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**DELEGATION TO PRIVATE ACTORS:
A CASE STUDY OF THE CLEAN DEVELOPMENT
MECHANISM**

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DELEGATION TO PRIVATE ACTORS: A CASE STUDY OF THE CLEAN DEVELOPMENT MECHANISM

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Abstract

This paper offers an in-depth study of the Clean Development Mechanism of the Kyoto Protocol. The complex institutional design of the CDM creates delegates considerable authority to non-state actors, which raises important questions about their performance and accountability. The study presented here evaluates how well the Executive Board of the CDM is able to control the agents to whom it delegates authority. To answer this question, I conduct an analysis of 752 projects submitted to the Executive Board between December 2004 and June 2007. The results are of this analysis are mixed. Although many of the oversight procedures in place appear to be functioning well, there are some fundamental structural issues that may contribute to agents acting in rent-seeking ways, to the detriment of the principals. The data indicate that although the CDM was designed in a way to maximize the Executive Board's control, in practice, we cannot be assured that these private agents are not pursuing their own goals, at the cost of those delegated to them.

¹ I am grateful for input and comments from Sarah Blodgett Bermeo, Jeff Colgan, Christina Davis, Bob Keohane, Richard Stewart, and participants in the Third annual Global Administrative Law Seminar in Viterbo, Italy, 14-15 June 2007.

DELEGATION TO PRIVATE ACTORS: A CASE STUDY OF THE CLEAN DEVELOPMENT MECHANISM

Introduction

It is fashionable these days to speak of the rise of public-private partnerships; surprisingly however, there is relatively little scholarly work on the interaction between states and private actors at the supranational level. This paper offers an in-depth case study of the Clean Development Mechanism (CDM)—one of the three market mechanisms of the Kyoto Protocol—which features a prominent role for non-state actors. Drawing from the principal-agent literature, this paper analyses the mechanics of the complex institutional arrangements of the CDM, and draws some conclusions about the functioning of the mechanisms created to ensure the accountability of private agents.

The CDM provides incentives for reducing greenhouse gas emissions by allowing developed countries to purchase emissions credits for abatement activities undertaken in developing countries, and to apply these credits against their overall targets. Since all developed countries² have committed to meeting specific reductions by the end of 2012, the CDM allows them to do so in what is theoretically, the most cost-efficient manner—by purchasing emissions reductions where they are most cheaply produced, i.e. in the developing world.

The CDM has delegated considerable authority to private actors. The complexities of creating and regulating a new market in greenhouse gas (GHG) emissions have prompted the creation of a number of subsidiary bodies. In turn these bodies have been delegated authority to create and implement rules, help resolve disputes, monitor and verify participants' behavior and award emissions reductions credits. These subsidiary bodies use private actors both as consultants and as agents to carry out specific measurement and monitoring tasks.

To evaluate how well the principal—in this study, the Executive Board of the CDM—is able to control the agents—the “Designated Operational Entities”—I conduct an analysis of 752 projects submitted to the Executive Board between December 2004 and June 2007. The results of this analysis are mixed. Although many of the oversight procedures in place appear to be functioning well, there are some fundamental structural issues that may contribute to agents acting in rent-seeking ways, to the detriment of the principals. Specifically, the small number of firms qualified to carry out monitoring and verification raises concerns of monopoly and collusion. Moreover, there is little indication that many new private agents will be added to the list of qualified agents any time soon. There are considerable barriers to entry, including the knowledge and expertise that potential agents must first acquire, as well as the lengthy process to become an accredited Designated Operational Entity (DOE). Finally, there is little evidence that the “police patrol” oversight mechanisms are functioning well. In sum, the data indicate that although the CDM was designed in a way to maximize the Executive Board's control over the Designated Operational Entities, in practice, we cannot be assured that these private agents are not pursuing their own goals, at the cost of those delegated to them.

² This of course does not include developed nations who have not ratified the Protocol, namely Australia and the US. Australia has recently declared its intention to ratify.

