

# Who's afraid of REDD?

## Some lessons learned from the CDM

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## Introduction

At the Conference of the Parties (COP) in Copenhagen in December 2009 a post-Kyoto agreement will be negotiated. The agreement will most likely define a mechanism to “reduce emissions from deforestation and forest degradation” in developing countries (= REDD). The idea to pay for ecosystem services is already well established but what is new and highly controversial is that this time payments will be made on a massive scale, will be made available on a long term perspective with very stringent monitoring and verification and the services delivered (saved carbon) might at least at a later stage be sold through a market as offsets for countries with emission reduction targets. Things have also not been made easier by the fact that REDD should not only compensate for avoided deforestation and degradation but should also incentivize sustainable forest management and the enhancement of forest carbon stocks. This is why the negotiations now focus on REDD+ and no longer only on REDD. The idea behind both, REDD and REDD+ is to set economic incentives so that local, national and international actors have more interest in protecting a forest (including its carbon stock) than in cutting it down. REDD+ is thus one of the most impressive carbon governance ideas currently being discussed and it would in the eyes of many not only contribute significantly to the aim of reducing the stock of CO<sub>2</sub> emissions in the atmosphere but also the way today’s tropical forests are (mis-) treated.

This paper takes up the debate of the pros and cons of a possible REDD (or REDD+) scheme by comparing the development of REDD+ with another and already well established carbon governance instrument, the Clean Development Mechanism (CDM). The CDM is one of the most hotly discussed instruments of carbon governance and there is a well established literature around it. Institutionalized under the UNFCCC and coming into effect from 2003 on, the CDM has two objectives: First, to provide a cost-effective mechanism for the developed world to offset Green House Gas emissions. Second, the CDM is supposed to contribute to practices of sustainable development by initiating new low carbon technologies in developing countries, which host CDM projects. It therefore provides the link between developed and developing countries (Grubb, 1999).

There are two reasons, which might make us sceptical to use the CDM as a blueprint for learning. First, forestry has already been part of the CDM but so far in a rather unsuccessful matter. However, deforestation and avoided degradation have not been included but only afforestation and reforestation projects (= A/R CDM). Furthermore, due to the exclusion of A/R CDMs from the EU ETS there are all but a few forest projects<sup>1</sup>. Methodological problems, high transaction costs and the project-based approach added to the dismal performance of the CDM in this sector (Robledo, Blaser et al., 2007, ; Brown and Peskett, 2008, ; Eliasch, 2008, ; Estrada, Corbera et al., 2008, 6). In particular the fact that A/R CDM projects can only issue temporary or long-term credits, which expire after a certain period,

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<sup>1</sup> As of December 2008, there is only one registered A/R CDM project which can trade CERs. Another 5 afforestation and 18 reforestation projects are in the project pipeline, see (Brown and Peskett, 2008, 2).

makes them even more unattractive for investors<sup>2</sup>. Various authors (Robledo, Blaser et al., 2007, ; Eliasch, 2008, 138) have recently stressed that this does not mean that forests cannot be part of the compliance market. Thus proposals are being discussed to reform the CDM to increase the eligible scope of land-use projects (Boyd, Gutierrez et al., 2007). It is, however, more likely that forest issues will be handled outside the CDM.

The second reason is geography. The CDM has been rather successful in emerging economies (Benecke, Friberg et al., 2008, ; Fuhr and Lederer, 2009, ; Lederer, under review) but there are only very few projects – around one percent of all – in least developed countries. This is no big surprise as the CDM is a market mechanism that has been exploring low-cost emission reduction in sectors like power generation, setting up industrial facilities (in particular in the field of industrial gases) and in the waste sector (Carbon Trust, 2009, 10). These sectors are much stronger in emerging economies as least developed countries usually do not have these kinds of industries. Regarding REDD+, however, it is evident that least developed countries in the tropics (e.g. DRC or Laos) will also be included and where emerging economies like Brazil or Indonesia will participate, it will be in those parts of the country that are the least developed and where the central state has least influence (e.g. Kalimantan or Aceh in Indonesia or Amazonia in Brazil).

The argument of the paper is that the CDM can, never mind the differences just highlighted, be used as a blueprint for REDD+ and that it is worth to transfer some of the lessons learned from the CDM to REDD+. In a nutshell, the most important lesson is that the experiences of the CDM show that there is no need to be afraid of REDD+. Overall, the CDM is a success story and carbon governance through the CDM has been effective. Although the mechanism is far from perfect, there are good reasons that REDD+ could develop in the same direction: First, technical solutions are available. Carbon governance is a highly complicated process, which relies on lots of technical input but these barriers have been overcome in the CDM and the same is true for REDD+. Second, a convincing economic argument can be made in both cases. The CDM has strongly contributed to the evolution of a carbon market and efficiency gains can be made. Similar, there is now a developing incentive structure for REDD+ projects and although markets will most likely not play a role in the beginning, the parallels to the CDM show that at one point a market solution could be very helpful. Third, there has been strong political support for both mechanisms. Just as the CDM had the backing of some of the dominant players at the end of the 1990s, REDD+ is now high on the political agenda and has its supporters. Fourth, regulation is key and regulation in carbon markets can be changed. The regulatory structure of the CDM has proven to be flexible and has been able to accommodate some of the most severe criticisms. Thus, checks and balances work in carbon governance. A REDD+ mechanism, in which ever form it will come about, will not be perfect, but as the CDM shows, regulatory sclerosis is unlikely. Finally, a closer look at the CDM will also allow us to stay realistic regarding environmental side-benefits. This is exactly what many critics fear and they do so for good reasons, but from a realistic perspective one can show that both mechanisms also have some positive – although

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<sup>2</sup> Temporary CERs or long-term CERs are traded at a discount rate of about 75 percent towards regular CERs (Eliasch 2008, 116).

in the case of the CDM not always intended – impact on sustainability. These five dimensions (technology, economics, political support, regulation and environmental impact) will be taken up in turn showing that there is a high possibility that REDD+ develops into an effective and legitimate instrument of carbon governance.

