United Nations.
- FCPF (2008) *Forest Carbon Partnership Facility (FCPF): Readiness Plan Idea Note (R-PIN) – External review form Papua New Guinea*. Washington: World Bank.
- Flaschland, C., F. Biermann, P. Pattberg and H. van Asselt (2010) ‘Developing the international carbon market beyond 2012: Options and the costs of delay’, in F. Biermann, P. Pattberg and F. Zelli (eds) *Climate governance beyond 2012: Architecture, agency and adaption*. Cambridge: Cambridge University Press.
- Fry, I. (2008) ‘Reducing emissions from deforestation and forest degradation: Opportunities and pitfalls in developing a new legal regime’, *Review of European community and international environmental law*, 17(2): 166-182.
- Galudra, G., M.S. Noordwijk, M. Suyanto and U. Pradhan (2010) *Hot spots of confusion: Contested policies and competing carbon claims in the peatlands of Central Kalimantan, Indonesia*. Nairobi: ASB Partnership for the Tropical Forest Margins.
- Gaveau, D.L.A., J. Epting, O. Lyne, M. Linkie, I. Kumara, M. Kanninen and N. Leader Williams (2009a) ‘Evaluating whether protected areas reduce tropical deforestation in Sumatra’, *Journal of Biogeography*, 36(11): 2165-2175.
- Gaveau, D.L.A., S. Wich, J. Epting, D. Juhn, M. Kanninen and N. Leader-Williams (2009b) ‘The future of forests and orangutans (*Pongoabellii*) in Sumatra: Predicting impacts of oil palm plantations, road construction, and mechanisms for reducing carbon emissions from deforestation’, *Environmental Research Letters*, 4: 1-11.
- Geist, H.J. and E.F. Lambin (2002) ‘Proximate causes and underlying driving forces of tropical deforestation’, *BioScience*, 52(2): 143-150.
- Gené, E.I. and A. Aliadi (2010) *The Ulu Masen REDD Demonstration Activity: Challenges at the Policy and Implementation Levels*, Asia Security Initiative Policy Series. Singapore: RSIS Centre for Non-Traditional Security Studies.
- Goers, L., A. Williams, F. Daviet, C. Davis and S. Lupberger (2010) *Getting ready with forest governance: A review of the World Bank Forest Carbon Partnership Facility readiness preparation proposals and the UN-REDD national programme documents*, Working Paper, Washington: World Resources Institute.
- Goodman, J. and E. Roberts (2009) *What a scam!: Australia’s REDD offsets for Copenhagen*. Sydney: Aid/Watch and Friends of the Earth Australia.
- Greenpeace (2010) *Papua New Guinea: Not ready for [REDD]*. Sydney: Greenpeace Asia-Pacific.
- Greenpeace International (2011) *Bad influence: How McKinsey-inspired plans lead to rainforest destruction*. Amsterdam: Greenpeace International.
- Gridneff, I. (2008) ‘More bad news from Papua New Guinea’ [<http://www.redd-monitor.org/2009/09/29/more-bad-news-from-papua-new-guinea/#more-2947>].
- Gridneff, I. (2009a) ‘Overmatter: Leftovers from the science desk at The Economist’ [<http://natashaloder.blogspot.com/2009/09/kond-words.html>].
- Gridneff, I. (2009b) ‘PNG climate office director suspended’, *Sydney Morning Herald*, 1 July.
- Gridneff, I. (2010a) ‘Critics see REDD over PNG carbon schemes’, *The Age*, 6 August.
- Gridneff, I. (2010b) ‘m2m takes its chances in the forests of PNG’, *Sydney Morning Herald*, 4 March.
- Gridneff, I. (2010c) ‘PNG stalling UN climate talks: Greenpeace’, *Sydney Morning Herald*, 7 October.
- Gridneff, I. and R. Callick (2009) ‘The rush is on for sky money’, *The Australian*, 5 September.
- Griffiths, T. (2007) *Seeing ‘RED’?: ‘Avoided Deforestation’ and the Rights of Indigenous Peoples and Local Communities*. Moretonin-Marsh, UK: Forest Peoples Programme.
- Griffiths, T. (2008) *Seeing ‘REDD’: Forests, Climate Change Mitigation and the Rights of Indigenous Peoples and Local Communities*, Update for Poznan (UNFCCC COP 14). Moretonin-Marsh: Forest Peoples Programme.
- Hall, R. (ed.) (2010) *REDD: The realities in black and white* Amsterdam: Friends of the Earth International.

- Hamilton, K., M. Sjardin, M. Peters-Stanley and T. Marcello (2010) *Building bridges: State of the voluntary carbon markets 2010*. New York and Washington: Ecosystem Marketplace and Bloomberg New Energy Finance.
- Henkel, K. (2009) *The burning season*, Film, Australia, 9 July.
- Intergovernmental Taskforce REDD+ Partnership (2010) *REDD+ synthesis report: REDD+ Financing and activities survey*. Oslo: Australia, France and PNG governments, REDD+ Partnership.
- IPCC (2007) *Climate change 2007: The physical science basis*. Cambridge: Cambridge University Press.
- Jessop, B. (1998) 'The rise of governance and the risks of failure: The case of economic development', *International Social Science Journal*, 50(155): 29-45.
- Jessop, B. (2000) 'Governance failure', in G. Stoker (ed.) *The new politics of British local governance*. London: Macmillan.
- Jinnah, S., D. Bushey, M. Muñoz and K. Kulovesi (2009) 'Tripping points: Barriers and bargaining chips on the road to Copenhagen', *Environmental Research Letters*, 4: 1-6.
- Kanninen, M., D. Murdiyarso, F. Seymour, A. Angelsen, S. Wunder and L. German (2007) *Do trees grow on money? The implications of deforestation research for policies to promote REDD*. Jakarta: Center for International Forestry Research (CIFOR).
- Karsenty, A. (2008) 'The architecture of proposed REDD schemes after Bali: Facing critical choices', *International Forestry Review*, 10(3): 443-457.
- Kossoy, A. and P. Ambrosi (2010) *State and trends of the carbon market 2010*, Washington D. C.: World Bank.
- Lang, C. (2010a) 'Interviews about Ulu Masen, Indonesia: A REDD-labelled Protected Area' [<http://www.redd-monitor.org/2010/01/20/interviews-about-ulu-masen-indonesia-a-redd-labelled-protected-area/>].
- Lang, C. (2010b) 'McKinsey's REDD plans in Papua New Guinea: Nice work if you can get it' [<http://www.redd-monitor.org/2010/10/07/mckinseys-redd-plans-in-papua-new-guinea-nice-work-if-you-can-get-it/>].
- Lang, C. (2010c) 'REDD projects in Papua New Guinea 'legally untenable'' [<http://www.redd-monitor.org/2010/09/14/redd-projects-in-papua-new-guinea-legally-untenable/>].
- Lang, C. (2011) 'Another statement about the Kalimantan Forests and Climate Partnership. Previous statement 'not true'' [<http://www.redd-monitor.org/2011/07/25/another-statement-about-the-kalimantan-forests-and-climate-partnership-previous-statement-not-true/>].
- Lawson, S. and L. MacFaul (2010) *Illegal logging and related trade*. London: The Royal Institute of International Affairs.
- Leach, P. (2008) *Carbon sunk? The potential impacts of avoided deforestation credits on emissions trading mechanisms*. London: The Rainforest Foundation.
- Leggett, M. and H. Lovell (2012) 'Community perceptions of REDD+: A case study in PNG', *Climate Policy*, 12(1): 115-134.
- Linacre, N., A. Kossoy and P. Ambrosi (2011) *State and trends of the carbon market 2011*, Washington D. C.: World Bank.
- Lyster, R. (2010a) 'REDD+, transparency, participation and resource rights: The role of law', *Environmental Science & Policy*, 14: 118-126.
- Lyster, R. (2010b) 'Reducing emissions from deforestation and degradation: The road to Copenhagen', in R. Lyster (ed.) *The wilds of climate law*. Bowen Hills: Australian Academic Press.
- Mann, T. and M.T. Surya (2009) *REDD wrong path: Pathetic ecobusiness*. Jakarta: Wahan Lingkungan Hidup Indonesia (WALHI).
- Martone, F. (2010) 'The emergence of the REDD Hydra: An analysis of the REDD-related discussions and developments in the June session of the UNFCCC and beyond' [<http://www.forestpeoples.org/sites/fpp/files/publication/2010/08/reddhydraunfcccjul10eng.pdf>].
- Mattioli, D. (2008) 'Merrill Lynch: Turning trees into money', *Wall Street Journal: Environmental Capital*, 11 March.

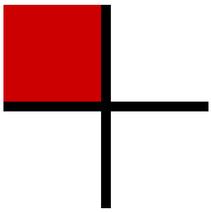
- McCulloch, L. (2009) 'The importance of governance to REDD+ activities: Lessons from Ulu Masen', Expert Workshop on Engagement of Japanese Organisation in REDD+ Process, Plans and Opportunities, 2nd International Forum for Sustainable Asia and the Pacific (ISAP 2010), Yokohama, Japan.
- Melick, D. (2010) 'Credibility of REDD and experiences from Papua New Guinea', *Conservation Biology*, 24(2): 359-361.
- Millennium Ecosystems Assessment (2005) *Ecosystems and human well-being: A framework for assessment*. Washington: Island Press.
- Naucclér, T. and P. Enkvist (2009) *Pathways to a low-carbon economy: Version 2 of the global greenhouse gas abatement cost curve* Seattle: McKinsey & Company.
- NCCC (2010) *Indonesia's greenhouse gas abatement cost curve*. Jakarta: National Council on Climate Change (DNPI).
- O'Sullivan, R., C. Streck, T. Pearson, S. Brown and A. Gilbert (2010) *Engaging the private sector in the potential generation of REDD+ carbon credits: An analysis of issues*. London: UK Department for International Development (DFID).
- Okereke, C., H. Bulkeley and H. Schroeder (2009) 'Conceptualising climate governance beyond the international regime', *Global Environmental Politics*, 9(1): 58-78.
- Okereke, C. and K. Dooley (2010) 'Principles of justice in proposals and policy approaches to avoided deforestation: Towards a post-Kyoto climate agreement', *Global Environmental Change*, 20: 82-95.
- Papua New Guinea EcoForestry Forum (2009) 'Media Release: PNG court stops carbon deal', 5 June.
- Papua New Guinea Post Courier (2010) 'Critics see REDD over PNG carbon', *Post Courier*, 11 August.
- Paterson, M. (2010) 'Legitimation and accumulation in climate change governance', *New Political Economy*, 15(3): 345-368.
- Pellizzoni, L. (2011) 'Governing through disorder: Neoliberal environmental governance and social theory', *Global Environmental Change*, 21(3): 795-803.
- Phelps, J., E. Webb and A. Agrawal (2010) 'Does REDD+ threaten to recentralize forest governance?', *Science*, 328(5976): 312-313.
- PNG Post-Courier (2010) 'Landowner denies', *PNG Post-Courier*, 8 July.
- Powe, V. (2010) *Validation audit comments received, pg. 30*, CCB projects, Arlington: Climate, Community and Biodiversity Alliance (CCBA).
- Power, T. (2008) *Incorporated land groups in Papua New Guinea*. Canberra: AusAID.
- Quéré, C.L., M.R. Raupach, J.G. Canadell, G. Marland, L. Bopp, P. Ciais, T.J. Conway, S.C. Doney, R.A. Feely, P. Foster, P. Friedlingstein, K. Gurney, R.A. Houghton, J.I. House, C. Huntingford, P.E. Levy, M.R. Lomas, J. Majkut, N. Metz, J.P. Ometto, G.P. Peters, I.C. Prentice, J.T. Randerson, S.W. Running, J.L. Sarmiento, U. Schuster, S. Sitch, T. Takahashi, N. Viovy, G.R.v.d. Werf and F.I. Woodward (2009) 'Trends in the sources and sinks of carbon dioxide', *Nature Geoscience*, 2(December): 831-836.
- Rosenau, J. (2002) 'Governance, order and change in world politics', in J. Rosenau and E.-O. Czempiel (eds) *Governance without government: Order and Change in world politics*. Cambridge: Cambridge University Press.
- RRI (2009) *Who owns the forests of Asia? An introduction to the forest tenure transition in Asia, 2002-2008*, Washington: Rights and Resources Initiative.
- SBS (2009) *REDD deals done under duress in PNG*, Australia, Special Broadcasting Service, 12 December.
- Shamir, R. (2008) 'The age of responsabilization: On market-embedded morality', *Economy and Society*, 37(1): 1-19.
- Shearman, P., J. Ash, B. Mackey, J.E. Bryan and B. Lokes (2009) 'Forest conversion and degradation in Papua New Guinea 1972-2002', *Biotropica*, 41(3): 379-390.
- Shearman, P.L., J. Ash, B. Mackey, J.E. Bryan and B. Lokes (2008) *State of the forests of Papua New Guinea*. Port Moresby, University of Papua New Guinea.

- Sheil, D., A. Casson, E. Meijaard, M. van Noordwijk, J. Gaskell, J. Sunderland-Groves, K. Wertz and M. Kanninen (2009) *The impacts and opportunities of oil palm in Southeast Asia: What do we know and what do we need to know?* Bogor: Center for International Forestry Research (CIFOR).
- Smartwood (2008) *Validation Audit Report for Provincial Government of Nanggroe Aceh Darussalam - Fauna & Flora International - Carbon Conservation in Ulu Masen Ecosystem*, (Aceh Province, Indonesia). New York: Rainforest Alliance.
- Somare, M.T. (2010) *Oslo forest climate conference*, Oslo, 26 May.
- Stern, N. (2007) *The economics of climate change: The Stern Review*. Cambridge: Cambridge University Press.
- Streck, C., R. O'Sullivan, T. Janson-Smith and R. Tarasofsky (2008) 'Climate change and forestry: An introduction', in C. Streck, R. O'Sullivan, T. Janson-Smith and R. Tarasofsky (eds.) *Climate change and forests: Emerging policy and market opportunities*. Baltimore: Brookings Institute Press.
- Stripple, J. and E. Lövbrand (2010) 'Carbon market governance beyond the public-private divide', in F. Biermann, P. Pattberg and F. Zelli (eds) *Climate governance beyond 2012: Architecture, agency and adaptation*. Cambridge: Cambridge University Press.
- Surya, T. (2010) 'Carbon credits have a social price', *Sydney Morning Herald*, 18 November.
- The Economist (2009) 'Money grows on trees', *The Economist*, 6 June.
- Time Magazine (2009) 'Heroes of the Environment', *Time*, 22 September.
- UNFCCC (2005) 'Reducing emissions from deforestation in developing countries: Approaches to stimulate action, Submissions from Parties' [<http://unfccc.int/resource/docs/2005/cop11/eng/misc01.pdf>].
- UNFCCC (2007) *Decision 1/CP.13 Bali Action Plan*, Conference of the Parties to the United Nations Framework Convention on Climate Change, 13th session, Bali, 3-15 December.
- UNFCCC (2008) Indonesia and Australia Reducing Emissions from Deforestation and Forest Degradation in Developing Countries Joint Submission to the AWG-LCA and SBSTA, (Part I), ad Hoc Working Group on Long-term Cooperative Action under the Convention, 4th session, Poznan, FCCC/AWGLCA/2008/MISC.5/Add.2, 1-10 December.
- van der Werf, G.R., D.C. Morton, R.S. DeFries, J.G.J. Olivier, P.S. Kasibhatla, R.B. Jackson, G.J. Collatz and J.T. Randerson (2009) 'CO₂ emissions from forest loss', *Nature Geoscience*, 2(11): 737-738.
- Vidal, J. (2009) 'UN's forest protection scheme at risk from organised crime, experts warn', *The Guardian*, 5 October.
- WALHI (2009) 'Statement on 'The Burning Season' film from WALHI/ Friends of the Earth Indonesia' [<http://www.foe.org.au/climate-justice/media/news-items/archive/2009/statement-on-the-burning-season-film-from-walhi-friends-of-the-earth-indonesia/?searchterm=None>].
- Wertz-Kanounnikoff, S. and M. Kongphan-Apirak (2008) *Reducing forest emissions in Southeast Asia: A review of drivers of land-use change and how Payments for Environmental Services (PES) Schemes can affect them*. Bogor: Center for International Forestry Research (CIFOR).
- White, A. and A. Martin (2002) *Who owns the world's forests: Forest tenure and public forests in transition*. Washington: Forest Trends and Center for International Environmental Law.
- Wilkinson, M. and B. Cubby (2009) 'Carbon scandal snares Australian', *The Age*, 4 September
- Wood, P. (2010) *Preliminary study on the safeguards policies of bilateral donors to REDD programs in Indonesia*/ Jakarta: HuMa.
- World Bank (2010) *Integrated Safeguards data sheet concept stage*, AC5770, Indonesia Sustainable Development (EASIS) Unit.
- YPD (2011) 'Letter: To the Australian Delegation to Central Kalimantan February 2011, Community Concerns with the KFCP' [<http://www.forestpeoples.org/sites/fpp/files/publication/2011/03/letter-australian-delegation-central-kalimantan-february-2011-re-kfcp-pilot-redd-project.pdf>].

the author

Rebecca Pearse is a PhD candidate at the University of New South Wales, Sydney. Her research spans political sociology and international relations. She has previously undertaken ethnographic research on social movements and climate change through the Cosmopolitan Civil Societies Research Centre,

University of Technology Sydney. Her current research thesis investigates the political economy of carbon markets in the Asia-Pacific region.
E-mail: rebecca.pearse@unsw.edu.au



Planting trees through the Clean Development Mechanism: A critical assessment

Esteve Corbera and Charlotte Friedli

abstract

The Kyoto Protocol's Clean Development Mechanism (CDM) allowed developing countries to promote Afforestation and Reforestation (A/R) activities as a means to sell carbon emissions reductions to individuals, companies and governments in developed countries. Five years after the official registration of the first CDM A/R project, very little is known about the design and implementation of these activities. This is somewhat surprising if one takes into account the current move towards the establishment of an international framework for reducing emissions from deforestation, degradation and increasing carbon stocks through forest management (REDD+), which may likely include forest enrichment activities. This paper reviews the literature on carbon forestry and examines a sub-sample of Project Design Documents (PDDs) from existing CDM A/R projects in order to highlight the projects' potential positive and negative outcomes. Our analysis reveals that CDM A/R activities often rely on inaccurate carbon accounting methods that deem their actual mitigation benefits rather uncertain. Socio-economic assessments are non-existent or lack detail, casting doubt on projects' contribution to local and socially transformative development. And, finally, projects also lack rigorous information on benefit sharing and in doing so they mask who will benefit most from carbon trading. The discussion contrasts these findings with emerging empirical and critical literature, and we raise a word of caution on the future impacts of forest enrichment activities under REDD+.

Introduction

The Clean Development Mechanism (CDM) is one of three market-based instruments designed by the Kyoto Protocol (KP) to meet the emission targets of developed countries at the lowest possible cost, alongside international emissions trading and joint implementation (Brown and Corbera, 2003). The CDM promotes the design and implementation of climate mitigation projects in developing countries that generate Certified Emission Reductions (CERs) to be used for compliance by countries (i.e. specified in Annex B of the KP) and companies with emission reduction commitments. CDM projects should be 'additional' (i.e. reduce emissions beyond a business-as-usual baseline) and contribute to the host country's sustainable development (KP, Article 12). The CDM, as any other offset-based instrument, is, at best, neutral from a climate change mitigation perspective because it is based on the premise that emissions produced in one place can be compensated by equal reductions elsewhere.