Given the vast literature on international organizations, why look at a small subsidiary body such as the CDM? There are two answers which explain the significance of this case study. First, although there is talk of the “death” of the Kyoto Protocol, the CDM is thriving—and growing exponentially. Thus far, the CDM has granted approximately 45 million credits or “certified emissions reductions” (CERs) through 238 projects.³ Currently, there are approximately 1600 additional projects in the pipeline, estimated to represent some 1.9 billion CERs.⁴ One CER is equivalent to one metric ton of carbon dioxide (or the equivalent amount of other greenhouse gases). The price of CER has fluctuated, but ranges between €13 and €16 per metric ton of carbon dioxide.⁵

Second, and more importantly, the CDM, along with the two other “flexibility mechanisms” in Kyoto, are emerging as the backbone of a larger emissions trading scheme. It is very likely that the intergovernmental arrangement that follows Kyoto (which is set to expire in 2012) will include provisions for emissions trading. Moreover, the CDM is no longer the only emissions trading initiative. A number of national and sub-national emissions trading initiatives have emerged around the globe—many of which are taking their cues from Kyoto’s flexibility mechanisms of Kyoto. They are using many of the same methodologies, oversight structures and importantly, many of the same private firms for monitoring and verification activities as the CDM. Thus, the CDM can be viewed as a significant anchor in a larger emerging market in carbon dioxide emissions. If this market continues to grow and to delegate key regulatory tasks to private firms, it is then important to look carefully at the institutional mechanisms in place to constrain them.

This paper seeks to describe and analyze the principal-agent relationship in the CDM. It is not meant to offer definitive conclusions about the nature of private agents in global regulatory institutions; indeed, without examining the variation across institutions, any conclusions would be misleading. Moreover, the paper does not seek to explain the specific reasons that motivated the Parties to delegate certain functions within the treaty. The question of which functions states choose to delegate (and to whom) is an important one, but it will not be directly addressed here. Finally, this analysis takes the structure of the CDM as given. That is, I do not evaluate the CDM in comparison to other potential institutional designs. Given that the delegation patterns in emissions trading are likely to persist, I take the structure of the institution as given, and examine the extent to which there is deviation between the expectations of the principals and the activities of the agents.

The paper is structured as follows. In the first section, I situate my research within the relevant literatures in law and political science and discuss the links between them. Second, the paper defines delegation and the principal-agent framework used in the analysis. Third, it turns to an in-depth examination of the structure and functions of the CDM. Fourth, I discuss the accountability mechanisms in place in the CDM. In this section, I also examine trends in the

³ UNFCCC, “CERs Issued.” Accessed at http://cdm.unfccc.int/Issuance/cers_iss.html, 2 August 2007.

⁴ UNFCCC, “CDM Statistics.” Accessed at <http://cdm.unfccc.int/Statistics/index.html>, 2 August 2007.

⁵ The more commonly cited price of carbon is the one in the European Emissions Trading Scheme (EU-ETS), which is a much larger market than the CDM. The price of a metric ton of CO₂ in the EU market is much more volatile than in the CDM, and has ranged from between €18 to €33.

behavior of some of the private agents involved in the CDM. I show the extent to which principals and agents differ in their assessments in projects' conformity to the rules of the regime. The final section draws some general conclusions about the accountability of private agents in the CDM.

I. Relevant literatures

In this section I outline how this investigation fits into current discussions in the political science and legal literatures. By focusing on the act of delegation, this paper aims to bring together debates in the delegation and global administrative law literatures, emphasizing their similarities and the potential contributions of each analytical frame to the other.

Derived from economics, delegation theory has only recently been used to explain the principal-agent relationship between states and international organizations.⁶ In economic theory, the primary challenge of economic organization is “to explain the conditions that determine whether the gains from specialization and cooperative production can be better obtained within an organization like the firm, or across markets.”⁷ This calculus is often referred to as the “make or buy” question. However, this decision is complicated by what Alchian and Demsetz refer to as the “metering problem” in team production: it is difficult to measure the individual inputs to a given output and distribute rewards accordingly.⁸ Without accurate metering, rewards will not correspond appropriately to effort, and an incentive to shirk emerges: to exercise less effort with the hope that this behavior will go undetected and the reward will be the same to all agents irrespective of level of input. Of course, firms can make greater efforts to monitor behavior, but this is not without cost. Thus, there is a general tendency for agents to “shirk”, pursuing their own interests at the expense of the principal. The massive body of work spawned by this fundamental problem had the following “punch line,” according to Epstein and O’Halloran: “principals can usually mitigate conflicts of interest [between principal and agent] through the careful design of incentive contracts but can rarely control agents perfectly.”⁹

Political scientists have borrowed the principal-agent paradigm to examine relations between branches of government.¹⁰ Yet it has only recently been used in analyses of international politics, and very little of this work extends to private actors. Thus, this examination of the CDM presents an opportunity to use current theories of delegation on a new population to see how principal-agent theory applies when agents are non-state actors.

