Carbon Trade: Regenerating responsibility [Chapter 4 of "Critical Currents", issue 7, Nov, 2009, "Carbon Training - How it works and why it fails"]

4 » Regenerating responsibility

Introduction

Carbon offsets are not emissions reductions. Each offset that is developed in the South allows pollution from fossil-fuelled power stations or heavy industry in the global North to continue over and above reduction limits while the same companies and industrialised countries claim compliance with paltry reduction targets on paper. To date, the UN's Clean Development Mechanism (CDM) has actually resulted in an increase of CO_2 emissions worldwide – displacing emissions cuts in the North in favour of offset projects that have already awarded billions in free subsidies to some of the world's most polluting industries.

As the CDM grows, it is increasingly funding new fossil fuel power generation projects, as well as a plethora of renewable energy schemes. Yet, as the case studies in this chapter will show, even renewable energy projects cannot automatically be assumed to be clean or sustainable.

Hydroelectricity and biomass projects, which are rapidly becoming important sources of CDM credits, generate significant side-effects that could have greater climate change impacts than if they had never happened. In addition, such projects typically support a development paradigm that is insensitive to the needs of local communities, including their health, land use and water requirements.

How the CDM increases emissions

Perhaps the most fundamental point to note about carbon offsets is that they increase global emissions rather than decrease them. Even if an emissions 'reduction' sold by an offset project developer could be verified as successful, any gain would by definition be nullified by increased emissions allowed to the buyer, delaying the transition to a post-fossil fuel economy elsewhere. If every project were designed and implemented perfectly, the net result would be to move emissions from one place to another with no net reduction.

In practice, the CDM is riddled with inadequacies, as this chapter will show. One such defect lies in that a significant proportion of projects – anywhere between one-third and three-quarters – does not represent 'emissions

savings' by any reckoning.[1] The companies behind such projects are paid to do what they would have done anyway, while the credits allowed companies in industrialised countries to exceed their emissions cap.

The underlying problem is that emissions savings are defined as anything that is 'additional.' A baseline assumption is made about what the future would have held without the project; the CDM is assumed to have altered the future, and credits are awarded as a result. Credits from such a scheme are in principle unregulatable, since they are calculated relative to a claim about what would have happened in the future. The future is impossible to predict, yet the CDM accords it a false certainty, and even goes so far as to quantify an exact number of emissions to be 'saved.'

In addition, the counterfactual 'baseline' is measured against the purported emissions savings of a carbon offset project, and these are calculated over 100 years. For example, a wind farm in India may claim to be generating carbon credits because it is saving on the burning of fossil fuels. However, as Kevin Anderson of the Tyndall Centre for Climate Change Research explains:

> ...those wind turbines will give access to electricity that gives access to a television that gives access to adverts that sell small scooters and then some entrepreneur sets up a small petrol depot for the small scooters and another entrepreneur buys some wagons instead of using oxen and the whole thing builds up over the next 20 or 30 years, so it is the same thing. The additionality test would be, if you can imagine Marconi and the Wright brothers getting together to discuss where they will be in 2009, easyJet and the internet will be facilitating each other through internet booking. That is the level of…certainty you would have to have over that period. You cannot have that. Society is inherently complex.[2]

Easy pickings

A second assumption underpinning carbon offsets is that the cheapest reductions should be made first – with a market-based approach assumed to be the best means of achieving this goal. Yet the evidence of how the CDM and voluntary offsets schemes have performed to date shows this to be deeply flawed as a means to tackle climate change or stimulate a greener development path.

Most CDM offset credits, called Certified Emissions Reductions (CERs), are generated by projects that contribute nothing to a transition to a non-fossil dependent society. As of September 2009, three-quarters of the offset credits issued were manufactured by large firms making minor technical adjustments at a few industrial installations to eliminate hydrofluorocarbons (HFCs) and

1 International Rivers Network, 'Rip-offsets: The Failure of the Kyoto Protocol's Clean Development Mechanism', 2008, p.3. International Rivers Network found that 76 per cent of the projects approved by 1 October 2008 were already up and running by the time they were approved to generate CDM credits, strongly suggesting that they would all have happened anyway. As a result of a separate analysis, David Victor of Stanford University concluded that 'between one and two thirds of all the total CDM offsets do not represent actual emission cuts.' Interview with John Vidal, 'Billions wasted on UN climate programme', *The Guardian*, 26 May 2008.

2 UK House of Commons Environmental Audit Committee, 'Inquiry into Carbon Budgets', 23 June 2009, http://www.parliament.the-stationery-office.co.uk/pa/cm200809/cmselect/cmenvaud/uc616-ii/uc61602.htm

nitrous oxide (N_2O).[3] This picture is unlikely to change dramatically by the time the Kyoto Protocol's first commitment period expires. By the end of 2012, HFC and N_2O credits are still expected to account for the largest shares of the CDM (28.5 per cent and 14.4 per cent respectively), followed by hydro-electricity projects (10.8 per cent). Solar power is expected to account for 0.03 per cent of CDM credits by 2012.[4]

As Michael Wara of Stanford University puts it:

> [T]he CDM market is not a subsidy implemented by means of a market mechanism by which CO_2 reductions that would have taken place in the developed world take place in the developing world. Rather, most CDM funds are paying for the substitution of CO_2 reductions in the developed world for emissions reductions in the developing world of industrial gases and methane. Indeed, the industrial gas emissions that account for one third of CDM reductions do not even occur in the developed world...because Annex B industries [those in developed countries], after recognizing the threat posed by these emissions and the low cost of abating them, have opted to voluntarily capture and destroy them.[5]

The key lesson here is that we should be challenging the claims that markets offer the cheapest solutions for tackling climate change, and ask instead: cheapest for whom and cheapest when? HFC-23 projects have generated massive profits for a handful of companies producing refrigerant gases, and others that use it as a primary feedstock for production of polytetrafluoroethylene (PTFE), commonly referred to as Teflon. In fact, the sale of carbon credits from these activities rapidly became far more valuable to the companies than the production of the refrigerants and coatings that lead to its creation in the first place.[6]

Various studies even found that the CDM could even have accelerated the production of these gases, to maximise the credits generated through capturing them.[7] Wara estimates that a straightforward subsidy to regulate HFC-23 emissions would have cost less than €100 million – yet, by 2012, up to €4.7 billion in carbon credits will have been generated by such projects.[8] A similar story

3 According to Risoe data, 56 per cent of the emissions reductions arise from HFC-23 projects, with a further 20 per cent from N_20 projects. HFC-23s are a powerful greenhouse gas produced as a byproduct in refrigerant production.

4 UNEP Risoe CDM/JI Pipeline Analysis and Database, 'expected figures' 135437, www.cdmpipeline.org

5 Michael Wara, 'Measuring the Clean Development Mechanism's Performance and Potential', *UCLA Law Review*, no. 55, 2008, p.1780.

6 M. Wara and D. Victor, 'A Realistic Policy on International Carbon Offsets', PESD Working Paper no. 74, 2008, p.11.

7 Wara and Victor, *op.cit*, *supra*, note 6, pp.1786-7; Joint Committee of UK Parliament on the draft climate change bill, Final report, Volume I, August 2007. The CDM board tried, belatedly, to deal with the perverse incentives to overproduce HCFC-22 (an ozone-depleting refrigerant and greenhouse gas) in order to capture and destroy HFC-23 (a byproduct of HCFC-22 production, which the Intergovernmental Panel on Climate Change considers to be a greenhouse gas 14,000 times more potent than carbon dioxide),, by approving only projects that already had HCFC-22 production capacity in the 2000-2004 period. But Wara finds evidence that the suppliers have, in response, manipulated the base year data to overstate the inefficiency of their plants and ramp up production of the gas to receive extra CDM credits.

8 Michael Wara, 'Is the global carbon market working?', *Nature,* 8 February 2007.

could be told about N_2O reduction projects, which generally capture emissions from adipic acid production, part of the process of manufacturing synthetic fibres like nylon.

What was cheap and profitable for the companies cashing in on such projects turns out to be an extraordinarily expensive subsidy to a highly polluting industry with a long record of blighting the lives of local citizens and the environment surrounding these factories.[9]

Rhodia cashes in

Rhodia, a French chemical firm, makes adipic acid at a factory in South Korea. By investing US$ 15 million in equipment that destroys nitrous oxide – an unwanted by-product – the company is set to produce US$ 1 billion in UN-approved carbon credits for sale to polluting industries in industrialised countries.[10] Nitrous oxide is a greenhouse gas said to be around 300 times more potent than carbon dioxide, so Rhodia can generate 310 tonnes of carbon credits just by burning one tonne of the compound.

The trade does not reduce overall greenhouse gases, because customers buy Rhodia's credits only so that they can continue to invest in fossil fuels. Nor does it help Korea decarbonise: at best, it is irrelevant; at worst, it encourages the country to build more dirty industries so that it can make money by cleaning up later. Nor does the trade encourage green innovation. The technology Rhodia uses dates from the 1970s. Rhodia already makes 35 times more money selling carbon credits than it does from the adipic acid market.

As the world's largest adipic acid producer, Rhodia has sought to repeat this trick elsewhere, with a number of similar CDM projects in South Korea and Brazil, where it also owns factories. In May 2009, Rhodia gained approval for a similar Joint Implementation project in southern France.[11]

A greener future?

Proponents of the CDM suggest that a new balance of future projects will gradually give incentives for cleaner energy production and more sustainable development. Yet the evidence does not support this conclusion, most obviously in relation to the plethora of fossil fuel projects that are supported by the CDM. To apply for the scheme, a project simply needs to prove that it is cleaner than the norm for existing power production in the region or country where it is located. As new plants are generally more efficient than old ones, this is rarely a difficult task. A study of new gas-fired power stations in China, for example, found that all 24 new combined cycle gas turbine plants under construction between 2005 and 2010 had applied for CDM subsidies.[12]

The same trick looks set to be repeated with new 'supercritical' coal-fired power plants, which have been eligible for CDM credits since autumn 2007 – despite the fact that coal is amongst the most CO_2 intensive sources of power. Fifteen projects had sought validation under this methodology as of September

9 Nadene Ghouri, 'The great carbon credit con: Why are we paying the Third World to poison its environment?', *Daily Mail*, 1 June 2009. http://www.mailonsunday.co.uk/home/moslive/article-1188937/The-great-carbon-credit-eco-companies-causing-pollution.html

10 Jeffrey Ball, 'French Firm Cashes In Under UN Warming Program', *Wall Street Journal*, 23 July 2008.

11 'Rhodia gets Kyoto carbon credits for French plant', *Reuters*, 20 May 2009.

12 Wara and Victor, *op.cit*, *supra*, note 6, p.1793.

2009, including the Tata Mundra project, a complex of coal-fired power plants in Gujarat, India.[13] With the support of the International Finance Corporation, the private investment arm of the World Bank, this project claims that it will emit 3.6 million tonnes of CO_2 less than would otherwise be the case, generating an estimated US$ 50 million per year from the sale of carbon credits. Yet the scheme as a whole is expected to emit 700 million tonnes of CO_2 during its operating life, which is greater than one year's greenhouse gas emissions for the whole of the UK.

Instead of supporting clean energy, the CDM proposes to support a dirty energy source on the grounds that it is a marginal improvement on the current, incredibly dirty practice. This overlooks the likely emergence of supercritical technology as a norm for new large coal-fired power stations, since its adoption is in any case backed by other fiscal and policy incentives.[14] Further, it sets up a perversely circular structure. Instead of envisaging a rapid transition to clean energy, the CDM is subsidising the lock-in of fossil fuel dependence through providing incentives for coal-fired power stations in the South, rather than energy infrastructure based on local needs. With the credits that these new plants will generate, the CDM is at the same time encouraging a continued reliance on coal-fired power stations in the North as well.

Why even 'good' projects are bad projects

The growth of CDM investment in fossil fuel power generation is not the whole story, however, as proponents of the scheme might still claim that it will expand investments in 'renewable' sources at a similar rate.