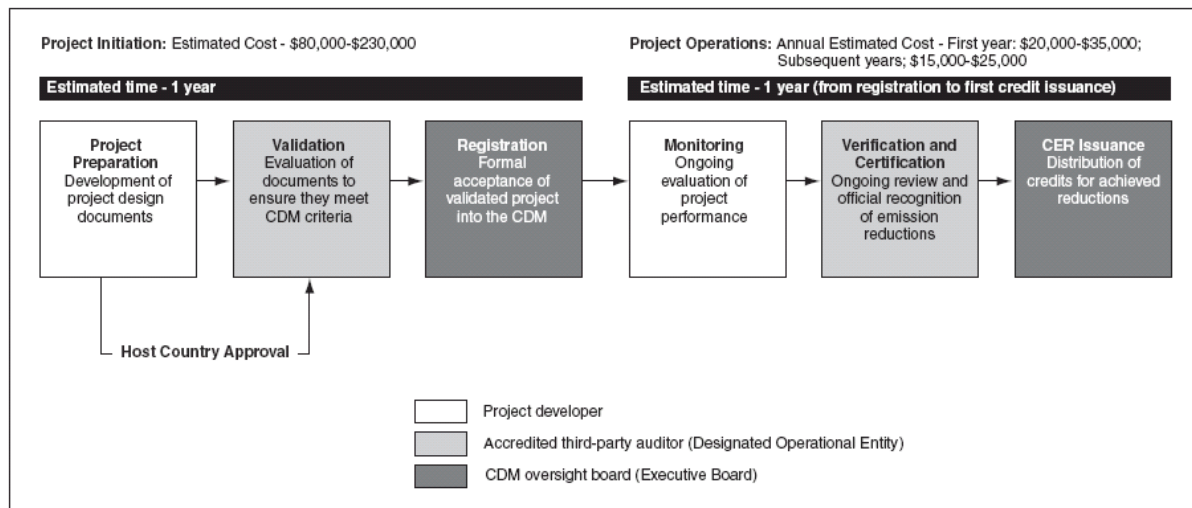
### **Technology: complicated but manageable**

The CDM and REDD+ are built on the notion that carbon can be commensurated and commodified. Commensuration can be defined as transforming “qualitative relations into quantities on a common metric” (Levin and Espeland 2002, 121) and this process allows that comparison and eventually exchange can take place. Without commensuration it would not be possible to trade the burning of industrial gases in China with the emission of a power plant in Scotland (MacKenzie, 2009). The unit of account that is being used in the CDM is labeled Certified Emission Reductions (CERs) and these can, for example, be used in the European Trading System (EU ETS). CERs thus have become the first tradable commodity initiated through an international environmental agreement.

Much can be criticized regarding commodification and commensuration ranging from a very general ideological critique that environmental services should not be measured in market terms (Altvater and Brunnengräber 2008; Bachram 2004; Lohmann 2006; Wara 2007) to a more pragmatic approach that criticizes that our current way of how we account specific monetary values is not yet fit to include carbon assets (MacKenzie, 2009). There is, however, not much critique that it cannot be done in general!

Regarding the CDM, there are now over 100 methodologies in place that do not only make carbon a comparable product but that also show that individual CDM projects are additional, meaning that the calculated emission reductions would not have taken place without the project. Of course, additionality can only be ‘proven’ counterfactually and to do so a CDM project goes through various steps before credits can actually be issued to the investor: First, there is the design phase where a project developer sets up a Project Development Document (PDD), very often in cooperation with a consultancy. The PDD then must be approved by the host country of the project, which primarily checks whether the project conforms to the country’s sustainable development criteria. Second, validation (performed through private companies called Designated Operating Entities (DOEs)) and registration (performed on the international level by the Executive Board (EB)). Third, monitoring followed fourthly by verification (again done through a DOE, which must be a different one than the one who validated the project) and certification. The following graph 1 shows the individual steps in a time frame:

Graph 1: The CDM project cycle



(Source: United States Government Accountability Office 2008, 47)

The calculation of additionality has been one of the most criticized aspects of the CDM and various authors have shown that a certain percentage of CDM projects is simply not additional, thus would have happened anyhow (Figueres 2006; International Rivers Network (IRN) 2008; Michaelowa and Purohit 2007; Schneider 2007). What nobody has, however, doubted is that a large part of CDM project are additional and that many methodologies work. Much is in progress and the fact that additionality can in the end only be interpreted cannot be changed by the best science (Carbon Trust, 2009). One can, however, be optimistic, for example regarding methodologies that allow for the bundling up of individual CDM activities in order to achieve so called programmatic CDMs. Similarly, various methodological ideas are being advanced that would allow for crediting the emission reductions of whole sectors, for example the pulp industry in Brazil.

