

From PPP to market: The Clean Development Mechanism (CDM) as a new mode of governance in climate protection

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ABSTRACT

Tackling climate change is increasingly recognised as a policy challenge of outermost importance. One of the most interesting and innovative building blocks in the Kyoto Protocol climate regime is the Clean Development Mechanism (CDM). Starting with a review of the relevant literature on environmental governance we formulate a number of hypotheses that we seek to answer. Since its inception this flexible mechanism has evolved from an embryonic global public policy implementation platform to a volatile and booming market for the first internationally traded commodity created by an international environmental agreement, certified emission reductions. Many new business actors have emerged that try to influence and prosper in this situation. Established industries engage with the CDM in order to increase their flexibility and lower their compliance costs under the EU Emission Trading System. Private actors' engagement has now surpassed the World Bank Carbon Finance Unit that initially was the dominant actor. Despite this the market continues to be intimately policy dependent as demand derives from the stringency of emission allocations and future nation state action on climate change as well as continued belief in the basic principle of furthering the public good of climate protection through a mechanism driven by profit seeking.

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I. INTRODUCTION

Climate change has become a hot topic and this in various ways. First, the science is now beyond doubt. The recent 4th Assessment Report by the International Panel on Climate Change (IPCC) explicitly states that “warming of the climate system is unequivocal as is now evident from observations of increases of global average air and ocean temperature, widespread melting of snow and ice, and rising global average sea level” (IPCC, 2007, p.5). Climate change is now acknowledged as one of the “central threats and challenges to humankind” (Annan, 2005).

Second, tackling climate change will be expensive, ignoring it will be ruinous. Exactly how expensive is still contested (Odling-Smee, 2007). The Stern review of the economics of cli-

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mate change, authored by the former World Bank Chief economist Sir Nicholas Stern concluded that doing nothing about climate change would mean a long-term loss in average world consumption of 5–20% per year, comparable to a world war or worse whereas stabilising greenhouse gas concentrations at roughly double pre-industrial levels would cost 1% of global gross domestic product (GDP) by the middle of this century (Stern, 2006).

Third, the big question on how to tackle climate change has become an issue of high politics, as it is fiercely debated in national, regional, and on the global political level.² The question of how to address “the biggest long-term threat facing our world” (Blair, 2007) is arguably the greatest policy issue of our time. Since the industrial revolution the world’s development and prosperity has been made possible thanks to an abundance of cheap energy through the burning of fossil fuels, the principal cause of anthropogenic climate change. Drastically curbing this habit cuts to the core of how we live our lives.

It has become a common view that climate change is not simply another environmental problem. The complex features of the climate change issue make it a political problem difficult to solve: greenhouse gases (GHGs) are emitted by such a variety of sources from individuals to companies in sectors such as power production, energy intensive industry, transport, and agriculture that neither single country nor industry sector can solve the problem alone. Impacts and sources of pollution are hard to distinguish and often geographically located at unrelated places. Additionally, causes in terms of responsibilities of global climate change entail a significant time dimension and are attributed to industrialised countries. However, the impacts are most severely felt by those developing countries least responsible for and least able to adapt to climate change. Lastly, the overall dilemma of climate change also implies a collective action problem as this issue cannot be solved by one single nation state. Some thus argue that climate politics is a case where traditional policy instruments will not work (Brunngräber, 2004). What can be done?

A global problem like climate change poses twofold challenges (Biermann & Dingwerth, 2004). On the one hand, it puts high demands on the state’s capacities and resources required for adapting to and mitigating the impacts. On the other hand, nation states are required to collaborate on global climate change issues due to the high interdependencies, which reduce the state’s sovereignty over environmental policy making. The overall result is the emergence and increase of collaborative governance in global environmental politics. In this context, forms of horizontal interdependence and environmental policy diffusion based on forerunner states as well as forms of vertical interdependences though environmental regimes converge. Additionally, new private and non-governmental actors play more active roles, which leads to a mix of interaction modes and partnerships. In short climate politics is a prime candidate for new forms of governance.

What is the status quo of climate governance? As it is well known a climate change regime is clearly in place. At the core of this interstate regime is the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol.³ Contrary to much public de-

² For example, when the Commission of the European Union recently proposed forcing carmakers to increase the fuel efficiency of new cars by 20%, by 2012 after a decade of failed voluntary action. The German EU Industry commissioner Guenter Verheugen fought long and hard against this, despite the fact that it was proposed by his own collage and supported by the German Chancellor Angela Merkel.

³ The United Nations Framework Convention on Climate Change (signed in Rio in 1992, entered into force 24 March 1994) sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 189 countries having ratified it. The 1997 Kyoto Protocol shares the Convention’s objective, principles and institutions, but significantly strengthens the Convention by committing 35 industrialised countries (Annex I Parties) to individual, legally-binding targets to limit or reduce their greenhouse gas emissions. After several years of political log rolling the protocol finally entered into force on the 16 of February 2005. It is now (February 2007) ratified by 170 parties representing 61.6% of total GHG emissions.

bate, the Kyoto Protocol has already had an important impact. First, all actors (state and non-state) now take climate politics serious and business, industry associations, lobby groups and NGOs have emerged that aim to influence policy making in this policy field. Second, forerunners such as EU member states try to establish themselves as the climate avant-garde and try diffuse policy innovations such as or push for stricter, mandatory and encompassing targets for climate protection.⁴ Third, new instruments policy instruments that encompass international as well as on national and local levels are constantly discussed. Finally, and from our view the important aspect, states actually try to reduce carbon emissions.⁵ This is of course not yet sufficient and there is hardly a chance that the majority of states will reach those modest aims that Kyoto has set up until 2012.⁶ However, as states – and those industries that are obliged to reduce their emissions – feel the pressure the quest for the most effective and efficient emission reductions has begun. On the one hand this has led to the use of new technologies and on the other hand the so called flexible mechanisms of the Kyoto Protocol are now actively being used.⁷ What are they and how do they work?

The Kyoto Protocol integrates three flexible mechanisms as policy innovations in order to meet the objective of mitigating climate change. These consist of international emission trading (IET), the project mechanism of transition countries 'Joint Implementation' (JI), and the Clean Development Mechanism (CDM).⁸ The CDM is the most prominent of the flexible mechanisms of the Kyoto Protocol. It is a project-based mechanism based on a politically initiated market that involves both developing and industrialised country actors. It has created the first internationally traded commodity ever developed by a multilateral environmental agreement, certified emission reductions.

⁴ In March 2007 the leaders of the European Union agreed to cut EU's GHG emissions by 20% from 1990 levels by the year 2020, pledging to cut emissions further down to 30% if other major emitters also take action.

⁵ In the UK politicians are trying to outbid each other in suggesting action on climate change. The government is drafting legislation to set legally binding carbon reduction targets. The draft Climate Change Bill calls for an independent panel to set ministers a "carbon budget" every five years, in a bid to cut emissions by 60% by 2050.

⁶ Despite being seen as the trail blazers on the issue of climate change, many of the old EU 15 member states are struggling to meet their GHG reduction obligation under the EU burden sharing agreement to meet the 8% reduction by 2012 compared to the 1990 baseline. On the other hand, the USA being the single largest contributor (20% of global GHG emissions) have increased its emissions and is projected by Pew Centre on Global Climate change to be 30% above its 1990 emissions level.

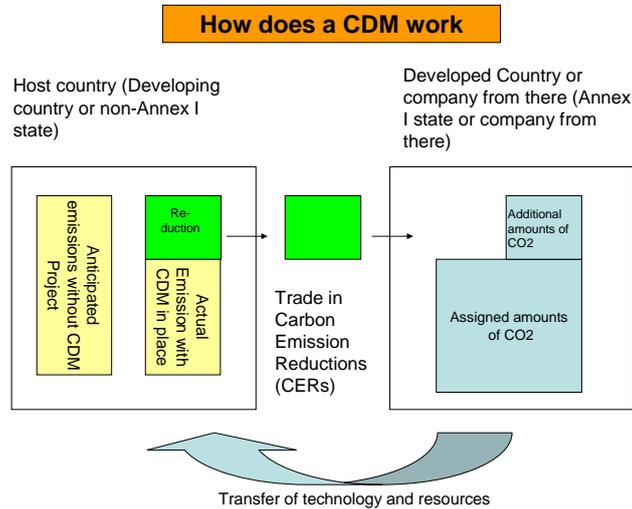
⁷ The company DuPont was an early actor in trying to reduce its emissions, through concerted company wide efforts it has achieved a 67% reduction in CO₂e emissions since 1990, saving some \$2 billion through increased energy efficiency.