Typically, the calculations for hydroelectric projects are that they will replace energy that would otherwise have been sourced from fossil fuels. However, a survey of Chinese hydropower projects submitted for CDM validation found that over three-quarters were expected to start generating credits within 12 months of their validation. Since hydropower plants normally take several years to build, the likelihood is that most projects were under construction before beginning the CDM validation process.[15] Such projects also create significant local environmental and social impacts in their own right.[16] The likelihood of increased emissions of methane (a more

13 CDM methodology ACM0013, 'New grid connected fossil fuel fired power plants using a less GHG intensive technology', was devised by Perspectives, a CDM/JI consultancy founded by carbon market analyst Axel Michaelowa. The methodology was approved in September 2007, and 15 projects had been submitted as of September 2009; see http://cdmpipeline.org/publications/CDMpipeline.xls In response to controversy over its inclusion, the CDM Executive Board has limited its use to 15 per cent of power generation within any given country.

14 The Indian government is proposing to waive import duties on supercritical technology and income taxes on revenue generated from supercritical coal plants. In China, the government has instructed power companies to choose supercritical plants rather than subcritical plants because they use less coal – a policy directive that makes the 'additionality' claim attached to such projects highly questionable. See Subhash Narayan, 'Tax sops for supercritical tech', *The Economic Times*, 21 August 2009. http://economictimes.indiatimes.com/News/News-By-Industry/Energy/Tax-sops-for-supercritical-tech/articleshow/4917200.cms ; Wara, *op. cit.*, *supra*, note 5, pp.1796-7.

15 Barbara Haya, 'Letter to CDM Executive Board On Non-Additional Chinese Hydros', 12 October 2007, http://www.internationalrivers.org/node/1892

16 The NGO International Rivers maintains a non-exhaustive list of controversial CDM hydroelectricity projects: http://www.internationalrivers.org/en/taxonomy/term/482. See also Tamra Gilbertson, 'The Bhilangana Dam on Troubled Waters', *Mausam*, vol. 2, pp.3-5, Oct 2008-Sept 2009.

potent greenhouse gas than CO_2) as a result of dam building also remains unconsidered within the CDM approval process.[17]

A similar assessment could be made of biomass power projects, which tend simply to count the methane (CH_4) emissions that are avoided because it is burned rather than allowed to biodegrade – without considering the huge emissions caused by cutting down forests or draining carbon-rich peatlands to set up plantations in the first place.

The attempt by carbon offset promoters to distinguish between 'good' and 'bad' projects misses the point, since even the most renewable projects are inserted within a system that generates credits to carry on polluting elsewhere. But such projects not only perpetuate the old problems of coal, oil and gas; they often promote local conflict as well. Not designed to deal with the real complexities and intricacies of communities and livelihoods, they require enormous quantities of land, water, machinery and are not set up to benefit the local communities or ecology. They generally take place in regions where people have little political power, thereby deepening the North-South gap.

The resulting conflicts often come as a surprise to idealists convinced that carbon offset projects – whether set up under the auspices of the Kyoto Protocol's CDM or under voluntary private schemes – will bankroll community-friendly renewable energy and set the South on a low-carbon path to industrialisation. But as argued in chapter 3, the carbon market is not designed in a way that would make the attainment of such goals possible. Because its purpose is, rather, to provide cost savings in the achievement of minimal, short-term abstract emissions targets, it is ineffective in channelling investment to long-term development pathways that could result in a fossil-free future, with the market taking no account of community needs or local environmental impacts when selecting which projects receive financing..

As the case studies in this chapter will outline, in order to generate carbon credits from trees or energy crops, plantation companies have to maintain their hold on land that citizens may need for other purposes. In order to generate carbon credits from burning rice husks, developers dismiss local people's need of a valuable resource. In order to keep track of the carbon that their agroforestry schemes generate, rural development organisations have to divert resources from their traditional work. In order to obtain carbon credits for building wind farms, companies annex land for showcase 'green' projects whose principle purpose is to gain from tax and depreciation benefits rather than to generate power, while depriving local communities of common grazing lands.

The conflicts that result from such projects are inevitable, with the big, highly-capitalised firms or agencies that are in the best position to hire carbon consultants and accountants, liaise with officials or pay the fees needed for UN registration tending to be the worst corporate 'bad citizens' in many localities. As a result, common ground exists between communities resisting carbon offset projects and those suffering from other aspects of the fossil fuel economy.

17 Duncan Graham-Rowe, 'Hydroelectric power's dirty secret revealed', *New Scientist,* February 2005.

If most fossil fuels must be kept in the ground, then renewable energy is going to become increasingly important to energy economies and livelihoods worldwide. But there are blind ways of promoting renewable energy. The following case studies serve as a warning of how *not* to go forward. If renewable projects are embedded inside existing 'development' frameworks – North-South power relations – and used indirectly to promote more dirty industries, they become incapable of promoting a future of truly 'sustainable' renewable energy.

Reduced Emissions from Deforestation and Forest Degradation (REDD)

Reducing Emissions from Deforestation and Degradation (REDD) schemes are among the most controversial within the climate debate. The concept assumes that deforestation happens because too little economic value is placed on intact forests, and that providing money for conservation to forested countries in the South will help to protect them.[18] Yet this idea is challenged by many Indigenous Peoples (IPs) and forest communities, who warn that putting a price on forests will encourage further land grabs by large companies and governments and that this is already the experience of some REDD pilot projects. Many IPs and forest peoples' organisations stress that the real drivers of deforestation are the major construction, mining, logging and plantation developments whose owners stand to be rewarded by REDD funds.

Several REDD schemes are already underway, some hosted by the UN and the World Bank, others in response to bilateral agreements between countries.[19] A number of countries, including Ecuador, have started their own REDD funds, positioning themselves to reap the profits of a new global climate agreement.[20] A number of private conservation funds and voluntary offset projects have also established new REDD schemes.[21]

18 The concept of payments for environmental services was discussed in the lead-up to the Kyoto Protocol, but was rejected (see box, 'Environmental Services to LULUCF, chapter 2, p. 25). In 2005, a group of countries, the Coalition of Rainforest Nations developed a proposal on REDD which was put forward at the 2007, UNFCCC Conference of the Parties in Bali (COP 13).

19 The Norwegian government has committed US$ 600 million a year to REDD; Australia is involved in REDD projects in Australia and Vanuata; and the German technical cooperation agency (GTZ) is setting up projects in Indonesia and Laos.

20 Ecuador is currently seeking donations from organisations and governments for its new 'Forest Partners Program' ('Programa Socio Bosque'), set up to capitalise on future REDD funds. See http://www.ambiente.gov.ec/paginas_espanol/sitio/index.html The programme (and a counterpart, called Socio-Paramo) has been criticised by the Confederation of Indigenous Peoples from the Ecuadorian Amazon (CONFENIAE, the Ecuadorian member organisation of COICA). The statement from the First Congress of Women of the CONAIE declared: 'We reject the implementation of the Socio-Bosque Program and the Socio-Paramo Program because they impose "conservation" without recognizing our rights to sustainably manage forest resources according to our needs. We also reject the proposals to sell the carbon of the Amazonian rainforests'; 28 and 29 August 2009, http://www.conaie.org/index.php?option=com_content&view=article&id=50%3Aprimer-congreso-de-mujeres-conaie&catid=1%3Alatest-news&Itemid=50&lang=en

21 These include REDD projects sponsored by NGOs, including The Nature Conservancy, Conservation International, WWF US, Environmental Defense Fund, Woods Hole Research Center, CIFOR, and the Wildlife Conservation Society – a number of which have been accused of coercing Indigenous Peoples to hand over their lands for new REDD schemes with little or no consultation. See www.redd-monitor.org and www.wrm.org.uy

UN REDD

UN-REDD was set up by the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) the Food and Agriculture Organisation (FAO) and the World Bank, and is currently running pilot projects in Bolivia, Democratic Republic of Congo, Indonesia, Panama, Papua New Guinea, Paraguay, Tanzania, Vietnam and Zambia.

Indigenous Peoples Organisations (IPOs) note the current lack of a formal consultative process for Indigenous Peoples within the climate change negotiations as evidence that REDD will flout the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), which was adopted by the UN General Assembly in 2007. More specifically, neglect of rights to Indigenous territories as well as to free, prior and informed consent (FPIC) granted by the UNDRIP is also a concern for IPs. It is highly unlikely that these rights will be recognised by any new deal negotiated at the UN Climate Conference in Copenhagen in December 2009.

The Framework Document that established UN-REDD itself admits a range of potential failings – noting that REDD could 'deprive communities of their legitimate land-development aspirations' and 'marginalise the landless'; that 'hard-fought gains in forest management practices might be wasted'; that it could 'lock-up forests by decoupling conservation from development'; and that it might 'erode culturally rooted not-for-profit conservation values.'[22] Yet no real answers to these potential rights violations and difficulties are offered. It is asserted without evidence that putting a cash value on forests will help to avoid deforestation, and that if this theory proves correct the net result of the scheme will be beneficial.

This is a symptom of a more general failure of REDD schemes to take account of the unjust realities of current land tenure regimes. 'In many tropical countries, states… legally define the remaining forests as so-called "state land",' explains Tom Griffiths of the Forest Peoples' Programme. With REDD payments administered top-down by governments, companies and conservation NGOs, the risk is that forest-dependent peoples would be evicted in order to 'protect lucrative forest carbon "reservoirs"'.[23]

World Bank funds

The World Bank's Forest Carbon Partnership Facility (FCPF) was launched at the UN Climate Conference in Bali in 2007, amid protests that demanded 'World Bank out of my forest' and 'No carbon market for forests'. The FCPF was initiated without Indigenous Peoples' input or recognition.

To date, the FCPF consists of two funds, the Readiness Fund and the Carbon Fund, the former to support country readiness efforts, the latter to buy certified emissions reductions for trading on the carbon market. According to the Indigenous Environment Network (IEN), 'the World Bank isn't waiting for the UN to adopt a REDD implementation framework: they have moved forward with their own REDD-type projects through R-PINs

22 UN-REDD Framework Document, p4-5, www.undp.org/mdtf/UN-REDD/docs/Annex-A-Framework-Document.pdf , Poverty Environment Partnership (PEP) Policy Brief www.povertyenvironment.net/?q=filestore2/download/1874/PEP-REDD-policy-brief-Oct-08.pdf

23 Tom Griffiths, *Seeing 'RED'? 'Avoided deforestation' and the rights of Indigenous Peoples and local communities*, Forest Peoples Programme, June 2007, http://www.forestpeoples.org/documents/ifi_igo/avoided_deforestation_red_jun07_eng.pdf

(Readiness Plan Idea Notes) and through its other carbon and climate funds.'[24]

By June 2009, 37 countries submitted readiness concept notes, the first 20 of which have priority status for funding until June 2010. After that date all of the 37 countries may be eligible for funding.[25] In addition, the World Bank already funds REDD-type projects through its BioCarbon Fund and Forest Investment Programme.

The World Bank's track record on forests and carbon markets is hardly impressive. During the 1980s, it funded a series of disastrous commercial logging projects, mega-dams and road-building programmes that opened the way to widespread deforestation.[26] Mounting criticisms led to a new forest policy in 1991 which, at least on paper, ended the Bank's support for commercial logging, while stressing conservation and local people's rights. In practice, though, the Bank continued to incentivise forest destruction through its structural adjustment programmes.

A 2007 study by the International Alliance of Indigenous and Tribal Peoples of the Tropical Forests documented the 'servitude' suffered by Batswa Pygmies under the World Bank Ibi-Batéké carbon sink plantation.[27] Hailed as an inspiring model for Africa, the tree plantation grows trees to burn them for fuelwood and charcoal and claims to be the Democratic Republic of the Congo's first clean development project. However, Pygmy leaders have repeatedly denounced the World Bank for funding deforestation of their ancestral forests, violating their rights, leading to the destruction of their livelihood and causing social conflict.