The CDM project cycle consists of several consecutive stages. Developers design the project following a Project Design Document (PDD) template.¹ This PDD is then submitted to the host-country's CDM Designated National Authority (DNA), which should endorse or reject it according to the country's sustainable development criteria. If endorsed, developers hire a Designated Operational Entity (DOE) recognised by the CDM Executive Board (EB) – the governing body of the mechanism² – to validate the PDD. Once this happens, project documentation is sent to the CDM-EB for further consideration. The Board may either reject or accept the project subject to revisions. If approved, the project enters the official CDM registry and can start operating officially as a CDM project. Periodical verification reports by the same or another DOE³ should be submitted to the CDM-EB before any issuance of carbon credits to project investors.⁴

There are various types of CDM projects, including wind parks and energy efficiency activities, amongst others (Ellis et al., 2007). However, CDM forestry options are restricted to Afforestation and Reforestation (A/R)⁵ activities that are subject to more procedural restrictions than other CDM projects. On the one hand, they generate temporary or long-term CERs (tCERs/ICERs)⁶ and the KP Annex B countries can only offset 1% of their annual baseline emissions with these credits (Dessai et al., 2005). On the other, the European Union decided to exclude A/R credits from the region's Emissions Trading Scheme (EU ETS) thereby constraining any potential credit demand from EU ETS regulated companies (Boyd et al., 2008).

The exclusion of forest conservation activities from the CDM and the subsequent decision of the EU to exclude forestry credits altogether from the ETS responded to past and still existing controversies on the use of forest ecosystems as sinks of carbon dioxide. In the run-up to the KP negotiations during the mid 1990s and during the design of the KP rulebook by the end of 1990s and the early 2000s, some developing countries, such as Brazil, India and China, and civil society organisations, like Friends of the Earth or the World Rainforest Movement, opposed the inclusion of forestry activities on the grounds that they would divert attention from the adoption of more

1 For detailed information on the PDD contents for A/R activities see: <http://www.cdmlrulebook.org/483>

2 The Executive Board (EB) is formed by 10 experts in climate change mitigation projects who are appointed by different countries and regional groups involved in the Kyoto Protocol. The EB evaluates project documentation according to the methodological guidelines approved by the Conference of the Parties, manages the registry of CDM projects, monitors credit transactions and follows project evaluations. More information at: <http://cdm.unfccc.int/EB/index.html>

3 For small-scale projects, the same DOE can produce both validation and verification reports.

4 Detailed information on the CDM project cycle can be found at: <http://cdm.unfccc.int/Projects/diagram.html>

5 Establishment of forests in areas not forested for at least 50 years or in those deforested before 1990, respectively.

6 These credits are designed to address the risk of permanence. A tCER expires 5 years after its issue and a ICER expires at the end of the crediting period of the project activity. Both should be replaced after their expiry date and ICERs may also be subject to replacement if a project evaluation indicates a reversal of net anthropogenic greenhouse gas removals by sinks. The crediting period for an A/R activity under the CDM is either 20 years, which may be renewed at most twice (up to 60 years), or a maximum of 30 years (Dessai et al., 2005: 107-108).

significant greenhouse gas reduction commitments by developed countries. The same actors, and even some negotiating Parties, like the EU, also expressed concerns on the unlikely permanence of standing forest sinks and the potentially negative impacts of new-established plantations (Friends of the Earth, 2002; Dessai et al., 2005; Boyd et al., 2008). As explained below in greater detail, these controversies are far from settled and the recently established international framework for *Reducing Emissions from Deforestation and Degradation, plus conserving and enhancing forest carbon stocks and sustainably managing forests in developing countries* (REDD+) has reinvigorated them.

As of June 2010, at the time this research was conducted, there were only 15 CDM A/R projects registered and another 39 were at validation stages, representing overall less than 1% of the emission reductions potentially achieved by CDM projects up to 2012 (UNEP-Risoe, 2010). This contrasted with more than 2,500 projects registered and more than 3,000 pending validation in other sectors. However, the long time necessary to generate carbon offsets from all CDM activities – one single project can take on average three years to make its way through the project cycle and issue its first CERs – combined with the uncertainty regarding the future of the KP beyond 2012 and the global financial crisis, which has undermined developers' access to up-front finance, have compromised the development of the CDM market since 2008 (Thomas et al., 2009; Kossoy and Ambrosi, 2010). It is important to remark upon the role of the World Bank in promoting CDM projects. Since 2000, it has created over a dozen unilateral and multilateral funds dedicated to source and provide carbon credits to national governments and private companies, acting as an intermediary project quality insurer and credit manager. In the forestry sector, it established the Biocarbon Fund in 2002 to promote land-use and forestry projects and, more recently, the Forest Carbon Partnership Facility to support REDD+ government-led policies and measures. In the near future, funding for forestry activities, as well as other mitigation and adaptation activities in developing countries may be funded through the *Green Climate Fund*, a new funding mechanism adopted at the last meeting of the Parties to the UNFCCC in Cancun (2010) and that may become operational in 2012.

In parallel to CDM developments, other carbon forestry offset projects have been implemented in the context of Over-The-Counter (OTC) and the Chicago Climate Exchange voluntary carbon markets (Corbera et al., 2009; Hamilton et al., 2010a).⁷ These projects have represented the second most preferred option for carbon offsetting in OTC markets during 2009, after having lost appeal in previous years. This has been explained by a renewed demand for these types of offsets from non-profit organisations, and a growing political recognition of 'the importance of forests in halting rapid deforestation and deploying carbon finance to developing nations' (Hamilton et al., 2010a: 32). An existing database shows over 200 projects around the world.⁸

7 There are forestry carbon projects operational in developed countries selling offsets in these and other compliance markets, like New Zealand's emissions trading scheme, but they are not covered here (Kossoy and Ambrosi, 2010).

8 See: <http://www.forestcarbonportal.com/projects>

Currently, the UNFCCC REDD+ framework has further increased the interest of policy, academic and NGO communities in forestry offsets. REDD+ is aimed at generating incentives for developing countries to protect and better manage their forest resources, by creating and recognising a financial value for the additional carbon stored in trees or not emitted to the atmosphere (Corbera and Schroeder, 2011). REDD+ implementation will vary across countries, encompassing a multiplicity of policy programmes and sub-national activities, based on forest conservation, forest enrichment and sustainable forest management (Corbera et al., 2011). Once the KP first (and maybe only) commitment period expires by the end of 2012, the CDM is unlikely to support the further development of A/R activities, which will probably become part of host countries' REDD+ strategies.

As REDD+ is nowadays in an incipient phase and CDM A/R activities have been under implementation for a few years only – the first project being registered in 2006 – carbon forestry research has mostly focused on examining the design and implementation of voluntary projects. A review of 23 projects in Africa (Jindal et al., 2008) shows that some initiatives contribute to converting grasslands into ecologically damaging tree plantations, as shown also in other previous studies (Granda, 2005), and it also demonstrates that some projects result in positive development outcomes, such as increased local incomes and improved natural resource management. Bozmoski and Hultman (2010), for example, show that two projects in Tanzania have contributed to improved forest management due to the high level of social capital present in participant communities. In contrast, other studies based in Mexico and Belize argue that carbon projects failed to involve poor landowners as a result of high political and transaction costs, and a strong bias in favour of efficiency and effectiveness as against equitable and legitimate outcomes (Brown et al., 2004; Corbera et al., 2007a).

Evidence on CDM A/R projects is still scarce. Thomas et al. (2009) rely on PDDs and secondary literature to explore four A/R projects and shed light on the factors influencing design and implementation. They show that projects are led by large organisations with technical expertise and that significant up-front funding is critical for projects' development. Private property rights seem to be preferable for developing plantations while they show that a substantial share of CERs revenue is likely to return to landowners. Gong et al.'s (2010) empirical assessment of the first registered project highlights that it facilitated local participation by establishing a carbon pooling and share-holding system that brought together communities, individual villagers and forest logging companies and should guarantee a fair distribution of carbon and timber revenues in the future.

Overall, research has shown that voluntary carbon forestry activities can result in both positive and negative impacts for local ecosystems and that, from a livelihoods perspective, property rights, land availability, social organisation and political networks constitute key factors in accessing and benefiting from carbon offsets (Corbera and Brown, 2010). The remainder of this paper aims to contribute to these debates by providing an in-depth, desk-based analysis of a sub-sample of CDM A/R registered projects. This exercise involves a larger project sample than similar research (Thomas et al., 2009) and critically confronts projects' documentation with their supposed objectives of mitigating climate change and promoting sustainable development. The

following section reviews a series of concepts and debates that prove useful in discussing our collected data and in understanding forestry offsets more generally. The third section introduces methods and presents the results organised around six themes (participant actors, carbon accounting and monitoring, other environmental outcomes, institutional effects and livelihood benefits). The fourth section discusses the findings and the fifth summarises and concludes the paper.

Approaching the study of carbon forestry offsets

Carbon forestry projects are one of the multiple constituents of what some have called a 'new carbon economy' (Brown and Corbera, 2003) and others 'climate capitalism' (Newell and Paterson, 2010). In terms of economic activity and offsets value, forestry projects represent a small fraction of the carbon economy that in 2009 alone was worth €144 billion⁹ (Kossoy and Ambrosi, 2010: 1). Beyond economic considerations, the relevance of these projects lies in the fact that they are unfolding in rural contexts to transform the ways in which landowners and communities value and manage landscapes and natural resources (Brown and Corbera, 2003; Corbera and Brown, 2010). Community forests are discursively becoming reservoirs of a tradable, yet invisible, commodity, and lands used for grazing can be, temporarily at least, reorganised as forest plantations or agro-forestry systems for carbon trading purposes. Carbon forestry projects thus emerge as a new form of environment-friendly development, built on the commodification of ecosystem services and the involvement of rural actors in international carbon markets. They are also part of a broader policy agenda promoting the use of Payments for Ecosystem Services (PES) as a means to value these services and promote conservation and rural development (Muradian et al., 2010).

The carbon accounting and trading component introduces a difference in the way that these projects are introduced to local communities that differs from previous attempts to promote conservation and development through certified forest management or markets for non-timber forest products. These projects are accompanied by a new discourse on ecosystem services, carbon sequestration and climate change and they entail the development of contracts defining rights, responsibilities and liabilities, and potentially involving actors that communities are not familiar with, such as consultants and carbon traders. Furthermore, in contrast with other PES schemes focusing on watershed regulation that prioritise local or regional self-sustaining funding frameworks, carbon forestry projects are embedded in broader governance processes and global carbon markets that influence the projects' operational rules and the type of buyers, predominantly from developed countries.

The measurement of carbon stocks and flows at national, regional or local levels to understand forestry activities' potential impact on GHG emissions has been a

9 This figure includes data from regulated markets like the EU ETS, the CDM, the Regional Greenhouse Gas Initiative in the United States, and the OTC and the Chicago Climate Exchange voluntary carbon markets. It excludes all other funding related to the promotion of energy efficiency, renewable energy and other technologies for climate mitigation.

flourishing field since the 1990s, of particular relevance for those interested in project design and implementation, and in the management of GHG land use emissions on broader scales (Brown, 2002; Sathaye and Andrasko, 2006; Skutsch and Ba, 2010). In spite of an increasing refinement of the methods and data available, plus the existence of good practice guidelines for calculating emissions from land-use, land-use change and forestry developed by the Intergovernmental Panel on Climate Change (2003), some concerns and limitations in carbon accounting have been raised. It has been argued that it is impossible to predict and to know exactly how much carbon is sequestered in a plantation and for how long because there are too many uncertain variables embedded in carbon sequestration models (Lohmann, 1999). Others have suggested that carbon accounting contributes to individuate and abstract an ecological function from its broader ecological and social context in order to facilitate valuation and commodification, which may over time result in environmental impacts and the loss of any formerly existing conservation logic (Bumpus and Liverman, 2008; Kosoy and Corbera, 2010).

Some authors have stressed that new planted trees can help to control flooding, soil erosion, salinization and sedimentation (Landell-Mills, 2002; Scherr et al., 2004) and that they can be particularly beneficial if they restore historically forested lands, use native species, and employ ecologically sensitive techniques for ground preparation, planting, and management (Orlando et al., 2002). However, ecological science is increasingly emphasising the need to recognise trade-offs in the provision and management of ecosystem services (Raudsepp-Hearne et al., 2010). Bäckstrand and Lövbrand (2006), for example, highlight the risk of prioritising single-species plantations that would offer large volumes of carbon offsets at the expense of other services, such as non-timber forest products. This approach could also increase erosion associated with poor land management and road building, reduce underground water supply and degrade soils and water quality if fertilisers are excessively used (FERN, 2001).

Besides the interaction of carbon forestry activities with their local (through reforestation) and global (through accounting) environment, another analytical domain of carbon forestry research has addressed the relationship with the local context, particularly through the lens of institutional analysis (Corbera and Brown, 2008). Succinctly, institutions are a major determinant of the relations between humans and the environment that can be generally described as systems of rules, decision-making procedures, and programs that give rise to social practices, assign roles to the participants in these practices, and guide interactions among the occupants of the relevant roles (Young et al., 1999). Institutions can take the form of formal legal rules, or they may be informal norms or conventions. Carbon forestry projects can thus be shaped by formal institutions such as agricultural and forestry policies, and by informal institutions such as traditional practices for natural resource management (Corbera et al, 2007a). Land tenure regimes have a particular relevance in the design and implementation of project activities, as do the type of activities promoted by the project (i.e. conservation, reforestation or forest management). For instance, operating the project on individual, privately owned plots over a large territory or on a large area under communal property would result in different project transaction costs and benefit sharing arrangements (van Kooten et al., 2004). A land tenure regime involving

multiple resource users with specific ‘bundles of rights’ and divergent land-use management interests can also challenge project design and implementation (Corbera and Brown, 2010; Corbera et al., 2011). Complex land tenure systems are the common rule in developing countries as multiple and overlapping rights are often found in one single location (Lynch and Alcorn, 1994) and ambiguities within law, customs and conventions are frequent (Ribot and Peluso, 2003).

Projects can also contribute to create new institutions and modify existing ones. They can alter access relations over natural resources, including subsistence and marketed products, thus affecting rural actors unevenly and inducing social conflict (Brown and Corbera, 2003). Projects can also reinforce the socio-political status of local elites acting as intermediaries between the project and the community, which can translate into new natural resource management rules that are unfavourable to already marginalised resource user groups and households (Lele, 2003). More positively, however, they can facilitate the establishment of farmer groups and cross-scale social networks connected through land-use management and labour contracts driven by carbon trading, as well as promote the exchange of forest management best practice across participant landowners and communities (Corbera and Brown, 2010). Carbon forestry projects have thus been regarded as vehicles for rural development that can contribute to the diversification of livelihood by providing labour opportunities, new income sources and support community well-being, facilitating local demands (e.g. tenure security) and funding infrastructure (Boyd et al., 2007a/2007b; Jindal et al., 2008; Bozmoski and Hultman, 2009). Furthermore, if landowners and communities undertake carbon accounting and monitoring, projects can allow local people to become familiar with satellite positioning gadgets and related software, contributing towards their ‘integration’ into a knowledge and technology-driven global society (Skutsch, 2010).

In the same way that carbon forestry projects do not unfold in institutional or political vacuums, they are not ahistorical artefacts disconnected from development, policy and governance processes at national and international levels. Projects can act synergistically or conflict with rural development discourses and agendas that promote or challenge the idea of carbon markets (Kosoy et al., 2009) and subsequently change their operational design and implementation approach. Lansing (2009) has shown that a carbon forestry project in Costa Rica was originally designed on the basis of a rural development discourse that problematized some elements of the indigenous land-use system and according to the project’s own cost-benefit calculations regarding planting options within such land-use system. Such calculations, however, led to unexpected carbon profitability scenarios that, in turn, challenged project developers’ original conception of the project (i.e. developing agro-forestry systems) and ended up transforming – through planting – those elements of the system considered less problematic (e.g. fallow lands). What had to be a carbon forestry project, concerned with increasing the profitability of cacao agroforestry systems, became a reforestation project on fallow lands, which had implications for some resource users and the productive dynamics of the overall system. As we discuss later in the paper, A/R projects may critically contribute to transform fallow lands into carbon sinks and, in doing so, they may disrupt landscape productive dynamics that required such lands for temporal grazing and for recovering soil fertility levels before the next cultivation cycle.

The empirical assessment of carbon offsets ‘production’ has been recently accompanied by an interrogation of their ‘distribution’ and ‘consumption’. Lovell et al. (2009) have offered a neat account of how offsetting has slowly transformed consumption practices through the development of appealing narratives on the role of offsets in climate change mitigation, social responsibility and pro-poor development. Looking at the governance of tree-based offsets in particular, Boyd (2009) has argued that there are competing narratives on the desirability and transformative character of these offsets that differ across and within participant actors and that in turn relate to underlying values and conceptions of environmental governance. She has noted that ‘governance challenges facing the institutional design of tree offsets include the trade-offs between the global priorities for forest protection and local priorities for forest use’ and, furthermore, highlighted that global climate and forest governance policies ‘often depend on simplifying notions of nature and making carbon the same, while the diversity of local institutions, priorities, and the pluralist nature of forest protection diverges from grand blueprints’ (*ibid.*: 2093).

Selecting and analysing CDM A/R activities

This section is based on the review of a sample of eight out of 15 CDM A/R registered projects as of June 2010. These were selected following geographical and design criteria. We chose the only two projects registered in African countries at the time, three projects in Asia, and three in South America, which in turn covered both small-scale (6) and large-scale (2) activities. According to the CDM rulebook, small-scale activities are those that are expected to result in net anthropogenic GHG removals by sinks of less than 8,000 tonnes of carbon dioxide and that are developed or implemented by low-income communities and individuals as determined by the host country (UNFCCC, 2005). Subsequently, large-scale activities are those that are expected to result in removals above 8,000 tonnes of carbon dioxide. At the same time, we ensured that the selected cases included planting on communal, individual and/or state property, and we made sure that projects funded by the World Bank’s Biocarbon Fund were also included (3) (Table 1).

We relied on PDDs submitted by project developers and validation reports submitted by DOEs to infer present and future impacts on forests and livelihoods. All these documents are listed in the references section and are publicly available at <http://cdm.unfccc.int>. Our review also relied on academic literature published on CDM A/R projects (Thomas et al., 2009; Gong et al., 2009), and additional information available in project developers and the Biocarbon Fund websites. We organised and summarised all the information compiled in an Excel database that contained 44 criteria. This became the main source for the results and discussion presented below (Table 2).