⁸ In the Kyoto Protocol the three flexible mechanisms are found in the following articles: Joint Implementation, article 6; Clean Development Mechanism, article 12; Emission Trading, article 17. The rules and modalities of the mechanisms were mainly negotiated in 2001 in Marrakech but have since continuously been further developed by the CDM Executive board and by the COP/MOP meetings.

The Clean Development Mechanism (CDM)

CDM is a mechanism created by the Kyoto Protocol to reduce GHG emissions through investments in projects that reduce or avoid emissions in developing countries.

Chart 1

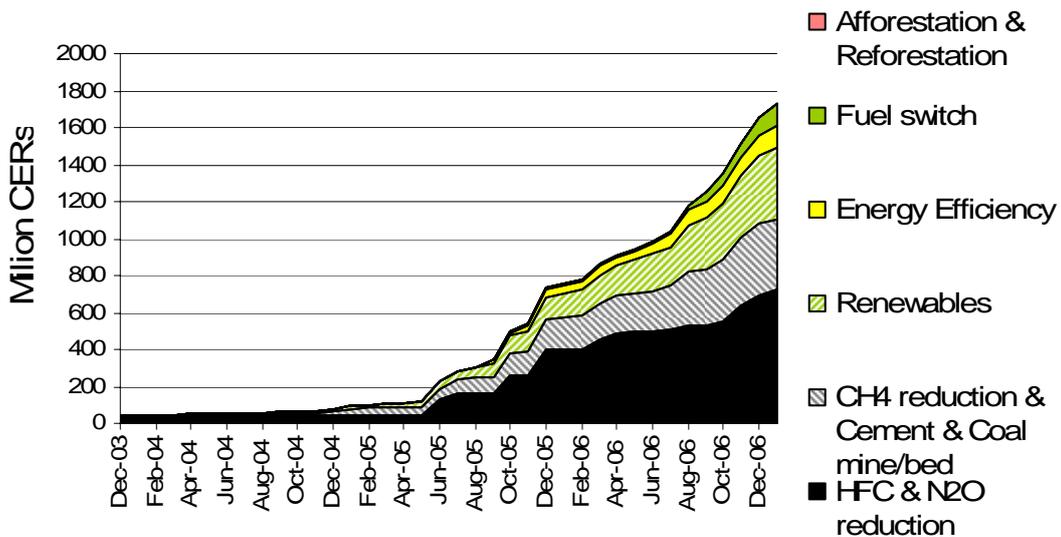


The project developer is entitled to receive Certificates of Emission Reductions (CERs). The demand for CERs comes from industrialized countries that can count these credits towards Kyoto compliance. The 12,000 industry installations covered by the EU emission trading system (EU ETS) can also use CERs to account for a part of their emission reduction compliance within this internal EU system for CO₂ reductions. Japanese firms buy CERs to meet their voluntary targets.

The CDM has the dual goal of providing cost efficient GHG emission reductions and local sustainable development benefits. It is the prerogative of the host country government to assess if a project lives up to sustainable development requirements.

Chart 2

Growth of total expected accumulated 2012 CERs



If 85% of all projects entering the Pipeline until the end of 2012 would be registered, and if the average issuance success would stay around the current 83%, the amount of CERs accumulated by the end of 2012 would be 3100 Million CERs. The Executive Board (EB) of the CDM is the highest authority of the CDM and is comprised of six members from Non-Annex I and four members from Annex I

countries.⁹ It approves projects and issues CERs after a successfully completed registration and verification process. Worth noting is that of the 547 projects approved by February 2007 and with some 1200 more at different stages of validation in the pipeline more than half are renewable energy projects. Of all CERs issued so far more than two thirds come from a small number of industrial gas destruction projects (HFCs, PFCs and N₂O). These projects earn huge number of CERs due to the great global warming potential of these gases compared to CO₂ but they have marginal sustainable development effects.

Source: UNEP Risø Centre, March 2007

In the course of this article we argue that CDM is a new form of governance. Since the principal negotiations on the CDM were finalised in Marrakech in 2001 it has evolved from an embryonic global public policy implementation platform (Streck, 2004) to a situation where many new actors have emerged that try to influence and prosper in a policy dependant, and volatile but booming market.

Section two will provide a more theoretical explanation of why the involvement of private business actors in environmental policy making is worth exploring at all. In the following two sections we will advance the hypothesis that the CDM actually works more or less as originally conceptualized. We argue that it constitutes a new mode of governance that has evolved from a global public policy network or a platform for implementation networks of global environmental politics (section three) to a maturing policy-regulated market (section four). Following in section five, we will present a balance sheet of the pros and cons of the CDM. The conclusion will elaborate on what this implies for research on governance in climate politics in general and for the debate about the CDM in particular.

II. THEORETICAL CONTEXT OF THE CDM – GOVERNANCE

The following section will position the CDM as an environmental policy innovation in current debates on environmental governance. These pay attention to the actors' constellations, institutions and procedures involved in the emergence and diffusion of policy innovations such as the CDM. Following from that, we will discuss the CDM in the context of current governance debates based in political science theories. The central argument to be developed is that while the CDM constitutes a new mode of governing global climate change issues, however, the characterisation of the CDM as 'governance' remains subject to debates (Benecke, 2007). As we will show, this new mode of governance is characterised by an actors-based dynamics and has experienced a shift from a conglomerate of PPPs to a maturing market mechanism.

Environmental Governance

Recent debates on global environmental governance (Young, 2001; Luterbacher & Sprinz, 2001; Esty & Ivanova, 2002; Biermann & Dingwerth, 2004; Levy & Newell 2005) emphasise the demand for adequate policy instruments in order to tackle global environmental problems such as climate change. The CDM constitutes such an innovative policy instrument.

Generally speaking, modes of environmental governance on global or national levels are subject to debates in two related research strands. While the first one adopts an actor-centred perspective and focuses on new actors and actors' constellations, the second one concentrates on processes and procedures with regard to the role and importance of nation states. Both of these theory strands depart from the observation that despite undiminished nominal sovereignty nation states are interdependent and that alone they have diminished capacities and resources to effectively tackle the global challenges. With regard to climate change this means that nation states are increasingly incapable to adapt and to mitigate ad-

⁹ Industrialized countries are known as Annex I countries in Kyoto jargon; developing countries are consequently known as Non-Annex I countries.

verse environmental impacts. Furthermore, global climate change creates an even stronger mutual ecological dependence than economic interdependencies where the success of all is threatened if principal nations decide to opt-out. Lastly, climate change will also add additional stress to the delivery of public goods and the provision of social services. For countries with constrained resources and diminished adaptive potential such as emerging economies this results in even greater challenges (Biermann & Dingwerth, 2004).

In the light of the new dimensions of global environmental challenges, examining the conditions under which new modes of governing these policy issues arise is highly relevant. In this regard, three possibilities of how environmental policy innovations emerge are distinguished. The first one is characterised by horizontal diffusion and assumes the centrality of the nation state. Studies of EU member states and OECD countries (Jänicke & Jörgens, 1998; Jänicke & Weidner, 1997; Busch & Jörgens, 2004) come to the conclusion that in given situations of particular environmental issues and problems some nation states act as forerunners in developing innovative policy solutions. This implies that certain procedures are established that provide a new and conducive framework for the establishment and functioning of new policy mechanisms. New institutions and mechanisms may also evolve such as markets promulgating the devolution of innovative technologies, which function as lead markets for environmental technology solutions (Tews et al, 2003). Hence apart from the central objective of effectively implementing these policy innovations domestically, the diffusion to other stakeholders within the issue arena is aimed at. With regard to the CDM, facilitative national institutions and actions to promote the new market are expected to render this policy innovation functional within domestic boundaries and also to assist the diffusion of the CDM by providing for learning experiences.

Policy innovations in environmental governance take place in a highly contested terrain due to the many interests and stakeholders of the developed and developing world (Oberthür & Ott, 1999) involved. Civil society and NGOs belong to the new actor that adopt new roles and influence in the environmental governance policy cycle creating new types of partnerships and new forms of cooperation (Reinicke, 1998). Their voice and power is based on the legitimacy and accountability NGOs imply within new policy mechanisms such as CDM representing civil society. Due to the diversity of interests NGO represent their influence on the CDM might hence be meditative and conducive to stakeholder engagement and CDM procedures. However, criticism on doubtful benefits of the CDM for promoting sustainable development or on the utilisation of CDM for marketing purposes might dampen the development of CDM in contested projects.