To date, studies of international politics offer similar explanations of delegation: States delegate to reduce transaction costs and solve problems that allow mutually beneficial cooperation. Specifically, “principals decide to delegate powers to an agent...because that agent will reduce the transaction costs of policy-making either by producing expert information for the principals

⁶ See, e.g. Bradley and Kelley 2007; Hawkins et. al. 2006; Nielson and Tierney 2003; Pollack 2003; Alter 1998.

⁷ Alchian and Demsetz 1972, 777.

⁸ Ibid, 778-81.

⁹ Epstein and O’Halloran 1999, 28. Note, however, that there is considerable debate about how well such mitigation tools function.

¹⁰ See e.g. Moe 1990, Kiewit and McCubbins 1991, and Epstein and O’Halloran 1999.

or by allowing the principals to commit themselves credibly to their agreed course of action.”¹¹ Recent work by Hawkins et. al. reiterates and expands upon this point: The authors explain five mechanisms through which delegation can confer benefits to agents by lowering the costs of cooperation. Delegation can help: reduce defection; facilitate collective decision-making; resolve disputes; enhance credibility through enforcement; and “lock in” certain practices.¹² A variant of the efficiency rationale is presented in the literature on public-private partnerships. Streck argues that delegation is motivated by governments’ inability to address problems adequately. The most efficient solution, then, is to delegate to actors most capable of finding solutions.¹³ Thus, although the body of literature is small, efficiency is the dominant explanation for delegation to public agents on the international level. Efficiency may come in different stripes—lowering transaction costs, facilitating agreement, and creating credibility—but it provides the same motivation for delegation.

This paper also draws on and contributes to the literature on global administrative law (GAL). The emerging body of literature on GAL is derived, in part, from research on domestic administrative legal systems, which examines rules and mechanisms for controlling government agents.¹⁴ The GAL literature asks a similar question on the international level: Given the increasing amount of delegation to both public and private actors, how can international regimes ensure the accountability of these various actors? It aims to illustrate the problems of accountability in the new “global administrative space” and proposes ways to apply administrative principles to promote accountability of both state and private actors.¹⁵

GAL examines both a wide variety of actors—supranational, domestic, public, private and hybrid—as well as a diverse range of issues, ranging from accounting standards to international organizations to forestry certification.¹⁶ In this sense, it can be viewed as a means to address the “governance trilemma” described by Slaughter: interdependence has created a need for global rules without centralized power, but with ways to hold rule-makers accountable through different political mechanisms.¹⁷

Discussion both in the delegation and GAL literatures begins from the premise that “complex interdependence”—the ways that states are linked and therefore mutually dependent on each other—is prompting changes in the ways states address problems.¹⁸ Kingsbury et. al. note that the growth in transnational regulation has contributed to the rise in GAL, since “important regulatory functions are no longer exclusively domestic in character.”¹⁹ Applying the lens of political science suggests that many of these regulatory functions are instances of delegation, where a variety of actors undertake administrative activities. GAL comprises delegation both at

¹¹ Pollack 2003, 21

¹² Hawkins et. al. 2006, 13.

¹³ Streck 2004.

¹⁴ See, e.g. Stewart 1975

¹⁵ Kingsbury et. al. 2005

¹⁶ On accounting see Mattli and Buthe 2005; on IOs, see e.g. Fox and Brown 1998; on forestry see Cashore et. al. 2004.

¹⁷ Slaughter 2004, 8-9.

¹⁸ Keohane and Nye 1977, 8.