Table 1: Projects description

Project Name	Location	Parties involved	Project Participants	Type of activities	Scale	Registration Date	Tenure System
Facilitating Reforestation for Guangxi Watershed Management	Guangxi Zhuang Autonomous Region, southern China	People's Republic of China + Italy + Spain	Four logging companies + Biocarbon Fund	Reforestation	Large	November 2006	Private & communal lands
Humbo Ethiopia Assisted Natural Regeneration Project	Southern Nations Nationalities and Peoples Region (SNNPR), South Western Ethiopia	Federal Democratic Republic of Ethiopia + Canada	World Vision Ethiopia + Biocarbon Fund	Afforestation & reforestation activities	Large	December 2009	Communal lands
Uganda Nile Basin Reforestation Project	Rwoho Central Forest Reserve, South Western Uganda	Uganda + Italy	National Forest Authority (NFA) + Biocarbon Fund	Reforestation	Small	August 2009	Public & communal lands
Nerquiñhue Small-scale CDM afforestation project	Provincia Colchaqua, Region VI of Central Chile	Chile + United Kingdom	Mikro-Tek Inc. + Natsource Europe Limited	Afforestation	Small	May 2010	Private lands
Reforestation in the Bolivian Tropics by Smallholders of 'Federación de comunidades Agropecuarias de Rurrenabaque' (FECAR)	Department of Beni, Northeastern Bolivia	Bolivia + Belgium	FECAR (community organisation) + Foundation Centro Tecnico Forestal (CETEFOR) + Asociacion Accidental Cetefor-Sicirec + Flemish Government	Reforestation	Small	June 2009	Private & communal lands
The International Small Group and Tree Planting Program (TIST), Tamil Nadu, India	Tamil Nadu, Southern India	India + United Kingdom	TIST (NGO) + Climate Change Carbon Fund II	Reforestation	Small	January 2010	Private lands
Reforestation of croplands and grasslands in low income communities of Paraguari Department, Paraguay	Paraguari Department, Southern Paraguay	Paraguay + Japan	Japan International Research Center for Agricultural Sciences (JIRCAS) + Instituto Forestal Nacional (INFONA)	Reforestation	Small	September 2009	Private lands
Cao Phong Reforestation Project	Hoa Binh province, Northwestern Vietnam	Socialist Republic of Vietnam + Japan	Japan International Cooperation Agency (JICA) + Vietnam's Forest Development Fund (FDF)	Reforestation	Small	April 2009	Private & public lands

Table 2: Collected data (split in four consecutive sub-tables)

Project location	Project Developers	Other intermediaries	Up-front investors	Buyers	Local participants	Community based/ individual based management	Carbon price	Financial additionality	Benefits-sharing	Size (scale)	Type of land
China	Four logging companies	Local forestry agencies	Government of Guangxi, Logging companies (via local commercial bank loans) and in-kind contributions from farmers (labour, land, fire control monitoring)	Biocharbon Fund on behalf of Spain and Italy	27 rural communities, 5000 households involved	Community based (2900 ha) + individual based (1100 ha)	Expected to be around 4 US\$/tCO ₂	Financial internal rate of return attractive on the basis of different carbon price scenarios	Case 1: Farmer groups obtain tCERs + forest products revenue Case 2: Forest companies pay for farmers' labour while farmers obtain 60% of tCERs revenue and 40% of the income obtained from forest products	4000 ha (large)	Shrub land, grassland, and open tree degraded land
Ethiopia	World Vision Ethiopia	Ethiopian Agriculture, Rural Development & Forestry Coordination Office (ARDFCO)	Long-term grant from World Vision Australia, and community in-kind contributions (land, labour)	Biocharbon Fund on behalf of Canada	7 community-based cooperatives	Community based	Expected to be around 4 US\$/tCO ₂	n.a.	tCERs revenue will be used to meet the costs of the project and to improve local infrastructure and food security. Forest products benefits will be shared between project managers and local communities	2728 ha (large)	Degraded land
Uganda	National Forest Agency (NFA)	The Rwoho Environmental Conservation and Protection Association (RECPA)	NFA main Investor (through the sale of harvesting licenses) and community in-kind contribution (land, labour)	Biocharbon Fund on behalf of Italy	About 700 workers on site, from which 250 members belong to community groups	Initially, NFA planting area (93%) and community based planting area (7%)	n.a.	n.a.	Communities will receive revenue from forests products and tCERs revenues from their own trees. NFA will get the revenues from its own trees	341.9 ha (small)	Degraded grassland
Chile	Mikro-Tek (Environmental biotechnology company)	n.a.	Mikro-Tek + plantations established by Sociedad Agrícola Nerquihue Ltda (with temporary loans from government), and Inversiones y Forestal JBT Ltda.	Natsource Europe Limited, on behalf of the United Kingdom	Sociedad Agrícola Nerquihue Ltda. PDD mentions only one landowner involved	Individual based	n.a.	n.a.	tCERs revenue will be shared between Mikro-Tek and the other participants. Forest products will be shared between Sociedad Agrícola Nerquihue Ltda. and Inversiones y Forestal JBT Ltda.	312.1 ha (small)	Degraded grassland

Project location	Project Developers	Other intermediaries	Up-front investors	Buyers	Local participants	Community based/ individual based management	Carbon price	Financial additionality	Benefits-sharing	Size (scale)	Type of land
Bolivia	FECCAR (Community org); Centro Tecnico Forestal (CETEFOR) (NGO); Siceec Bolivia Ltd (Green/ethic investment fund)	n.a.	Association Accidental CETEFOR-Siceec (Dutch ethical timber fund) + in-kind contribution from farmers (land, labour)	Flemish Government	137 small landowners + 3 communal areas in 5 syndicates (of 20-60 families each)	95% individual based, 5% community based	n.a.	n.a.	CERs revenue will be used to cover project costs. Forest products will be shared equally between farmers and CETEFOR-Siceec	317 ha including 70 ha of silvopastoral systems (small)	Degraded cropland (rice and maize) and grassland
India	TIST India (The International Small Group and Tree Planting Program) (NGO)	Clean Air Corporation (CAAC) (consulting company)	TIST India + Clean Air Action Corporation (CAAC) (no information about the source of the funds)	Climate Change Carbon Fund on behalf of the UK	111 Small Groups of small landowners (1200 people in total)	Individual based	n.a.	n.a.	70% of CERs revenue will be allocated to farmer groups and 30% to CAAC and TIST. Farmers will get all benefits from forest products	106 ha (small)	Degraded cropland and grassland
Paraguay	Japan International Research Center for Agricultural Sciences (JIRCAS) + Instituto Forestal Nacional (INFONA)	n.a.	JIRCAS + INFONA (providing seedlings and trainings). In-kind contribution from farmers (land, labour)	Japan	170 landowners	Individual based	n.a.	n.a.	CERs revenue to be shared between JIRCAS and INFONA. Farmers will get all benefits from forest products	215 ha including 52 ha of agro-forestry (small)	Degraded cropland and grassland
Vietnam	Forest Development Fund (EDF) (NGO) (founding members composed of Vietnam Forestry University and Cao Phong district People's Committee)	Vietnam Forest University (VFU) (state university) + Research Center for Forest Ecology and Environment (RCFEE)	Donation by undisclosed Japanese company. In-kind contributions from farmers (land, labour)	n.a.	321 landowners + community labourers to plant trees on public land	Individual based + state owned	n.a.	Financial internal rate of return attractive even if CERs are not sold	CERs and forest products revenue shared equally between project management and farmers	365 ha (small)	Degraded grassland and shrub land

Project location	Species	Tree species' selectors	Fertilizers	Pesticides	Reference to Sustainable Forest Management Standards	Environmental impact assessment + monitoring of environmental impacts	Environmental benefits claimed	Environmental risks claimed	Start date and duration of the crediting period	Estimation of net anthropogenic CHG removals over the crediting period (tonnes of CO ₂ e)	Annual average of CHG removals over the crediting period (tonnes of CO ₂ e)
China	6 species. Fast growing trees; 75% native trees, 25 % Eucalyptus	Local farmers + logging companies	To be used in Eucalyptus plantations	Limited application	No	EIA undertaken + monitoring plan	Biodiversity, soil erosion control, watershed protection, regulation hydrological flows	No negative impacts identified	April 2006. 30 years, non-renewable	773,842 (tonnes of CO ₂ e)	25,795
Ethiopia	A variety of indigenous trees + fast growing species used on 500ha (e.g. Eucalyptus and Acacia)	n.a.	None	Not mentioned	No	Preliminary environmental assessment undertaken + Monitoring plan	Flood and land erosion control, Watershed protection, Biodiversity conservation	No negative impacts identified	December 2006. 30 years, non-renewable	880,296	29,343
Uganda	Three species: 75% Pinus Caribaea (non-native), 20% Maesopsis (native), 5% Pinus African (native)	Project developer	None	Used as a last resort	No	EIA required by host country & conducted by auditing firm + Monitoring plan	Biodiversity conservation, Soil erosion control, Improved quality of downstream water supply	Reduction in total flows of water from the watershed	April 2007. 20 years, potentially renewed twice	111,798	5,590
Chile	Pinus Radiata (non- native) + 60000 Quillaja saponaria seedlings (native) distributed to 120 honey producers (not included in the plantation)	n.a.	Yes	Not mentioned	No	Project endorses the DNA criteria. No EIA required by the host party + No monitoring plan	Flood and soil erosion control, Watershed protection, Biodiversity conservation	n.a.	January 2003. 20 years, potentially renewed twice	185,836 (but only 152,000 are accounted in order to be eligible as a small scale project)	9,291 but only 7,600 accounted

Project location	Species	Tree species' selectors	Fertilizers	Pesticides	Reference to Sustainable Forest Management Standards	Environmental impact assessment + monitoring of environmental impacts	Environmental benefits claimed	Environmental risks claimed	Start date and duration of the crediting period	Estimation of net anthropogenic GHG removals over the crediting period (tonnes of CO ₂ e)	Annual average of GHG removals over the crediting period (tonnes of CO ₂ e)
Bolivia	12 native species + <i>Tectona grandis</i> (non-native) only on a small scale	Project developer	None	No herbicides. Pesticides used as a last resort	No	Required by Bolivian law. EIA done by an accredited consultant. Mitigation measures & monitoring put in place	Creation of ecological corridors. Improved soil conditions	Negative impacts qualified as minor compared to environmental benefits	February 2008. 21 years, non-renewable	91,165 (tonnes of CO ₂ e)	4,341
India	3 main species. <i>Casuarina equisetifolia</i> (native); <i>Eucalyptus grandis</i> (native); <i>Tectona grandis</i> (native)	Small groups	Not forbidden but refrained	Small groups trained to use local natural techniques to manage pests	No	No EIA + No monitoring plan	Soil degradation control	n.a.	January 2004. 30 years, non-renewable	107,810	3,594
Paraguay	3 species. <i>Eucalyptus grandis</i> , <i>Eucalyptus camaldulensis</i> , and <i>Grevillea robusta</i> (all fast-growing and non-native). 52ha of an agro-forestry scheme	Farmers supported by JIRCAS and INFONA	Synthetic fertilizers forbidden	Not mentioned	No	No EIA + No monitoring plan	Soil erosion control, Development of wind shields	Fears from farmers that crops could lack water due to <i>Eucalyptus</i> plantations	July 2007. 20 years, non-renewable	30,468	1,523
Vietnam	<i>Acacia mangium</i> and <i>Acacia auriculiformis</i> (non-native, fast-growing)	Farmers supported by government foresters and consultants	Use of fertilizers	Can be applied following the Vietnamese regulations	No	No EIA + No monitoring plan	Soil erosion control, Rehabilitation of degraded land, Improved land productivity	n.a.	May 2009. 16 years, potentially renewable	42,645	2,665

Project location	Former land use	Leakage	Leakage monitoring	Frequency of carbon sequestration assessment	DOE contracted for validation	Land tenure regime	Land tenure regime history	Likely effects on bundles of rights	Description of customary rights over project lands	Management response to potential conflicts
China	None	19,852 tCO ₂ e associated with fossil fuel combustion	Monitored regularly (PDD does not indicate the exact frequency)	Every 5 years before verification	TÜV SÜD	Communal lands (2,900 ha) + farmers' plots (1,100ha)	In the 1980s, the state leased the land to farmers for 50 years	Conflicts regarding communal lands boundaries (Corbera and Brown, 2010)	n.a.	None identified
Ethiopia	Fuel wood collection, Charcoal making, Grazing	No leakage. Establishment of fuel wood plantations, Identification of alternative community grazing areas	Leakage monitored the first five years (PDD does not indicate the frequency after that)	Every 5 years before verification	IACO CDM LTD	Allocation of the legal ownership of the communal land to 7 community cooperatives	Prior to the project, the area was owned by the government	Rights over lands issued to community cooperatives	n.a.	The existing beneficiaries of grazing lands were included in project consultations
Uganda	Cattle grazing, Subsistence agriculture	No leakage. Grazing displaced but enough grazing area around the project. (Nothing said about displacement of subsistence agriculture)	No monitoring	Every 5 years before verification	IACO CDM LTD	Planting area property of NFA, and NFA can issue tree planting licenses to communities	n.a.	Allocation of land licenses within the reserve to communities	PDD mentions that villagers have been using the project area for subsistence agriculture and grazing	PDD expresses potential conflict over reduced land for illegal grazing
Chile	Occasional goats grazing	No leakage. Goats displaced to other grazing lands	No monitoring	Every 5 years before verification	TÜV SÜD	Private land. One landowner.	n.a.	n.a.	n.a.	No

Project location	Former land use	Leakage	Leakage monitoring	Frequency of carbon sequestration assessment	DOE contracted for validation	Land tenure regime	Land tenure regime history	Likely effects on bundles of rights	Description of customary rights over project lands	Management response to potential conflicts
Bolivia	Cattle grazing, annual and perennial cropping	24,124 tCO ₂ e due to displaced grazing activities. Croplands displaced but no leakage as enough surrounding areas for cropping	Only monitoring of cattle needed (PDD does not indicate the exact frequency)	Every 5 years before verification	JACO CDM LTD	95% private lands, 5% communal lands	Private lands since the mid 1980s	n.a.	n.a.	No
India	Cropping and grazing	No leakage. Displacement of croplands on the farmers' existing farm plots	Once before verification	Every 5 years before verification	TUV SUD	Private lands owned by subsistence farmers	The land is either of old ownership or it has been transferred only a few years ago	n.a.	n.a.	No
Paraguay	Cropping and grazing	18,983 tCO ₂ e due to the displacement of croplands and grazing activities	Once before verification	Every 5 years before verification	TUV SUD	Land owned by farmers: 56% are legal owners while 44% have an occupation certificate	At least a hundred years ago	n.a.	n.a.	No
Vietnam	Extensive grazing of livestock, Occasional slash and burn cultivation, Fuel wood collection	11,090 tCO ₂ e due to the displacement of croplands and grazing activities	Once before verification	Every 5 years before verification	JACO CDM LTD	Common land with land use rights distributed to households and Public lands managed by two communes	The District issued land use right certificates in 1995 to encourage reforestation (valid for 50 years)	n.a.	PDD mentions that the project area is considered as a "common access" area by all the villagers	No

Project location	Creation of new organisations	People displacement	Level of life	Participatory methods	Number of farmers interviewed during validation	Economic benefits	Labour inputs	Calculation of local opportunity costs	Non-economic benefits for local communities	Socio-economic impact assessment and monitoring
China	Farmers are organized in groups	No	Mean annual income per capita in the project areas estimated at US\$145. Many farmers live below the national poverty line	Participatory Rural Appraisal methods (PRA)	No farmer interviewed	Average income per capita increased by US\$34, through the sale of credits and forests products, or employment + Sustainable fuel-wood supply	5 million person-days of temporary employment + 40 long-term positions	Estimated on the basis of mean annual agricultural income (i.e. US\$145)	Forest management training	Socio-economic impact assessment undertaken. + Monitoring plan including social considerations
Ethiopia	Establishment of seven community cooperatives	No	The mean annual income per capita in the region is US\$81. 80% of the region's population are below the poverty line	Participatory Rural Appraisal methods (PRA)	No farmer, but 11 representatives of the cooperatives were interviewed	Revenue from forest products + sustainable fuels source	9,000 temporary jobs + 12 long-term positions	n.a.	Forest management, Agro-forestry, Eco-tourism, Livestock management training	No impact assessment. Establishment of a social mitigation monitoring and action plan
Uganda	n.a.	No	No economic opportunities. Average salary in the area US\$2 per day	Participatory approach. Particular attention to women and leaders' involvement	No farmers, but representative communities were interviewed (no details on how many)	Wages will be in the range of US\$2 per day. Communities planting their own trees will benefit from tree products, CEERs and the provision of fuel wood	700 jobs for local population: 500 jobs during planting and 200 jobs during ongoing management	Hardly any income generation opportunities in the area	Forest management training	Not required by the host party but carried-out by NFA. Socio-eco monitoring on the ground by NFA
Chile	n.a.	No	Low-income communities	Meetings with local stakeholders	No landowner or local villagers interviewed	Revenue from forest products and CEERs for the landowner + Salary for the farmers employed + Quillaja Saponaria seedlings distributed to 120 small-scale honey producers	Community employment and job creation (no detailed information provided)	n.a.	Technology transfer regarding the use of Mycorrhizal inoculation technology	Criteria developed by the DNA respected according to the PDD

Project location	Creation of new organisations	People displacement	Level of life	Participatory methods	Number of farmers interviewed during validation	Economic benefits	Labour inputs	Calculation of local opportunity costs	Non-economic benefits for local communities	Socio-economic impact assessment and monitoring
Bolivia	Creation of a forestry committee to coordinate farmers	No	Low-income communities	Participatory approach	No farmer, but 2 community representatives interviewed	Payments to farmers (US\$21/year/farmer) + Revenue from timber + Income from more efficient land use	151 people employed the first year. Average amount of jobs per year during 40 years: 32	Cattle breeding (net income 151 US\$/year), Rice cultivation (net income 234 US\$/year)	Forest management and agro-forestry training	Socio-economic impact assessment carried out by CETFOR
India	111 small groups of farmers	No	41% of the members earn between US\$21 and US\$250 per year. More than 60% of the members earn less than US\$1 a day	Monthly meetings and annual seminars + Consultation of the women's association	10 farmers out of 1200	Small groups earn about US\$16,5 per hectare per year as an advance on carbon payments. In total they can potentially cash in US\$95/ha/year + Revenue from forest products	13 employees including the program director, coordinators, and quantifiers	Average net farm income per hectare per year: US\$102	Transfer of technology through workshops + Training on health issues (HIV/AIDS)	No
Paraguay	n.a.	n.a.	Average income per year on the project area around US\$162 (half of the national average)	Consultation through meetings and surveys. Encouragement of participation through village leaders	13 farmers out of 170	Income generation through the sell of forest products + Sustainable fuel-wood supply	No employment. Each landowner provides its own labour	n.a.	Forest management and agro-forestry training	No
Vietnam	n.a.	n.a.	Low-income communities	4 meetings were held but there is not detailed information on farmers' participation	4 villagers out of 854	Revenue from tCERs and timber + Improved household economy due to the fodder production plan	n.a.	n.a.	Forest management training	No

Project actors

All CDM A/R activities involve a project developer, one or more investors, a carbon buyer, and one or more carbon sellers. Project developers include profit-driven businesses, such as logging companies (China), biotechnology firms (Chile) and investment companies (Bolivia), as well as non-governmental organisations (Vietnam, India, Bolivia, Ethiopia) and public entities from the host or another country (e.g. Uganda and Paraguay). Many project managers do not have skills in community-based capacity building (e.g. China, Uganda, Chile, Paraguay, Vietnam) and some therefore rely on local forestry and community organisations to facilitate project implementation and liaise with farmers and communities (Chile, Uganda). Most project developers lack the expertise required for carbon accounting, monitoring and trading, and therefore hire experts and consulting companies for these purposes (e.g. Ethiopia, Uganda, Paraguay, China, Vietnam, India). Only the Bolivian and Chilean project developers have skills in carbon trading and specifically claim to be developing A/R activities to make a profit.