The second research strand also replicates the assumption of centrally important nation states but describes processes of vertical interdependencies (Biermann & Dingwerth, 2004) as channels for policy diffusion. Although nation states remain central actors in environmental politics also on the global level, the fact that effective action on climate change requires the cooperation and coordination of measures by the collective of states is acknowledged. Consequently, international regimes and institutions are established in order to constrain altruistic behaviour and to attain common understandings and agreements on actions against climate change. Mutual and repeated interactions and cooperation based on certain shared values such as the constitution of climate as global public good promote the emergence and the diffusion policy innovations. In summary, these research strands are based on the centrality of nation states as framework setters or initiators of environmental policy innovations.

On the whole, the CDM constitutes a project mechanism that induces and constitutes a new politically-initiated and regulated market. Hence, the CDM is a policy innovation, which encounters the difficulty of inducing other stakeholders to engage for this environmental governance mechanism to function. Building on this with regard to the CDM, our first assumption is hence that international organisations might play an important role triggering other stakeholders' engagement. Due to their expertise, financial resources, experiences and human

capacities, International Organisations are in an apt position to act as catalysts for the establishment of the CDM market and to induce and facilitate stakeholder engagement.

In contrast, the third research strand departs from nation state-centred assumptions and focuses on the emergence of new actors and actors' constellations. Generally speaking, in environmental politics as in other policy field a shift from hierarchical regulatory mechanisms towards softer management and coordination forms is observed (Risse & Lehmkuhl, 2006; Pierre, 2000). This goes together with the involvement of non-state actors such as business and NGOs in the policy cycle, which is characterised by a different quality of involvement distinct from previous self-regulations or voluntary commitments. Business actors in particular have become important at all levels of environmental governance (Esty & Ivanova, 2002; Levy & Newell, 2005). Globalisation and global transformations inherent in changes towards liberalisation, privatisation and deregulation (Brühl et al, 2003) provided the background of enhanced involvement of business actors. Acquiring new authority, their engagement goes beyond traditional lobbying and agenda-setting to exercise power. This means that private business is conceptualised and constituted not necessarily as contributor to global environmental problems (Fuhr et al, 1998) but also adopt responsibilities of climate protection thus becoming part of the solution (Cashore, 2002). Due to their technical capacities and financial resources business actors gain a new standing in environmental policy development processes. As they mitigate the lacking capacities of nation states, their exercise of power in environmental governance is rendered more legitimate (Florini, 2000; Cutler et al, 1999).

Central to the characterisation of the CDM as a new mode of governance in global climate change policy is the involvement of business as new private actor type within innovative policy mechanisms. This exemplifies the shift of private actors from causing environmental problems to becoming integral elements of policy approaches to tackling issues like climate change. Consequently, the constitution of this disparate group of new private actors as well as their engagement and their underlying motivations deserve and require closer attention. Literature on corporate governance in particular (Begg et al, 2005; Levy & Newell, 2005) looks at business motivations as part of their strategy for acting upon the climate change challenge. The two most common types of underlying rationales for private actors' involvement usually distinguish economic incentives and marketing or PR interests.

Going beyond the role of individual actors such as private business, literature on global public policy networks or public private partnerships examine the various actors' constellation and their implications for environmental governance. New coalitions of various actors combining business, NGOs, international organisations and nation states in different constellations result from the general demand for more integrative solutions to environmental problems (Reinicke et al, 2000). Individually, these actors either lack resources and capacities, such as for nation states, or legitimacy and accountability, e.g. business and non-governmental actors, to effectively tackle environmental challenges through adequate measures and policy interventions. Consequently, cross-sectoral alliances allow for complementing resources and expertise in order to attain effective and equitable policy making and implementation. This implies that new actors' constellations might even provide alternatives to traditional public policy with regard to ensuring the provision of public services such as healthy living conditions (Rosenau & Vaillancourt, 2000). What we, however, do not know is what dynamics these PPPs have. Do they just jumpstart a policy process or do they constitute themselves as sustainable structures? Our case study below indicates that the former is the case in the field of climate protection. However, before we focus on CDMs as PPPs we analyze in how far the CDM can be conceptualised as 'governance'.

Governance

The origins of the 'governance' debate relate to institutional economics and describe all forms of social coordination in hierarchies as well as in networks and markets (Williamson, 1985; Powell, 1990; Coase, 1991). Applications of broader governance definitions within po-

litical sciences are based in International Relations theories that examine regulatory regimes in the global arena. Traditional political sciences and in particular steering theory focus on hierarchical forms of steering and distinguish between the states as intentional subject of steering providing public goods from society as object to steering (Mayntz, 2001).

James Rosenau was among the first to acknowledge the subsequent relocation of authority from national entities as an adaptive reaction to ensure the delivery of functions essential for human survival. He describes these as coping with internal conflicts and external challenges as well as providing resources necessary for the system's continuation and well-being (Rosenau, 1992). Responsibilities for their delivery are regarded secondary and amount either to governments or to entities not originating within governments. 'Governance' is hence based on the applicability to different sectors, the multilevel political geography and the interaction of various actors (Brunngräber et al, 2004). Consequently, the 'governance concept' as a theoretical approach as well as an analytical instrument to questions regarding the effective tackling of specific issues and problems appears promising to political scientists (Benz, 2004) and economists (Lütz, 2003).

Generally speaking, 'governing' beyond state and its institutional boundaries constitutes the reference object of all governance approaches. Governance in its broadest conception is described as the "totality of co-existing forms of collectively regulating societal issues" (Mayntz, 2004). Yet since governing nowadays is less related to hierarchical steering by the central authority, i.e. government, governance perspectives throw some light on so-called new governance forms diverging from state centrism in terms of actors and modes of action involved (Ladwig, 2006). Subjects and objects of governance are regarded as dependent on situation and context (Schuppert, 2005) within which 'governance' takes place, which refers to regulatory structures as well as rule systems (Rosenau, 2000).

Ensuing discussions about adopting a narrow versus a broad definition of governance are of importance for the empirical reality as they determine the conceptualisation of policy innovations or new governing mechanisms such as the CDM as 'governance'. In its broadest application (Mayntz, 2004), governance subsumes all modes that constitute social order, which also includes regulatory modes to secure a system's stability and modes of self organisation. Yet in order to attain greater analytical value and selectivity the application of a narrow definition is proposed (Ladwig, 2006; Göhler, 2006). Such a definition understands governance as governing through non-hierarchical mechanisms involving various actors. According to this definition, non-hierarchical modes of governance include those actions and interaction mechanism between actors that are intentional, i.e. excluding forms of regulation through markets, and take place in the context of a so-called shadow of hierarchy.

What does the adoption of this rather narrow governance concept imply for conceptually embedding new modes such as the CDM, which constitutes a policy-based market instrument to governing global societal issues related to climate change?

Applying narrow governance concepts to analysing new modes such as the CDM is confronted by the assumption that hybrid forms of governance depend on the state to balance asymmetric constellations and require the state to more or less directly regulate society. This positions the state either as the central, intentional actor or demands for the existence of a shadow of hierarchy (Héritier, 2003), which is controversial with regard to the transferability of this concept outside its originating context, i.e. the OECD world.¹⁰ The second assumption implicit in the definition of 'governance' as "the intentional delivery of collective goods and service to a certain community" (Risse & Lehmkuhl, 2006) propagates the intentionality of public service delivery as prerequisite to characterising new mechanisms as governance.

¹⁰ These specifically refer firstly, to debating the legitimacy of approaches to govern a collective issue and secondly, to the requirement of intentionality in delivering certain governance function.