REDD and carbon markets

The FCPFs 'ultimate goal is to jump-start a forest carbon market', says Benoit Bosquet, a World Bank senior natural resources management specialist who has led the development of the Facility.[28] These are unoriginal

24 Indigenous Environment Network, 'No REDD!' booklet, Sept. 2009. www.ienearth.org

25 Bank Information Center, http://www.bicusa.org/en/Issue.50.aspx . To date, three countries (Indonesia, Panama and Guyana) have submitted Readiness Preparation Proposals (R-PPs) and are poised to receive readiness funding once the World Bank has completed its due diligence and the countries have addressed concerns raised by the World Bank, an independent assessment panel and the governing body of the FCPF.

26 World Rainforest Movement (2002) 'The World Bank in the forest', http://www.wrm.org.uy/actors/WB/index.html

27 International Alliance of Indigenous and Tribal Peoples of the Tropical Forests report, 'Indigenous Peoples and Climate Change: Vulnerabilities, Adaptation, and Responses to Mechanisms of the Kyoto Protocol', 2007; S. Makelo, 'The DRC Case Study: the impacts of carbon sinks of Ibi-Batéké Project on the indigenous Pygmies of the Democratic Republic of Congo', pp.45-74, especially 62-64, http://www.international-alliance.org/documents/Climate%20Change%20-%20DRC.pdf .The human rights violations against Pygmies are acute throughout the country. See also 'Pygmies beg UN for aid to save them from Congo cannibals', http://www.timesonline.co.uk/tol/news/world/article1135111.ece. See also World Bank, 'DRC Ibi Bateke Carbon Sink Plantation', http://wbcarbonfinance.org/Router.cfm?Page=Projport&ProjID=43647 .World Bank documents claim no Indigenous Peoples affected, on pages 4 and 8, http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2009/06/04/000333037_20090604015605/Original/487470ISDS0rev110Batekeo0Box338924B0.doc; 'Four million dollar investment from World Bank Carbon Finance', http://web.worldbank.org/external/projects/main?Projectid=P096414&Type=Financial&theSitePK=40941&pagePK=64330670&menuPK=64282135&piPK=64302772. But it is worth noting that the Inspection Panel shows the Bank broke its own rules; see for example, http://www.bicusa.org/EN/Article.3645.aspx; Forest Carbon Inventory Project, http://www.forestcarbonportal.com/inventory_project.php?item=294

28 http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21581819~pagePK:64257043~piPK:437376~theSitePK:4607,00.html

words. In 1999 the World Bank launched its first carbon fund, the Prototype Carbon Fund (PCF) with the aim of creating 'a short-term catalyst to jump-start the transfer of finance for clean energy technologies to developing countries'.[29] What followed, in the form of the CDM, was anything but such a catalyst.

At the Bali climate negotiations in 2007, the International Indigenous Peoples Forum on Climate Change (IIPFCC) warned that '[u]nder REDD, states and carbon traders will take more control over our forests'. At UN climate negotiations in Bangkok in September 2009, the IIPFCC stated: '[T]he recognition of our rights must be in accordance with international human rights law and standards including the UNDRIP and ILO Convention 169, among other human rights instruments. If there is no full recognition and full protection for Indigenous Peoples' rights, including the rights to resources, lands and territories, and there is no recognition and respect of our rights of free, prior and informed consent of the affected indigenous peoples, we will oppose REDD and REDD+ and carbon offsetting projects, including CDM projects.'[30]

REDD is already linked to the carbon market, with almost all of the 100 pilot projects underway assuming that they will be able to generate offset credits. In Papua New Guinea (PNG), carbon traders are accused of coercing villagers to 'to sign over the rights to their forests' for REDD.[31] The *Sydney Morning Herald* has reported that 'scores of carbon traders...have been active in PNG and Indonesia trying to sign landowners'. Tim King, from the Wilderness Society, said there had been 'a tsunami of carbon traders spreading across PNG. Carbon finance and REDD have triggered a "gold rush" mentality.'[32]

Cap and trade legislation in the US, passing through Congress at the time of writing, also looks towards massively increasing the volume of offsets – with international forest offsets projected to account for a significant proportion of US carbon reduction targets.[33] The mere prospect of deforestation credits being recognised in a new US climate bill has been enough to spark a REDD land grab in central Africa.[34]

Avoided responsibility and other criticisms

A number of further criticisms have been levelled at REDD proposals. The UN definition fails to differentiate between forests and plantations, which means that companies could replace intact forests with monoculture tree plantations and still qualify for REDD subsidies.[35] Such plantations have devastating impacts on Indigenous Peoples' and forest-dwelling communities' livelihoods.[36]

29 www.worldbank.org

30 Press Release International Indigenous Peoples' Forum on Climate Change, Bangkok, Thailand, 29 September 2009. REDD+ is an addition to include other forms of biotic carbon stores such as soils and projects to theoretically increase carbon storage. See for example www.biofuelwatch.org.uk.

31 *Sydney Morning Herald*, 3 September 2009, http://www.smh.com.au/environment/i-am-a-top-foreigner-in-papua-new-guinea-says-carbon-kingpin-20090903-fa0m.html

32 Marian Wilkinson and Ben Cubby, 'Australian firm linked to PNG's $100m carbon trading scandal', *Sydney Morning Herald,* 4 September 2009. http://www.smh.com.au/environment/australian-firm-linked-to-pngs-100m-carbon-trading-scandal-20090903-fa2y.html

33 'The Green Gold Rush', http://www.businessspectator.com.au/bs.nsf/Article/The-big-green-rush-pd20090907-VN255?OpenDocument.

34 Point Carbon, 'Firm Targets US Buyers with African REDD Credits', 20 July 2009, http://www.pointcarbon.com/news/1.1166150.

35 Chris Lang, 'REDD: an introduction', http://www.redd-monitor.org/redd-an-introduction/

36 See for instance the film 'Our Land Our Struggle', http://www.carbontradewatch.org/index.php?option=com_content&task=view&id=161&Itemid=45; www.wrm.org.uy and the case study on Plantar in the next chapter.

In addition, REDD schemes tend to reduce complex forest ecosystems to a simple carbon store – undervaluing them as water catchment areas and habitats for biodiversity, as well as their inestimable role in sustaining livelihoods, cultures and peoples.[37]

Creating a trade in forest carbon requires an accounting system far beyond what is technically possible. Significant doubts remain even about basic matters such as the ability to measure accurately deforestation rates, to say nothing of techniques for equating forest and fossil carbon. As Jutta Kill of the Forests and the European Union Resource Network (FERN) points out, 'Carbon in forests is always released into the atmosphere at some point, as part of a cycle, whereas the release of fossil carbon is a one-way road.'[38] Such concerns were among the reasons for the limitations placed on tree plantations as carbon 'sinks' within the CDM, and are the reason why the EU ETS currently excludes credits from land use, land use change and forestry (LULUCF).

There is also a serious risk of wide-scale corruption. Peter Younger, Interpol environment crimes specialist has warned that '[f]raud could include claiming credits for forests that do not exist or were not protected, or by land grabs. It starts with bribery or intimidation of officials, then there's threats and violence against those people. There's forged documents too… Carbon trading transcends borders. I do not see any input from any law enforcement agency in planning REDD.'[39]

Despite these warnings, REDD schemes on the negotiating table at Copenhagen are already being primed for expansion to other sectors. Under proposals dubbed REDD+ this could include soil carbon and agriculture, with the trade in REDD carbon credits eventually including biochar offsets and genetically modified crops and trees.

Ultimately, REDD has more to do with avoided responsibility than 'avoided deforestation'. The cost-benefit assumption that 'action to avoid deforestation would be relatively cheap', in the words of Sir Nicholas Stern, lies behind the drive to include REDD in a new agreement, irrespective of the social and environmental consequences.[40] For example, the co-organisers of the Copenhagen Business Summit on Climate Change suggested that avoided deforestation measures could account for up to half of the action needed to limit climate change by 2020.[41] This is a boon to power suppliers and heavy industry, which is keen to find a cheap source of offsets so that it can avoid taking action to reduce its own emissions. But these simplistic schemes to grow money on trees represent a significant setback for the complex work of protecting forests through defending the territorial and other rights of Indigenous Peoples and forest communities – who have currently and historically done the most to protect forest ecosystems.

37 WAHLI/Friends of the Earth Indonesia, Statement on REDD, December 2007, http://www.walhi.or.id/

38 Personal interview, January 2008.

39 John Vidal, 'UN's forest protection scheme at risk of organised crime, experts warn', *Guardian*, 5 October 2009.

40 Nicholas Stern et al., *Stern Review on the Economics of Climate Change,* HM Treasury, London, 2006, p.viii.

41 Oscar Reyes, 'Carbon trading and cash values on forests cannot curb carbon emissions', *Guardian*, 28 May, http://www.guardian.co.uk/environment/cif-green/2009/may/28/carbon-trading

How are CDM projects registered and credits generated?

The CDM is a project-based system. Projects can be considered separately or as aggregated projects.[42]

CDM projects must either use a previously approved **methodology** or propose a new one. There are currently (as of September 2009) 124 approved methodologies within the CDM, each of which has been approved separately by the **CDM Executive Board**.[43] These include a broad range of activities ranging from the capture of greenhouse gases, through to energy production and efficiency initiatives. With the exception of nuclear power, the CDM is officially technology-neutral. This has led to the inclusion of various new fossil fuel projects within the scheme – including huge, 'supercritical' coal-fired power stations (although 'carbon capture' is currently excluded).[44]

Each project wishing to be considered must first complete a **Project Design Document (PDD)** to show how it will produce emissions reductions that would not otherwise have happened (termed 'additionality'). It should also show that the project will not simply displace the pollution elsewhere ('leakage'). Both of these concepts require that a hypothetical 'baseline' be created – an account of the world without the project. As Lambert Schneider of Germany's Oko Institute puts it: 'If you are a good storyteller you get your project approved. If you are not a good storyteller you don't get your project through.'[45]

Since the PDD documentation is highly complex, this task tends to be carried out by specialist **'project design consultants'.** The largest of these companies is EcoSecurities, which had developed 309 of the CDM projects successfully registered by September 2009. The same company is also the largest single purchaser of CDM credits, since its interests lie mainly in trading the credits rather than in the projects themselves.

A project must then receive approval from the host country's **Designated National Authority (DNA),** which is usually the country's environment or energy ministry, before being submitted for validation.[46]

The validation process starts with the PDD being sent to a **Designated Operational Entity (DOE)** or **validator,** whose task it is to assess the project. At the start of this process, there is a 30-day period where the proposed project is open to public comment.

These comments should then inform the project validator's recommendations, but

42 An aggregated CDM project consists either of several (similar small-scale) projects that can be grouped together as one project, or of similar or varying projects that together form a programme.

43 http://cdmpipeline.org/cdm-methodologies. htm #3; accessed 13 September 2009.

44 Thus far 15 projects have sought validation under the heading 'New grid-connected fossil fuel fired power plants using a less GHG intensive technology' (ACM0013) since this methodology was approved in April 2007. http://cdmpipeline.org/publications/CDMpipeline.xls, September 2009

45 Lambert Schneider, presentation at conference on Review of the EU ETS, Brussels, 15 June 2007.

46 Several countries have implemented new national institutions to streamline the DNA approval process. One example is the Thai Greenhouse Gas Organisation established in 2007, to fast-track CDM projects after investors complained that the Office of Environmental Policy and Planning (the original DNA) was too slow, and could thus jeopardise Thailand's opportunity to ride on the CDM profit-making bandwagon.

are routinely sidetracked or left unanswered. This is not particularly surprising, since the validators are private companies which compete for the business of project developers – opening up the possibility of significant conflicts of interest.

In practice, a handful of companies and state bodies dominate the validation market – with the two largest companies, Det Norsk Veritas (DNV) and TÜV SÜD, accounting for over half of the projects submitted to date.[47] DNV was temporarily suspended between November 2008 and February 2009 for assigning staff with inadequate technical expertise to evaluate projects, for a lack of internal audits and a lack of documentation to back up its decisions.[48] In September 2009, the third largest validator, SGS UK, was also suspended by the United Nation due to similar allegations.[49]

Once the validator has assessed the project a request for registration is made. The PDD and validation report are submitted to the CDM Secretariat, an administrative body attached to the UNFCCC. They are then passed to the **UNFCCC registration and issuance** team, which reviews the project and can ask for revisions or reject it outright.