Organisations providing up-front investment for project development are also diverse. In Paraguay, the government's National Forestry Institute provided up-front funding whilst in India funding was provided by a local NGO in partnership with a consulting company. The Vietnamese project relied on financial support from the Japanese cooperation agency and a private company, while the establishment costs of the Chinese project were covered by local commercial bank loans and funds from the local government. Up-front investment for the Ethiopian project was provided by a long-term loan and a grant from an international NGO. The National Forestry Agency supports the Ugandan project through the sale of harvesting licenses. The Chilean project is funded by government loans to the landowner and by the biotechnology and logging companies involved. Finally, a Dutch ethical investment has supported the start-up of the Bolivian project. Most up-front investors, with the exception of Vietnam and Uganda, expect to recover all or at least a share of their funds through the sale of tCERs and timber in the future. The presence of only one investment fund may be explained by the fact that sequestration activities are not the most profitable financial placements compared to other GHG reduction activities.

As tCERs cannot be traded in the EU ETS, buyers for CDM A/R offsets are often Annex B country governments channelling funds directly to the project or through the World Bank's Biocarbon Fund in order to receive, in exchange, credits for meeting their countries' KP emission reduction commitments. The Biocarbon Fund supported one third of the 15 registered projects as of July 2010, demonstrating the Bank's role in fostering CDM A/R activities (Boyd et al., 2009). As noted above, the Bank's interest in forestry activities as a mitigation strategy was renewed in 2008 through the establishment of the Forest Carbon Partnership Facility to support the development of REDD+ activities (Corbera and Schroeder, 2011). In our sample, three projects will sell tCERs to the Biocarbon Fund (China, Ethiopia, Uganda), two will sell tCERs to investment companies managing carbon funds on behalf of the British government (Chile, India), while the Bolivian and Paraguayan projects will sell directly to the Flemish and Japanese governments, respectively. The Vietnamese project's PDD does not specify who will buy future tCERs.

It is relevant to note here that only the Chinese PDD includes detailed information on the price of the tCERs and the expected carbon revenues over the project lifetime. Lack of financial data in the other reviewed cases suggests that tCERs economic value may be negotiated *ex-post* (once credits are verified) and that such value will be influenced by future carbon prices. The seller becomes a 'price taker', insofar as the value of carbon will not depend on the relative costs of A/R activities in each particular context. When the purchaser is the Biocarbon Fund, as in the Chinese and Ethiopian cases, the carbon price is set up-front at approximately US\$4 per tonne of carbon dioxide equivalent (CO₂e). This figure is lower than the US\$4.76 for transacted tCERs up to 2009 and than forest offsets in the OTC market, which traded at an average of US\$8.44 per tonne of CO₂e (Hamilton et al., 2010b: viii). However, it is higher than the average US\$3.03 of forestry credits traded under the Chicago Climate Exchange offsets market (*ibid.*). Forestry credits always trade below the average CERs price, which was US\$12 in 2010 (European Climate Change Limited, 2010). This lower economic value¹⁰ of forestry offsets can be explained by buyers' perception of risk, which includes the already highlighted issues of permanence, the exclusion of tCERs from the EU ETS, and presumably also the projects' potential failure to deliver reductions in the long-term due to changing socio-political and land-use circumstances.

Carbon accounting and monitoring

In order to calculate the potential net benefits of forest plantations in terms of carbon offsets, A/R projects must select and adopt a methodology previously approved by the CDM Executive Board. As of June 2010, there were 6 approved methodologies for small-scale A/R projects and 10 for large-scale ones. Six out of the eight projects analysed in this paper use the same methodology related to small-scale afforestation and reforestation projects implemented on grasslands and croplands. The methodological requirements for small-scale projects are simpler than for large scale, and carbon accounting methods in both cases consist of calculating the difference between the actual net GHG removals achieved by A/R activities and the carbon stocks and emissions baseline without the project, taking into account the likely potential leakage attributable to the project (i.e. carbon emissions generated by project activities). In turn, the actual net GHG removals by project activities (i.e. reforestation) are equal to the sum of the changes in biomass carbon stocks in the project scenario minus the total biomass loss (above ground biomass + below ground biomass) due to clearance of pre-existing vegetation, and should be monitored approximately every five years.

In order to estimate the actual GHG benefits of the project, developers should therefore know the average carbon sequestration capacity and carbon content of the different carbon pools and sinks, including trees, shrub and grassland species. This data is highly context-specific because it depends on ecosystems' composition, species types and local environmental factors, such as rainfall, temperature and soils, among others. In most cases, projects define baseline and sequestration scenarios on the basis of existing data for similar ecosystems and some key species but rarely calculate empirically such data in the project context. The Ethiopian PDD indicates that it lacks data on growth rates for

10 Prices for forest carbon credits have ranged from US\$ 0.65 to more than US\$ 50 per tone of CO₂-e in some cases (Hamilton et al., 2010b).

native species and thus finds it difficult to estimate carbon stock changes. Apparently, the Chilean project builds the carbon baseline scenario, relying on regional estimates of above and below ground biomass for similar grasslands, following IPCC guidelines. Although both projects claim to take a conservative approach to minimise the risk of over or underestimating future and present carbon stocks, these two examples remind us of the fact that data assumptions very often underlie carbon content assessments.

Projects generally assume that the baseline carbon stock is equal or close to zero. They argue that 'degraded' croplands and shrub lands are unlikely to increase their carbon content over time, with vegetation growth limited or constrained by poor soils. In the CDM A/R context, 'degraded' lands are understood as lands with significant levels of soil erosion and reduced organic content that have already translated into a recession or the actual disappearance of vegetal cover due to climatic factors and unsustainable land management practices such as overgrazing (UNFCCC, 2008). Some PDDs thus provide sound arguments justifying the current degradation levels of project areas on the basis of a historical analysis of land-use change and existing alternatives under current policy frameworks for land management and restoration. Others, like the Chilean case, fail to provide convincing explanations of what would have occurred with carbon stocks in the project area without the project, thereby compromising the actual GHG benefits reported and casting doubt on the project's environmental additionality and the credibility of project developers and validators.

In small-scale projects, leakage accounting is limited to understanding and accounting for the displacement of people, grazing and cropping activities. In large-scale projects, methodologies are stricter and more factors have to be accounted, such as the use of fertilisers, emissions from vehicles (China), or the use of woodpost fencing and the displacement of firewood collection (Ethiopia). Three out of six small-scale projects account for leakage due to displacement of activities in the calculations of GHG benefits (Vietnam, Paraguay, Bolivia) and will therefore monitor it before verification. The other projects assume that there will be no leakage and argue that no monitoring is therefore required in this respect.

Uncertainties in carbon pools and sinks data, as well as very divergent levels of leakage accounting and monitoring across projects, may translate into either under or overestimations of climate mitigation benefits. Figures in Table 1 for carbon sequestration rates vary from 6.5 tonnes of CO₂e (China) to 29.8 tonnes (Chile) and 33.1 tonnes (India), with most projects reporting sequestration rates between 6 and 16 tonnes. Different tree species, forestry systems and management methods explain these divergences. The Chilean project, for example, uses *Mycorrhizae* to favour plantation growth, and projects in Paraguay and Bolivia promote agro-forestry or silvopastoral systems that generate fewer carbon offsets than plantations.

Other environmental outcomes

Five projects note that implementation will combine native and non-native fast-growing trees, such as *Eucalyptus sp.*, *Acacia sp.* and *Tectona grandis*. Two of these (China and Ethiopia) involve large-scale plantations, which may probably mean that non-native species are left for planting along the margins, or on smallholders' agricultural plots.

The other three projects involve only fast-growing native (India) and non-native (Vietnam, Paraguay) trees. Overall, most projects reproduce a plantation-based model that has been heavily criticised in other voluntary carbon projects in Ecuador and Brazil for their negative impacts on soils, groundwater flows, and for providing poor labour conditions and excluding local people from decision-making, among others (Albán and Argüello, 2004; Granda, 2005; Boyd et al., 2007a; Kruter Flores et al., 2009). The information on the PDDs also seems to reinforce the idea that project developers and farmers are inclined to select species that can quickly generate timber and carbon credits, ignoring slow-growth trees that can produce benefits for other community members, particularly women (Corbera et al., 2007a).

In spite of such planting schemes, all PDDs highlight that projects will enhance biodiversity, control soil erosion, and improve water infiltration. Yet, they fail to explain in detail how they will guarantee the realisation of such environmental benefits. Only three out of eight projects included an Environmental Impact Assessment (EIA) during their design (China, Uganda, Bolivia) and only five are planning to monitor their environmental impacts over time. Only three projects explicitly forbid the use of fertilisers (Ethiopia, Uganda, Bolivia) while the rest provide very vague information in this respect. Furthermore, projects do not explicitly contemplate the adoption of international management standards, such as those developed by the Forest Stewardship Council (FSC), and they also ignore existing guidelines for carbon forestry projects as promoted by the Plan Vivo Foundation or the Climate, Community and Biodiversity Alliance (Dutschke et al., 2005). We are obviously aware that EIAs and certification standards do not guarantee *per se* the development of a social and environmentally sound project. Evidence from other sectors, such as infrastructure projects, has shown that EIAs have often acted as a smokescreen to get rather damaging projects approved (Tullos, 2009). Seemingly, both activists and academics have exposed the FSC for certifying plantations that compromised the livelihoods of surrounding populations and ecosystems (Lang, 2006; FSC Watch, 2011) or have shown the inherent contradiction of promoting standardisation while sustaining trans-national and socially uneven commodity chains that do not effectively engage with the demands of social movements (Klooster, 2010).

Institutional effects: tenure regimes and organisational change

As suggested in section two, CDM forestry projects are likely to alter existing local institutions related to resource management, including property rights and existing rules for natural resource management. They can at best facilitate the strengthening of existing institutions for sustainable resource management and promote sustainable practices among participants and their communities (Vatn, 2010). At worst, they can induce conflict by limiting access to natural resources and changing power relations among community members (Corbera et al., 2007a; 2007b). It is evident that project impacts on local institutions are difficult to assess without conducting on-site empirical research. Therefore, we only highlight below the type of tenure regimes in which projects operate and we infer their likely impact on local 'bundles of rights' (Ostrom and Schlager, 1996) based on the PDDs and validation reports.

The projects reviewed operate in diverse tenure regimes. Three projects are developed exclusively with private landowners (India, Chile, Paraguay), one project plants trees on communal lands (Ethiopia), and four projects combine different property regimes. The Chinese and Bolivian projects are developed on communal and private lands, the Ugandan project encompasses state and communal lands, and the Vietnamese project operates on public and private lands. Most PDDs note that land tenure regimes will not be significantly altered as a result of the project (e.g. by changing the legal provisions of the regimes) but some recognise that activities may involve a reallocation of rights and responsibilities among resource users. In the Ethiopian project, for example, communal lands will be formally distributed across seven community cooperatives that have been created purposively for the project. However, the consequences over those who have access to communal lands but do not belong to the cooperatives are not discussed. In the Ugandan project, the National Forest Agency will issue land licences for tree planting to communities within the reserve area and this is regarded as a means to establish trust and encourage local populations to protect plantation sites from fire or illegal activities (e.g. grazing or firewood harvest). In this respect, we would argue that existing relationships between forest officers and community members, including patronage, kinship or corruption practices, may play a key role in the processes of granting licenses or prosecuting those who carry out forbidden activities.

The Vietnamese PDD notes that the project's plantation was before 'a common access area', where right holders and other households developed grazing and firewood collection activities but, as in the Ethiopian case, nothing is said about any possible impacts that may unfold with such restrictions (PDD, 2010: 35). Seemingly, the Ugandan PDD highlights that, in the past, villagers used the project lands for subsistence agriculture and grazing, and notes that 'these communities will be entitled and supported to grow trees within the project boundary and to earn carbon credits in the project activities if they join RECPA – a community organisation – or form a community association' (PDD, 2010: 10). Nothing is said about the re-allocation of land management activities or what would happen if not all farmers join the RECPA. There is already evidence in the Chinese project, for example, that conflicts over access to land and labour as a result of project activities are slowing down reforestation plans (Gong et al., 2010; Corbera and Brown, 2010).

In addition to changing tenure relations and people's access to land, some of the examined PDDs contribute to establish and formalize groups of farmers (India and China) or cooperatives (Ethiopia) that are aimed to exchanging experiences across participant groups and communities, establishing rules for plantation management, strengthening social cohesion, and decreasing project transaction costs for farmers and developers. Other projects rely on existing institutions for project development, such as the Ugandan case where land licenses are distributed through a community-based conservation organisation (i.e. REBCO), or the Bolivian project that was designed with the participation and support of an association of rural communities (i.e. FECAR). The extent to which projects are successful in creating or reinforcing institutions for forest management needs to be assessed empirically. Some evidence from voluntary carbon projects already shows that existing organisations can help to reduce conflicts and transaction costs (Bozamoski and Hultman, 2010), but it has also been demonstrated that creating project-based groups can be time and resource consuming, extremely

political, and be riddled with conflicts between and amongst project managers and farmers (Nelson and de Jong, 2003; Boyd et al., 2007a; Corbera et al., 2007a).

Participation, livelihood benefits and benefit sharing

Local participants in CDM forestry projects are generally described as ‘low-income communities’ who will be able to develop forestry activities by accessing up-front funding provided by project developers. They will become involved in the project either as an individual landowner (China, Chile, Bolivia, India, Paraguay, Vietnam), a community owning the land (Bolivia, Uganda, Ethiopia, China) or by providing labour to whoever owns the land. Some PDDs explain in detail participants’ income level while others, like the Chilean and Bolivian cases, do not even mention it. Only two of the projects involving rural communities (India and Uganda) acknowledge the need to include women and the landless in project decision-making. And only the Chinese and the Ethiopian projects have adopted Participatory Rural Appraisal methods in project design although they fail to justify the degree of representativeness and legitimacy of selected interviewees. For example, communities’ perceptions on the Chinese project are sourced from 121 out of 14724 households and the PDD says little about the representativeness of the selected households in terms of decision-making power and poverty levels (Corbera and Brown, 2010). Reports from projects’ validation are also revealing in this respect: in two out of the eight selected projects, villagers or community representatives have not been interviewed during the auditing process (China, Chile); in three projects, only key local representatives have been interviewed (Ethiopia, Uganda, Bolivia), and in the remaining cases, only some villagers have been interviewed (India, Paraguay, Vietnam), with a ratio of ‘interviewed people/participant population’ of 10/1200, 13/170, and 4/854 households, respectively.

Regarding expected impacts on livelihoods, PDDs distinguish between economic and non-economic benefits. In some cases, as explained earlier, farmers involved in plantation activities as landowners or community members will benefit from future (yet uncertain) carbon and timber revenues. Other farmers will also benefit by accessing labour and/or improving their land-use systems, potentially increasing agriculture-based income (Bolivia, Chile and Vietnam). However, only four PDDs include an opportunity cost analysis to verify that the project is actually additional for individual participants and communities (Bolivia, India, Uganda, China). Projects also aim to provide non-economic benefits to farmers and communities, including technical assistance and training regarding tree planting activities (all projects), training in agro-forestry activities (Bolivia, Chile, Ethiopia, India, Vietnam), and supporting the local health clinic while expanding the use of new technologies such as the internet and GPS (India).

Projects’ benefit sharing system, broadly understood here as the social arrangement defining the allocation of economic and non-economic benefits derived from the governance and management of ecosystem goods and services, is presented in contrasting detail. For instance, while the Chinese PDD explains how much money each participant will potentially get along the project lifetime from both timber and carbon

revenues, the Vietnamese PDD does not provide any data, thus making it impossible to define how much farmers and communities will earn from participating in the project. Other PDDs (Chile and Ethiopia) indicate that contracts among participants are available for DOE inspections but remain confidential to the general public. The lack of detailed information on revenue sharing renders projects rather unaccountable because independent researchers or other interested parties cannot contrast project-based documentation with ex-post, on-site evaluations.

We have identified various forms for distributing projects' economic benefits. Temporal CERs revenues are in four cases shared between project managers and participant farmers or communities (China, Chile, India, Vietnam), accrue directly to the project manager to cover project management costs (Ethiopia, Bolivia, Paraguay) or accrue to the owner of the land, be it the government, the farmer or the rural community (Uganda). Revenues from timber and non-timber forest products are shared between project managers and landowners in five cases (China, Ethiopia, Chile, Bolivia and Vietnam) while in the other cases accrue uniquely to landowners (i.e. farmers, communities or the government). Nothing is said however about how the non-financial benefits mentioned above have been prioritised and which local actors will be targeted, for example, to participate in forest management training.

Discussion

Uncertainties over benefits claimed

The purpose of CDM A/R projects is to contribute to climate mitigation while promoting local and national sustainable development – however loosely defined by the host countries. The analysis presented above shows that projects involve a variety of actors and that their implementation requires up-front funding (provided by various international and national actors), land (provided by private landowners, communities and/or the government) and technical expertise regarding forest management, community capacity building and carbon accounting, monitoring and trading (see also Thomas et al., 2009). Worryingly, however, the findings demonstrate that project developers often lack expertise on carbon monitoring and trading and have limited experience in undertaking community-based, participatory development projects. Furthermore, PDDs contain a number of information gaps and design inconsistencies that may render the projects unaccountable from environmental and development perspectives.

From a climate mitigation point of view, PDDs do not allow to accurately judge whether projects will actually sequester carbon beyond a 'business as usual' scenario. At least two of the selected projects acknowledge difficulties in getting accurate data on carbon sequestration rates and flows across carbon pools and in drawing baseline scenarios, while the others are based on existing estimates as suggested by the IPCC international guidelines, rather than relying on field-based assessments. To be developed properly, projects would have to measure not only tree growth, rates of decay and gas transfer at canopy level, but also 'the effect on soil carbon production both inside plantation boundaries and downstream, and the effects of plantations on the

human groups displaced or otherwise affected' (Lohmann, 1999: 515-516). However, this would be a very timely and costly process that is not contemplated by the CDM A/R small-scale methodology. In any case, it is impossible to draw an exact counterfactual baseline for biomass and soil carbon without the project because many uncertain factors have to be taken into account such as 'trade patterns involving commodities produced on forest lands,... as well as predictions about future currency exchange rates' (Lohmann, 2009: 516).

The PDDs also fail to explore in-depth leakage risks. This may be seen as rather logical insofar as project managers may have a vested interest in underestimating it. It is unrealistic to expect that DOEs will be able to accurately account for leakage processes (at both validation and verification stages) because they lack knowledge of local land-use dynamics and they do not remain on project sites for a long period of time. As of June 2010, there were sixteen DOEs accredited by the CDM Executive Board to validate, verify and certify A/R projects but our selected cases have been validated by only two of those, namely the Japanese JACO CDM and the German TÜV SÜD. In fact, TÜV SÜD was temporarily suspended in March 2010 for validating projects that were not necessarily additional and for delivering an opinion that was influenced 'by undue pressure' (CDM Executive Board, 53rd meeting, March 2010). Therefore, it has been argued that the CDM is heavily mediated by the expertise and decision-making power of intermediary consultants and DOEs, which inevitably leads to 'questionable carbon dumps' (Lohmann, 2005).