The bottom line of all this is that within a very short time frame – the first CDM project was registered 2004 – there has been tremendous progress in developing technical solutions as the right incentives were in place. Regarding REDD+, there is a growing consensus that today the technical solutions are available to solve methodological issues in REDD+ projects: First, the permanence of any achieved carbon storage is hard to ensure (Dutschke and Angelsen, 2008, ; Eliasch, 2008, 186f; Schlamadinger and Baalman, 2008) and this becomes obvious if one compares a potential REDD+ project with emission reductions in the industrial sector. Whereas in the latter a reduced amount of CO<sub>2</sub> is a permanent benefit to the atmosphere, any amount of sequestered carbon in a forest is only beneficial as long as this forest is maintained. Through forest fires, degradation or logging, however, atmospheric benefits can be reversed at any time. The permanence issue can, however, be solved through discounting the carbon stored in trees thereby taking into account that some of it might be lost. Similar, there are ideas of putting some carbon profits into an insurance fund to compensate for non-permanence.

Second, a related methodological discussion stresses the need for sophisticated monitoring, reporting, and verifying (MRV) systems for carbon emission reductions to ensure confidence

in the overall process (Wertz-Kanounnikoff, Verchot et al., 2008). Satellite technology mapping forests, remote sensing to assess the degree of degradation, as well as ground work surveying local forest development, are currently being combined to gain reliable estimates of carbon stocks. The IPCC has, moreover, developed guidelines for the consistent use of existing technologies to enable comparable emission inventories to be established (Eliasch, 2008). The FAO, the World Bank and some bilateral donors have started capacity building measures to sustain MRV efforts. Furthermore, the satellite data will be given to developing countries for free, thus money should not be a problem for MRV.

Third and again closely related, carbon accounting in the forest sector is very demanding. Without credible accounting, the environmental integrity of REDD+ schemes could easily be damaged and its reputation destroyed (Dutschke and Pistorius, 2008, ; Dutschke and Michaelowa, 2009). Some years ago, error rates in land use related carbon accounting were estimated to be around 50 percent (Chen, Chen et al., 2000), but today error rates have dropped drastically due to technical improvements (Eliasch, 2008). From 2010 on the annual land coverage of forests shall also no longer be calculated every five years, but every year. Such developments are of particular importance if REDD+ is like the CDM used to offset emissions from industrialized countries in a global carbon market, because if one gets the accounting wrong but has the possibility to sell the apparent offsets, then net global emissions will obviously rise. REDD+ accounting schemes would thus have to be at least on a par with LULUCF standards in Annex I countries (Penman, Gytarsky et al., 2003, ; Schmidt, 2008).

Fourth, a question is which reference scenario should be used in the baseline to determine what would happen in the absence of a REDD+ intervention. Three possibilities are currently being discussed: (i) taking historical trends of deforestation, which are – at least for the last 15 years – very well documented. Extrapolating these into the future, a country could be rewarded if it stays below the reference emission rate; (ii) modelling future trends; (iii) a combination of one and two (Estrada, Corbera et al., 2008, 13). The issue is not only of a technical nature, as the decision to use recent historical deforestation trends would have the advantage of providing large incentives – and REDD+ schemes could be highly profitable. It would, however, provide no incentives for countries like China, which have dramatically reduced their deforestation trends within the last 10 years, and it would certainly hurt those nations which have never had high deforestation rates, like Guyana, Surinam or the Democratic Republic of Congo (Dooley, Leal et al., 2008, 7). The current approach in the negotiations is that different baselines can be used for different countries, thereby guaranteeing the support of all major tropical forest parties.

On the side of technology, we can thus summarize that there are no major barriers to set-up REDD+. Furthermore, the development of the CDM can show us that once the mechanism has started to work, lots of actors get involved and new ideas develop. This does of course not imply that there will always be a technical solution or that always the best technical solution will be used, but the current technical level of REDD+ should not make us worry too much.

## **Economics: markets can play a positive role**

From economists working on climate change, the use of financial instruments has been hailed as one of most promising ways to stop the increase of Green House Gas (GHG) emissions efficiently and effectively (two of the strongest advocates for using market instruments are Stern, 2007, for carbon markets in general; Eliasch, 2008, for forests). There are several reasons for the popularity of using finance to save the environment ranging from a pragmatic approach that this is the only way to internalize externalities to the critique that the use of markets represent an ideological hegemony of Neoliberalism and a culture of commodification (Levin and Espeland, 2002) to the simple fact that there a strong lobby has developed in the City of London and in other financial centres that tries to profit from new markets and thus pushes hard for their development. The following will, however, not delve into the genealogy of carbon trading as an instrument (for an excellent debate on this, see Voß, 2007), but will rather focus on the question what can be learned from the economics of the CDM for REDD+.