Analytically speaking, the CDM constitutes a multilevel mechanism and is thus differentiated into a regulatory framework and an operational framework (Mayntz, 2006). Regarding the regulatory structure, the CDM is constituted of the institutional set up, operational procedures of the Executive Board (EB) as well as the basic “rules of the game”, e.g. project procedures, methodologies. Hence, this regulatory framework depicts modes of regulation described by classical steering theory (Göhler, 2006). On the whole the regulatory structure integrates a shadow of hierarchy since it is backed up by nation states acting through the UN and with the Kyoto Protocol as the ultimate, accountable decision making authority. Regarding the operational framework, i.e. project cycle, of the CDM, different modes of transactions and interactions between different CDM project actors, verifiers and the EB emerge make up the ‘steering mechanisms’ of the CDM. Yet dependent on the actors’ constellations, interactions vary with regard to their intentionality ranging from market-based objectives to public-interests related concerns to uphold the environmental integrity of the system. Thus, the shadow of hierarchy is not necessarily present since the state may or may not even adopt the role of a procedural component or stakeholder to CDM projects.

In summary, overlaps exist between these two arenas since some stakeholder groups, e.g. nation states, involve to varying degrees in either of them, which creates a dynamic continuity with regard to rule- and context setting for project procedures. While the shadow of hierarchy is manifested in the regulatory structure of the CDM, the operational structure lacks such implications and might even undermine the regulatory framework through lobby activities and particular interest biases. Consequently, the conceptualisation of the CDM as ‘governance’ remains problematic.

Another crucial determinant of characterising new modes such as the CDM as governance is inherent in the question whether governing in the CDM framework is intentional. With regard to the CDM one needs to distinguish between these intentions inherent in the regulatory structure and framework and those intentions underlying the service delivery, i.e. the individual transactions, through the CDM projects. The intentions enshrined in the regulatory framework of the CDM relate to the underlying rationale or the dual goals of the CDM, i.e. cost efficient GHG-reductions on the one hand and sustainable development contributions to developing countries on the other hand. In order to examine the extent to which interactions constitutive of the actual service delivery are intentional, the CDM needs to be analysed according to the motivational conditions under which actors engage in respective activities. Concrete objectives of entities to participate in the CDM relate to decision making factors to make use of this flexible instrument on the other hand. Reflecting on the activities and the motivational conditions under which stakeholders engage in the CDM one can distinguish certain transaction modes that are characterised by specific motivational and interaction patterns amongst a group of actors. As the regulatory structure of the CDM guides all project and service delivery activities, the presence of a collective intentionality related to the dual goals can be assumed. However, looking at individual project/service delivery activities at micro operational level, the stakeholders’ motivational conditions occasionally diverge from the overarching CDM intentions. Resulting questions whether this impacts on the effectiveness of service delivery, i.e. climate protection, through the CDM and whether this might feedback to or undermine the overarching intentions enshrined in the regulatory framework are subject to future research.

In conclusions, despite controversies about the conceptualisation of the CDM as ‘governance’, we have shown that the CDM is characterised as an environmental policy innovation. Common to research on environmental governance as well as governance is a relative knowledge gap on the conditions under which new actors or actors’ constellations emerge, the underlying motivations and interest, the procedural and institutional dynamics as well as the effectiveness and consequences evolving. This hence demands for a policy-analytical examination of such a new mode of environmental governance as the CDM.

The CDM's constitution assembling a variety of different actors, actors' constellations and merging various interests is one of its characteristic features. Yet the other element distinguishing the CDM from other modes of environmental governance is its dynamics inherent in the shift from PPPs to market-based principles. This feature will be discussed in the following section.

III. FROM PPP ...

In the beginning, inexperience in how to create and regulate a market for certified emission reductions and high risk linked to the implementation of CDM projects made public and private actors go together on their journey as classical public private partnerships (PPPs). With growing maturity of the market and many lessons-learned for public and private actors, PPPs become dispensable. The following part analyses the transition from carbon market dominated by PPPs to a market place on which public and private actors engage in normal business activities and have even become competitors.

With the Marrakesh Accords agreed upon at the COP 7 in November 2001, governments specified the rules governing the implementation of the CDM. The governance function of governments have not stopped with spelling out the rules, but their governance function has moved to a different level: while states were fundamental in setting out the constitutive rules of the game and creating a carbon market, the carbon market now functions according to its own set of market mechanisms albeit under the shadow of hierarchy. Knill and Lehmkuhl provide two useful categories which can be applied to describe the position of the state in the initiation phase and the maintenance phase of the carbon market: in the first phase the state is active by intervening in the situation by intervention, in the second phase the situation resembles a situation of "regulated self-regulation" with the shadow of hierarchy overarching (Knill & Lehmkuhl, 2002).

With the constitutive rules set, the question had to be dealt with of how to implement regulations of the international regime which are intended to change behaviour and production modes of a variety of actors. Mirroring the variety of actors affected, a multitude of partnerships emerged – sometimes intended, sometimes spontaneous – to contribute to climate protection in their area of expertise and interest. Private-private, public-public and public-private partnerships came about not necessarily due to the lack of resources and governance capacities of states¹¹, but often due to the limited ability of nation states to set rules and more importantly to coordinate regulations outside of their spheres of influence. Thus partnerships evolved between actors that had overlaps in their interests, that hoped for synergies by a linked use of expertise and resources, and that shared similar aspirations in the field of climate change (see chart 6 for an overview of partnerships).

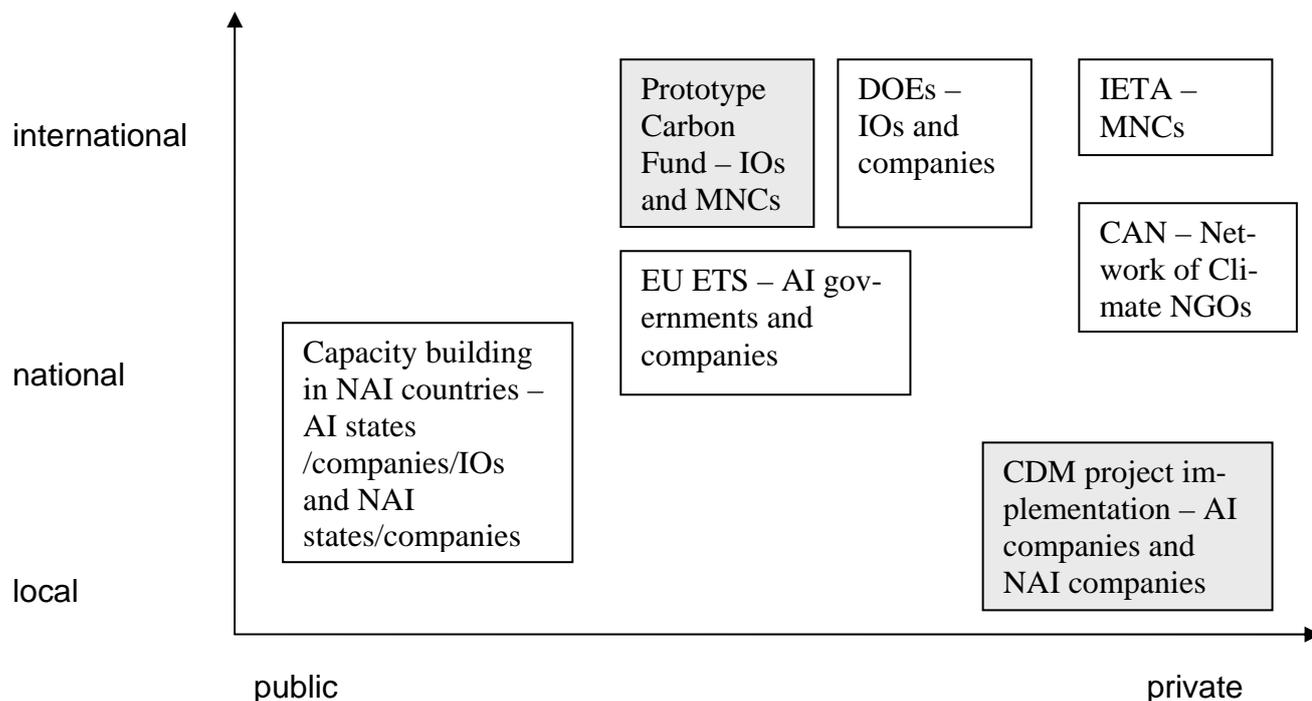
Most of the partnerships in the field of climate protection serve as implementation networks that act as facilitators for the implementation of intergovernmental agreements. Nevertheless, these networks go beyond implementation if they use the case law mechanism set up by the Executive Board to propose new CDM regulations or modify existing ones. Carbon market actors take a dual role in being the objects of the carbon market regulations while at the same time being able to propose changes to the regulative rules of the market. Annex I governments possess even a stronger dual role: they are buyers of CERs on the market while simultaneously deciding upon the rules of the market as parties to the Kyoto Protocol. Only purely private partnerships that represent interests and arguments of a single group, e.g. the International Emission Trading Association (IETA) representing industry or the Climate Action Network (CAN) serving as an umbrella organisation for NGOs active in climate change

¹¹ Governance capacity of public and private actors is defined according to Knill/Lehmkuhl 2002 as "formal and factual capability of public or private actors to define the content of public goods and to shape the social, economic, and political processes by which these goods are provided".

politics, can be said to be 'negotiation networks' that have as their objective the negotiation of global norms and standards (Witte et al 2002:66).