For some analysts, these accounting and monitoring uncertainties do not challenge the climate mitigation benefits associated with carbon forestry because they also characterise other CDM sectors (Chomitz, 2002) or because the 'objective of carbon finance is to provide financial incentives to promote a new paradigm, in this case related to a better utilization of forests by valuing them as carbon pools' (Aukland et al., 2003: 135). Furthermore, they argue that the consideration that carbon sequestered in trees is 'fragile' because it can be released into the atmosphere anytime through wildfires and political and institutional changes (Lohmann, 1999) is also irrelevant insofar as the question of permanence has been addressed with the recognition that forestry CERs can only be temporary, and buyers should replace them with energy-based offsets in the long term. Although we would agree with the fact that offsets in general are characterised by accounting and monitoring uncertainties, we would challenge the view that they induce behavioural change. In the case of A/R activities, the focus is not on changing the behaviour of deforestation agents but on involving communities and landowners in reforestation activities developed on so-called 'degraded' lands that in many cases would be probably used by some people. The creation of carbon plantations becomes then a change of behaviour and practice that may undermine others' subsistence activities. The questions are therefore what and whose purposes do the enhancement of carbon pools actually serve, and which people may consequently win or lose – two aspects that are shallowly addressed in the reviewed PDDs.

Almost all PDDs present no information on ecological conditions and trends, and they assert uncritically that tree planting activities would contribute to regulate local and regional hydrological flows and reduce soil erosion, without presenting empirical or

simulation-based analyses testing such assumptions on-site. In fact, they seemed to disregard existing studies suggesting that tree plantations ‘can help control groundwater recharge and upwelling but reduce stream flow and salinize and acidify some soils’ (Jackson et al., 2005). This indicates that they fail to apply emerging theories and models that consider trade-offs across ecosystem services to the context of land-use management for mitigation (Bennett et al., 2009; Raudsepp-Hearne et al., 2010), and they also ignore the application of ecological research models – as well as of qualitative and statistically relevant approaches involving control groups – in projects’ design (Caplow et al., 2011). PDDs also uncritically assume that they will promote biodiversity conservation when at best they re-introduce some native tree species on existing shrub and grasslands without accounting for possible negative impacts on existing flora and fauna, for example through the use of fertilisers or by changing the local ecology. Plantations are not forests and aligned trees may not become a biodiversity-richer ecosystem than existing grasslands (Hunt, 2009; Friends of the Earth, 2010).

From a socio-economic perspective, all PDDs, except the Chinese case, fail to provide detailed short and long-term economic estimations due to production and price uncertainties, thus making it difficult to monitor projects’ performance against alternative economic scenarios. Our review also shows that most projects rely on in-kind labour contributions from farmers and communities and that, in some cases, they also require the latter to invest capital up-front (e.g. the Chilean project). Evidence of indebted farmers due to carbon contracts is still anecdotal (Granda, 2005) but may be something worth considering in the future as current projects develop and REDD+ activities take off. Seemingly, the effects of displaced labour towards timber and carbon-earning activities on subsistence production and the household economy is only beginning to be explored (Osborne, 2011). As it has been pointed out elsewhere, time and risk are critical factors in forest sink projects that inevitably collide with the interests of the poorest farmers; only the richer may have sufficient land, labour or capital to spare on planting activities that generate too far into the future (Corbera et al., 2007a; Gutiérrez, 2011).

Specifically, the extent to which these activities distribute risks, contribute to generate winners and losers, or to reproduce uneven development, is intrinsically linked to social, productive structures and the benefit sharing arrangements defined by the projects. In our reviewed sample, community-based projects may in theory adopt a more inclusionary approach and may thus have the potential to provide a wider range of benefits to the local community, including jobs and improvements in local infrastructure. However, as highlighted by existing literature, this may not always be the case. Community-based carbon projects can also result in internal disputes and project managers can prioritise some individuals and social groups over others (Corbera et al., 2007a). In fact, there have been cases where the local elite has persuaded the community to participate in forestry projects against the interests of both, the majority or minority groups (Lele, 2003; Boyd et al., 2007). In our review, only two of the four community-based projects have considered gender specificities in designing and implementing the project while the rest conceptualise ‘the community’ as a homogeneous entity, thereby contributing to mask and reinforce gender inequities in accessing natural resources (Corbera et al., 2007b; Lele, 2010). Furthermore, project design has rarely involved a large number of local participants. This echoes Löwbrand

and colleagues' concerns on the lack of 'input legitimacy' of the CDM at local level, which contrasts with the well-developed mechanisms to ensure participation from international actors in the CDM project cycle through internet-based procedures (*ibid.*: 84-86). Nonetheless, these authors highlight that chances to comment on CDM projects at their validation stage is compromised by NGOs lack of resources and technical knowledge, and they claim that 'although procedural rules are in place for local stakeholder participation, the communities directly affected by CDM projects are likely to have less voice in the CDM project cycle than project developers' (*ibid.*: 86).

Intimately related to the question of whose voice counts in project planning and development, is the importance of interrogating projects' uncritical claims on the feasibility of developing plantations on 'degraded' lands. Such terminology is a subjective value judgment because the whole community may not share this perception and competing understandings on land use often exist among local resource users (Gerber et al., 2009; Lele, 2010).

There is a long global history to the kind of claim... that a certain set of common lands are "waste", "degraded" or "unused", and are idly waiting to be brought into the commodity market before they can become "productive". It is a claim that was used in the Americas during the colonial era to seize indigenous peoples' cropland and hunting and gathering grounds and transform them into the private property of Europeans. (Lohmann, 2006: 229-230)

These considerations underscore the importance of highlighting whose views are prioritised when project sites are established and how such sites fit into the reproductive and socio-cultural spaces of households and communities, which are issues clearly underdeveloped by the reviewed PDDs.

A lesson inferred from the cases analysed and the empirical assessment of voluntary projects is that land tenure regimes play a key role in defining benefit-sharing arrangements, often stipulated in the carbon contract between participants and project managers (Corbera et al., 2007a; Corbera and Brown, 2010). When planting activities occur on public lands, carbon revenues are captured by the state (Uganda) and participant farmers and communities benefit from employment. When planting on private lands, carbon and forest products' revenues generally accrue to the landowner (Chile) who then may share the benefits with project managers depending on the latter's previous level of financial support. Benefit sharing becomes more complex when project activities are developed on multiple land tenure regimes or involve communal lands. Carbon and forest products revenues are then shared across participants in different proportions depending on the project's design, and in some cases tCERs revenues are allocated exclusively to cover project management costs (Ethiopia, Bolivia and Paraguay). This evidence suggests that the economic benefits of CDM A/R for communities and farmers will result from the interplay of tenure and project design, including up-front investment criteria (e.g. the use of loans, grants, and in-kind contributions) and procedural considerations. In all cases, economic benefits will be realised unevenly over time: short-term economic benefits will derive from employment in the plantations and potential tCERs revenues after the first verification, while long-term economic benefits will depend on the continuous realisation of carbon credits and the commercialisation of timber and non-timber forest products. In turn, these somewhat distant benefits are uncertain because they are subject to policy and economic

changes in carbon and other forest products markets. All these uncertainties will contribute to people's poor understanding of benefit sharing in carbon projects and negatively impact the latter's accountability, as demonstrated in the Ugandan case (Fisher, 2011).

Implications for REDD+

Contrary to some analysts (Thomas et al., 2009), our review suggests that A/R projects would require more rather than less regulation if the CDM were to continue in the future. There is clearly a need for further substantiation of project assumptions and expectations, and improved guidelines and standardised methods for participatory and inclusionary design. But improved regulation is difficult if not impossible due to the very nature of carbon markets, which are concerned with maximising carbon trading volumes at the lowest possible cost. In this regard, they are no different than other commodity markets where stricter regulation, particularly on environmental and social aspects, is deemed unnecessary. As one of us has argued elsewhere, the emphasis of carbon markets on efficiency and effectiveness will probably undermine most attempts to develop sound ecological and social projects, unless these count with substantial additional and sustained funding (Corbera et al., 2007a).

The present and future of A/R CDM activities was related to REDD+ as soon as international negotiators accepted in Copenhagen to recognise countries' efforts in halting deforestation and degradation *as well as* in conserving, enhancing and sustainably managing forest carbon stocks as a source of positive carbon incentives. The additional focus on carbon enhancement and management now contributes to legitimise the development of forest enrichment activities by governments and private companies, which can now be further pursued in the name of climate stabilisation and can potentially render additional benefits through the international trading of carbon offsets. In light of our review, however, this should be seen as a worrying move because, on the one hand, nothing can guarantee that enrichment of existing forests to increase biomass is legitimately designed and, on the other, that such activity results in positive environmental and social outcomes.

The overall REDD+ framework has been both praised and criticised by academics and civil organisations from both developed and developing countries. Some perceive it as a new opportunity for biodiversity conservation and for increasing the financial value of forest management and its role in rural development (Venter et al., 2009). Others have warned about the potentially insurmountable governance challenges that such a framework actually faces (Burgess et al., 2010; Melick, 2010; Corbera and Schroeder, 2011) and some have seen it as a form of carbon colonialism instituted by the CDM and voluntary offset markets, now expanding into the realm of forest conservation (Cabello and Gilbertson, 2011). In this regard, they have warned against the risk of it becoming a tool used by governments and interested parties to alienate people from the land, ignore customary tenure arrangements, and impose a global blueprint for forest conservation

and management based on purely commercial interests (for another review see Corbera, 2010). As highlighted by the Cochabamba declaration¹¹:

We condemn market mechanisms such as REDD..., which are violating the sovereignty of peoples and their right to prior free and informed consent as well as the sovereignty of national States, the customs of Peoples, and the Rights of Nature. Polluting countries have an obligation to carry out direct transfers of the economic and technological resources needed to pay for the restoration of forests in favour of the peoples and indigenous ancestral organic structures.

The international REDD+ framework is evolving in a similar way as the CDM did, i.e. with international negotiators progressively introducing safeguards and standards for the development of policies and project activities in developing countries, such as methodologies for developing national carbon baselines or including the Free Prior Informed Consent (FPIC) of affected parties. However, as our analysis of A/R PDDs has proven, the existence of regulatory guidelines is not a guarantee of their effective application and enforcement. Governments are tempted to endorse projects based on nationally standardised criteria without paying attention to the actual procedures for projects' design and assessment. At the same time, developers have a range of tools at their disposal to monitor ecological effects and to secure equitable and legitimate decision-making and outcomes but fail to apply them thoroughly. REDD+ may not contravene this evidence.

Furthermore, so-called independent evaluators of REDD+ activities will probably face the same time and knowledge constraints as CDM evaluators, which may lead them to overlooking environmental and social impacts at regional and local levels. The use of FPIC, for example, has been regarded as a positive but probably unfeasible approach because in order to apply it properly transaction costs would increase considerably (Goldtooth, 2011). This goes against the interests of REDD+, particularly if it takes a market-based approach where payments are subject to performance and prices are left at the vagaries of carbon markets, which should lead governments and developers to minimise costs to reduce financial risks and maximise potential profits. In any case, it is very likely that governments and developers lack the necessary requirements to guarantee that such carbon results from ecologically sound activities and it can produce positive livelihood benefits, particularly if voluntary, up-front funding dries up.

Our analysis has also shown that reforestation activities are based on a very limited number of mostly non-native species. This is a well-documented impact of plantation-based developments that REDD+ can contribute to extend (Gerber et al., 2009). In this regard, the presumed biodiversity benefits of REDD+ may be at stake while social unrest may increase, particularly if governments are unable (and unwilling?) to curb deforestation and advocate instead for increasing carbon stocks to counter-balance forest loss elsewhere. The political and economic costs of increasing existing biomass stocks are likely to be lower than those related to enforcing environmental laws or compensating deforestation agents (Corbera et al., 2011).

11 World People's Conference on Climate Change and the Rights of Mother Earth, 22 April, 2009, Cochabamba, Bolivia [<http://pwccc.wordpress.com/2010/04/24/peoples-agreement/>].

Conclusions

This paper was set to review a sub-sample of CDM A/R PDDs in order to shed light on critical issues for the environment, people's livelihoods and the future of REDD+ activities. In doing so, we have dissected the projects' key characteristics, including the type and number of participant actors, their carbon accounting methods and their likely environmental and livelihoods outcomes, including benefit sharing, and we have been able to identify critical gaps in project design that may hamper their successful implementation from both environmental and social perspectives. The projects' contribution of CDM A/R activities to climate mitigation may be undermined by existing uncertainties in carbon accounting scenarios and ill-defined leakage accounting systems, while their contribution to sustainable development may be hampered by a lack of rigorous, inclusionary and participatory planning, by their failure to assess and monitor socio-economic impacts and by the likely emergence of local conflicts due to competing rights over 'degraded lands' or misunderstandings on benefit sharing.

It has been acknowledged that it is critical to analyse carbon markets more thoroughly to understand their consequences (MacKenzie, 2007). With these objectives in mind, this paper has shown that empirical evidence available on CDM A/R activities is scarce and that there is a need to test carbon offset ecological and development assumptions with robust quantitative and qualitative data. Nonetheless, such a recommendation is by no means a suggestion to encourage the development of new projects. On the contrary, we are inclined to think that the further development of A/R carbon activities under the CDM, combined with forest enrichment activities through the REDD+ framework, can result in environmental and social conflicts. Our review already suggests that projects' design gaps are too wide to be addressed through regulation and safeguards, while their implementation will very likely fail to guarantee short- and long-term benefits for their participants and the global climate, except under very particular circumstances.

Climate policy negotiators would be on safer grounds if they reconsidered their decision and excluded forest enrichment activities as part of national REDD+ strategies in order to avoid incentivising the expansion of carbon and timber valuable species in existing forests, which involve the risk of simplifying ecological systems and marginalising certain actors from accessing and using the forests for grazing and other activities. REDD (without the '+') may also dangerously endorse a renewed emphasis on exclusionary conservation and therefore should ideally be redesigned to become a more flexible funding mechanism for sustained environmental cooperation. Why could not REDD be reconsidered as an Ecological Debt Fund? The fund could serve as the main financial instrument of developed countries to pay back the ecological debt acquired with poorer countries as a result of sustained ecologically unequal exchange (i.e. poor countries bearing the burden of environmental degradation associated with mineral extraction and agricultural exports) and the historically uneven contribution to global GHG emissions (Martinez-Alier, 2002).

Paradoxically, the fund's resources could be generated by a share of the future auctioning of carbon credits under the EU ETS or similar approaches adopted in carbon markets. They could also come from increasing taxation on the consumption of fossil fuels and of imported minerals and goods contributing to land-use change in tropical

and sub-tropical countries, such as oil palm or other export-based crops, or they could also come from the projected taxation of international financial operations. Recipient countries could, in turn, use all or part of these additional resources to responsibly foster their own environment and development agendas, without carbon accounting and trading conditionalities. Among others, they could seriously attempt to halt illegal deforestation activities by powerful economic actors, to extend and improve forest tenure and community-based resource management programmes, and to further regulate environmentally damaging activities without the fear of seeing their national budgets reduced by the falling profits of irresponsible companies. As for REDD+, this approach would not be a panacea but it would be a better starting point for helping poor countries and rural populations to deal with forest governance complexities under a more ecologically and socially just international framework.

references

- Albán, M. and M. Argüello (2004) Un análisis de los impactos sociales y económicos de los proyectos de fijación de carbono en el Ecuador. El caso de PROFAFOR-FACE. *Markets for environmental services No 7*. London: International Institute for Environment and Development.
- Aukland, L., Moura Costa, P. and S. Brown (2003) 'A conceptual framework and its application for addressing leakage: the case of avoided deforestation', *Climate Policy*, 3: 123-136.
- Bäckstrand, K. and E. Lövbrand (2006) 'Planting trees to mitigate climate change: contested discourses of ecological modernization, green governmentality and civic environmentalism', *Global Environmental Politics*, 6(1): 50-75.
- Bennett, E.M., Peterson, G.D. and L.J. Gordon (2009) 'Understanding relationships among multiple ecosystem services', *Ecology Letters*, 12: 1394-1404.
- Boyd, E., P. May, M. Chang, and F. Veiga (2007a) 'Exploring socioeconomic impacts of forest based mitigation projects: lessons from Brazil and Bolivia', *Environmental Science And Policy*, 10: 419-433.
- Boyd, E., M. Gutierrez, and M. Chang (2007b) 'Small-scale forest carbon projects: adapting CDM to low-income communities', *Global Environmental Change*, 17: 250-259.
- Boyd, E., E. Corbera, and M. Estrada (2008) 'UNFCCC negotiations (pre-Kyoto to COP-9): What the process says about the politics of CDM-sinks', *International Environmental Agreements: Politics, Law And Economics*, 8: 95-112.
- Boyd, E. (2009) 'Governing the Clean Development Mechanism: Global rhetoric versus local realities in carbon sequestration projects', *Environment and Planning A*, 41: 2380-2395.
- Bozmoski, A. and N. Hultman (2010) 'Participant perceptions of risk and benefit in carbon forestry: evidence from central Tanzania', *The Journal Of Environment And Development*, 19(1): 4-27.
- Brown, S. (2002) 'Measuring carbon in forests: current status and future challenges', *Environmental Pollution*, 116: 363-372.
- Brown, K. and E. Corbera (2003) 'Exploring equity and sustainable development in the new carbon economy', *Climate Policy*, 3(S1): 41-56.
- Brown, K., W. N. Adger, E. Boyd, E. Corbera and S. Shackley (2004) 'How do CDM projects contribute to sustainable development?' *Technical Report 16*. Norwich: Tyndall Centre.
- Bumpus, A. and D. Liverman (2008) 'Accumulation by decarbonisation and the governance of carbon offsets', *Economic Geography*, 84: 127-155.
- Burgess, N.D., B. Bahane, T. Clairs, F. Danielsen, S. Dalsgaard et al. (2010) 'Getting ready for REDD+ in Tanzania: a case study of progress and challenges', *Oryx*, 44(3): 339-351.
- Cabello, J. and T. Gilbertson (eds.) (2011) *No REDD+. A Reader*. Carbon Trade Watch.
- Caplow, S., P. Jagger, K. Lawlor, and E. Sills (2011) 'Evaluating land use and livelihood impacts of early forest carbon projects: lessons for learning about REDD+', *Environmental Science And Policy*, 14: 152-167.