The CDM is primarily justified by the economic rationale that Green House Gas (GHG) emission are global externalities and that thus it does not make a difference where they are being reduced. It is therefore possible to let the forces of supply and demand determine where reductions are taking place. By 2012 the CDM will most likely have offset about 2.6 Gt CO<sub>2</sub> equivalent, approximately the total GHG emissions of Germany for three years in a row. Out of the three Kyoto mechanisms (the others being International Emission Trading and Joint Implementation), the CDM is the most important to date generating trade of 12 billion US\$ in 2007 (Point Carbon 2008, 17) and 33 billion US\$ in 2008 although in 2008 most of the trade took place in the secondary market (Capoor and Ambrosi 2009, 1). In November 2009 a total of 5513 projects existed of which 1873 were registered and the rest was either at validation, in the process of registration or – however very few – withdrawn or rejected (see table 1):

Table 1: Number of CDM projects

<b>Status of CDM projects</b>	<b>Number</b>
<b>At validation</b>	<b>2581</b>
Request for registration	109
Request for review	40
Correction requested	114
Under review	17
<b>Total in the process of registration</b>	<b>280</b>
Withdrawn	40
Rejected by EB	126
Rejected by DOEs	613
Registered, no issuance of CERs	1288
Registered. CER issued	585
<b>Total registered</b>	<b>1873</b>
Total number of projects (incl. rejected & withdrawn)	5513

(Source: UNEP 2009b)

Regarding its output, the CDM was thus much more successful than most observers believed at its start. Some of this growth was due to the linking of the CDM to the EU ETS, thus allowing European companies to buy some CERs for their compliance targets. As was already stated the CDM as a market instrument allowed project developers to identify and to exploit low-cost options. This has partially generated lots of criticism as the burning of industrial gases (in particular HFC 23) provided tremendous profits, which never would have materialized otherwise. It has thus been calculated that in particular projects in China earned more than US\$ 3.5 billion for an investment of around US\$ 100 million (see e.g. Lohmann, 2006, ; United States Government Accountability Office, 2008). Quite a bargain indeed! Criticizing this development, however, misses completely the point, as the CDM is an instrument using prices not costs to incentivize action. Neither the Global Environmental Facility (GEF) nor any other public institution invested in the abatement of Chinese industrial gases although they could have done so at very low costs. It thus seems fair to claim that the comparison of a perfectly informed public institution and a market where low-cost opportunities are taken up is simply not valid (for a similar argumentation, see Carbon Trust, 2009, 6 and 60f). The use of markets thus incentivizes low-cost options which otherwise might simply not be taken up. This is not an argument for the invisible hand and a neoliberal approach to climate politics, but it plea not to underestimate the ingenuity of market entrepreneurs who try to find opportunities in new markets. It is thus not Adam Smith, but Joseph Schumpeter who provides us this the right explanation of what the CDM did!

The very same argumentation holds true for REDD+. Forests store about 45 percent of terrestrial carbon, and deforestation and forest degradation are responsible for some 15-20 percent of anthropogenic greenhouse gas emissions and are the second highest human-induced source of climate change (IPCC, 2007b, chapter 7 and 10; IPCC, 2007a, chapter 9)<sup>3</sup>. Each year more than 13 million hectares of forests are being lost which adds more carbon to the atmosphere than the global transport sector (Kanninen, Murdiyarso et al., 2007). Almost all deforestation occurs in the tropics (FAO, 2001, ; Baumert, Herzog et al., 2005) and during the last 10 years all efforts to slow down deforestation rates have failed more or less (Pfaff, Amacher et al., 2009). Modelling undertaken for the Eliasch Review – conducted for the office of the British Prime Minister – estimates that by 2100 economic costs of climate change caused by deforestation would increase to US\$1trillion per year (Hope, 2008). Even if the most ambitious reduction efforts in the transport or energy sector were to be realized, business-as-usual emissions from deforestation alone would cause a severe backlash in global mitigation efforts. In addition, the forest sector could lower the cost of halving global carbon emissions by 2030 from 1990 levels by up to 50 percent (Nepstad, Soares-Filho et al., 2007, ; Boucher, 2008, ; Eliasch, 2008) as approximately 3.5 GtCO<sub>2</sub> per year could be saved (Eliasch, 2008, 165). Consequently, there is an economic consensus, that, in order to meet the target of limiting global temperature rise to 2 degree Celsius, the potential supply of forest sector abatement *must* be included.

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<sup>3</sup> A new study by van de Werft et al. (2009) argues that deforestation and degradation contributes “only” 12 percent to global emissions adding another three percent if peat lands are included.

Although everybody agrees that there has to be an exchange of money for forest protection, the critical question is whether the whole mechanism should be market-based or fund-based. If the market model is chosen, REDD+ activities in developing countries would at least partially be eligible for offsets in industrialized states and thus resemble the CDM. Most academic contributions, most practitioners and most developing countries – with the notable exception of Brazil (Cosbey, Murphy et al., 2007, 15) – favour such a market-based approach, stressing the argument that only markets would, in the end, provide sufficient incentives and generate enough resources to actually stop deforestation. For example, the Stern Report (2007) as well as the Eliasch Review (2008), both stress that market instruments for avoiding deforestation should be included in a future climate treaty. Estimates of potential global REDD payments vary from US\$2 to 28 billion per year (Eliasch, 2008, ; Kindermann, Obersteiner et al., 2008, ; Lubowski, 2008) of which up to US\$7 billion per year could be generated through the global carbon market in 2020, while the rest would have to be generated through international public funding (Eliasch, 2008)<sup>4</sup>. Similarly, Boucher (2008) estimates that REDD+ credits purchased by Annex I countries could be worth US\$ 10 billion per year. These amounts are huge, but again if we take the CDM as a baseline, they are not unrealistic as the primary CDM market was worth US\$ 7 billion last year.