The importance of forming a PPP on the carbon market diminishes with the increasing political and operational stability of the market. PPP are often formed as learning experiments (Ruggie, 2002), in which participants are motivated to acquire more knowledge about regulative and operational procedures without expecting monetary benefits. Once a market has matured to such an extent that project risks and costs become bearable for the private investor, the need to cooperate with public actors for risk elimination becomes less.

Chart 1: Multilayered problem – diverse set of partnerships



Legend: AI= Annex I; NAI= Non-Annex I; IO= International Organisation; MNCs= Multinational corporations; IETA = International Emissions Trading Association

The most important PPP in climate politics was also the very first one, the Prototype Carbon Fund (PCF) that began as a learning experiment between the World Bank and several multinational corporations (MNCs) and served as the blueprint for the set up of several other public and private carbon funds.¹² The PCF has been launched in cooperation with four European governments, Canada and Japan, and 17 private companies participating, bringing together 145 million US\$ for the purchase of GHG emission reductions via CDM and JI projects (Streck 2002:2). The objectives for the PCF was to pioneer the flexible mechanisms, to disseminate the lessons learnt, and to foster the development of the carbon market by "crowding in" the private sector through a reduction of operational risks and transaction costs of project activities while contributing to sustainable development and poverty reduction in host countries. Its members had plenty of time to learn from their and their partners' experiences with CDM projects enabling them to become early movers when the carbon market became operational in 2004. For disseminating the lessons-learnt from early CDM and JI projects, the PCF set up a website and launched the PCFPlus, a \$1 million/year facility to provide capacity building and research. A good indicator for its success is the closure at

¹² Carbon Funds initiated by the World Bank include the Community Development Carbon Fund, Bio Carbon Fund, Netherlands CDM Facility, Netherlands European Carbon Facility, Italian Carbon Fund, Danish Carbon Fund, Spanish Carbon Fund, and the Umbrella Carbon Fund.

the end of 2006 with 25 purchase agreements signed for the removal of over 30 million tons of carbon dioxide equivalent from the atmosphere (Carbon Finance 2006:13).

The role of the World Bank in the management of the carbon funds is controversial: Researchers and practitioners criticize the Bank for overstretching its self-assigned role as a facilitator of the carbon market when it makes a good deal of money out of its commissions on projects (Vallette et al, 2004:4). Critiques see irony in the role of the World Bank of being the facilitator of the carbon market while simultaneously not being willing or able to mainstream climate change considerations into their energy projects or country strategies (Vallette et al 2004:3; Baumert et al 2005:5p.; Seymour 2006:3). Indeed the role of the World Bank has changed in the process: while its facilitation in the beginning has focused on initiating CDM projects in any country of choice, the World Bank has again taken a door opener position with regards to so far neglected project types, e.g. launching the Bio Carbon Fund for Land-use and Land-use-change and forestry (LULUCF), and neglected regions like Africa.¹³

One of the most interesting phenomena about the CDM is a that the generation of private goods (CERs production) by many – in the beginning through a PPP – is in its sum supposed to lead to the provision of the public good (climate protection), while some club goods (market regulation, local environmental protection, job creation) are provided as intended side-products (see chart 3). The intention of providing the public good of climate protection has to be traced back to the inventors and rule-setters for the CDM, while the output of their intentional initiation of the CDM – the eventual carbon market – can be hardly described of having an intention by itself. Their intention and actions has nevertheless created the structure which in turn impacts the behaviour of market participants, some of which are identical with the market creators (Annex I governments).

Chart 3: Types of goods provided by PPPs

Rivalry in consumption	Rivalry in consumption	Non-rivalry in consumption
Exclusion in consumption		
Exclusive in consumption	Private goods CERs	Club goods <ul style="list-style-type: none"> • Job creation • Local environmental protection • Regulation structures/carbon market • Capacity building for institutions
Non-exclusive in consumption	Common goods	Public goods <ul style="list-style-type: none"> • Cost-efficient GHG reduction • Climate protection

This distinction in output (public versus private good) can be used to make the distinction between public-private partnerships, which are supposed to deliver a public good, and business operations, which deliver a private good. Thus at the point in time when an actors' constellation shifts from the deliverance of a public good to the deliverance of a private good, we can identify a shift from a public-private partnership towards a business operation. Indicators for this shift are: a) when a good that has been non-rival in its consumption changes to be rival in its consumption (e.g. an oasis that is being increasingly visited there the fresh water might become scarce); and b) when a good that has been non-excludable in its consumption

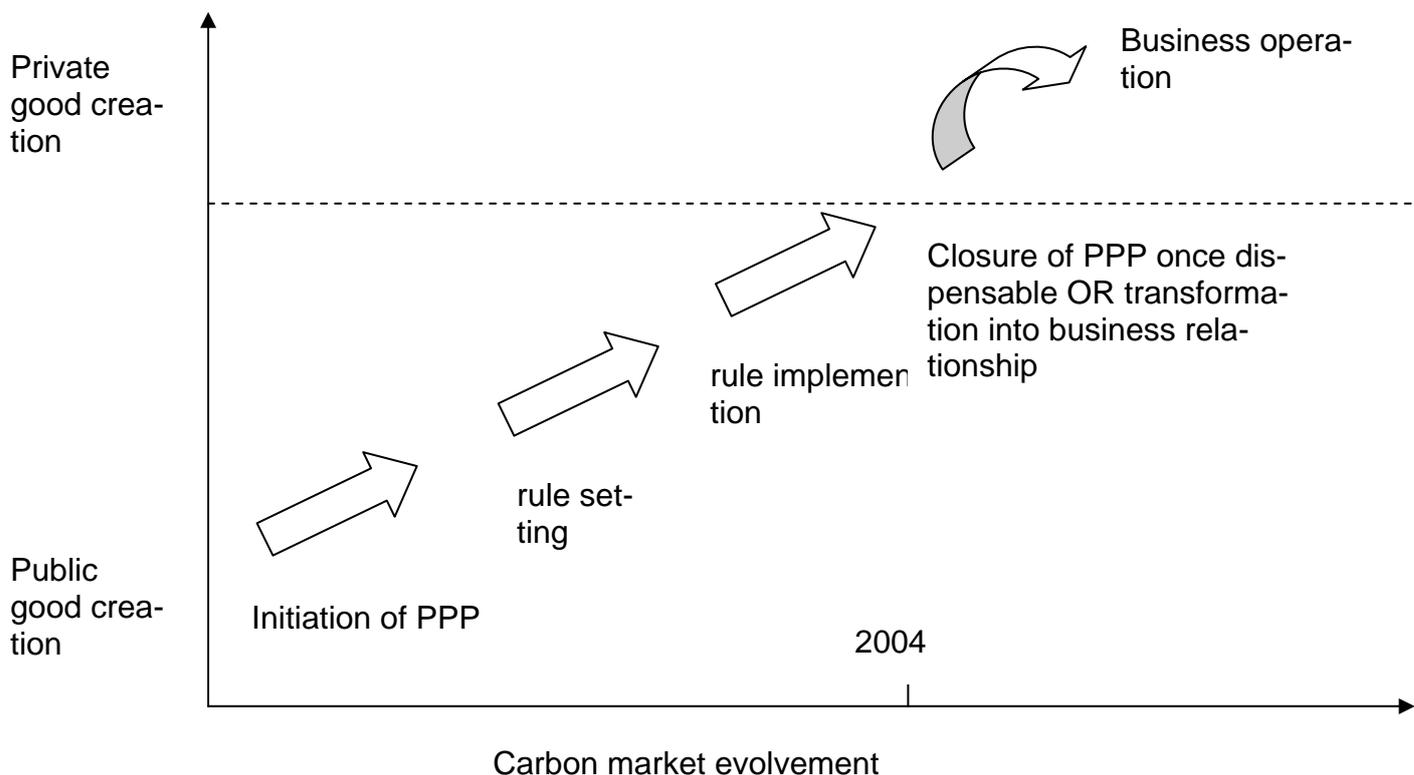
¹³ Up to end 2006, the World Bank has taken up seven CDM projects in sub-saharan Africa into its funds. For more details see Capoor et al (2006).

turns to be excludable (e.g. when a park authority puts up a fence and starts to allow members only to enter).¹⁴

IV. ...TO MARKETS?

Today, a functioning CDM market exists. What started out as a PPP initiated for the provision of the public good of climate protection turned into normal business operations with private goods (e.g. carbon fund return rate and CERs) as their output (see chart 4 for illustration). However, the activities taken as a sum should still lead to the provision of the public good of climate protection.