- Clean Development Mechanism (CDM) Executive Board (2010) 'Report of the 53rd CDM Executive Board meeting, Bonn, 26th March 2010' [https://cdm.unfccc.int/EB/053/eb53_repan02.pdf].
- Corbera, E. (2010) 'REDD+: oportunidades y riesgos', *Ecología Política*, 39: 37-44.
- Corbera, E., M. Estrada, P. May, G. Navarro and P. Pacheco (2011) 'Rights to land, forests and carbon in REDD+: insights from Mexico, Brazil and Costa Rica', *Forests*, 2(1): 301-342.
- Corbera, E. and H. Schroeder (2011) 'Governing and implementing REDD+', *Environmental Science And Policy*, 14: 89-99.
- Corbera, E. and K. Brown (2010) 'Offsetting benefits? Analysing access to forest carbon', *Environment and Planning A*, 42: 1739-1761.
- Corbera, E., M. Estrada and K. Brown (2009) 'How do regulated and voluntary carbon-offset schemes compare?', *Journal of Integrative Environmental Sciences*, 6(1): 26-50.
- Corbera, E. and K. Brown (2008) 'Building institutions to trade ecosystem services: marketing forest carbon in Mexico', *World Development*, 36(10): 1956-1979.
- Corbera, E., K. Brown and W.N. Adger (2007a) 'The equity and legitimacy of markets for ecosystem services', *Development and Change*, 38(4): 587-613.
- Corbera, E., N. Kosoy, N. and M. Martínez Tuna (2007b) 'Equity implications of marketing ecosystem services in protected areas and rural communities: case studies from Meso-America', *Global Environmental Change*, 17: 365-380.
- Dessai, S., E. L. Schipper, E. Corbera, A. Haxeltine, B. Kjellen and M. Gutierrez (2005) 'Challenges and outcomes at the ninth session of the conference of the parties to the United Nations Framework Convention on Climate Change', *International Environmental Agreements: Politics, Law And Economics*, 5: 105-124.
- Dutschke, M., B. Schlamadinger, J.L.P. Wong and M. Rumberg (2004) 'Value and risks of expiring carbon credits from CDM afforestation and reforestation', *HWWA Discussion Paper*, 290.
- Ellis, J., H. Winkler, J. Corfee-Morlot and F. Gagnon-Lebrun (2007) 'CDM: taking stock and looking forward', *Energy Policy*, 3: 15-28.
- European Climate Change Limited (2008) 'CER price curve shifting as new ECX contracts boost transparency' [<http://www.ecx.eu/General/CER-price-curve-shifting-as-new-ECX-contracts-boost-transparency>].
- Fisher, J.A. (2011) *Payments for ecosystem services in forests: analysing innovations, policy debates and practical implementation*. Thesis submitted for the Degree of Doctor of Philosophy, School of International Development, University of East Anglia, June 2011.
- Forest Stewardship Council Watch (2011) 'A new film exposing FSC: "Sustainable on Paper"' [http://www.fsc-watch.org/archives/2011/01/31/A_new_film_exposing_].
- Forests and the European Union Resource Network (FERN) (2001) 'Sinks in the Kyoto Protocol: A dirty deal for forests, forest people and the climate', *Briefing Note*.
- Friends of the Earth (2002) *Carbon sequestration: Climate change and planting forests*. Summary report of the conference held at the Department for Environmental Science and Technology, Imperial College, London.
- Friends of the Earth (2010) 'Plantations are not forests. Position paper, July 2010' [<http://www.foei.org/en/resources/publications/pdfs/2010/position-paper-plantations-are-not-forests/view>].
- Gerber, J.F., S. Veuthey and J. Martínez-Alier (2009) 'Linking political ecology with ecological economics in tree plantation conflicts in Cameroon and Ecuador', *Ecological Economics*, 68: 2885-2889.
- Goldtooth, T.B.K. (2011) 'Why REDD/REDD+ is not a solution', in: J. Cabello and T. Gilbertson (eds.) *No REDD+. A Reader*. Carbon Trade Watch.
- Gong, Y., G. Bull and K. Baylis (2010) 'Participation in the world's first clean development mechanism forest project: The role of property rights, social capital and contractual rules', *Ecological Economics*, 69(6): 1292-1302.

- Granda, P. (2005) 'Carbon sink plantations in the Ecuadorian Andes: Impacts of the Dutch FACE-PROFAFOR monoculture tree plantations' project on indigenous and peasant communities', Acción Ecológica and World Rainforest Movement, Brazil.
- Gutiérrez, M. (2011) 'Making markets out of thin air: A case of capital involution', *Antipode*, 43(2): 639-661.
- Hamilton, K., M. Sjardin, M. Peters-Stanley and T. Marcello (2010a) 'Building bridges: state of the voluntary carbon markets', Washington DC: Ecosystem Marketplace and Bloomberg New Energy Finance.
- Hamilton, K., U. Chokkalingam and M. Bendana (2010b) 'State of the forest carbon markets 2009. Taking root and branching out', Washington DC: Ecosystem Marketplace and Bloomberg New Energy Finance.
- Hunt, C.A.G. (2009) *Carbon sinks and climate change. Forests in the fight against global warming*. Cheltenham: Edward Elgar.
- Intergovernmental Panel on Climate Change (IPCC) (2003) 'Good practice guidance for land use, land-use change and forestry' [http://www.ipcc.ch/ipccreports/sres/land_use/index.php?idp=0].
- Jackson R.B., E.G. Jobbágy, R. Avissar, S. Baidya Roy, D.J. Barrett, C.W. Cook, K.A. Farley, D.C. Le Maitre, B.A. McCarl and B.C. Murray (2005) 'Trading water for carbon with biological carbon sequestration', *Science*, 310: 1944-1947.
- Jindal, R., B. Swallow and J. Kerr (2008) 'Forestry-based carbon sequestration projects in Africa: Potential benefits and challenges', *Natural Resources Forum*, 32(2): 116-130.
- Klooster, D. (2010) 'Standardizing sustainable development? The Forest Stewardship Council's plantation policy review process as neoliberal environmental governance', *Geoforum*, 41: 117-129.
- Kosoy, N., E. Corbera and K. Brown (2009) 'Participation in payments for ecosystem services: case studies from the Lacandon rainforest, Mexico', *Geoforum*, 39(6): 2073-2083.
- Kosoy, N. and E. Corbera (2010) 'Payments for ecosystem services as commodity fetishism', *Ecological economics*, 69: 1228-1236.
- Kosoy, A. and P. Ambrosi (2010) 'State and trends of the carbon market', Washington DC: World Bank.
- Kruter Flores, R., F. Silva and P. Volkmann (2009) 'Shall we still keep our eyes cerrados?', in S. Böhm and S. Dabhi (eds.) *Upsetting the offset: The political economy of carbon markets*. London: May Fly Books.
- Landell-Mills, N. (2002) 'Developing markets for forest environmental services: an opportunity for promoting equity while securing efficiency?' *Philosophical Transactions of the Royal Society of London. Mathematical Physical and Engineering Sciences*, 360: 1817-1825.
- Lang, C. (2006) 'FSC plantations review: raising the bar or lowering standards?' *World Rainforest Movement Bulletin*, 3-4 [<http://www.wrm.org.uy/bulletin/108/viewpoint.html>].
- Lansing, D.B. (2009) *The spaces of carbon: Calculation, technology, and discourse in the production of carbon forestry offsets in Costa Rica*. Ph.D. dissertation, Ohio State University.
- Lele, S. (2003) 'Participatory forest management in Karnataka, at the crossroads', *Community forestry*, 2(4): 4-11.
- Lele, S. (2010) 'Forest governance in a globalising world: Some insights from India', paper presented at the Judge Business School, University of Cambridge, 9 June.
- Lohmann, L. (1999) 'The carbon shop: planting new problems' [<http://www.wrm.org.uy/plantations/material/carbon.html>].
- Lohmann, L. (2005) 'Marketing and making carbon dumps: Commodification, calculation and counterfactuals in climate change mitigation', *Science as Culture*, 14(3): 203-235.
- Lohmann, L. (2006) *Carbon trading: A critical conversation on climate change, privatisation and power*. Uppsala: Dag Hammarskjöld Foundation.
- Lohmann, G. (2009) 'Toward a different debate in environmental accounting: The cases of carbon and cost-benefit', *Accounting, Organizations And Society*, 34: 499-534.
- Lynch, O. and A. Janis (1994) 'Tenurial rights and community-based conservation', in D. Western, M. Wright and S. Strum (eds.) *Natural Connections: Perspectives in Community Based Conservation*. Washington DC: Island Press.

- MacKenzie, D. (2007) 'The political economy of carbon trading', *London Review of Books*, 29(7) [www.lrb.co.uk/v29/n07].
- Melick, D. (2010) 'Credibility of REDD and experiences from Papua New Guinea', *Conservation Biology*, 24(2): 359-361.
- Muradian, R., E. Corbera, U. Pascual, N. Kosoy, N. and P. May (2010) 'Reconciling theory and practice: An alternative conceptual framework for understanding payments for environmental services', *Ecological Economics*, 69: 1202-1208.
- Nelson, K.C. and B.H.J. de Jong (2003) 'Making global initiatives local realities: Carbon mitigation projects in Chiapas, Mexico', *Global Environmental Change*, 13: 19-30.
- Newell, P. and M. Paterson (2010) *Climate capitalism. Global warming and the transformation of the global economy*. Cambridge: Cambridge University Press.
- Orlando, B., D. Baldock, S. Canger, J. Mackensen, S. Maginnis, M. Socorro, S. Rietbergen, C. Robledo, and N. Schneider (2002) *Carbon, forests and people: Towards the integrated management of carbon sequestration, the environment and sustainable livelihoods*. Gland: IUCN.
- Osborne, T. (2011) 'Carbon forestry and agrarian change: access and land control in a Mexican rainforest', *Journal Of Peasant Studies*, 38(4): 859-883.
- Ostrom, E. and E. Schlager (1996) 'The formation of property rights', in S. Hanna, C. Folke and K.G. Maler (eds.) *Rights to nature: Ecological, economic, cultural and political principles of institutions for the environment*. Washington, DC: Island Press.
- Project Design Document (PDD) of Cao Phong C, version 2.1 (2008) [http://cdm.unfccc.int/UserManagement/FileStorage/PQALNVT8O325XK7JS1BFDWHZ9EIM0Y].
- Project Design Document (PDD) of carbon sequestration through Reforestation in the Bolivian tropics by smallholders of The Federación de Comunidades Agropecuarias de Rurrenabaque (FECAR), version 2.03 (2008) [http://cdm.unfccc.int/UserManagement/FileStorage/DMP6NK2ZFUOSAWJQTBYR18CG5X0E3H].
- Project Design Document (PDD) of facilitating reforestation for Guangxi watershed management in Pearl River basin, version GIFDCP02 (2006) [http://cdm.unfccc.int/UserManagement/FileStorage/H5218OI0ZWU4CTWLPKEIETBIODYED].
- Project Design Document (PDD) of Humbo Ethiopia assisted natural regeneration project, version 3 (2009) [http://cdm.unfccc.int/UserManagement/FileStorage/W57JTARN2IZCOHG09DYVMS1XF8Q4LK].
- Project Design Document (PDD) of Nerquihue small-scale CDM afforestation project, version 7 (2009) [http://cdm.unfccc.int/UserManagement/FileStorage/90UM2RZBP1WHYE8NJ6IFKGVACT735S].
- Project Design Document (PDD) of Reforestation of croplands and grasslands in low income communities of Paraguari department, Paraguay, Version 3 (2009) [http://cdm.unfccc.int/UserManagement/FileStorage/A1MDGJCXR75WN23P6FQILVHKOS0YTU].
- Project Design Document (PDD) of The International Small Group and Tree Planting Program (TIST), Tamil Nadu, India, version 1 (2008) [http://cdm.unfccc.int/UserManagement/FileStorage/UMS239OWCDFKVAB5QETJPHRN671LI].
- Project Design Document (PDD) of Uganda Nile basin reforestation project No 3, version 1 (2006) [http://cdm.unfccc.int/UserManagement/FileStorage/TDZ9UK3DIRAD87MWA90E4SV3MILG3F].
- Raudsepp-Hearne, C., G.D. Peterson and M. Bennet (2010) 'Ecosystem service bundles for analyzing tradeoffs in diverse landscapes', *Proceedings of the National Academy of Sciences*, 107: 1-6.
- Ribot, J. and N. Peluso (2003) 'A theory of access', *Rural Sociology*, 68(2): 153-181.
- Sathaye, J.A. and K. Andrasko (2006) 'Special issue on estimation of baselines and leakage in carbon mitigation forestry projects', *Mitigation and Adaptation Strategies For Global Change*, 12(6): 963-970.
- Scherr, S., A. White and A. Khare (2004) 'Current status and future potential of markets for ecosystem services of tropical forests: an overview' [www.foresttrends.org/whoware/publications.htm].
- Skutsch, M.M. and L. Ba (2010) 'Crediting carbon in dry forests: The potential for community forest management in West Africa', *Forest Policy And Economics*, 12(4): 264-270.

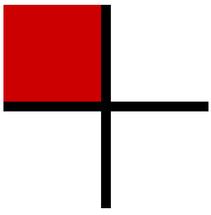
- Skutsch, M.M. (ed.) (2010) *Community forest monitoring for the carbon market. Opportunities under REDD*. London: Earthscan.
- Thomas, S., P. Dargusch, S. Harrison and J. Herbohn (2010) 'Why are there so few afforestation and reforestation Clean Development Mechanism projects?', *Land Use Policy*, 7(3): 880-887.
- Tullos, D. (2009) 'Assessing the influence of environmental impact assessments on science and policy: an analysis of the three gorges project', *Journal of Environmental Management* 90: s208-S223.
- Validation report of Cao Phong restoration project (2008) [<http://cdm.unfccc.int/UserManagement/FileStorage/L1096WAG253DZQIMBVUKO8EHYFSCNR>].
- Validation report of carbon sequestration through reforestation in the Bolivian tropics by smallholders of 'The Federación de Comunidades Agropecuarias de Rurrenabaque (FECAR)' (2009) [<http://cdm.unfccc.int/UserManagement/FileStorage/H56C84P7GYEWT9U3XDNB1ZVFSORLQA>].
- Validation report of facilitating reforestation for Guangxi watershed management in Pearl River basin (2006) [<http://cdm.unfccc.int/UserManagement/FileStorage/CSTDPFLFNXA7S8C3J45ZCBHRQ3IV0X>].
- Validation report of Humbo Ethiopia assisted natural regeneration project (2009) [<http://cdm.unfccc.int/UserManagement/FileStorage/0C9F8OIKRN72G4WH31JPDYAYES5UQB>].
- Validation report of Nerquihue small-scale CDM afforestation project (2010) [<http://cdm.unfccc.int/UserManagement/FileStorage/15TQHY4RKIF69732ESJNPGCZLM0OVU>].
- Validation report of reforestation of croplands and grasslands in low-income communities of Paraguari department, Paraguay (2009) [<http://cdm.unfccc.int/UserManagement/FileStorage/MQK691CA8402VJTLGN7SIYUPFEZXHD>].
- Validation report of The International Small Group and Tree Planting Program (TIST), Tamil Nadu, India (2009) [<http://cdm.unfccc.int/UserManagement/FileStorage/5JHELYB46MWWA2RUVTSQK89F0ZGCX3>].
- Validation report of Uganda Nile basin reforestation project no.3 (2009) [<http://cdm.unfccc.int/UserManagement/FileStorage/UGD1OS64X9NHVFPKRT805IQ2WZJ3LA>].
- van Kooten, G.C., A.J. Eagle, J. Manley and T. Smolak (2004) 'How costly are carbon offsets? A meta-analysis of carbon forest sinks', *Environmental Science And Policy*, 7: 239-251
- Vatn, A. (2010) 'An institutional analysis of payments for environmental services', *Ecological Economics*, 69: 1245-1252.
- Venter, O., E. Meijaard, H. Possingham, R. Dennis, D. Sheil, S. Wicks, L. Hovaniz and K. Wilson (2009) 'Carbon payments as a safeguard for threatened tropical mammals', *Conservation Letters*, 2: 123-129.
- Young, O., A. Agrawal, L.A. King, P.H. Sand, A. Underdal and M. Wasson (1999) Institutional dimensions of global environmental change science plan [<http://www.ihdp.uni-bonn.de/html/publications/reports/report09/>].
- United Nations Framework Convention on Climate Change (UNFCCC) (2005) Decision 6/CMP.1. Simplified modalities and procedures for small-scale afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol and measures to facilitate their implementation. [<http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf#page=81>]
- UNFCCC (2008) Report of the CDM EB 41. Annex 15 - A/R methodological Tool "Tool for the identification of degraded or degrading lands for consideration in implementing CDM A/R project activities" (version 01) [<http://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-13-v1.pdf>].
- UNEP-Risoe (2010) 'CDM/JI pipeline analysis and database' [<http://cdmpipeline.org>].

the authors

Esteve Corbera is a 'Ramón y Cajal' senior research fellow at the Institute of Environmental Science and Technology, Universitat Autònoma de Barcelona (Spain), and a research associate at the School of International Development, University of East Anglia (UK). His research focuses on the governance of clean development and land-use management, including analyses of carbon offset projects and payments for environmental services.

E-mail: esteve.corbera@uab.cat

Charlotte Friedli is an economist (Institute of Political Sciences, Strasbourg, France) and has an MPhil in Environmental Policy from the University of Cambridge (UK), where she is currently undertaking another MPhil in Real Estate Finance. Prior to Cambridge, she worked for the French Diplomatic Corps in Fiji doing research on environmental management.
E-mail: charlotte.friedli@cantab.net



The 'third way' for climate action*

Siddhartha Dabhi

review of:

Anthony Giddens (2009) *The politics of climate change*. Cambridge: Polity (PB, pp. 264, £14.99, ISBN 978-0-7456-4693-0)

During the last two decades, there has emerged a substantial literature on climate change that deals with its various aspects from the very science of climate change to its economics, with widespread ramifications (see Cowie, 2007; IPCC, 2007; Stern, 2006). In his book, *The Politics of Climate Change*, Anthony Giddens sets out with the task of chalking out a political framework, which he believes is needed in order to deal with climate change. Giddens, who is a key proponent of 'third way' politics, interestingly begins with the assertion that 'we have no politics of climate change' (4). Hence he attempts to apply a political logic to the crisis of climate change, which, in my mind, is an invaluable starting point, given the manifold political struggles that have been fought over this topic over at least the past two decades.

The first thing that catches our eye is the blurb on the book cover by former US president Bill Clinton, one of the poster boys of 'third way' politics (the others being Tony Blair and Gordon Brown). In order to better understand this book and to put it into perspective, we need to first understand Giddens' political project and what the 'third way' is all about. In broad terms, the 'third way' refers to a middle path between socialism and capitalism. Supporters of the 'third way' see it as a political movement much needed in times of globalisation, which has brought about a sea change in traditional social, economic and political constructs (Giddens 1999; Whiteford, 2003: 41; Botsman and Latham, 2001: 17). Giddens (1998), and other proponents of the 'third way', suggest that it is a political movement intended to break free from the two extremes of traditional reformist socialism, on the one hand, and neo-liberalism, on the other. Giddens (1999: n.p.) defines 'third way' politics as 'an endeavour to apply left-of-centre values, those values being social solidarity, inclusion, protection of the vulnerable, not countenancing too-large inequalities in society'. On the whole the 'third way' looks like an attempt to create a political framework that addresses the concerns of

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social justice and equality embedded in an economic system based on the logic of free markets. At a certain point, defining the objectives of the 'third way' can become difficult as it tries to walk a thin line between economic growth and social inclusion, free markets and government intervention, socialism and capitalism (Hamilton, 2001: 2; Hargreaves and Christie, 1998: 1).