The project finally passes to the **CDM Executive Board**, which ultimately decides on whether the project will be approved. With 1,792 projects registered, but 2,605 still at a validation stage, it is clear that the present system is severely stretched. Project developers and traders talk of a 'bottleneck,' and are pressuring the UN to relax the rules.

To do so, however, misses the more fundamental reasons underlying the creation of a labyrinthine CDM bureaucracy. As Michael Wara and David Victor put it in their study of carbon offsets: 'Lacking any other source of information about individual projects and facing pressure from both developing and developed country governments, the CDM Executive Board is prone to approve projects.' They go on to explain: 'Asymmetries of information are rampant; the incentives mostly align in favor of approval.'[50]

Once a project is registered, a project must submit monitoring reports to the CDM secretariat. These are reviewed by the UNFCCC registration and issuance team, with the subsequent report sent to the CDM Executive Board for approval. Only after this process is completed can certified emission reductions (CERs) be issued – although, in practice, many will have been traded in advance on a futures market.

47 Det Norsk Veritas (31.4 per cent) and TÜV Süd (21.2 per cent), http://cdmpipeline.org/publications/CDMpipeline.xls, September 2009.

48 The toothlessness of this measure is expressed by DNV's own press release on its re-instatement – having served only three of the six months of its suspension: 'During the suspension period, validation and verification work relating to ongoing projects continued as usual. No projects could, however, be submitted to UNFCCC for registration or requested for issuance of certified emissions reductions. Due to the fact that the ongoing projects were progressing normally during the suspension period, only a limited number of projects experienced a delay in their validation and verification processes.' http://www.dnv.com/press_area/press_releases/2009/dnvscdmaccreditationreinstated.asp

49 Danny Fortson and Georgia Warrnen, 'Carbon trading market hits as UN suspends clean energy auditor', *The Sunday Times*, UK, 9 September 2009. http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article6832259.ece

50 Wara and Victor,*op. cit.*, *supra*, note 6, p.14.

Flooded – A. T. Biopower case study

Biomass in Thailand[51]

'Tell me which industry you can call clean; I have never seen one.'

Sunthorn Yensook, Nam Song resident

Biomass is often considered to be a renewable resource that uses waste products to generate electricity. For people who have depended on this 'waste' for either their local economy or livelihoods it is a different story. What is waste and who has the right to define it? Far too often the waste in question already has a purpose within a local economy. This case study from Thailand highlights an example of a 'waste' product, in this case rice husks, which is in fact a valuable part of an existing local economy. It shows that even small-scale biomass energy projects, which are allegedly among the better offset projects, also cause pollution and can in effect be detrimental to the lives and livelihoods of local residents.

A. T. Biopower and the CDM

In 2001, A.T. Biopower put forward a plan to build five rice husk-burning biomass power stations with the objective of bundling them together and acquiring CDM financing. The first station was built in Pichit near the fertile banks of the Nan River in north-central Thailand. The Pichit power station is a 22 megawatt capacity thermal power plant located next to the community of Sa Luang in Hor Krai sub-district in the province of Pichit, about 200 km north of Bangkok. The power station is located one kilometre from the Nan River and has a daily fuel requirement of 500 metric tonnes and a daily water requirement of approximately 2,200 cubic metres. It is fed in its entirety with rice husks. The power plant is surrounded by newly planted eucalyptus and pine trees.[52]

The power station is accredited as a biomass energy project of the CDM. The A.T. Biopower project was the first CDM project registered in Thailand, and among the first five for which baseline methodologies were approved by the CDM Executive Board.[53] It is one of 24 registered CDM projects in Thailand, with close to 100 more projects in the pipeline. The credits generated by the project are bought by Japan Mitsubishi UFJ Securities, a financial services group, and Chubu Electric, a Japanese power company which is registered in The Netherlands to minimise its corporate tax obligations. Chubu also owns a 34 per cent stake in A.T. Biopower.

What waste?

Rice husks are a by-product of rice-milling. They have been used for centuries to absorb animal droppings, mostly from chickens. The resultant product is used as an agricultural fertiliser as well as for brick manufacturing. The rice husk and manure mixture creates a healthy balance of carbon and nitrogen which releases minerals into the soil and

51 This case study research was conducted by Nantiya Tangwisutijit, Tamra Gilbertson and Ricardo Santos in November 2008.

52 http://www.atbiopower.co.th/power_plant/power_plant_e.htm

53 Anne Arquit Niederberger and Raymond Saner, 'Exploring the relationship between FDI flows and CDM potential', *Transnational Corporations*, April 2005.

builds soil content. Rice husks therefore play a vital role in local small-scale agriculture. Farmers in the region commented that they will have to replace this natural fertiliser with chemical fertilisers because demand from the power plant has driven up the price of rice husks, meaning they are no longer affordable.[54] Local chicken farms and brick factories have to go further away to source rice husks, destroying a once self-sufficient system in the region as well as causing local farmers to become dependent on fossil fuel-based fertilisers.

The A. T. Biopower project claims to be replacing power generation which would otherwise require oil, coal and natural gas. It also claims that the resulting ash by-product will be used for cement production, further reducing the environmental impact. No mention is made of existing uses for rice husks, which are presented merely as waste products. This fiction is elaborated on by the project validator, Det Norske Veritas (DNV), which claims that uncontrolled burning or dumping of rice husk, without utilising it for energy purposes, is the predominant current practice.[55] No supporting evidence is offered to back this up, and the wording is simply copied from a standardised text that DNV applies to all such projects in all countries.[56]

By assuming that the burning of rice husks is climate-neutral, talking up the 'sustainability' of the project and talking down the local environmental impacts, the project developers are able to maximise the number of free offset credits issued to A.T. Biopower. Over 100,000 CERs have been issued already, and by 2020 it is projected that over 1 million offset credits will have been generated by the project.[57] When sold on the market, these might plausibly fetch between US$ 10 and US$ 30 each, with each credit claimed to represent a metric tonne of carbon emissions.

Health and environmental risks talked down

Local residents near the Pichit plant have complained about respiratory problems and irritated skin. One local resident said, 'I feel itchy all of the time from the dust and I have to keep my doors and windows closed day and night.'[58]

Silica (SiO_2) is the main mineral component of rice husk ash (RHA) (85-90 per cent). It carries serious health risks, particularly to the respiratory system.[59] Silicosis is an irreversible lung disease which is normally found in workers at mining operations or rock quarries, but it can also be caused by inhaling

54 Personal interview with community member conducted by Nantiya Tangwisutijit and Tamra Gilbertson, 11 November 2008.

55 See 'A.T. Biopower Rice Husk Power Project in Pichit, Thailand', Validation Report, pp.10 and 27, http://cdm.unfccc.int/UserManagement/FileStorage/OUR7L1SX25WD2DXB1BHNCAGCR7PPW1

56 The 'baseline methodology' used by the project is ACM0006 (version 04) – 'Consolidated baseline methodology for grid-connected electricity generation from biomass residues'. UNFCCC CDM database. www.unfccc.int/

57 UNEP Risoe CDM/JI Pipeline Analysis and Database, http://cdmpipeline.org/

58 Personal interview with residents conducted by Nantiya Tangwisutijit and Tamra Gilbertson, 11 November 2008.

59 N. Yalçin and V. Sevinç, 'Studies on silica obtained from rice husk', Elsevier Science Ltd and Techna S.r.l. 2001. This RHA in turn contains around 85-90 per cent amorphous silica. References and further reading may be available for this article. To view references and further reading you must this article.See also www.ricehuskash.com.

RHA.[60] A few years ago certain villages in northern Thailand were dubbed 'villages of widows' because of the large number of pestle-and-mortar-making workers who died from silicosis. China reports 24,000 deaths per year due to silicosis.[61] Residents near the Pichit plant stated that 'they were offered as much ash as they wanted for free because the company does not want it'.

Increased nitrogen-based fertilisers also have adverse affects on humans and the environment. High levels of nitrates in groundwater pose significant risks to ecosystems, and can cause significant health problems in humans and fish.[62]

In addition, ammonia gas (NH_3) may be emitted following the application of inorganic fertilisers and cause emissions of the greenhouse gas nitrous oxide (N_2O). N_2O accounted for 8 per cent of greenhouse gas emissions in 2005, mostly from fertilisers. Since N_2O is held to be 296 times more potent than CO_2, it has a tremendous impact on the climate.[63] Finally, because nitrogen-based fertilisers are generally made from natural gas, their use entrenches fossil fuel dependence. Neither the emissions nor the impact of introducing a new fossil fuel dependence on local farmers are discussed in the offset project documentation.

Villagers complained of noise pollution when the power station was being built. In addition, the station was so loud in the first month of operation that residents living opposite it complained of having to shout to make themselves heard. Instead of slowing operations or modifying the engine, the company responded by offering the villagers ear plugs. Each time the villagers have complained about the station, the standard response has been to offer them gifts to stay quiet.

Local resistance in Nam Song

Nam Song is a river-dependent community in Phayuha Khiri district, in Nakhon Sawan province, Thailand. It is located on the fertile flood plain of the Chao Phraya River, just downstream from where two tributaries merge at Nakhon Sawan (Heavenly City) and 50 km from the A. T. Biopower plant in Pichit. The main source of livelihood is agriculture, which relies on seasonal flooding. When the water subsides in the dry season, the fertile banks are planted with cabbage, broccoli and other seasonal vegetables. When the water is high in the rainy season, it is used to flood rice paddies, while aquaculture facilities are constructed on the river's edge. Community forests are also an important resource, providing food, building materials, medicines and high ground for livestock during seasonal flooding.

Nam Song residents learned in 2001 of A. T. Biopower's plans to build a biomass power plant on a rice field nearby. The residents decided to visit a community that was already affected by another rice-husk burning power

60 Shuchun Liu et al., 'Silicosis Caused by Rice Husk Ashes', School of Public Health, Harbin Medical University, no. 38, 1996, pp. 257-62.

61 http://www.who.int/mediacentre/factsheets/fs238/en/

62 Lynda Knobeloch, Barbara Salna, Adam Hogan, Jeffrey Postle and Henry Anderson, 'Blue Babies and Nitrate-Contaminated Well Water', *Environmental Health Perspectives*, no. 108, 7 July 2000, http://www.ehponline.org/docs/2000/108p675-678knobeloch/abstract.html; see also Roots, Nitrogen Transformations, and Ecosystem Services, http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.arplant.59.032607.092932

63 Nicholas Stern et al. *Stern Review on the Economics of Climate Change,* HM Treasury, London, 2006, p. viii.

plant in Wat Sing district, Chainat province, about 40 km southwest of Nakhon Sawan, which was owned by another company. One community leader reasoned: 'The developers only told us positive sides about the factory and we are uneducated so we needed to find out about the negative sides too.' Residents of Nam Song then travelled to Wat Singh, where the local community was living with the effects of the power plant. After having spoken to the residents in Wat Singh and witnessed the impacts on the residents, the Nam Song residents made a commitment to form their own opposition.

After months of information-gathering, the Nam Song community experienced a major setback when the local sub-district administration agreed to instal the power station in Nam Song. The Thai government requires developers to have a public hearing process with residents before proceeding. At the public meeting, the local government officials and the company consultants met with the community and asked them to sign their names on a piece of paper labelled 'consultant meeting'. The consultants and local government officials added names of villagers who were not in attendance. The company showed the list of names to the local authority, stating that 88 per cent of the 528 villagers who attended the meeting agreed to the power plant being built. In the meantime, A. T. Biopower placed a deposit on the plot of land they planned to develop.

This incident provoked the villagers to send a grievance letter to the local government. Initially, they were divided over whether the power plant should be built, which caused strife in daily life as well as among family members. Eventually, they resolved to end their divisions, with the whole community signing the letter stating their objections to the meeting and to the proposed power plant. The villagers then created the Nam Song Conservation Club to co-ordinate a full-scale campaign against the project.