Chart 4: Life cycle of cooperation from PPP to business: different outputs at different times of the carbon market



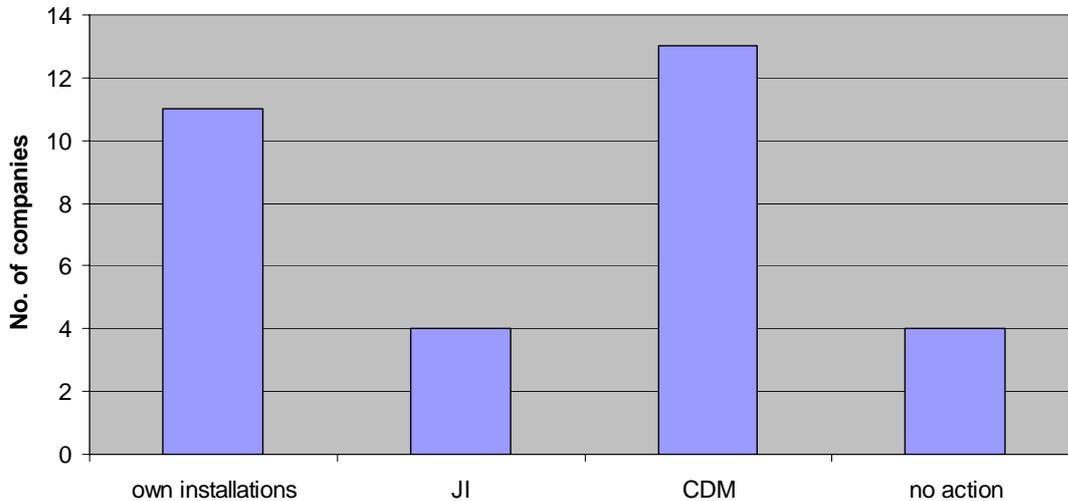
What characteristics define the market? First, it is **actually used by companies**. In a survey conducted by Benecke, Friberg, and Schröder in 2006¹⁵ one could see that almost all interviewed companies that had to reduce emissions were participating in the CDM market: Out of the 15 European companies, 10 companies are investing in their own installations, 4 are interested in JI projects, 12 have chosen and one refinery plant plans to become engaged in the CDM market as buyers of CERs (Certified Emission Reductions). Only one Austrian and

¹⁴ Differentiation between pure public goods and pure private goods based on Cooper (2001) and Samuelson (1954).

¹⁵ The survey consists of telephone-based and personal interviews with 36 stakeholders within the CDM market. The selection of interviewees was based on their perceived importance to the market. For example, among companies with reduction obligations under the European Emission Trading System (EU ETS), the companies with the largest installations within their country's National Allocation Plan (NAP) were approached for an interview. The interviews were conducted during August – October 2006 either in person or via the telephone using a semi-structured interview guideline. Japanese companies were included in the survey despite different framework conditions due to their relevance to the carbon market and in order to get a business perspective from a different angle. In favour of honest and frank answers the interviews were conducted under the Chatham House Rule so no attribution to specific firms will be made in this text.

two Swedish companies do not plan to become active as their “National Allocation Plan (NAP) allocation was sufficient” and so that no need for additional permits arises.

Compliance Strategies

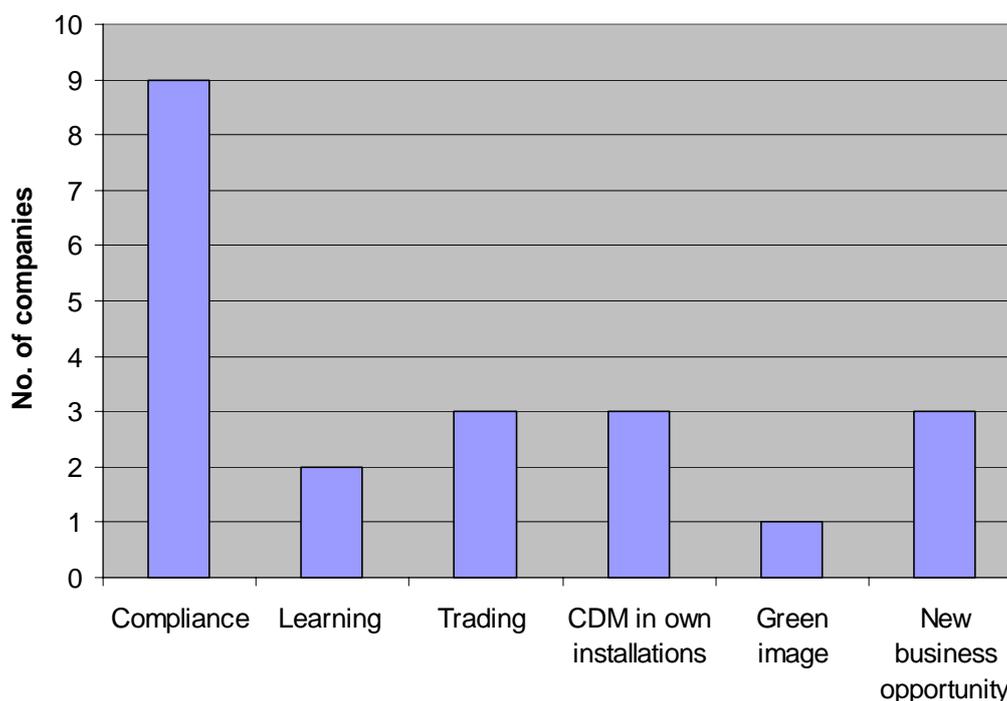


CDM stakeholders such as government bodies, NGOs and non-compliance private actor confirm that most prominently larger companies mainly in the power sector and steel and chemicals industries with transnational outreach are engaged in the CDM. Remarkably missing so far are smaller and medium sized companies as these are not affected by emission reduction obligations and/or inexperienced with international operations. A first lesson thus is that if a company has to reduce its emissions and if a market provides the possibility of finding a cost efficient solution, at least large companies will use the instruments available.

Second, **prices influence demand and supply** – just as they should in an ideal-type market. Furthermore, CERs have developed into a tradable commodity. Besides the volume and price of CERs generated, companies do not seem to have a clear preference for project types and almost half of the interviewed companies prefer a mixed project portfolio (in most cases via funds). In short, there is a market where a CER is a CER is a CER. The only exceptions are those that are not accepted under the EU ETS, e.g. forest plantation CERs. The market is still highly volatile and react to political events not just economic fundamentals. This could be seen in May 2006, following the release of the first verified emissions data the price for EU ETS credits collapsed from over €30/ton to below €15/ton as the extent of over allocations for the first EU ETS test period 2005-2007 became apparent, this clearly diminished the price companies were willing to pay for CERs for this time period even if forward prices for CERs held up better.

Prices are thus an important part, but they do not explain the whole story. Another interesting result of the survey of Benecke, Friberg, and Schröder thus was that although all companies interviewed have obligations under the EU ETS, only 8 out of 12 companies gave “compliance with the EU ETS” as a major reason for their engagement in CDM.

Motivations for CDM



Some companies – interestingly only refineries – stated to have been active in CDM right from the beginning in order to accumulate knowledge and to learn from early activities. Interviews with other stakeholders confirm that apart from making profit, seizing opportunities to explore and access new markets, the possibility of learning experiences due to an anticipated continuation or extension of emission trading and the CDM are key motives for companies' CDM interest. Yet, one company also gave “attaining a green image” as a rationale but this has to be taken with a grain of salt, as NGOs rightly point out that ‘green image’ rationales supposedly do not play a predominant role as this is too expensive compared to cheaper ‘green’ PR alternatives. The second lesson learned is thus that private businesses are acting strategically and are ready to shoulder front-up costs for learning or for exploring new business opportunities.