Giddens begins *The Politics of Climate Change* by asking why anyone would still want to drive an SUV (the SUV being used as a metaphor) for even a single day longer (1). He dedicates the first two chapters of the book to giving a fairly good overview of the various debates and standpoints on climate change and the interrelated issues of the geopolitics of energy use and energy security. In spite of the growing evidence of the threats of climate change and the resulting catastrophes, the reason why people still drive SUVs is, according to Giddens, because unlike other threats, climate change seems to be quite abstract. Giddens calls this 'Giddens' paradox'. It is because of this paradox that not much action has been taken on climate change, as most people seem to be waiting for the threats to be visible, unaware that by then it might be too late to salvage the situation (2). But this paradox, which Giddens has named after himself, is not a truly novel concept and has been under discussion in environmental studies for the past twenty years (Monbiot, 2009; Pielke, 2009; Castree, 2010: 156). In fact, the more fundamental question that arises is whether we can simply consider 'Giddens' paradox' as solely responsible for inaction on climate change. In recent years the effects of climate change are getting more evident by the day in the form of extreme weather events like droughts, floods, changes in seasonal patterns, and outbreaks of diseases and so forth. Hence, to simply attribute inaction to the fact that the effects of climate change are abstract would be too simplistic. There is a need for critical analysis of the stronger forces at play that define the social, political and economic structures we live in and which are responsible for the so-called SUV attitude of living.

Having discussed climate change and energy security, Giddens moves on to the green movement. In his introduction, Giddens makes an emphatic acknowledgement of the green movement as he talks of its success in bringing the issue of climate change to the limelight of the mainstream (6). But suddenly he takes a U-turn and narrows down the green movement to a case against capitalism and markets (49, 50). In fact, throughout the book Giddens is more critical of the green movement than of the polluting industries (Pielke, 2009; Graham-Leigh, 2009; Perrow, 2010: 413). One of the main reasons for this is that he believes that the principles advocated by the green movement are not quite applicable to the crisis of global warming because global warming is a more multi-dimensional issue than problems of local pollution. It is quite true that global warming is a multi-dimensional problem, but that does not make local pollution completely insignificant. In fact, global warming is the outcome of the accumulation of local pollution. For farmers in India, for instance, global warming is not necessarily the problem they are interested in thinking about. But they are concerned with the local pollution that affects their crop. In Giddens' opinion green values like 'conservatism' or concepts of being 'close to the nature' can stand in the way of measures like building nuclear power plants or wind farms in the countryside (55). It is quite interesting that, on the one hand, Giddens does acknowledge that global warming is a multi-dimensional issue and not as simple as local pollution; but at the same time, when it comes to action on global warming, he ignores the very key issues of climate justice and human rights

imperatives while suggesting that the greens might be a hurdle to action on global warming.

Furthermore, Giddens offers his critique of the concept of sustainable development, pointing out that the concept is perhaps an oxymoron, and 'it is more of a slogan than an analytical concept' (63). Giddens instead chooses to use the two words 'sustainable' and 'development' separately. According to him, the term 'sustaining' is important in ensuring that the environment is protected. Once again, Giddens offers a very simplistic view on sustainability, ignoring the complexity of the concept. Sustainability is not just about the environment or ecology, but about an equilibrium among environment, economic growth and social well-being and the interactions among different actors involved in this complex web (Wheeler, 1998). Giddens also questions the terms development and over-development, but again at a very superficial level. He recognises the fact that industrial countries should focus more on emissions reduction and less on development, whereas poorer countries need to develop as the rich countries have, even if it may raise emissions for a particular period of time, after which they could converge their efforts to reduce emissions together with the developed countries (64). But what this section lacks is the analysis of how development has been defined so far. It does not question the model of development, which to a great extent has been responsible for the current environmental crisis. Furthermore, this section lacks a rigorous analysis of the unequal power relations between the developed and developing countries and the interdependencies through which the process of development takes place.

Towards the end of the first half of the book Giddens introduces a range of concepts, which he argues are necessary for understanding and implementing the politics of climate change (68-72). The first concept is that of the 'ensuring state'. The ensuring state, according to Giddens, will play the role of the state as a 'top-down agency', but will also act as facilitator to get diverse groups of society together to achieve 'bottom-up' solutions and ensure that desired results are achieved. The second concept that Giddens raises is 'political convergence', which is about having public policies that overlap with achieving the goals of containing climate change. Similarly, the third concept of 'economic convergence' refers to the 'overlap between low-carbon technologies and business practices and lifestyles with economic competitiveness' (69). The fourth concept is 'political transcendence', where Giddens asserts that the issue of climate change is not a 'left-right' issue and should thus transcend all forms of party politics. Along with these, Giddens also introduces other concepts such as 'foregrounding', 'climate change positives', 'the percentage principle', 'the development imperative', 'over-development' and 'proactive adaptation' (71-72).

There is not enough space here to discuss all of these concepts; so let us focus on what I regard as the most important concept: 'political transcendence'. It is this concept that brings us to the heart of Giddens' political project and the core of the political framework that Giddens is trying to advocate. Throughout the book, Giddens is stressing that climate change is not a 'left-right' issue and should go beyond it. What exactly is meant by this transcendence? Giddens (1994, 1998) creates a specific distinction between early or simple modernity and late modernity. According to Giddens, early modernity was characterised by mechanisms like governments or the bureaucracies of the nation-states, which worked to give social members a 'meaning in

life'. But with globalisation in the late modern era the traditional roles of the mechanisms under the nation-state have diminished and to a great extent disappeared. But this detraditionalisation has created 'empty spaces'. In order to fill these empty spaces the individual has to be more 'reflexive' and 'create his own biographies', which Giddens (1998) calls 'life politics' (see Mouzelis, 2001: 2). Hence for Giddens the idea of 'left' and 'right' was more relevant in early modernity, but in today's globalised world we are faced with challenges that require a new framework which goes beyond the rhetoric of 'left' and 'right' (Giddens, 1999). Hence, the need for a 'third way'.

In order to get a better understanding of the relevance of 'third way' politics we need to understand Giddens' distinction between the 'left' and the 'right'. The role of the 'left' in early modernity was to bring about equality as it is a necessary pre-condition for fulfilling larger goals of societal welfare and economic prosperity. Hence the 'left' held the role of an emancipator in early modernity. This role, however, would be out of date in this era of globalisation where there is a need to create new life-styles and new individual identities (Mouzelis, 2001: 3). Giddens seems to suggest that the role played by the 'left' in the era of early modernity might be misplaced in today's dynamic economic structures and, in fact, may prove to be anti-growth in an age where everyone has a burning desire for growth and economic prosperity.

So, is the idea of 'left' and 'right' then no longer relevant? In this age of a globalised, neo-liberal world we see 'unprecedented social mobilization' which is continuously attacking the idea of 'localism' (Mouzelis, 2001: 7). New capitalist social relations are constantly being constructed to further create avenues for capitalist accumulation (Harvey, 2003; De Angelis, 2007). This process is including as well as excluding individuals from the so called 'imagined community' of the globalised world (Mouzelis, 2001: 7). If we consider that the politics of the 'left' is a politics of emancipation – one that tries to bring about social equality – then this ideology of 'left-right' is even more apt today where we are seeing massive protests around the world against corporate greed in the form of, for example, the Occupy movement.

The entire idea of 'left-right' becomes even more relevant in the case of the environment. According to Mouzelis (2001) this era of globalisation and 'reflexive modernisation' is being coupled with the end of the typical construct of the idea of 'nature'. Modernisation is constantly diminishing the meaning of nature and natural processes. Earlier we thought that these were out of our control, but now we recognise that they can be altered and governed by humans. Giddens gives an overview of technological progress so far, which could possibly help us combat climate change, touching upon some very sensitive and contestable issues of nuclear energy and carbon capture and sequestration (CCS) (131). He maintains that there will be an important role for governments in this case to promote and subsidise new forms of technologies, which would initially not be able to compete with fossil fuels. Moreover, governments will also have a role in ensuring that the new low-carbon technologies help to generate employment in the economy (143). But the question that we really need to ask, in my view, is whether the climate crisis can be fixed by technological means alone. Technological fixes can offer at best temporary solutions or delaying tactics to avoid having to address the underlying problems in our social and economic structures.

The other concepts of the 'ensuring state', 'political convergence' and 'economic convergence' evolve from the idea of going beyond the 'left-right' of politics. According to Giddens, the role of the ensuring state is to create synergies between businesses, civil society and individuals in order to help collective solutions being reached, rather than the implementation of a top-down approach where the state dictates solutions to problems. The idea of political and economic convergence suggests that governments around the world should work towards formulating public and economic policies converging with the goals of climate change mitigation. According to Giddens, these concepts will hold the key to dealing with the vital issues of climate change adaptation and mitigation (163). Although these concepts might sound elegant, they have two flaws in my view. Firstly, Giddens does not lay down a road map as to how these concepts would be realised in actuality, in real world situations and under given constraints. Secondly and more importantly, Giddens fails to analyse the power play between actors (i.e. the state, businesses and civil society) that will eventually translate into public and economic policies. Giddens seems to be quite ambitious when he aims for a framework of the ensuring state, in which he envisages that the state, businesses and NGOs work together in harmony. Today's reality often looks quite different, at least from where I am writing in India. I see little harmony, but a lot of struggling, lobbying, bribing, profiting, dispossessing. For example, the market mechanisms for climate change mitigation in place today are a result of lobbying by the state, businesses and pro-business NGOs (Coelho, 2009: 203-213), while poorer communities have to face the brunt of the negative environmental, economic and social impacts of carbon market projects (see Böhm and Dabhi, 2009).

The last two chapters of the book deal with the UN climate change negotiations, carbon markets and the geopolitics of climate change. Firstly, Giddens gives a brief history of climate change negotiations from Rio (the Rio Earth Summit) to the Bali negotiations and a brief account of the role of the EU in these negotiations. Giddens is quite critical of Kyoto style negotiations as he feels that such initiatives involve more talk and not enough action (192). A part of the chapter is also dedicated to carbon markets and their mechanisms (particularly the Clean Development Mechanism). Giddens believes that mechanisms such as those of the carbon markets are unlikely to deliver the desired results of emissions reductions. Here, again, Giddens hits the point, but he is somewhat superficial in his analysis of the failure of carbon markets. He does not attempt to get into the structural problems of carbon markets and their mechanisms (see Böhm and Dabhi, 2009; Gilbertson and Reyes, 2009). The failure of carbon markets is not simply restricted to over-allocation of pollution allowances; it is a deeper problem of an approach which assumes that a market fix can solve the emissions problems. Similarly to the technological fixes, market fixes like carbon markets are arguably delaying tactics to avoid confronting the core issue which is our fossil-fuel dependent society (Lohmann, 2006). Tools such as the Clean Development Mechanism (CDM) simply transfer the ecological crisis to the Southern countries so that the Global North does not have to compromise its way of life. While Giddens is quite critical of his colleague, Sir Nicholas Stern, for avoiding the topic of politics in the Stern Review (201), he, too, fails to approach the issue of climate change with a more rigorous analysis of the politico-economic power play between the North and the South.

The last chapter of the book deals with the geopolitics of climate change. Here Giddens tries to elaborate on the current situation of world politics, specifically in the context of energy security, and how this shapes the politics of climate change. Discussing the strategic differences between countries, Giddens very rightly points out that multilateral international climate change negotiations are bound to fail as there is an immense clash of interests (for example at the Copenhagen Summit in 2009). Giddens cites the case of the Doha round of negotiations within the WTO, which failed to progress on trade negotiations, but, on the other hand, saw the rise of many bilateral agreements between nations (221). Hence Giddens lays a lot of stress on regional or bilateral policies. Basically, Giddens is trying to argue that multilateralism is not dead, but that it will have to return in a new form which can enable co-operation between nations in order to meet the goals of containing climate change.

At the end of the book the question that arises is do we really lack a politics of climate change, as Giddens states at the beginning of the book (4), and is the 'third way' an effective political framework for action? The 'third way' is surely an elegant political framework, but at the same time it also sounds unrealistic and utopian. Ideally, political parties should go beyond the rhetoric of 'left' and 'right' on the issue of climate change. But climate change is not a standalone problem. It is not simply caused by one factor. It is a result of a variety of social, economic and political problems. Moreover, the more fundamental question that needs to be asked is whether global warming is *the* problem? Climate change or global warming is like a fever. It is not the problem but a symptom of the structural problems in our social, economic and political structures. And the 'third way' seems to ignore these structural problems in its attempt to address the problem of global warming. Looking at how climate change has come to the forefront of debates from a historical perspective, right from the days of the Rio Summit to the Durban Climate Conference, I feel that it might perhaps be a little naïve to say that 'we have no politics of climate change'. The way climate change negotiations have been shaped since the days of the Rio Summit (1992) is a direct result of political frameworks adopted by governments and the political struggles that have been fought out by civil society and social movements. Yes, the political framework is not homogenous and uniform, but heterogeneous political frameworks and certainly manifold political struggles do exist and have so for a long time. The question really is whether we can have a 'steady state' established without confrontation between opposing forces, as Giddens' 'third way' approach suggests. I have my doubts.

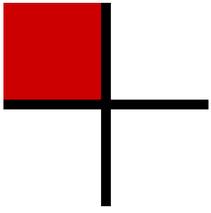
On the whole, the book is not as impressive as the blurbs on the book cover suggest. Most of the concepts that Giddens has introduced throughout the book are not new, they have been rephrased and adapted to the question of the politics of climate change. The book does touch upon some vital issues but fails to go deeper to provide a unique analysis (beyond what we know already) of the politics of climate change and practical ways forward. The book is also marred with a number of contradictions, which I have pointed out in this review. On the whole, this book is an easy read and can be a good starting point to get an understanding of the various debates on the politics of climate change in Europe and specifically in the UK, while it seems to be somewhat blind towards the global political realities, particularly faced by the people of the Global South.

references

- Böhm, S. and S. Dabhi (eds.) (2009) *Upsetting the offset: The political economy of carbon markets*. London: Mayfly. [http://mayflybooks.org/?page_id=21].
- Botsman, P. and M. Latham (eds.) (2001) *The enabling state: People before bureaucracy*. Annandale: Pluto Press.
- Castree, N. (2010) 'Extended review: The paradoxical Professor Giddens', *The Sociological Review*, 58(1): 156-162.
- Coelho, R. (2009) 'Rent seeking and corporate lobbying in climate negotiations' in S. Böhm and S. Dabhi (eds.) *Upsetting the offset: The political economy of carbon markets*. London: Mayfly [http://mayflybooks.org/?page_id=21].
- Cowie, J. (2007) *Climate change: Biological and human aspects*. New York: Cambridge University Press.
- De Angelis, M. (2007) *The beginning of history: Value struggles and global capital*. London: Pluto Press.
- Giddens, A. (1994) 'Living in a post-traditional society', in U. Beck et al. (eds.) *Reflexive modernization: Politics, tradition and aesthetics in the modern social order*. Cambridge: Polity Press.
- Giddens, A. (1998) *The third way*. Cambridge: Polity Press.
- Giddens, A. (1999) 'Arnold Goodman charity lecture', 15 June [http://www.periwork.com/peri_db/wr_db/2006_April_12_18_57_11/The%20TW%20according%20to%20the%20guru.html].
- Gilbertson, T. and O. Reyes (2009) *Carbon trading: How it works and why it fails*. Uppsala: Dag Hammarskjöld Foundation.
- Graham-Leigh, E. (2009) 'The politics of climate change', *Socialist Review* [<http://www.socialistreview.org.uk/article.php?articlenumber=10830>].
- Hamilton, C. (2001) 'The third way and the end of politics', *The Drawing Board: An Australian Review of Public Affairs*, 2(2): 89-102.
- Hargreaves, I. and I. Christie (1998) (eds.) *Tomorrow's politics: The third way and beyond*. London: Demos.
- Harvey, D. (2003) *The new imperialism*. Oxford: Oxford University Press.
- IPCC (2007) *Climate change 2007: Synthesis report* [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf].
- Lohmann, L. (2006) *Carbon trading: A critical conversation on climate change, privatization and power*. Uppsala: Dag Hammarskjöld Foundation.
- Monbiot, G. (2009) 'Stop Building Tanks', 23 June [<http://www.monbiot.com/2009/06/23/stop-building-tanks/>].
- Mouzelis, N. (2001) 'Reflexive modernization and the third way: The impasses of Giddens' social democratic politics', *Sociological Review*, 49(3): 436-456.
- Perrow, C. (2010) 'Giddens and the developing nations examine global warming', *Contemporary Sociology: A Journal of Reviews*, 39(4): 411-416.
- Pielke, R. (2009) 'A third way'. *Nature Reports Climate Change*, 18 June [<http://www.nature.com/climate/2009/0907/full/climate.2009.61.html>].
- Stern, N. (2006) *The economics of climate change: The Stern review*. Cambridge: Cambridge University Press.
- Wheeler, S. (1998) 'Planning sustainable and livable cities', in R. Legates and F. Stout (eds.) *The city reader*. London: Routledge.
- Whiteford, G. E. (2003) 'Enhancing occupational opportunities in communities: Politics' third way and the concept of enabling state', *Journal of Occupational Science*, 10(1): 40-45.

the author

Siddhartha Dabhi is a researcher and activist based in India researching the political economy of carbon markets. His other research interests include the study of Pastoralism in India and the political economy of energy alternatives. He is co-editor of *Upsetting the Offset: The Political Economy of Carbon Markets*. E-mail: siddhartha.dabhi@gmail.com



Carbon trading in South Africa: Plus ça change?

Peter Newell

review of:

Patrick Bond, Rehana Dada and Graham Erion (eds.) (2009) *Climate change, carbon trading and civil society: negative returns on South African investments*. Pietermaritzburg: University of KwaZuklu-Natal Press (PB: pp. 231, £26.50, ISBN 1869141415).

Whether carbon markets have a role in responding to climate change and delivering positive benefits to the developing world is a question that continues to generate lively debate and is rightly subject to ever more critical scrutiny. From cases of climate fraud and corruption in carbon markets to instances of displacement and the exposure of poorer people to negative social and environmental effects from hosting CDM (Clean Development Mechanism) projects, there is mounting criticism of the effectiveness and equity of using offset and trading mechanisms to tackle climate change.

This book strengthens these critiques by providing a wide-ranging critique of all aspects of carbon trading and its principal proponents, such as the World Bank, and its principal beneficiaries which in the South African context, according to contributors to this volume, are large energy companies such as Eskom and 'big oil'. While some chapters focus on specific aspects, actors and issues within carbon markets – for example, the general critique provided by Heidi Bachram, or the critical evaluations of the World Bank and its Prototype Carbon Fund provided by Daphne Wysham and Janet Redman in one chapter, and by Larry Lohmann, Jutta Kill et al. in another – many relate carbon markets to much broader issues around power and wealth creation in the energy sector. Patrick Bond, for example, provides a useful critical historical overview of energy politics in South Africa while activists from GroundWork draw attention to the exploitative role of 'big oil' in Africa's (under) development. This is important and appropriate since for all their hype carbon markets are just one small part of a much bigger landscape of energy politics and though finance through carbon markets does provide the largest source of revenue for mitigation in the developing world, it pales into insignificance alongside business as usual investments in climate changing fossil fuels. The question is whether carbon trading can provide one means of tipping the balance of power away from fossil fuels and towards cleaner and more sustainable forms of energy.