The Nam Song Conservation Club began gathering research with the aid of other movements and organisations. The villagers sought to show that the rice field was on a flood plain and an inappropriate power station site, and that building it so close to where they lived constituted a threat to the health of the people and the river. The campaign grew to include meetings, door-to-door organising and several rallies of over 700 people outside the provincial government headquarters.

The developers used several tactics that are typical in such situations wherein corporations make systematic attempts to disrupt the local community resistance. Members of a community in the nearby Pichit province who also faced the possibility of a new biomass power plant were sent by the company to bribe the village leaders, offering them 'compensation' to stop protesting. All of the village leaders were threatened by developers and local government, and were told their lives could be in danger if they continued the campaign. Large bribes were offered, and the villagers were repeatedly lied to in an effort to destroy their unity.

Despite the project developers investing a lot of time and energy in their attempts to persuade the Nam Song community that the project was beneficial, the community remained unconvinced. 'We do not need factories or development, we live with nature and we like the way things are,' stated

Jongkol Kerdboonma, a member of the club. Another resident stated: 'We knew the plant was bad because it involved money.' Promises were made to the community to implement a development fund and a new health fund. But the promises were met with skepticism by local leaders. 'Which doctor will tell us that we are sick from the pollution if the doctor is hired by the company?' they asked.[64]

Interestingly, the Nam Song community was never offered any electricity from the power plant, not even at a subsidised rate. Each household pays 300 baht per month to the national grid.

The Nam Song Conservation Club states three main reasons for their opposition to the rice husk burning power plant:

- 'We have lived self-sufficiently on this river for generations, so why would we want to destroy the land with pollution that would be bad for the people and the environment?'
- 'We already knew they would dump the ash in our river, and that it would pollute the river and the fish.'
- 'Rice husks are not an agricultural waste product to begin with. We use them for the chicken pens, and after they have absorbed the chicken waste we use this as a fertiliser. If the power station was built here rice husks would be too expensive to use as a fertiliser, and we would have to switch to 100 per cent synthetic fertilisers.'

The women in the village played an essential role in fundraising, organising and maintaining trust within the community. They made handicrafts and sweets to fundraise for the campaign. They sold t-shirts and sweets at meetings, which provided an opportunity to talk with others about the struggle. They canvassed an area of 10 square km and gathered 4,000 signatures for just one of the rallies at the government headquarters.

The success of the women's work was such that they too were targeted and harassed by the project developers. The developers lied to the women, telling them that the men in the village were receiving bribes from the company. The women were then further questioned about why they would want to keep supporting the men if they themselves were not receiving money as well. The women's awareness that this tactic was being used in an attempt to derail their organising confirmed to them the importance of their work for the continuing struggle.

An open and democratic organising process helped the community maintain its stamina. One resident stated: 'We made all of our decisions together at meetings, which prevented internal conflicts from arising.' The residents acknowledged that there were disagreements and tensions during the difficult phases of the struggle. 'We would scrutinise each other, even watch each other and everyone was very tense.' However, the community continued to organise, reach out for support, and demonstrate. They received solidarity and support from other commu-

64 The A. T. Biopower website claims that the company will establish '(1) Environmental Impact Protection Guarantee Fund which will pay compensation for the damages the power plant has caused to the environment of the community such as excessively over-standard smog emitted from the plant's smokestack; (2) Community Development and Environment Fund which will support and develop the education, heath care, occupation for a better standard of living of people in community', http://www.atbiopower.co.th/power_plant/power_plant_e

nity movements, NGOs and the Assembly of the Poor, a large umbrella grassroots movement involving tens of thousands of Thai villagers who are affected by unjust policies and development. The Nam Song residents said they 'learned a lot from each others' struggles' and maintained their unity so that no one accepted the bribes or backed down from the threats.

After six years of struggle, and with the help of several outside solidarity organisations, they were able to approach the National Human Rights Commission (NHRC) to request an official investigation. In 2007, the NHRC recommended that the power plant should not be built on the grounds that it was inappropriate to build on the flood plain, and that it would violate human rights by polluting the river and damaging the villagers' livelihoods.

This intervention would not have happened without the villagers' long struggle, as Nam Song resident Soontan Yentosuk, concluded: 'We cannot rely on any laws to protect us, which are no better than a piece of paper, so we had better protect ourselves.'

Blown away – Wind energy projects in Satara, Maharashtra[65]

It is often argued that renewable energy projects within the CDM are inherently 'good' projects designed to reduce emissions and promote local sustainability. Yet renewable energy ventures are not fundamentally different in nature from other CDM projects. They often contribute to land grabs and exacerbate local conflicts and pollution, while continuing to benefit the dirty industries that buy pollution credits from them.

The following case studies conducted in the Satara and Supa districts of Maharashtra on the Sahyadri Valleys, Western Ghat, India serve as a warning of how not to proceed with renewable energy. There are many ways to build truly sustainable, small-scale, renewable energy. However, if projects are embedded within an institutionalised development framework they tend to inhibit rather than advance a future of truly 'sustainable' renewable energy.

CDM finance for the wind

Since 2007, CDM wind power projects in India have more than tripled, with over 80 projects registered to date. In fact, wind is the largest single CDM project type in India, with over 300 project applications in the pipeline as of September 2009.[66]

Projects vying for CDM status are obliged to prove that they provide social, economic, environmental and technological wellbeing for local communities, yet the projects described below grossly violate these criteria. In addition, there are severe environmental impacts created by the infrastructure needed for the wind energy generators (WEGs), as well as from the sheer concentration of wind turbines in a small area. Size, scale and decision-making power are matters that have not been addressed.

65 This case study research was conducted by Nishant Nandi and Soumitra Ghosh of the National Forum of Forest People and Forest Workers, India, and Tamra Gilbertson from CTW/TNI. Sections of it were published in *Mausam*, no. 1, July-August 2008.

66 UNEP Risoe CDM/JI Pipeline Analysis and Database, http://cdmpipeline.org/, based on data from February 2007 and September 2009.

Wind power has been developed rapidly over the last 10 years in the state of Maharashtra, India. In 1996, the Maharashtra Energy Development Agency (MEDA) initiated a demonstration wind power project with Suzlon Energy Ltd. which acquired huge tracts of land in the Satara region with the purpose of building up wind power infrastructure and selling the power plants along with the land to other companies at a minimum price of Rs 50 million (around €765,000) each. Today the Satara region has more than 1,000 WEGs owned by MEDA, Suzlon, Bajaj Auto, Tata Motors and others on an area of about 40 km squared.

Cheap land and infrastructure coupled with bulk subsidies at source made the energy financing easy, but the possibility of earning extra revenue through selling carbon credits benefited the projects further. Most of the projects approved for entry into the CDM already existed prior to entering the scheme, managing to pass through the Executive Board despite providing little evidence that they would not have been built anyway.[67]

MEDA is a state-run organisation that develops energy projects throughout Maharashtra. It started a 'demonstration windmill project' at Chalkewadi village, located 60 km from Satara, in 1996, initially leasing 100 acres of land from villagers for a five-year term, and later purchasing the land at 6,000 rupees (Rs 6,000) per acre (around €88). The apparent success of the project attracted private companies like Suzlon Energy Ltd, which were already one of the leading suppliers and manufacturers of wind turbines and related equipment. This project gave way to Suzlon setting up additional wind energy generators in neighbouring villages at the cost of Rs 40-60,000 per acre (€550-900), within a 20 km radius. Within only a few years, a once-forested plateau has been transformed into a barren land packed with electricity lines, roads, power stations, plastic garbage and over 1,000 WEGs.

Other investors, mainly from the automobile and energy industries, began moving into the region, purchasing the WEGs set up by Suzlon.[68] The lure of cheap infrastructure and bulk subsidies at source drew the companies to Satara, while the possibility of earning additional revenue through the sales of carbon credits acted as another strong incentive. Many companies applied for CDM registration, mainly with aggregated wind energy projects, but no new WEGs or infrastructure were set up for the CDM projects – which raises the question of 'additionality' (whether it could ever be verified that the WEGs would have been developed even if carbon financing had not been forthcoming).

The private companies operating on the site sell electricity to Maharashtra State Electricity Board (MSEB) at Rs 3.16 per unit while they consume electricity provided by MSEB at a concessional rate of Rs 1.20 per unit.[69] In 2006, Suzlon was investigated by the Indian tax authorities and found to have made false depreciation claims on wind farm equipment to evade taxes, totalling between Rs 700-1,000 crore (around US$ 200 million).

In the case of Satara, second only to Tamil Nadu in terms of installed capacity, it is es-

67 *Mausam*, vol.1, no. 1, July-August 2008.

68 The companies include Bajaj Auto, Tata, Encron, Star, GIO, Sarita Chemicals, WESTAJ RRB, Energy Micon and MTL.

69 The companies include Ellora Time Ltd., Bharat Forge, Star Gutaka, Sarita Chemical, Westaj RRB, Energy Micon, MTL.

timated that the region could produce up to 3,650 megawatts in 28 feasible sites.[70] The plant load factor (PLF) for wind turbines, or what the turbines actually produce, in India averages 20 per cent, which is low compared to global averages. But what is worse, Maharashtra's average has decreased over the years from 19 per cent in 2002-3 to a low of 11.7 per cent in 2007-8.[71]

An investigation of wind energy development in Satara by the Indian magazine *Down to Earth* found that

> ...companies have merrily installed plants, not to generate power, but to gain from tax and depreciation benefits. The business seems a closed loop – the turbine-maker makes deals with investor companies to set up plants. Nobody quite knows the cost of a windmill. The turbine-maker gains and the investor profits. Indeed, nobody seems really interested in selling power, increasing efficiency and cutting costs.[72]

This suggests that the subsidies attached to building wind farms and greenwashing the effects of owning them are more sought after by the companies than the energy produced by them.

The combination of incentives described above makes wind turbine projects in Maharashtra an extremely attractive economic proposition, which do not require carbon credits to become viable. Both the Indian government and the Maharashtra government have been providing subsidies and cheap infrastructure to dirty industries interested in promoting a 'green' image through ownership of windmills.

Perhaps more unsettling than the lack of 'additionality', or the unsavoury carbon accounting that accompanies it, is that the Satara wind energy projects are tarnished by their unethical and often illegal dealings. Most notably, local villagers were seldom paid a fair price for the land acquired, and more often than not the land was obtained through evidently fraudulent means.

Tata Group and the CDM

Tata Motors, part of the Tata Group, is the largest automobile manufacturer in India with revenues reaching US$ 7.2 billion in 2007.[73] It is perhaps most famous for its release of the Nano in 2008, the cheapest compact car in the world. Yet Tata Motors also has an atrocious record of human rights violations, most notably through land grabs.[74] Tata Group has 16 registered CDM projects, including three wind power projects. These wind projects aim to generate 836,000 tonnes of CO_2 credits by 2012.

Sahajanpur Village

Sahajanpur is located 8 km from Supa on a windy plateau. The village population is about 200 families (around 1,100 people). A landless, scheduled-caste community in Sa-

70 *Ibid.*
71 *Ibid.*
72 *Ibid.*

73 www.tata.com
74 The CPI (M)-led state government of West Bengal created a Special Economic Zone (SEZ) for Tata Motors' Nano project near Singur, which led to forced evictions of 12,000 families and resistance by the landless. After ongoing social upheaval including the rape and burning of a 16-year old landless girl who had protested in 2006, the Tata Nano factory was moved to Gujarat in 2008. http://news.webindia123.com/news/ar_showdetails.asp?id=712070812&cat=&n_date=20071207

hajanpur were surviving until recently on patches of 78 acres of government land that was also eventually obtained for wind farms.

Before setting up its wind turbines on these lands in 2001, Tata made several promises to the villagers – such as jobs, local tax payments, schools, a health clinic, and toilets in every house. The PDD states that the villagers willingly gave their lands to the project developers and that Tata Motors Ltd promised jobs to the residents.