There are, however, quite a few concerns with the idea of integrating REDD+ in the global carbon market. Some authors argue that if REDD+ credits were fungible and could, for example, be traded in the EU ETS, the amount of supply generated would eventually flood the market (Leach, 2008). Prices would drop to such levels that industrialized countries would have no more incentives to generate domestic reduction credits (Karousakis, 2007). This seems, however, exaggerated and could also be prevented through a cap on REDD+ certificates or through more stringent reduction commitments in Annex I countries (Boucher, 2008, ; Eliasch, 2008, chapter 11). Furthermore, the CDM can again provide valuable lessons, because countries which relied on offsets also invested heavily in domestic reductions, whereas countries, which did not do anything domestically did not buy offsets either (Carbon Trust, 2009, 59). Furthermore, it took the CDM a couple of years to provide offsets on a significant scale as the methodological hurdles are high (see above). There is again no reason to believe that if REDD+ is included in a post-2012 architecture that millions of credible forest credits will be available (for a similar argumentation, see also Pfaff, Amacher et al., 2009). Another constraint elaborated in the literature stresses that REDD certificates could crowd out other carbon credits like CERs (Anger and Sathaye, 2008). From a market perspective, it could be welcomed that the cheapest credits are available. However, for the reasons just explained, there simply won't be so many good credits available.

Due to the concerns raised, many proposals – and the current negotiations – do not aim to integrate, but only link REDD+ to carbon markets at least initially through (i) funds, which are fed from new obligations on Annex I countries to invest in (Hare and Macey, 2007, ; Schmidt and Scholz, 2008) or through (ii) revenues from auctioning off emission allowances. For

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<sup>4</sup> The magnitude of this number becomes clear if one compares it with the average commitment of US\$ 564 million that OECD countries and multilateral agencies provided for tropical forests between 1996 and 2004 (Tomaselli, 2006).

example, the US climate change bill, which just passed the House, has provisions for auctioning emission rights and earmarking some of the revenues for REDD+ projects (Movius, Boucher et al., 2008). This would still generate huge amounts of money, yet without creating a market for REDD+ certificates. In a recent study, Boucher (2008, 6) estimates that market-linked approaches could generate the same amount of funds (US\$ 10 billion/ year) as a pure offset market.

Most recent proposals, including the ones discussed at the COP in Poznan, favour a mixed approach – sometimes also labelled a basket approach – with a phasing-in of markets and at least an initial quota for REDD+ certificates (Boucher, 2008, ; Schmidt, 2008). Most of the initial money to set up REDD projects would thus come through public funding either through auctioning of emission rights or through traditional development aid. Almost everybody agrees that at a later stage (some, like the Coalition for Rainforests, argue for post 2012; others, like the Eliasch Review, for post 2020). REDD+ must in one form or the other be connected to the global carbon market in order to eventually trigger the necessary flow of revenues. Looking back at the CDM, we can see that here public funds also played an important role in generating the market. For example the Prototype Carbon Fund was critical in the development of many first generation CDM projects and resembled much more a PPP than a market. This only changed after private investors saw that CERs can actually be sold (Benecke, Friberg et al., 2008).

Finally, there is the possibility not to include deforestation and degradation at all in any post-Kyoto agreement and rely completely on the voluntary carbon market (VCM) (for a general overview of the voluntary market, see Hamilton, Bayon et al., 2007, ; Harris, 2007). The VCM is, however, with some US\$ 330 million traded, still very small. Even though it is growing exponentially, most observers (Capoor and Ambrosi, 2008) argue that VCM will not generate enough funds to make much of a difference in global mitigation efforts. Boucher (2008, 6) estimates that no more than US\$ 100 million can be generated by VCM in the forestry sector. Again very similar to the CDM, the voluntary market is interesting from a governance point of view since rule-making as well as monitoring is completely done by non-state actors and these standards – due to first mover advantages – could become relevant for all REDD+ projects. The most important standards used in forest projects are the *Voluntary Carbon Standard* (VCS) and the *Climate, Conservation, Biodiversity Standard* (CCBS) and it seems that these will also be dominant in any developing REDD+ architecture that goes beyond voluntary offsets. Thus, the voluntary market can be understood as a niche market and as an exploration field for new methodologies etc., it will, however, not seriously compete with a compliance CDM or REDD+ market.

From an economic point of view, the CDM market development can thus perfectly serve as a blueprint for REDD+. The fear that REDD+ would swamp the market seems unrealistic, the notion that funds initiate the development of a possible market approach seems realistic and most important of all, the amount necessary to eventually save some of the tropical forests can in a long term perspective most likely only be generated through a market.