Third, the market is **differentiated into a primary market** that is project-related with a long-term orientation **and into a secondary market** that relates to trading with options and futures on project-generated CERs. In 2006 transactions in the primary market totalled 522 Million tons (Mt) CO₂e, with the secondary market adding 40 Mt, together they are valued at €3.9 billion (Point Carbon, 2007).

This secondary segment emerged in 2006 and is characterised by its short-term and fast nature, the small number of actors involved and thus a lack of liquidity. Interviewees describe both market segments as highly complex, technical and fluid, which thus allows only specialised actors to engage in them. Over the last years market actors have gathered a growing expertise in financing and trading with CERs. This relates to the emergence of new market actors, e.g. local banks, DOEs, even leading to certain saturation in distinct segments, as well as new market instruments provided by banks and stock exchanges. The third lesson thus is maybe the most obvious one, whenever profits can be made and opportunities for arbitrage exist financial actors try to profit.

Fourth, the market is **still unstable and only partially mature**. Characteristic features of the primary market, which most of the interviewed refer to, are its lack of stability due to a high number of entries. Generally speaking, the CDM is considered a pilot still working on a trial

and error basis, which has yet shown that it works but constitutes a niche rather than a commercial market. Factors that contribute to certain instability apart from the infant state of the CDM are the emergence of the above mentioned secondary market transactions that still lack price transparency. Stakeholders to a large extent agree on the position that the CDM market is somewhat uncertain since it is more policy dependent than any other market due to its enshrinement in the Kyoto Protocol. However, due to the uncertain political and pricing decisions after 2012 a growing insecurity amongst market participants is recognised. Factors that add to this uncertainty are fears of market distortions resulting from the EU burden sharing and NAP II decisions as well as the additionality criteria relating to the CDM projects. Particularly companies, representing the buyer, i.e. demand, side in the CDM market agree on the characterisation of the CDM as a 'jungle' even if it is more mature now than one year before (Point Carbon, 2007). This is because the CDM provides opportunities for successful early movers for large profits but at large risks. Thus, companies emphasise the importance of being among the first movers in the market. The final lesson is thus that due to its high complexity, regulatory and legal issues are more than in other markets considered highly relevant. Politics after all rules.

V. A BALANCE SHEET: IS THE CDM WORTH ALL THE FUSS?

So far we have provided a theoretical analysis of the CDM as a new mode of governance and we have shown that the CDM changed from being primarily a PPP to being an immature but nevertheless functioning market. It now seems time to evaluate the CDM and to delve into policy. What are the strengths and weaknesses of the CDM?

The first and very important strength of the CDM is that it is fulfilling its primary goal, that is it provides a **cost efficient** way to reduce emissions. Just to clarify again: the CDM mechanism itself does not lead to global GHG reductions, it only can provide a cheap way to reach those reduction targets that Annex I countries have agreed on. The price for CERs ranged between €5 and €13/ton at the end of 2006 depending on the risk and maturity of the underlying project (Point Carbon, 2007). As long as CERs are cheaper than EUAs they are of interest for companies and countries alike.¹⁶ This is the case even though they are also accompanied with higher risk, ranging from project specific risk factors to currency risks, rejection at some stage in the CDM registration process, and CERs delivery. Nevertheless, CDM creates an additional supply of credits that add to the overall amount available to companies in the EU ETS system, lowering the cost of compliance. Thus, some European countries like the Netherlands and Spain find that the CDM lower their total cost for Kyoto, allowing them to reduce the reduction efforts they need to impose on domestic sectors. The European Environment Agency has shown that without using the flexible mechanisms many of the old EU 15 member states could not reach their Kyoto reduction targets by 2012 (EEA, 2006).

Second, from a market actor standpoint the biggest advantage of the CDM market is its high **flexibility**. As mentioned above many of the interviewed companies regard engagement in CDM as an important way to hedge their carbon risk. By adding the CDM option to their compliance tool box they increase their flexibility. The flexibility aspect seems to be a more important driver for some actors than the lower price on CERs compared to EUAs. This flexibility even extends over time as CDM creates a one off security valve for European compliance companies into the second EU ETS period 2008-2012 as they can chose to use their CERs either in the present or in the second commitment period, an option not available for the EUAs in the pilot phase (until the end of 2007) as banking of EUAs between the first and second phase is not allowed. This increases companies' flexibility and reduces their exposure to EUA price fluctuation risk.

¹⁶ The crash of the price for EUAs in May 2006 forced some project developers in e.g. India to reconsider their price expectations as there was no longer a market for CERs costing above €20/ton.

Third, the CDM has a potential role in facilitating technology transfer and increasing foreign direct investments into developing countries. Market participants stress that the technology has to be suitable to the local context and that it is as much a matter of transferring human capital skills and management systems as transfer of technology hardware. For example, 2006 saw a number of large barter deals where technology providers got CERs as payment in return for providing technology and competence to project hosts reducing HFC-23 or N₂O adipic acid. The CDM also was important in bringing in a substantial amount of capital in the overall carbon market.

Fourth, and from our perspective the most important aspect, is that the CDM market is a first and **explorative mode of governance**. It is explorative in various ways: i) it brings in new actors (for example American hedge funds in the secondary market); ii) it allows developing countries to gain first experiences and to enhance local human capacity and institutions for managing and controlling GHG mitigation; iii) it provides incentives for the development and deployment of new technologies and methodologies that might become important in the post 2012 climate regime such as wind energy, land fill methane recovery and energy efficiency.

Of course there are also serious weaknesses that have to be discussed. First, there are some more **technical issues** that nevertheless have important political implications. For example the burden to oversee the compliance with CDM rules is to a large extent put on the shoulders of the Designated Operational Entities (DOEs). These private standardization agencies make their profit as external auditors of projects compliance with CDM rules: host governments, buyers (Annex I governments and companies) and project developers all have an strong interest for CDM projects with low baselines and a maximum generation of CERs and DOEs are together with the EB set to uphold the integrity of the system. Thereby the governance function of checking and enforcing rules is sourced out to private companies who are only bound by their accreditation by the Executive Board and by their company's reputation. There is a pronounced risk that some DOEs might try to attract additional business by being lenient or fast in their vetting of the projects. The governance function of controlling the operative rules of the CDM thus been delegated by the Kyoto Protocol parties to DOEs.

Second, in the survey of Benecke, Friberg, and Schröder (2006) market actors strongly complained about the **complicated and bureaucratic process of establishing CDMs**. The lengthy process of registration, verification and approval is seen as too slow, arbitrary and developed without an understanding of how business work. Micro management of petty details in particular by the Executive Board creating a bottleneck slowing down the process is another common complaint. All this process friction drives up the transaction costs of doing CDM projects, and the complexity and time lag creates a high threshold for new entrants. A similar complaint is that the methodology of financial additionality is seen as difficult and subjective in its application.¹⁷ The strong involvement of bureaucracies is, however, no surprise as it is through government actions that the market is set up in the first place. This of course does not excuse the first indications of corruption or the slow down of individual CDM projects through bad governance but these problems of abuse will most likely not endanger the whole process.