In fact, the people initially resisted the acquisition of their lands. According to an engineer who earlier worked for Ispat, India, Tata officials picked up a few villagers in their company vehicles and brought them to a meeting in Satara. The engineer claims the Tata officials mentioned the CDM and the environment to the group, but that no one understood what they were talking about. The engineer also stated that there was a banner on the back wall that read 'Stakeholders' Meeting.'

According to local residents the wind power company hired a few other deed-holding villagers to prepare documentation for land acquisition from fellow villagers. The locals were paid Rs 20,000 per acre (€250), far below the then existing market rate. The company managed to acquire close to 900 acres of local land from about 80 per cent of the residents. Before this, villagers stated they were harvesting two good crops per year without the use of chemical fertilisers.

Residents tell of how the village leaders were 'hired' by the company to trick them into selling their lands. One resident, 65 years old, claims he was paid Rs 20,000 per acre (€250) for his three acres of land and when he complained about the price the company officials replied that they were overpaying because people in Satara were only being paid Rs 8,000 per acre.

Promising the sky

Tata promised employment in order to lure the villagers into selling their lands at below market rates, but save for a handful of security guards, no one in Sahajanpur has been employed. Without jobs or land, the prospects for the residents are dim.

The company also promised a new road, vehicles, ponds, and electricity in the temple, but the residents have received none of these benefits. Further, the *sarpanch* (head of the village council) of Sahajanpur, who was briefly employed by the company, stated that the company had not paid the Rs 56,000 tax that it owes to the Gram Panchayat (local government body). The community has considered taking the company to court.

The company did not provide even basic information about its aims. Residents were unaware of the concept of CDM and there is no evidence of their participation in the project, contrary to what was stated in the PDD. Many residents say that they were deceived into selling their lands. Now without lands or jobs and no alternative source of livelihood, many people in the region are forced to migrate in search of work.

The company has reaped significant profits from the scheme. Tata Motors sold on a proportion of these credits to EcoSecurities, the largest carbon broker in the world, which then sold half of these voluntary credits on the Chicago Climate Exchange (CCX) in September 2007 for an average price of US$

22.11 per unit, fetching over US$ 3.5 million through this one sale alone.[75]

The Tata case is only one of many in the area, however – with the village of Kadve Khurd, around 70 km from Satara, facing similar problems.

Kadve Khurd Village

Bharat Forge Ltd., owned by the Kalyani Group, is a supplier of engine and chassis components. To meet electricity demand at its plant at Pune, Bharat Forge initially planned to build a 4.2 megawatt wind energy power project near the village of Kadve Khurd. The project was registered in the CDM in 2003 for the period of 2001–2008 with a total estimated 'emissions reduction' of 60,315 tonnes of CO_2 e. The project was renewed for a six-year cycle in May 2009 to run until 2015.

The villagers of Kadve Khurd knew nothing about the wind project before Bharat Forge Ltd began erecting turbines on their lands. Local residents launched strong resistance to protect their lands, which were being forcibly acquired. A total of 30 wind turbines stand in and around the village of Kadve Khurd today, and the community is forcibly kept off the lands.

The project occupies 299 acres, largely *devottar* or temple properties and privately held farmland. The deal for these lands was struck with a village headman whose family has been traditionally holding the land on behalf of the villagers. The villagers had old colonial-era documents dating back to the 19th century but no 'official' and 'new' title to the land. Accordingly, the company did not compensate them. The local administration refused to hear the villagers' case, and in vain they sought justice from the Collector's Court in Pune. The Collector refused to stop construction of the wind turbines and annulled a motion to that effect that had been passed by a lower court. The company, with support from the police, responded by falsly accusing several of the agitating villagers of robbery and equipment theft.

In the village, people view the wind turbines as harmful junk that provides no local benefits. It supplies neither electricity nor employment, and destroyed the only common pasture of the village. In addition, the company wielded a ban on cattle grazing in the project area.

Villagers at Kadve Khurd have never heard of the Clean Development Mechanism or carbon credits.

The story of Shivram Ahare[76]

The company offered Shivram Ahare, a resident of Kadve Khurd, Rs 50,000 for his land. He refused and produced an old map which proved his rights to the land in addition to a *Sanad* (grant deed) from the period of British colonialism, a receipt for payment of agricultural tax, and the original village land documents. When all attempts at coaxing and bribery failed, the company threatened to kill Shivram, who then fled the village for two months.

75 http://www.tatamotors.com/cop/page5a.php, Ron Mahabir, 'Tata Motors Cashes in CERs on Chicago Climate Exchange (CCX)' *Asia Cleantech*, 26 September 2007, http://asiacleantech.wordpress.com/2007/09/26/tata-motors-cashes-in-cers-on-chicago-climate-exchange-ccx/

76 Interview with Nishant Mate and Tamra Gilbertson, 14 November 2006.

Shivram Ahare filed his first legal case in 2001 in Tahsil (Block) Court, which declared Shivram's documents outdated – but a higher, Sub-Divisional Court later ruled that construction on his land should stop. This was subsequently overruled on appeal – a decision which the villagers allege was subject to bribery. Shivram Ahare was then given 15 days to appeal against this last judgement to the High Court, but by that time all village records had been burnt by the company's agents.

Shivram Ahare explains the situation in his own words:

> We showed our documents to the company for our rights to the land and the company then showed us the 'deed of sale' to the land. This document was signed by someone in Pune and it is a faulty document because no one in the village ever agreed to this or signed such a thing. All of us [from the village] tried to stop the construction and the company went to the police station in Tanali. The police would not accept their complaint so they went to the Umbras police station and filed charges against us for property damage of 50,000 rupees and other materials and for stealing windmill materials.
>
> The police came at 2 am to take 15-20 of us to the police station. Most were held for three hours but they kept me for a day. The lawyer from the company went to talk to me at the police station but I refused to cooperate and the police got angry. They were going to beat me but I threatened the police and they let me go. The police said that they forgave me and let me free.
>
> Later other police officers were sent by the company to the village to threaten my life so I fled the village for two months. The company then stopped work for 14 days and hired a lawyer and made new papers. The lawyer stated that in 1981 there was a new land accord that we didn't know about. I went to the company with the documents and the company offered me 50,000 rupees for the land, but I got really suspicious and thought there was something bigger happening and then the company took me to court. I went to the lawyer and sent a notice to the company. They called me *Satura* and offered me 35 lakh rupees just to keep quiet, just to keep quiet! I refused and went to court but the company would not go to court and we are still waiting for the court decision.

Crushed – Wilmar Group case study[77]

Indonesia emits more human-originated greenhouse gases than any other country in the world except for the US and China. But most of its emissions, unlike those of the US and China, come from deforestation and the burning of peatlands cleared for the booming palm oil industry. Almost half of Indonesia's 22.5 million hectares of peatlands have already been logged and drained for palm oil.[78]

Palm oil is used for food, cosmetics and fuel, and demand for it is predicted to double by

77 Research conducted by Wiwied Widya Astuti and Mr. Kaka from Jikalahari, Sumatra, Indonesia, and Tamra Gilbertson and Oscar Reyes from CTW/TNI.

78 A. Hooijer, M. Silvius, HJM Wosten, 'Peat –CO_2, Assessment of CO_2 emissions from drained peatlands in SE Asia', Delft Hydraulics Report Q3943, 2006.

2030 and triple by 2050.[79] International players include giant corporations like Cargill, ADM-Kuok-Wilmar and Synergy Drive, which is the biggest palm oil trader in the world, exporting to Northern giants such as Cadbury's, Nestlé and Tesco.

The province of Riau covers 9 million hectares, about the size of Portugal, with 4 million hectares of peatlands storing 14.6 gigatonnes of carbon.[80] Burning all of these peatlands would release the equivalent of one year's global carbon dioxide emissions, or five years' worth of emissions from all fossil fuel power plants.[81] Riau holds a quarter of Indonesia's palm oil plantations, one-third of the concessions being sited on peat. Riau was once mostly dense forest, but half of the remaining area could soon be converted to palm plantation if government plans are realised in the next decade.[82] According to the World Bank, between 60 per cent of lowland rainforest of Kalimantan and Sumatra was destroyed between 1985 and 1997, the expansion of palm oil plantations being the main culprit.[83] Between 1995 and 2005, the amount of Indonesian land being used to grow oil palm increased by some 8.6 million acres (3.5 million hectares), more than doubling the total plantation area, according to a report by Credit Suisse, an investor in expansion.

Palm oil production has ironically sparked more fires in Riau in the course of meeting the global demand for what is being pushed as a solution to climate change, and big commodity traders have already made plans to expand biodiesel infrastructure still further in Indonesia. However, using agrofuels to substitute for even a mere 10 per cent of the worldwide demand for diesel fuel in the transport sector would require more than three-quarters of total current global soya, palm and rapeseed oil production.[84]

Back doors and secret passageways

Murini Samsam, located near Pelintung, Riau, is a subsidiary of Wilmar International Ltd, Asia's largest agribusiness group, which has a long record of human rights abuses and

79 FAO, 2006. See also 'World palm oil production', OECD Statistics, 2007. The OECD predicts a doubling of production on 2000 levels by 2015.

80 S. Ritung Wahyunto and H. Subagio, '*Peta Luas Sebaran Lahan Gambut dan Kandungan Karbon di Palau Sumatera*' (Maps of Area of Peatland Distribution and Carbon Content in Sumatera, 1990-2002), Wetlands International, Indonesia Programme & Wildlife Habitat Canada, 2003.

81 Greenpeace, 'How the Palm Oil Industry is Cooking the Planet', Amsterdam, November 2007.

82 M. Colchester et al., 'Promised land: Palm oil and land acquisition in Indonesia: Implications for local communities and Indigenous People'., Hrsg. Forest People Programme, Perkumpulan Sawit Watch, HuMA and the World Agroforestry Center,2006. Provincial governments are even more ambitious in terms of oil palm expansion, planning for an additional 20 million hectares. Nearly 80 per cent of the expansion is planned for Sumatra and Kalimantan, with most of the remainder, some 3 million hectares, in Papua, Indonesia's largest remaining region of intact rainforests. Nearly 40 per cent of the expansion in Sumatra – some 3 million hectares – is earmarked for the province of Riau.

83 D. Holmes, 'Deforestation in Indonesia: A View of the Situation in 1999', World Bank, Jakarta. Draft Report, 3 July 2000.

84 Greenpeace, *op. cit., supra*, note 82. Ten per cent of global mineral diesel used in 2005 = 60.1 million tonnes. Given that the energy content of 1 tonne of diesel is equivalent to 1.1 tonnes of vegetable oil, 66.1 million tonnes of vegetable oil would be needed to replace 60.1 million tonnes of mineral diesel. Therefore, 66.1 million tonnes of vegetable oil would be the equivalent of 76 per cent of global production of soya, palm and rapeseed oil production in 2005/6.

other social and environmental scandals.[85] Although palm oil is not specified as a renewable energy or resource within the CDM guidelines, the factories that crush the seeds to make oil can register for CDM financing under 'biomass' or 'cogeneration' methodologies. At the time of writing there are 47 registered CDM palm oil projects, with a further 55 at the validation stage and three under review.[86] Most of these projects are in Malaysia and Indonesia. As with all CDM projects, the manner in which the palm oil is grown, sourced and used as a final end product – and the related greenhouse gas emissions – is not taken into account. Crushing facilities have applied for emissions reduction credits mostly by using two methodologies. After the seeds are crushed, the fruit is converted into a viscous run-off and either dumped or held in wastewater facilities. In these cases, the factories claim to capture methane in wastewater holding ponds by covering the area with plastic and catching the gas. Another approach companies use to claim emissions reductions is through installing steam turbines in the production process and cogeneration methodology.

Murini Samsam operates a palm kernel crushing facility with the purpose of producing crude palm oil for export. The company entered the CDM market by means of a biomass energy project, which intends to generate power for the factory from palm oil solid waste.