## **Politics: key players needed!**

The CDM was initially not conceptualized as a market instrument, but in the early 1990s Brazil spoke of a Clean Development Fund. The notion of having a fund based approach to include the developing world was, however, taken up by the US, which desperately pushed for some commitment of non-Annex 1 countries in the Kyoto Process. Furthermore, the US pushed very hard for a market-based solution to climate protection as it had made positive experiences with employing markets earlier on. In 1976 the US Environmental Protection Agency introduced the first “offset mechanism”, which allowed the building of new factories, if larger air pollution reductions than the new plant would produce were introduced in another facility of the same company in the region. The second and much more used instance was the U.S. Acid Rain Programme set up by the 1990 *US Clean Air Act* to curb sulphur dioxide emissions where “emissions trading left its protected space and stepped out into the wider world of environmental politics” (Voß, 2007, 9). Finally, in the 1990s the use of market instruments moved into the mainstream of climate politics as private actors like Shell or BP – supported by lobby groups like the International Emission Trading Association – and individual countries like the UK and Denmark set up prototypes of carbon dioxide trading. On an international scale the Montreal Protocol for the first time made use of an ETS in order to reduce Ozone Depleting Substances, in particular FCKW. The system worked well and it turned out to be one of the major ironies of history that during the Kyoto negotiations the US pushed so hard for emission trading, but it was the Europeans who ended up championing it after they launched their Emission Trading Scheme (EU ETS) in 2005. Today, the EU ETS covers the CO<sub>2</sub> emissions of about 11.500 facilities that emit around 6,5 Gt of CO<sub>2</sub> per year (EU Commission, 2005, ; Skjaereth and Wettestad, 2008). Within the EU ETS transactions of about 90 billion US\$ were undertaken in 2008, thus dominating the international carbon market (Capoor and Ambrosi, 2009).

The CDM gained many friends after the World Bank and other financial institutions had shown that it works and interestingly, no major opposition was raised by the major civil society actors but on the other hand a very active epistemic community developed that plays an important corrective role in particular in criticizing very constructively various CDM governance issues (more on this in the following section). The CDM thus has a strong circle of friends and only few enemies.

Forestry, in particular tropical forestry, has always been recognized as an important topic in the international discussions on climate change. The issue of land-use related emissions in developing countries, however, is not accounted for in the UNFCCC or in the Kyoto Protocol. Hence, there are no incentives for reducing emissions from deforestation (Streck and Scholz, 2006, ; Streck, 2008). The neglect of forestry was partially due to scientific uncertainties about the technical feasibility of REDD+ projects but also had to do with negotiators who focused on industrial and energy-related emissions instead. Today, however, the inclusion of land-use-change in general, but in particular of avoided deforestation and degradation, are backed by politically important groups. Following a proposal<sup>5</sup> from Costa Rica and Papua

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<sup>5</sup> UN Doc. FCCC/CP/2005/MISC.1

<http://unfccc.int/resource/docs/2005/cop11/eng/misc01.pdf>

New Guinea from 2005 at the Conference of the Parties of the UNFCCC (COP 11), it was acknowledged in Bali in 2007 (COP 13) that mechanisms to reduce emissions from deforestation and degradation should include a compensation scheme for developing countries and be part of the post-2012 climate protection architecture. It might be surprising that these two small countries could initiate such a political momentum but from the very beginning it was evident that major players like the Coalition of Rainforest Nations, the group of Small Islands States and the G77/ China would support a new attempt to include forestry issues.

REDD became part of the Bali Action Plan, which is supposed to culminate in a new climate protection treaty in Copenhagen in December 2009<sup>6</sup>. The IPCC has also stressed the importance of REDD in the context of international climate cooperation (IPCC, 2007a, 543f) and with the exception of the European Emission Trading System (EU ETS) all existing or proposed domestic or regional trading schemes (e.g. those of Australia, New Zealand, Japan, and also those discussed in the USA) already include or aim to include sustainable land-use practices and forestry as a class of eligible offset – and thus aim for an integrated market approach. REDD+ certainly also has its friends in the business and the financial community as well as among many civil society groups who see REDD and in particular REDD+ as a last chance to save the still standing tropical forests.

During the last two years, several bilateral and multilateral donors have initiated projects to get REDD+ started. There are now some 100 forestry projects (either receiving funding or under validation) with the explicit objective to avoid tropical deforestation and degradation<sup>7</sup>. On the multilateral side, the World Bank is the most important player to initiate REDD markets. Similar to the Prototype Carbon Fund mentioned above, the World Bank is again initiating PPPs including local and international NGOs as well as local and national governments, partly in cooperation with bilateral donors. The Bank has established a Forest Carbon Partnership Facility (FCPF), launched in Bali in 2007, to assist developing countries in their REDD activities (World Bank, 2008). The FCPF is by far the largest multilateral effort on REDD in terms of financial volume and the number of countries involved. Similarly, the United Nations established a Collaborative Program on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD) in July 2008. It is jointly run by FAO, UNDP and UNEP and currently concentrates on readiness activities and capacity building. To date, Norway and Denmark have pledged a bit more than US\$ 36 million into what shall become a multi-donor trust fund. Bilaterally, various donors have become very active in REDD activities. Norway is the frontrunner in all initiatives and pledged, for example, US\$1 billion to Brazil's Amazon Fund. DFID, SIDA, AUSAID (pilot projects in Indonesia and Papua New Guinea) and Germany (pilot programmes in Indonesia, Laos, Madagascar and Cameroon; further pilots intended in Peru and Vietnam) also stand out for their engagement.

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<sup>6</sup> UN Doc. FCCC/CP/2007/6/Add.1.