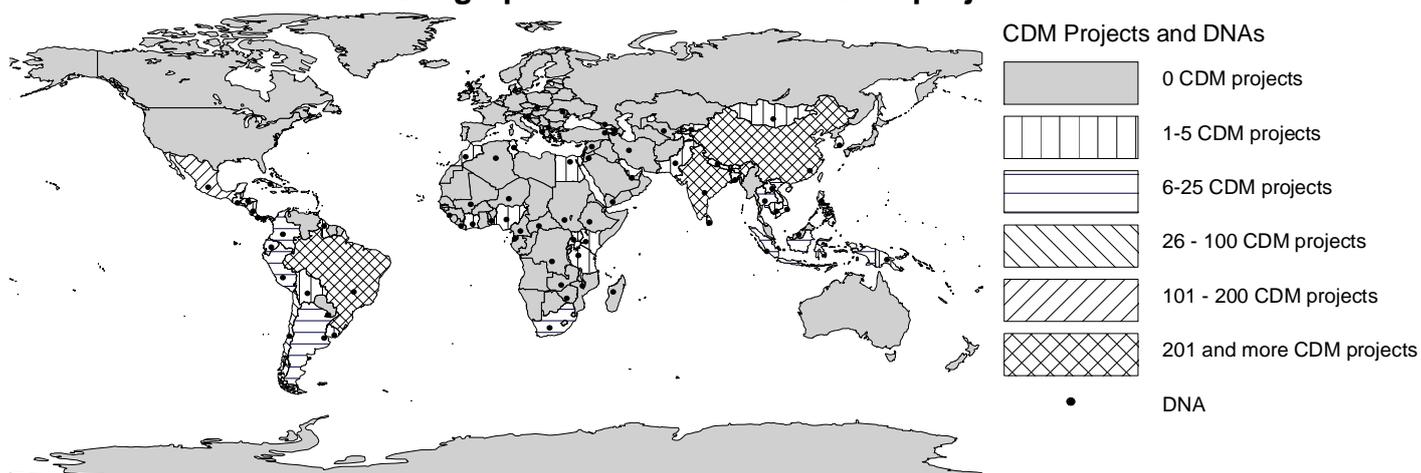
More serious is the allegation that doubts that CDMs are not **contributing to sustainable development**. In particular NGOs criticize some CDM projects for failing to contribute to local

¹⁷ The environmental integrity of the CDM depends on the possibility to avoid giving CERs to projects that would have happened anyway. Therefore all projects have to prove that their **financial additionality**, projects should not be financed by official development aid or part of 'business as usual'. This has proven problematic to prove in reality. For further discussion on the concept, see (Greiner & Michaelowa, 2003).

environmental improvements. In some instances the CDM has even created perverse incentives encouraging environmentally unfriendly behaviour. For example, the ozone depleting cooling agent hydrochlorofluorocarbon 22 (HCFC 22) should be phased out under the Montreal Protocol but as the destruction of the by-product HFC 23 is so immensely profitable as CDM projects several new factories have been built despite the fact that the gas should be phased out under the Montreal Protocol (EIA, 2006). Even when such perversions are stopped the larger question is whether CDM can actually make a difference at all as its current form as a small, project based mechanism will not be able to have a perceivable impact on the energy policy of a country. It of course does not help that the demand for CERs is to a large part driven by EU ETS allocations and policy makers here have so far failed to create a 'short' market.

Another criticism of the CDM is the unequal **regional distribution of CDM projects** (shown in Chart below). It is highly concentrated in a few, large, relatively well developed countries and with only a handful of the 547 projects approved by February 2007 located in any of the least developed countries (LDCs) or in Sub-Saharan Africa. If the location of the CDM stay very geographically unequally distributed the political support for the mechanism with increasingly come under question as was evident in the discussions – and taken up by the UN Secretary General Kofi Annan at the Nairobi COP/MOP in November 2006.

Geographical distribution of CDM projects



Source: Own adoption from UNFCCC and UNEP Risø Centre information, February 2007

This distribution pattern of course has to do with the fact that the CDM has become a market. As discussed above, the majority of the CDM market actors are profit driven; their investments decisions for CDM are guided by a quest for the highest return on invested capital at the lowest risk. Mirroring foreign direct investment patterns they thus go where the best combination of market opportunities and business friendly, stable, institutions are. This is why the CDM provides economically cost efficient GHG reductions, the more they take other motivations into account the fear is, the less cost efficient the mechanism will be. The EU is loath to tamper with the rule book for the CDM in order to address this inequality as it would increase the political uncertainty of the CDM. Trying to placate poor countries, the EU at the COP/MOP in Nairobi launched the *Global Efficiency and Renewable Energy Fund* (GEREF) that will invest up to 100 million/year in clean technology in developing countries.

Finally, like all markets, the CDM market detests **uncertainty**. The fact that the future shape, form and very existence of a continued climate regime beyond the first commitment period of the Kyoto Protocol ending in 2012 is a fundamental problem even if some market participants are starting to develop projects for the post 2012 horizon. Linked to issue of post 2012 uncertainty is the complaint that the time horizon of the CDM is too short in comparison to normal business investment cycles for companies considering retrofitting or new investments in low

carbon technologies. The problem of uncertainty has slightly been diminished by the EU's commitment to reduce GHG by 20% (baseline 1990) by 2020 with promises to cut further if other major emitters do the same. This demand boost should be enough to keep the CDM market rolling. The question, however, is how long the EU will maintain a progressive line if not others join it in the struggle against climate change?

The above balance sheet is mixed. Nevertheless, we plea for the glass being half full as one can clearly see that the CDM market is in existence and is working efficiently. At the same time it is an old truth that one cannot have the cake and eat it at the same time or in our context one cannot expect a market mechanism that works efficiently to guarantee equity. It is thus a problem for politics that there are hardly any CDMs in Sub-Sahara Africa but not for the market and fortunately politics is acting as the discussion of the role of the World Bank in setting up new carbon funds above showed. The big question therefore rather is whether the CDM will leave any local footprints that lead into the direction of sustainable development. It is, however, to early to tell.

VI: CONCLUSION: WHY CARE?

In the context of this article, we have discussed the conditions of emergence, motives of actors and actor constellations, and the evolution of the CDM in the framework of research on environmental governance. Conceptualising the CDM as 'governance' in the light of political science debates and contrasting these attempts with arguments for characterizing the CDM as a market has revealed gaps for future research.

The CDM as a market based solution with its strong focus on cost efficiency and flexibility is attractive to business facing reduction compliance. Despite being ten years after negotiations on the rules for the CDM began it is still early days for the implementation phase of the CDM. Most commentators seem to agree that the CDM has proven itself as a functioning mechanism for cost effective GHG reductions in developing countries, less so when it comes to deliver sustainable development to local communities. Summarising the empirical findings and analytical discussions of the theory-deduced hypotheses, we come to the conclusion that for the emergence of the CDM actors such as IOs, NGOs and strategically acting nation states and business engaging in partnership arrangements have played a decisive role. However, with the evolution of the CDM towards a maturing market, their role, significance and the relevance of public private partnerships has decreased being replaced by so-called interest-based partnerships relating to CDM project activities and market transactions. While business actors and a new range of private secondary market actors have come to dominate the CDM, IOs, nation states and NGOs move towards adopting new roles and functions oriented towards ensuring the CDMs dual goals as well as the global equity and efficiency of this policy innovation.

Future prospects and developments of the policy innovation for climate change mitigation will severely depend on the post-2012 climate change regime. With the CDM, companies have a broader range of emission reduction options that lowers the price of reductions even if far from all choose to use it. For the future, market actors seem to be in broad agreement that despite the problems highlighted the continuation of the CDM as a corner stone in a future climate regime is increasingly taken for granted, perhaps supplemented with "*brothers or sisters of the CDM*" that expand the scope or scale of the mechanism addressing whole sectors or programmes. When asked for practical details on how such a future flexible mechanism would work market participants were still rather vague on what they envision as the better solution. This absence of clear ideas among stakeholders is worrisome given the limited time scope for such ideas to evolve from 'straw man' suggestions to fully fledged proposals ready to gain wider acceptance in time for the official post-2012 climate negotiations.

It will also be of interest to see in how far the regulation of CDMs will be state-led. In some leading CDM host countries like China, the state maintains a strong regulatory role in the

CDM market, in other areas such as in the UK where the government is actively encouraging a strong role for the financial markets, including in rule making.

In order to further the empirical and theoretical research related to the environmental policy innovation of the CDM, the next steps would be to examine the impacts of the CDM in developing countries. In this context, the success of this policy instrument with regard to delivering on its promises of global climate protection and on contributing to technology transfer and local sustainable development will depend on the extent to which policy diffusion in a broader sense has taken place. This means, attention needs to focus on the constitution and evolution of local carbon markets, the impacts on local environmental policies and institutions, and the effects on the attitudes and behaviour of local populations as well as key stakeholders related to environmental issues in these countries. One positive effect of the CDM that is already detectable is that over the last few years there have been a substantial building of carbon know-how and management capacity in the principal CDM host countries, both among private market actors and in government, this despite the fact that these countries do not have any commitments at this stage to reduce their emissions. This is probably an important precursor to further steps in the building of a global climate regime.

With regard to theory-building, future comparative research on the CDM should examine the effectiveness of this policy innovation in relation to other governing mechanisms that tackle global and local environmental problems. Ultimately, the CDM constitutes one policy options amongst other modes of governance in environmental politics and its overall success depends not only on design and procedural issues at the international level but also on the interplays with and the reception at the local levels.

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