The project was registered to start generating carbon credits in January 2006 for a 10-year period, with over 500,000 CO_2 e reductions expected by 2016.[87] Murini Samsam would therefore expect to fetch around US$ 8 million for installing a 9.7 megawatt boiler and condensing steam turbine, which uses palm kernel shells and palm kernel fibre left over from the crushing process.[88]

The PDD uses a lot of language to present a green face for the project. 'The construction of a new boiler and condensing steam turbine running on biomass for the production of electricity for the processes of MSS has [made] a significant contribution to the sustainable development of the company.'[89]

85 In the summer of 2007, the Wilmar Group formed a US$ 4.3 billion merger with Archer Daniel Midland Asia Pacific (ADM) and its subsidiaries to become Asia's leading agribusiness group and the largest palm oil biodiesel manufacturer in the world. See Press Release, 'Wilmar secures all approvals for US$4.3 Billion Merger and Acquisitions', Wilmar Group, Singapore, 22 June 2007. The company has a chequered history, however, which includes alleged human rights abuses, dodgy land acquisition deals and biodiversity scandals. In September 2009, the International Finance Corporation (IFC), the private finance arm of the World Bank Group, was forced to admit that it violated its own standards by investing in the Wilmar Group and froze new investments in oil palm projects. The IFC announced on 28 August 2009 that it was currently suspending all investments into large-scale palm oil operations. This follows a formal complaint to the IFC lodged by a number of environmental NGOs in August 2007, which stated that the Wilmar Group were illegally using fire to clear primary forests and high conservation value areas, in addition to seizing Indigenous Peoples' land without free, prior, and informed consent. Perkumpulan Sawit Watch, Lembaga Gemawan, Kontak Rakyat Borneo (Indonesia), The Forest Peoples Programme (UK), Friends of the Earth (Netherlands), with 18 other concerned NGOs and local organisations. See Forest Peoples Programme, http://www.forestpeoples.org/documents/ifi_igo/ifc_wilmar_update.shtml. See also World Bank Correspondence, http://www.ifc.org/ifcext/agribusiness.nsf/AttachmentsByTitle/Colchester_et_al_August_28_2009.pdf/$FILE/Colchester_et_al_August_28_2009.pdf

86 UNEP Risoe CDM/JI Pipeline Analysis and Database, http://cdmpipeline.org/ September 2009.

87 As of September 2009, the project was still subject to a delay in issuing the first credits.

88 Project Design Document, Small-scale CDM Project: MSS Biomass 9.7 MWe Condensing Steam Turbine, Version 1.2; 25 April 2006

89 *Ibid.*

But nowhere does the company address the greater environmental or social impacts of the palm oil plantations.

A win-lose scenario

The Murini Samsam factory is located about 4 km from Balai Raja, a wildlife conservation area widely known as a reserve protecting the few remaining elephants in the region. Local residents state that when the palm oil industry expanded there were increased incidences of conflicts in the region because the local people and animals were increasingly crowded out. It is estimated that 90 per cent of the original forest inside Balai Raja has been destroyed as a direct result of palm oil expansion.[90] Local communities plant palm oil because their lands have been taken through government concessions given to the companies; yet it is they who are blamed for illegal logging and palm oil expansion. The real drivers of deforestation are rewarded with land concessions and big money.

In Riau, 70 per cent of the land belongs to the plantation industry and 23 per cent is allocated as protected forest. Communities are squeezed between the palm oil industry and government-led land conservation efforts. According to a local researcher, communities often choose to struggle against the government since otherwise 'they will have a war with the companies, the companies will attack the communities, and there will be many human rights violations. The villagers use the wildlife conservation area to survive and as a result get into conflict with the government instead.'[91]

90 Interview with members of Jakalihari with Tamra Gilbertson and Oscar Reyes, December 2007.

91 Filmed interview with researcher from Kabit Riau, with Tamra Gilbertson, December 2007.

Palm oil plantations create major social problems, such as poor working conditions on the plantations and in the factories as well as land rights conflicts with the resident population.[92] Workers at the Murini Samsam factory stated that they work seven hours a day, six days a week and a half-day on the seventh. Some workers do double shifts. Workers are paid 800,000–1,000,000 Rupiahs (US$ 80–100) per month. They stated that they have had many conflicts with the company but were not organised enough and were forced to stop. They also reported frequent accidents such as burns. In one case a worker lost his arm.[93]

Agrofuels in the CDM

Biodiesel is listed as a sub-type category under biomass methodology within the CDM framework but to date no projects have been registered. At the time of writing, three projects have been withdrawn and four are at the validation stage.[94]

Another home for agrofuel projects is the transport sector. There is currently one project that receives CDM funding by powering public transport with used vegetable oil and several more projects are at validation stages.[95] As with all methodologies in the CDM, when one delinquent project methodology is set in motion it paves the way for others to follow. In mid-October 2009 new biodiesel methodology (ACM0017) passed through the CDM executive board. This dangerous inclusion

92 M. Colchester et al., *op. cit.*, *supra*, note 83.

93 Personal interviews with workers at the Murini Samsam factory, Dec. 2007.

94 UNEP Risoe CDM/JI Pipeline Analysis and Database, http://cdmpipeline.org/

95 *Ibid.*

paves the way for agrofuels from seeds to qualify for CDM credits. Eligible fuels, the technical document states, are 'waste oil/fat and vegetable oil that is produced with oil seed from plants that are cultivated on dedicated plantations established on lands that are degraded or degrading at the start of the project activity'.[96] How degraded lands are defined remains open to debate.

It is unknown if the palm oil factories that currently receive CDM financing specifically produce agrofuels to be burned in the North because public records of the palm oil supply do not differentiate specific uses – whether the oil is used for food, cosmetics, or fuel.

What is clear, however, is that the CDM is designed to look only at a snapshot within a moving picture and assesses reductions based on this dissected reality. The marginal 'emissions savings' generated by such projects obscure the far larger destructive picture.

Burned – Plantar SA case study[97]

Introduction

Plantar SA is a pig-iron and plantation company whose CDM project in the state of Minas Gerais, Brazil, was one of the first to be supported by the World Bank Prototype Carbon Fund (PCF), which anticipated the purchase of over 1.5 million CERs (around US$ 25 million, assuming credits are sold at US$ 15) in 'emissions reductions' by 2012.[98]

Plantar and the World Bank promoted the project as a model operation that would plant trees, enhance workers' safety and foster environmental education projects for children. As documented in *Carbon Trading: a critical conversation on climate change, privatisation and power*, however, the company's activities in the area of the project have illegally dispossessed many people of their land, destroyed jobs and livelihoods, dried up and polluted local water supplies, depleted soils and the biodiversity of the native *cerrado* savannah biome, threatened the health of local people, and exploited labour under appalling conditions.[99] The proposed carbon-saving project helps sustain the environmentally-damaging model of monoculture plantations and iron production that is responsible for this, while doing nothing to improve the climate.

The original project proposal, submitted as a forestry offset, was rejected by the CDM Executive Board. At first, Plantar claimed that there would be an 'accelerated reduction in the plantation forestry base in the state of Minas Gerais'. It presented its plantations as forests but admitted that once it had cut down the trees and burnt them to make pig iron it would not replant them unless carbon finance was forthcoming. When

96 http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html

97 Research was conducted by Marcelo Calazans of FASE, Brazil, and Tamra Gilbertson of CTW/TNI.

98 World Bank, 'Brazil: Plantar Sequestration and Biomass Use', http://wbcarbonfinance.org/Router.cfm?Page=PCF&FID=9707&ItemID=9707&ft=Projects&ProjID=9600. This was part of a larger scheme to generate carbon credits equivalent to 13 million tonnes of carbon emissions reductions, many of which would be sold on the 'voluntary' carbon market.

99 Larry Lohmann, 'Carbon Trading, a critical conversation on climate change, privatisation and power' (*Development Dialogue*, no 48). Dag Hammerskold Foundation. Uppsala, 2006.

reminded that CDM rules do not allow credit to be provided for 'avoided deforestation', the company rewrote its design documents to emphasise other justifications. The second attempt claimed that Plantar was preventing an otherwise necessary switch in the fuels for its pig iron operations from eucalyptus charcoal to more carbon-intensive coal or coke.

In other words, the company claimed that carbon credits for its 23,100 hectare project were the only thing that could ensure charcoal supplies, even though Minas Gerais alone boasts 2 million hectares of eucalyptus plantations. Plantar itself owns rural properties covering more than 180,000 hectares, mainly devoted to eucalyptus for charcoal and almost all located in Minas Gerais, and provides management services for more than 590,000 hectares of plantations for itself and other companies in Brazil.

The repeated rejection of this project should have led to it being scrapped, as some 143 local groups and individuals argued in a letter to the CDM Executive Board of June 2004: '[T]he claim that without carbon credits Plantar...would have switched to coal as an energy source is absurd... Yet now [Plantar] is using this threat to claim carbon credits for continuing to do what they have been doing for decades – plant unsustainable eucalyptus plantations for charcoal... It is comparable to loggers demanding money, otherwise they will cut down trees... [The CDM] should not be allowed to be used by the tree plantation industry to help finance its unsustainable practices.'

But that was not the end of the matter, and the project was instead repackaged and resubmitted to the CDM in its component parts, which included a project to reduce methane in the tree-burning process, a revised reforestation project and a further project linked to the reforestation project, which claims to introduce a new iron ore reduction system in pig-iron processing.

In 2007, Plantar first managed to gain access to the CDM for its methane reduction project, which it expects to generate 112,689 CERs over a seven-year time span from 2004 to 2011. This involves nothing more complex than regulating the temperature of its ovens, and ensuring that they are adequately ventilated – a process that is dressed up in technical jargon with reference to a study conducted at a local university.[100]

At the time of writing, the resubmitted reforestation project is still in the CDM pipeline at validation stage. It now promises 'dedicated plantations' grown for the production of charcoal that is referred to, euphemistically, as 'renewable biomass'.[101] The company claims that the original rejection was not due to flaws in the project itself, but was rejected because CDM regulations on land use, land-use change and forestry were not finalised at the time it was originally submitted. On this basis, it attempts to backdate the claim for carbon credits to 2000 – although the fact that the activities described in the project have already been underway for nine years is *prima facie* evidence that there is nothing 'additional' about it.

100 http://cdm.unfccc.int/Projects/DB/DNV-CUK1175235824.92/view

101 'PDD: Reforestation as Renewable Source of Wood Supplies for Industrial Use in Brazil', 4 March 2008, http://www.netinform.net/KE/files/pdf/PDD_AR_Plantar.pdf

The methodology of the second project, 'Use of Charcoal from Planted Renewable Biomass in the Iron Ore Reduction Process through the Establishment of a New Iron Ore Reduction System', was accepted by the UN Methodology Panel in mid-July 2009. Plantar argues that a new CDM methodology should be created relating to what it describes as an innovative method for reducing CO_2 emissions from blast furnaces. In fact, the project is wracked with discrepancies. For example, the Project Design Document admits that multiple sources will be used for the supposedly 'sustainable' charcoal, but no environmental assessment has been made of the plantations that would be used in addition to those of Plantar itself.[102]

Plantar anticipates that the reforestation project would reduce over 3 million tonnes of CO_2 over its 30-year time span, which could fetch the company around US$ 45 million from its buyer, the Netherlands CDM Facility, a Dutch government scheme managed by the World Bank. The iron ore reduction project aims to generate 2,133,551 CERs (around US$ 30 million) over a seven-year time frame.

Planting trees with sole objective of burning trees

Plantar promotes its charcoal operations as 'carbon-neutral'.[103] Yet this entire concept is flawed, based as it is on the idea that putting carbon dioxide into the atmosphere from fossil fuel combustion can be neutralised quickly and safely, and also glossing over the broader social and environmental impacts of monoculture plantations.

Plantar does not plant native species in sustainable forests. The company plants one species of non-native tree in an industrial plantation model for the sole purpose of burning them, thus releasing CO_2 and other pollutants.

The trees are burned in small ovens to make charcoal that is then used for the company's pig iron operations, yet a considerable amount of destruction was required to clear a path for this industry. Forests and pastures were destroyed to make way for the eucalyptus plantations, in the process releasing CO_2 locked in by the soil. Iron ore mining is then a requirement to produce the inputs for the pig iron operations, and at the other end of the process lie further pollutants from the iron factories. More broadly, still, the project contributes emissions from burning trees, as well as feeding a production chain that encompasses iron ore mining, iron smelting, shipping and so on.