<http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=3>

<sup>7</sup> Personal communication with various REDD specialists during UNFCCC-COP 14 in Poznan, Poland (December 2008)

Contrary to the CDM, there is, however, a stronger and much more articulate opposition in particular to the use of market instruments in any future REDD+ scheme. Much of this has to do with the fact that REDD+ will have a much stronger influence on local governance issues than the CDM ever had: First, there is the question of who gets the money and in most tropical forest areas no clear and legally defined ownership structures are in place (Sunderlin, Hatcher et al., 2008). Thus, the question is who can sell generated carbon sequestration rights – and can the right of trading them be independent from the ownership of the existing biomass? These issues can so far only be solved through national legislation, which is of course a very demanding task for legislators in areas of limited statehood. In many cases, governments claim carbon rights (FAO, 2001) on state-owned as well as non-state-owned forests. In the latter case, private or indigenous owners lose their claim to carbon credits – with rents being generated at the national level. Thus rent-seeking may increase due to REDD+ revenue flows (Ebeling and Yasue, 2008, ; Peskett, Hubermann et al., 2008, 46f; Schmidt, 2008). As experience from community forest funds has shown, local elites often capture revenue flows as well (Luttrell, Peskett et al., 2007).

Second, even if ownership is clear, this does not automatically lead to just distribution patterns of REDD+ revenue flows. If national approaches are being used, the government will most likely receive the revenues and redistribute them to the local level through direct transfers or through the provision of other benefits. In any case, the government will also have to resume responsibility regarding its distribution to local communities or to individuals concerned. Next to the danger of rents being siphoned off at the national level, the question is how much should each stakeholder receive. Clearly, the rewards have to be higher than the opportunity costs of cutting down trees. This is hard to measure, however, and even more difficult to implement (Peskett, Hubermann et al., 2008, 41f). Various authors argue that REDD will not be effective if it works only as a compensation scheme. REDD+ projects will have to provide low-carbon livelihood alternatives instead (Schmidt, 2008). Another difficulty will be compensating both the “good” guys as well as the “bad” ones. A large extent of deforestation is done by illegal loggers and REDD+ schemes will have to find these people new livelihoods (Rights and Resources Initiative, 2008).

Third, the question of indigenous people is much more prevalent in the discussions on REDD+. As various indigenous peoples have had rather grim experiences with their own governments, there are concerns that they could be deprived again of REDD’s potential values, and that they, as well as their value systems, are not being taken seriously. One example of this is the lively but, so far, completely unsuccessful discussion (e.g. during COP 14) on the inclusion of indigenous rights in REDD+ activities. Furthermore, local communities in tropical regions are not only aware of REDD+ activities but they also know that their input could be key to its success. This is reflected in the literature on the merits of indigenous participation as well (Nepstad, Schwartzmann et al., 2006). Anecdotal evidence suggests that some indigenous groups try to balance potential risks and the promised benefits quite carefully before they support REDD+. Others are highly critical of the underlying notion of commodifying natural services.

Does the stronger polarisation of REDD+ issues still justify the comparison with the CDM? Clearly yes, because REDD+ has like the CDM very strong political back-up and what might be even more important, some of the key actors are well aware of the governance problems just elaborated. The World Bank and UN-REED for example have set-up lots of stakeholder consultation processes in order to increase the input-legitimacy of REDD+. As CDM projects have less impact on the local population, such processes were not needed and the stakeholder involvement of the CDM is rather low. This will not save REDD+ from some rent-seeking and lots of carbon fraud and there is a strong danger of mistreating the rights and livelihoods of indigenous people, but this is where good regulation has to step in and developments in the CDM provide some reasons for hope.

### **Regulation: good and flexible oversight is key**

The CDM has shown to be a rather flexible mechanism that fulfils its objective of providing cost-efficient emission reductions and thus has delivered in particular the economic outcome hoped for (Benecke et al. 2008). Nevertheless, even supporters of the CDM have raised various criticisms of how the mechanism is being regulated. For example, the involvement of private agents as validators and verifiers has brought up much critique (de Sepibus 2009; Hagem and Holtsmark 2009; Paulsson 2009). Also that the validation process is too cumbersome and bottlenecks develop (Leguet and Elabed 2008). The CDM bureaucracy and the Executive Board are therefore not perceived to be suitable to contribute to the protection of the climate and the CDM project cycle is perceived to be too complicated leading to too high transaction costs (Figueres and Newcombe 2007, 4; Stehr 2008; Streck 2007).

What should, however, not be underestimated is that much has already been achieved and things have changed to the better: DOEs are now under more scrutiny after one of the largest ones, DNA, was suspended for a couple of months. Furthermore, there are now DOEs from Malaysia and China accredited with the EB, which maybe does not increase the efficiency of the process but the development of local actors with strong capacities in these countries should be welcomed. The EB itself has become more professional and it is today much better equipped regarding staff and resources, although its members are still not full time salaried individuals (Streck, 2007, ; Carbon Trust, 2009, 54f). One example of the institution's flexibility is the regulation to allow project developers to ignore in the calculation of their project's baseline any emission reducing legislation that was passed after 2001 (the so called E- rule). The reason for taking this stance is that otherwise a country would have the perverse incentive not to enact climate friendly legislation, for example in power generation sector, just to make sure that CDM projects can establish a rather high baseline against which to calculate emission reductions.

The first instances of regulating REDD pilot projects have raised quite a lot of criticism. In particular the supervision of REDD in Papua New Guinea made headlines as there are clear instances of corruption, nepotism and pressure on indigenous people to sign away their land

(details are well documented at <http://www.redd-monitor.org/2009/07/24/more-on-pngs-carbon-cowboys/>).