The latter part of the book concentrates on civil society strategies aimed at bringing about climate justice: paying ecological debts, invoking litigation against corporations, maintaining community control over resources and keeping attention squarely on those states and corporations that bear most responsibility for causing climate change in the first place, but which seek to make sure the 'polluted adapt' rather than the 'polluter pays'. This includes campaigns to 'Leave oil in the soil', compensation initiatives such as that proposed by the Ecuadorian government whereby it will agree not to exploit oil in the Yasuni national park if it is at least partly reimbursed for lost oil revenues. But mostly faith is placed in community groups, trade unions and environmentalists to challenge the patterns of resource and social exploitation that underpin the fossil fuel economy. It would have been interesting to know more about the tensions that arise in joint campaigning between unions and environmentalists, for example, when jobs in the fossil fuel sector are under threat and the extent to which these can be reconciled under the banner of 'just and green jobs' or advance ideas around a 'just transition'. The book devotes much more attention to the divisions between those environmentalists that seek to engage with and shape carbon markets and those, such as the contributors to this book, that remain firmly opposed to the idea that carbon trading has any role to play at all in efforts to combat climate change. Differences of opinion on this issue led groups such as Earthlife in South Africa to leave the global Climate Action Network for its engagement with carbon markets.

With the exception of the chapter by Graham Erion (with Larry Lohmann and Trusha Reddy), most contributions do not engage with the details of carbon trading in South Africa, however, a fact that may disappoint some readers attracted to the book by its title. There are only 19 registered CDM projects in South Africa at the moment and so carbon trading is not the big story despite moves to set up tradeable renewable energy certificates and the like. Graham Erion's chapter covers the Bisasar road landfill gas methane project supported by the World Bank Prototype Carbon Fund which, it is claimed, provided a financial life-line for a highly contaminating plant that local residents had been fighting hard to close down. It seems to provide evidence for the claim that carbon market finance often ends up propping up polluting industry rather than supporting cleaner ones. Likewise, the energy and chemical giant Sasol's application for CDM status for a project which its own annual reports suggested had already been planned, as exposed by Earthlife and other groups in South Africa, demonstrates the potential for abuse and gaming the system by powerful actors. Problems of poor coordination and lack of follow-up are also apparent in the distribution by UK carbon offset company Climate Care of energy-efficient light bulbs in an area of Cape Town where the para-statal company Eskom was also offering them for free. The familiar themes of fraud, duplication and dubious additionality abound.

But are the issues less clear cut regarding other projects around energy efficiency or renewable energy? Here academics and students of climate change and energy politics may get frustrated by the lack of nuance in some of the arguments. There is not much in the way of multi-dimensional assessment of CDM projects and their claimed social and economic as well as environmental benefits and the trade-offs implied by trying to achieve these simultaneously. Is it possible, for example, to argue that the Kuyasa energy retrofit for low-cost housing project was a good one but just should have been supported with aid money rather than generate offsets that let others off the hook? The

main issue raised by the authors in relation to this project is its financial sustainability. The social and environmental benefits are not contested. Are all projects bad because of their design, the way they are governed or because ultimately they serve as vehicles for displacement of responsibility? Such reflections sometimes get lost in the polemical flow. Not necessarily a problem in a book by and for activists, though at times critical reflection gives way to rhetorical flow. Patrick Bond in his chapter on energy in South Africa, for example, challenges whether 'macro-economic stability' is the goal 'Or instead, a parasitical, slow-growth, high-poverty, unemployment-ridden, more unequal, capital-flight-prone, volatile, vulnerable, elite-oriented economic machine ploughing over poor people, whose gains are in temporarily restored profitability for big capital and conspicuous consumption bingeing for a credit-drowned petit bourgeoisie?' (p.55)

Other readers may be unconvinced by the willingness of some authors to blame all social and environmental ills on the CDM rather than attempt to isolate specific effects. Greater attention is warranted to why it is the South African government believes the CDM can benefit the country and why it has policies and programmes in place to attract investors in carbon markets. It may well be to cash in on the low-hanging fruit that CDM has to offer – for example, money for burning rubbish (to capture methane and use it for energy) and a number of municipalities in South Africa are currently looking into landfill gas projects despite the issues raised above in relation to Bissasar road. But it may also be about using carbon finance as a lever for delivering other domestic and international policy goals around energy security, tackling energy poverty or mitigating emissions through support to renewable energy. Government officials certainly claim this in the case.

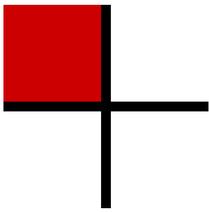
If I was to have one other slight complaint, it would be that many of the chapters appear not to have been updated from earlier versions and some were published as long ago as 1994 commenting, for example, on the potential of certification initiatives such as the Gold Standard that have been around nearly 10 years now. It is also the case that there are currently a number of interesting initiatives underway in South Africa at the moment that aim to diversify the country's energy base in the wake of power outages and rising electricity prices as well as pressure to reduce emissions in one of the world's most carbon-intensive economies. These include a REFIT feed-in-tariff scheme which will provide favourable prices to renewable energy providers, proposals for a carbon tax and the roll-out of renewable energy projects such as solar water heaters in 1 million homes by 2013. None of this will unsettle the notorious minerals-energy complex which, particularly in the guise of Eskom, has managed to position itself to control access to the grid for the independent power producers as well as secure funds from the World Bank for the controversial Medupi coal-fired power station. But some developments are suggestive of movement in South Africa's energy policy matrix which warrant further attention to critically assess their potential.

Activists sympathetic to the premises of the book, however, will find the book a useful resource in the struggle against what the editors refer to as the privatisation of the atmosphere. The book brings together in one volume many of the leading critics of carbon markets such as Larry Lohmann, Jutta Krill, Patrick Bond and Heidi Bachram and so can expect to become established as a 'critical reader' on carbon trading. Embedding an analysis of carbon trading within broader systems of social, political and

economic power is also invaluable as it provides much needed context about how and why carbon trading emerged as a legitimate response to climate change and who benefits from it and how. For anyone interested in the potential and limitations of carbon markets as a vehicle for supporting emissions reductions or addressing poverty, this book will be of interest and deserves to be widely read.

the author

Peter Newell is Professor of International Relations at the University of Sussex. He has worked on climate change for 18 years as researcher, activist and consultant. He is currently an ESRC Climate Change Leadership Fellow conducting research on *The Governance of Clean Development: CDM and Beyond* (www.clean-development.com). He is author most recently of the books *Climate Capitalism* (CUP, 2010) with Matthew Paterson and *Governing Climate Change* (Routledge, 2010) with Harriet Bulkeley and has a forthcoming book on *The New Carbon Economy: Constitution, Governance and Contestation* with Emily Boyd and Max Boykoff.
E-mail: P.J.Newell@sussex.ac.uk



Can capitalism survive climate change?

David L. Levy

review of:

Peter Newell and Matthew Paterson (2010) *Climate capitalism: Global warming and the transformation of the global economy*. Cambridge: Cambridge University Press (PB, pp. 205, £ 19.99, ISBN 9780521127288).

Can capitalism effectively respond to climate change? This is the timely and critically important question posed by Peter Newell and Matthew Paterson at the beginning of their book, *Climate Capitalism*. It is the same question that motivated me to focus my own research on the topic of business and climate change nearly fifteen years ago.

Unlike other environmental issues, such as ozone depletion or acid rain, climate change represents a far more systemic challenge to the contemporary path of capitalist development, which is premised on ever increasing production, consumption, use of natural resources, and disposal of waste. The development of modern industrial societies has relied on fossil fuels as cheap sources of energy for their transportation, manufacturing, and energy systems, and a host of important economic sectors from agriculture to chemicals and construction are also heavily dependent on these fuels. In the last decade, rapid growth in China, India, Brazil, and elsewhere has brought a carbon-intense lifestyle within reach of several billion of the world's population, who aspire to own cars and electronic appliances, live in spacious homes with heating and cooling, and fly on vacations.

Climate Capitalism examines whether capitalism can survive the challenge of addressing global warming induced by emissions of greenhouse gases (GHGs). Can the market and private capital develop new governance mechanisms, such as carbon trading, and deliver new low-carbon technologies that will decarbonize the economy while ensuring growth and full employment? As the authors note, these are complex, ambitious questions. Given the scale of the economy-wide transformations required and the absence of a simple 'silver bullet' solution, major institutional innovations are necessary. But capitalism is not going to quietly disappear. Indeed, the system has historically demonstrated remarkable resilience, flexibility, and pragmatism in responding to past challenges, from wars to the Great Depression. The impacts and responses to climate change will have differential impacts across economic sectors,

countries, and labour markets, so the issue raises ‘questions of strategy, politics, and power’ (p. ix).

Posing these questions leads the authors to adopt a political economy approach that locates climate change as a problem rooted in the way our production is organized, our economy is structured, our patterns of growth and consumption. Overall, the result is an excellent review of the shifting business response to climate change and the emergence of market-based efforts to address GHG emissions. It does so in a style that is lucid, informative, and relatively free of jargon, though with enough detail (and comprehensive glossary) of the multitude of organizations and initiatives that it can serve as a guide to ‘speaking carbon’. Colourful vignettes, such as the climate awakening of parcel delivery company TNT’s CEO Peter Bakker, help make the book more accessible and lively, breaking up the sometimes dense description of market instruments. Though there is little new here for those already steeped in the topic, it is a valuable contribution to the sparse literature on the political economy of climate change and would be very appropriate for undergraduate or graduate university classes. In fact, I will assign it for my upcoming MBA course on Business and Climate Change.

The process of contesting the reality, meaning, and appropriate response to climate change has sharpened the ideological distinctions among political camps, who have sought to mobilize the issue (or deny it) to further their agendas. Some environmentalists see climate change as the embodiment of an inherent contradiction between capitalism and environmental sustainability, and hence as a crisis that can catalyze a profound reorientation of our economy toward more egalitarian, participative, and local processes. If capitalism succeeds in confronting climate change, it would not to be celebrated from this perspective, but rather be viewed as a waste of a crisis. In a parallel manner, carbon-intense sectors such as coal and oil have tended, at least until the early 2000s, to view climate change as a mortal threat, and thus resorted to denial.

For neoliberals, climate change presents a welcome, if extreme, test of the efficacy of markets and private capital in addressing a seemingly intractable environmental problem, one that has defied conventional state-led efforts to develop a binding international treaty. An increasing number of people from business and finance are expressing confidence that a price on carbon can send appropriate signals across the economy, guiding consumers toward low-carbon choices and manufacturers toward carbon management systems that reduce costs and risks. Venture capitalists and entrepreneurs are expected to redirect their resources and creativity toward low-carbon innovation. Politicians at every level find this market-based approach attractive, as it promises to attract investment, create ‘green jobs’, and improve regional competitiveness without the political or financial costs of major regulation or subsidies.

For supporters of a European-style mixed economy, or liberals in the American context, climate change highlights the negative externalities of GHG emissions and the failure of markets to plan for the longer-term and invest in the major structural economic changes needed. The issue therefore creates an opportunity to pursue ‘climate Keynesianism’, a new era of government activism and intervention to regulate emissions and stimulate investment and innovation, in addition to stronger oversight over carbon markets. Climate Keynesians also recognize the importance of overcoming collective action

problems and building stronger institutions of governance at multiple levels, from cities to the international arena.

Newell and Paterson do not adopt an explicit stance in the book, but overall, they demonstrate a grudging embrace of carbon markets, despite acknowledging their many flaws, with a good dose of climate Keynesianism to ensure their effectiveness. The authors bring a realpolitik sensitivity to climate change; if we are to address climate change in a meaningful way within the necessary timescale, carbon capitalism is the only game in town that can galvanize a powerful network of actors with the potential to take serious action. They stress that carbon capitalism offers the opportunity to successfully mobilize the resources, energy, and political support of key sectors of business and finance, as well as policymakers. Carbon markets offer strategic flexibility for manufacturers, new market opportunities for traders and financial firms, and a source of capital for developing countries. Capitalism can be bent and shaped to this task, but fundamentally we are relying on existing systems of financial and corporate governance. Nevertheless, success is far from assured.

The book's discussion of the political economy of the emerging carbon governance system highlights that it is far from a unified rational structure designed by a benevolent planner. Rather, the actual carbon system is a messy, fragmented outcome of a contested, dynamic political process. For example, carbon markets have been shaped by the protests against them, so that accounting standards and verification of carbon reductions have been tightened up in response to criticism. Competition among suppliers of carbon credits has also led to the strengthening of certification standards. Establishing the rules and conventions of carbon markets entails negotiations among states, business, and NGOs, but there are considerable differences in interests, goals, and ideologies between the European Union and the United States, between rich northern countries and the poorer countries of the south, and across industrial sectors and NGOs.

The most functional elements of the carbon system arise out of the convergence of powerful interests: the book describes, for example, how the Clean Development Mechanism suits the US desire for flexibility and markets, and the desperation of poorer countries for foreign investment. Yet, the authors caution that even the CDM is not necessarily delivering much in the way of carbon reduction nor development. One reason is the uneven playing field in the establishment of these programs, in which environmentalists have been relatively weak partners compared with business and finance.

The story of the dramatic transition in the business stance toward climate change in the latter 1990s, from denial and conflict over the science and economics to a more accommodating and engaged position, is by now well known. Newell and Paterson provide a solid overview, and emphasize that this was not just a matter of industry waking up to climate as a real problem and figuring out the right thing to do. Indeed, there was no major breakthrough in the science during this period. Rather, the perceived balance of costs and benefits, of risks and rewards, shifted as many companies began to see the inevitability of carbon regulation, the threats of higher fuel costs, reputational loss, and technological obsolescence. Simultaneously, the rise of new business groups

such as the US Climate Action Partnership highlighted the opportunities in new product markets and from energy savings, and created competitive and normative pressures for companies to follow suite. Most firms were not ready to radically change their core strategies, but were willing to hedge their bets and make some modest investments in measuring their carbon footprint and exploring low carbon technologies.

Yet, the extent and permanence of this revolution is somewhat overstated. The authors observe (p. 36) that 'it may seem hard to believe today, but there was once a time that business denied there was such a thing as climate change'. It is true that during mid-to late 2000s, it appeared that business had called a ceasefire in the carbon wars and was willing to accept a weak carbon regime as part of a grand 'Carbon Compromise'. Like a monster that refuses to die, however, climate denial keeps coming back from the dead. Climategate and a couple of unusually cold winters in Europe and the eastern US have helped fuel the climate backlash, leading to a dramatic rise in climate scepticism in public surveys. The ground had been well prepared, however, by business groups. In 2009, Energy Citizens, a US-based group set up and financed primarily by the American Petroleum Institute (API) with support from the National Association of Manufacturers, staged about 20 large rallies against carbon regulation. This was complemented by a massive increase in lobbying efforts by the fossil fuel industry. Private foundations, such as those controlled by the billionaire Koch brothers, have also poured many millions of dollars into organizations engaged in climate denial and lobbying against regulation.

The core of book discusses the awakening of financial actors to climate change and the development of financial markets and instruments, from catastrophe bonds to the European Trading System. This is climate capitalism at work, and the authors cover the complex ground admirably. Insurance companies, pension funds, and banks began paying attention in the early 2000s to climate risks, including physical damage from hurricanes and flooding, the business risks facing carbon-intense firms from higher fuel prices or from technological obsolescence, and reputational and legal risks. The rise of information governance systems such as the Carbon Disclosure Project (CDP) are traced to the UNEP Finance Initiative and usefully placed in the context of heightened investor activism in the wake of corporate governance scandals at Enron and elsewhere.

A few key players, such as Cantor Fitzgerald and Deutsche Bank, were central figures in forging the carbon markets, and not surprisingly, they shaped the rules and processes to suit their capabilities and interests. The strategic agency of these actors highlights a core theme, that carbon markets are political and institutional constructs, relying on a vast legal and accounting infrastructure to commoditize carbon; to establish property rights, count and certify tradable units, and to enable exchange across different jurisdictions and gases. Yet, the agency of environmental NGOs in leveraging investors is perhaps underplayed. The CDP is described as a consortium of investors, but like the Global Reporting Initiative, it functions (and is perceived) more like an NGO trying to shift corporate behaviour by enlisting investors to demonstrate their concern for climate change and the value of information disclosure. Moreover, investors increasingly appear rather dubious about the value of carbon disclosure in assessing risks and asset values.

Overall, Newell and Paterson provide a mixed and cautious assessment of this brave new world of carbon capitalism. While they recognize the power of galvanizing the financial sector, they describe free market advocates as naïve and irresponsible for failing to recognize that markets can fail due to fraud, speculative bubbles, and lack of information and oversight. They pay less attention to other problems of carbon capitalism. Despite the rapid growth of venture capital and entrepreneurs pursuing opportunities in the clean tech sector, the scale of private investment in research and development is puny and faltering. Unlike the IT industry, scaling up projects to demonstrate commercial viability faces a gaping ‘valley of death’, as risk-averse investors shy away from the large-scale investments required. More fundamentally, a price on carbon is a weak tool with which to overcome the inertia of ‘carbon lock-in’, the intertwined economic, technological, cultural and political systems that constitute our carbon-intense economy and lifestyles.

The climate change field is so fast moving that even a 2010 book like this can quickly seem dated. Where climate regulation and a carbon price were once seen as inevitable, there is now uncertainty and confusion. Where denial was passé, it has now revived. Characterizing the current prospects for climate capitalism is not easy. Since the collapse of international negotiations in Copenhagen in December 2009, two large oil companies, BP and ConocoPhillips, along with Caterpillar, manufacturer of heavy industrial machinery, have pulled out of the US Climate Action Partnership, the leading business organization in the US promoting cap-and-trade legislation. There is little chance of the US instituting any kind of carbon market at the national level in the near future; indeed, the EPA and US states are instead turning to more traditional command and control style regulatory approaches.

The book concludes with a number of provocative scenarios. In the neoliberal utopia of carbon capitalism, carbon markets and venture capitalists facilitate a smooth transition to a low carbon-economy. Yet, if this vision of ecological modernization is to be realized, economic growth must be delinked from carbon, as growth itself is sacrosanct. The challenge requires further scrutiny, because of the enormous hurdles regarding population growth, dematerialization of output, energy efficiency and renewables. Stagnation is a more pessimistic, though increasingly likely, scenario. The authors sketch out a world in which the failure of international negotiations combined with limited and poorly functioning carbon markets leads to cynicism and fatalism, with rich countries engaging in large scale adaptation and the poor left to fend for themselves. A third scenario is decarbonized dystopia, in which geo-engineering, biofuels, nuclear power, and carbon sequestration provide technological fixes but with high risks to our health, food supply, or unexpected side effects. Climate Keynesianism is the fourth scenario, entailing stronger governmental supervision of markets and systemic investments in transportation and energy infrastructure.

Missing here is the dystopia of stagnation and delay followed by more urgent, authoritarian and intrusive responses by states. Governments faced with the need for urgent adaptation and rapid emission cuts could well resort to wartime measures such as rationing and direct control of investment and production in key sectors. Economic dislocation could generate widespread unrest, and the security implications of climate change, from refugees to water and food shortages, are just beginning to be appreciated.

The outcome, however, could well disappoint those who expected the climate crisis to usher a new era of a flourishing civil society and egalitarian harmony. Capitalism may yet survive, but in a form that is barely recognizable.

the author

David L. Levy is Chair of the Department of Management and Marketing at the University of Massachusetts, Boston, and Director of the Center for Sustainable Enterprise and Regional Competitiveness. His research examines corporate strategic responses to climate change and the growth of the clean energy sector. More broadly, his work explores strategic contestation over the governance of controversial issues engaging business, states, and NGOs.
E-mail: david.levy@umb.eu



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