Plantar claims that its industrial eucalyptus plantations absorb carbon, but the trees have a seven-year life cycle and there is no evidence to suggest that such a short, rapid-growth life cycle could contribute to 'neutralising' carbon in the first place. In fact, research shows that plantations do not even begin to balance the CO_2 lost from vegetation clearance and soil disruption until after

102 The PDD reads: 'Within the Plantar Projects an additional area of approximately the same size of the one within the proposed A/R activity is planted in response to the CDM, in order to ensure the supply of renewable charcoal for the integrated project's iron production'. https://cdm.unfccc.int/UserManagement/FileStorage/FJZUI99VFCYK55BIM0FQ9X51SOB6S3,

103 http://www.plantar.com.br/portal/page?_pageid=73,91138&_dad=portal&_schema=PORTAL

ten years of growth.[104] It stands to reason, then, that the plantations release more CO_2 than they could possibly absorb. Other research shows that only intact old-growth forests can lock in CO_2 while planted 'forests' must stand for decades to generate the same effects.[105]

Handing out repression as usual

The claims that Plantar makes about its social programmes are equally flawed, and serve as little more than an attempt to obscure the destructive role of large-scale industrial plantations, which have caused significant upheavals and exacerbated conflicts over land distribution.

The award-winning film *The Carbon Connection* documented how a local community was exploited by Plantar for the 12,540 hectares needed for its World Bank Prototype Carbon Fund project.[106] At the time of filming, members of the community came together to speak out against the company and the impacts the plantations were having on their lives. Four years on, all participants have either had their lives threatened or have seen the company offer jobs to family members to keep them quiet. Today they are under such severe pressure that any communication is dangerous.[107]

Certain communities came together to organise against Plantar's atrocious practices but were silenced by a consistent pattern of manipulation and intimidation by the company. Usually it starts out by offering a family member a job to create tension and division. If this does not work it takes more drastic measures, including phone calls which threaten that 'accidents' could occur, more pointed threats on people's lives, or even death threats aimed at other family members.[108]

The Aracruz connection

Recent developments suggest that worse may be yet to come. Plantar SA has now formed a joint project with Erling Lorentzen, founder of the pulp mill giant Aracruz Celulose, with the intention of further investments in the pig-iron industry supported by carbon credits.

Aracruz Celulose is listed on the Chicago Climate Exchange (CCX) as a forest product company selling voluntary offsets credits. Aracruz joined the Chicago Climate Exchange (CCX) in 2005 and began to sell credits from a voluntary offset project which assumed emission reductions of 1 per cent in 2003, 2 per cent in 2004, 3 per cent in 2005 and 4 per cent in 2006, compared to a baseline established by the company. Aracruz itself estimated that these offsets may generated revenues of up to US$ 2.5 million.[109]

Under Lorentzen's guidance, Aracruz grew to become one of the most controversial pulp companies in the world. Its plantations – many of which are planted on land belonging to the Tupinikim and Guarani In-

104 CarboEurope, research from 2002, http://www.carboeurope.org/

105 Fred Pearce, 'Tree farms won't halt climate change', *New Scientist*, 28 October 2002.

106 The Carbon Connection Documentary, free stream at www.carbontradewatch.org, 2007.

107 Personal interview with residents conducted by Tamra Gilbertson, Minas Gerais, 2005.

108 Personal interview with residents conducted by Tamra Gilbertson, Minas Gerais, 2006.

109 Estimates based on Aracruz Celulose 2007 Annual Report selling at US$ 15 per tCO2e.

digenous Peoples, and traditional African-Brazilian Quilombola communities, have led to the eviction of thousands of families, as well as seriously restricting access to water, food and land. The company has been responsible for destroying thousands of hectares of the unique Mata Atlântica forest, while its activities have also been documented as diverting rivers, and drying up streams and watercourses.[110]

In 2008, Aracruz Celulose was hit by a major scandal involving undisclosed currency derivative contracts, causing the value of the company to plummet and resulting in a lawsuit from shareholders claiming a violation of US federal securities law. In the fallout from these losses, the Lorentzen family sold its 28 per cent stake in the company to Votorantim Celulose, in a deal bankrolled to the tune of US$ 1 billion by the Brazilian National Development Bank (BNDES).

With this apparent Brazilian government bailout of Aracruz, Lorentzen is leaving the pulp and paper industry and moving to new pastures. The Plantar family and Lorentzen have struck a deal to develop more lands in Minas Gerais. Lorentzen stated in an enthusiastic interview about venturing into 'green' charcoal: 'I have bought areas in Minas Gerais with the plan to produce charcoal for the pig-iron industry. The lands are in the west of Minas, near Diamantina.'[111]

110 For more on Aracruse Celulose, see http://www.wrm.org.uy/bulletin/106/Brasil.html and http://www.foei.org/en/publications/pdfs/briefing-paper-for-the-peoples-tribunal-on-human

111 Vera Saavedra Durão, 'Lorentzen mantem empreendedorismo que criou a Aracruz', *Valor,* 16 March 2009.

Climate, fire and resistance

There is a glimmer of hope in the north of Espírito Santo where Quilombola communities have set fire to eucalyptus plantations as an act of resistance and a final desperate attempt to reclaim lands from Aracruz Celulose and Plantar SA. In the region, Plantar is in charge of ground operations including, planting, fertilising and all field maintenance, while Aracruz manages felling operations and land claims.

A cloud of smoke covered a solid area of eucalyptus trees in the extreme north of Espírito Santo from 11-13 March 2009. In the world of industrial tree plantations, the Quilombolas of the Sapê do Norte are viewed as criminals, responsible for imbalance of the forest and of the climate. However, this is not where the story begins.

The Sapê do Norte are a group of Quilombos, forest communities which are descendants of slaves who revolted against the Portuguese, in the region of São Mateus and Conceição da Barra. Today there are 39 rural communities, of which 25 hold certificates to their lands through the official Citizenship in Territories Programme 2008 and/or the Palmares Cultural Foundation. The regional development model, started up in the 1970s by the dictatorship of the time, is based on large-scale, quick-growing eucalyptus monoculture, causing serious environmental, cultural, economic and social problems. Changes were abrupt, starting with the destruction of the native Atlantic Forest, followed by the disappearance of rivers and streams, the expulsion of families, their houses and lands and a massive migration to the urban peripheries.

In the 1970s, there were 12,000 rural Quilombolas inhabiting the region. Today, the Quilombola Commission of Sapê do Norte calculates that there are only 1,200 families still residing in the region (around 6,000 people). In the region of Sao Mateus there are more than 50,000 hectares of eucalyptus planted and in Conception do Barra over 70 per cent of the municipal territory is covered by cane and eucalyptus plantations.[112] Local communities say that 10 former streams, lakes and rivers no longer exist and that fauna and flora which guaranteed the food security of the people for more than two centuries have been wiped out. According to the Environmental, Cultural, Social, and Economic Rights Violation Report, land, water, work and food are the principal rights being violated by the expansion of eucalyptus monoculture.[113]

In 2006, the Department of Social Development produced a nutritional survey of Quilombola communities throughout Brazil. Food and nutritional insecurity was reported to be so grave that the proportion of malnourished Quilombola children aged 0 to 5 years was 76.1 per cent higher than that of the Brazilian population as a whole and 44.6 per cent higher than that of the general rural population.[114] These statistics were found consistent with the Quilombola communities in Espírito Santo. Another indicator that illustrates the social vulnerability of the Quilombolas is the Human Development Index (HDI). The HDI for the 39 Quilombola communities in the Sapê do Norte region shows that they are disadvantaged compared to the rest of the state of ES in the areas of education, life-span and reproduction.[115]

The Quilombola leadership are meanwhile being criminalised, as shown in an increase in the number of legal charges brought against them and Quilombola associations. Some 82 Quilombolas have been prosecuted since 2003, mostly near Conception do Barra, for gaining access to eucalyptus and to the little native forest that still remains. The communities have rights to demand access to their land and water resources, which in many cases are essential to cultural traditions, based on Convention 169 of the ILO and the Brazilian Constitution.[116]

A semi-arid tropical 'rainforest'

In 2008, more than seven months passed without rain. Local residents blame eucalyptus monoculture, which they say has radically altered local climate. Plantar manages the plantation in the region and performs the 'dirty work' for Aracruz Cellulose, applying weedkillers, fungicides and insecticides managing all general field maintenance and planting. With the dry period prolonged and compounded by the financial crisis, in late 2008 Plantar suspended replanting and sacked more than 500 subcontracted workers. The climate crisis deeply affects the

112 'Relatório de Violações de Direitos Econômicos, Sociais, Culturais, Ambientais', report from FASE/Rede Deserto Verde, 2003.

113 Report DESCA/2003.

114 'Diagnóstico da Segurança Alimentar Quilombola do Sapê do Norte/ES', report from FASE/Comissão Quilombola/Fórum Nacional de Segurança alimentar e nutricional, 2008.

115 'Saúde das populações quilombolas no ES: Vulnerabilidade e direitos humanos', *Psicologia Social*, ABRAPSO, 2008.

116 Artigo 68 and decrees 4886, 4887 of 2003, The Specific Education Convention 169 of the OIT and Brazilian Constitution.

subsistence agriculture of the Quilombolas but also has an effect on local jobs and business productivity.

Aided by the private security forces of Aracruz Cellulose, the corporations sought to stop the gathering of *facho* (branches and sections of the trees left over in the fields after industrial felling) by the communities. The *facho* is burned by the Quilombolas to make charcoal, which is an alternative source of income and creates a shadow economy for the survival of around 1,000 Quilombolas in Sapê do Norte. This brutal act of repression pushed Quilombolas over the edge. Without forest, work, land, water or charcoal, the communities began setting fire to the eucalyptus surrounding them. Over 100,000 hectares in the region were consumed by fire. Private police brigades were sent to quell the resistance. Ironically, the company has massive investments in private police forces, so may have made money out of the event. As the region heats up and becomes semi-arid, Aracruz has also invested in genetically modified fire-resistant eucalyptus trees better adapted to long periods of drought.

The Quilombolas of Sapê do Norte are gravely affected by desertification in the extreme north of Espírito Santo and fight for their territory by reconverting monoculture into diverse Atlantic Forest and agro-ecological zones as an important instrument of productive resistance. For example, agro-ecology, mobilises women, young people and the elderly in beneficial activities seldom valued or even mentioned in the United Nation's COPs nor in the big forums and official events that regulate the climate regime. While Quilombola communities build climate justice with their own hands, official climate change policy instruments award carbon credits to firms such as Plantar and Aracruz Cellulose, whose activities worsen climate change, depleting water resources, contaminating rivers, laying off workers, increasing air pollution and threatening local communities. Plantar SA continues to devastate communities and the environment while taking moral cover behind the skirts of the World Bank and the UNFCCC.

Conclusion

Carbon offset projects tend to follow pre-packaged designs that do not deal with the real complexities and intricacies of communities and livelihoods. They use up enormous resources in terms of land, water and the time and energy of the residents.

All of the communities in the case studies above suffered from bribes, threats and even jail time, as so often happens in the course of infrastructure projects conducted in the name of 'development'. In many of the cases, however, a strong and concerted campaign of local organising was able to resist the advances of the company – benefiting too from solidarity with other local organisations.

The stories told by consultants may be convincing to outsiders, but are not convincing narratives for many local residents. The CDM only looks at one cog and misses the other moving parts. By perpetuating a system that promotes a structure that ignores local needs, the CDM obstructs the vital social change that is so fundamental to the future of the planet.

The legacy of such development projects is that they pit communities against each other and encourage divisions within single communities as well. When encountering local protest, the common response of the developers and companies has been to resort to a range of bullying tactics – including threats, lies and bribery. For example, what was deemed a human rights violation in Nam Song was ignored in Pichit only 50 km away.

The experience of the communities highlighted in the case studies however, shows that local resistance can be effective when there is a strong basis for unity. An open decision-making process and the central involvement of women in the campaigns were important contributing factors.