The important question to consider is of course whether Papua New Guinea will become the rule or the exception. Theoretically, the case can also be made that international civil society, local communities and businesses *demand* collective goods like secure property rights or overall security of investment and thus increase good governance. (Sub-) National state authorities might, therefore, provide the necessary infrastructure. The recognition that the state is active, in turn, could then attract more project developers and cause a positive spiralling effect. In the case of the CDM, one could witness such dynamic in the case of India where indeed local as well as international businesses have raised their voice effectively (Benecke, 2009). In such a positive scenario, the initial governance inputs by non-state actors could lead to an increase in state capacity, more effective governance services, and an (re-)embedding of governance in the state. Furthermore, and again the CDM in India is a good example, international donors and Western companies could step in with massive capacity building or donors as well as international NGOs temporarily compensate for administrative (and political) shortcomings, thus acting as a *functional equivalent* for the state and, therefore, allowing a chance for environmental, economic and social benefits to unfold. In this scenario effectiveness completely depends on outside actors. This seems to be the current trend in REDD as, inter alia, the World Bank's FCPF, UN-REED, and bilateral donors are setting up readiness activities in very weak states like Laos, more or less providing the complete infrastructure for any potential REDD scheme. Also the case of Indonesia is enlightening where the discussion on REDD and REDD+ did not only lead to the very first domestic legislation on REDD, but where the government is now actively warning of Carbon fraud and Carbon cowboys (<http://www.carbonpositive.net/viewarticle.aspx?articleID=1700>). And one does not have to be cynical about the fact that the Indonesian government wants to keep up the reputation of carbon trading in order to reap the highest benefits, it should rather be welcomed.

There is of course no guarantee that such a positive scenario unfolds. It could also be that we will witness lots competition and/or capture by local governments, especially in more decentralized countries. In such settings sub-national governments and local elites may benefit from limited statehood at the centre and exploit its weaknesses to skilfully increase their own benefits (Fuhr, 2006), e.g., in the case of REDD+, by ignoring national regulation, manipulating data, or engaging in illegal trading of forest resources. Similar to the discussion on corruption and misconduct in local government (Shah, 2006), the result may be local capture of REDD+ projects and a rather suboptimal delivery of benefits.

At this point it is simply too early to say in which direction REDD+ will move, but the important point is that the history of the CDM has shown that through public pressure and through the input of members of the epistemic community, regulatory changes have been made, which will in the future most likely increase the effectiveness as well as the legitimacy of the process. Carbon governance is thus an open and highly politicized process and the fact that REDD+ is even more politicized than the CDM can only be welcomed as it will lead to more scrutiny.

## **Environment: there will be an impact but stay realistic**

As stated above, one of the two aims of the CDM is to initiate sustainable development practices in its host countries. This objective has, however, not realized to the extent hoped for. Some of it has to do with the fact that for political reasons, the host countries are allowed to set the sustainable development criteria and thus no common indicators exists. Taking the current position of the major host countries Brazil, China and India into account, there is not much of a chance that the idea of setting more ambitious common indicators (like for example proposed by Olsen and Fenhann, 2008) has a chance to be realized soon. Nevertheless, there are a few examples where the mechanism has initiated exactly the kind of results hoped for. First, there is the large volume of projects in the renewable energy sector, particularly wind in China and India. It is questionable whether these projects are really all additional, but they clearly are a contribution, although yet a very small one, to change these countries energies supplies. Second, some practices that were simply not economically viable have been initiated like for example the burning of bagasse for energy or the start-up of small hydro projects in Brazil (Friberg, 2009). Third, some first instances of energy transfer are visible. Finally and probably most importantly, wherever CDM projects have been set-up on a massive scale, capacities have been created, which were not in place before. The capacity of a country to do proper carbon accounting might by itself not yet be considered to contribute to sustainability, but it certainly is a necessary element. Related to this is the fact that a host country's involvement in the CDM has sometimes contributed a little bit to climate change awareness (Fuhr and Lederer, 2009).

Including deforestation and degradation in the post-Kyoto architecture could also lead to broader environmental benefits, such as watershed or biodiversity preservation. There is a consensus in the literature that development and environmental issues must be taken seriously, because otherwise the real drivers of deforestation will not be stopped (Kanninen, Murdiyarto et al., 2007, ; Schmidt, 2008). However, focusing too much on co-benefits, such as poverty-reduction or stopping biodiversity loss, may lead to a trade-off with mitigation. Hence, some stress that a "do-no-harm approach" should be sufficient (for a good overview of the discussion, see Brown, Seymour et al., 2008, 109f). Taking into account the lessons learned from the CDM, one should be aware that not too much and not all at the same time can be expected from a single governance instrument. Just as the CDM has not changed China's energy production, REDD+ will not save the tropical forests of the Indonesian archipelago by itself. To do the latter while preserving biodiversity and livelihoods for local peoples is a gargantuan task and incentives set up by international transfers can only become a small contribution.

## **Conclusion**

There is a broad consensus that the details of REDD or REDD+ will need to be developed over the next couple of years and thus should be viewed as work in progress. As it was mentioned, the CDM is far from perfect and will not by itself save us from major climate

change. The same is true for REDD+ and thus expectations should be realistic. Furthermore, lots of mistakes will be made and unintended negative outcomes will most likely occur. Nevertheless, there is some hope that REDD+ could eventually outperform past forest conservation measures as it not only quantitatively much bigger than former efforts but also qualitatively different. Again similar to the CDM, new opportunities creates not only new challenges but also new solutions. The point is, however, we have to start somewhere.

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