¹⁹ Kingsbury et. al. 2005, 25.

the national level, where domestic agents come together in transnational networks²⁰ and at the supranational level, where states delegate specific tasks to IOs, hybrid intergovernmental arrangements, or private institutions.²¹

Both literatures wrestle with the challenge of accountability. How can states control agents? How can they manage global rule-making? Accountability mechanisms are one way to address this problem. Grant and Keohane define accountability as a situation in which “some actors have the right to hold other actors to a set of standards, to judge whether they have fulfilled their responsibilities in light of these standards, and to impose sanctions if they determine that these responsibilities have not been met.”²² In this paper, I use the term “accountability mechanisms” to describe this process of elaborating standards, evaluating performance, and exacting sanctions as appropriate. While accountability is generally *ex-post*—power wielders are held to account after they have performed certain tasks—I also address *ex-ante* mechanisms to increase the likelihood that power wielders will behave in accordance with the preferences of those delegating power.

Each of these perspectives has weaknesses. The GAL literature focuses largely on how delegation affects accountability mechanisms, but it does not look closely at the temporally prior issue of the costs and benefits of the act of delegation. To address this gap, I begin from the premise that we must understand the mechanics of delegation—including the costs, benefits and politics involved—before delving into its consequences. Moreover, this analysis calls attention to the interrelation between politics and GAL mechanisms; sometimes the disjuncture between GAL procedures and practices can undercut efforts to hold global actors accountable.

The literature examining delegation to supranational actors also has shortcomings. First, unlike GAL, it has focused almost exclusively on delegation to public actors – either agents of the state at the domestic level or international organizations (and even this is a relatively new development). In international relations, the literature has largely sidestepped the issue of private actors. Indeed, some have argued that there is little work on agents of either type within IR, despite the vast principal-agent literature.²³ As a result, delegation theory in international relations takes agents to be relatively unitary; thus control mechanisms will operate similarly on similar types of agents. Second, the work on delegation assumes that holding agents accountable is largely a matter of a cost/benefit calculation. That is, if states are willing to devote the resources necessary to monitoring and constraining agents, then the proper control mechanisms can be designed and implemented.²⁴ The analysis in Section IV suggests that this logic does not hold in the case of the CDM.

II. Defining delegation

In this section, I define delegation and explain how it is operationalized in this study. I then turn to the aspects of the principal-agent relationship that are particular to private agents.

²⁰ Slaughter 2004.

²¹ See Kingsbury et. al. 2005 on the five types of global administration, 20-23.

²² Grant and Keohane 2005, 29.

²³ Hawkins and Jacoby 2006.

²⁴ Kiewit and McCubbins 1991.

Following Moe, delegation is present in situations in which “the principal considers entering into a contractual agreement with another, the agent, in the expectation that the agent will subsequently choose actions that produce outcomes desired by the principal.”²⁵ In this study, I use treaties and decisions of subsidiary bodies as evidence of delegation. Thus, the initial act of delegation by states was the creation of the CDM in Article 12 of the Kyoto Protocol. The scope of the authority delegated was further refined in the Marrakesh Accords, which details the modalities of the CDM.²⁶ Since then, a number of subsequent decisions by the Executive Board of the CDM have further delegated authority to various Panels and ad-hoc bodies that are responsible for acts of rulemaking and implementation. These will be discussed further in the following section. For now, the important fact is that these acts of delegation have been explicit and are carefully documented in the decisions of the Meeting of the Parties to the Kyoto Protocol, the ultimate decision-making body in the Protocol.²⁷

There are two additional characteristics of delegation that are relevant to this study. First, delegation can be either *direct* or *indirect*. In a situation of direct delegation, a state delegates to an IO or private actor to carry out a specific task; the agent then implements according to its mandate. In indirect delegation, the agent then delegates to a third party who carries out the required tasks.²⁸ We can think of the many instances when states delegate to IOs, who in turn contract with NGOs or private firms to implement programs as an instance of *indirect delegation*. The state thus delegates to the third party indirectly, as mediated by the IO.

Second, traditional theories of delegation generally present three distinct models of the principal. In the first, a single principal delegates to a single agent; this is often the model we see when we describe how domestic governments delegate to implementing agencies. In the second, multiple distinct principals delegate to a single agent. In the third—the one most relevant for this study—a collective principal delegates to a single agent. In this third mode, the principals jointly agree upon and design the arrangement which governs the agent. The model of the collective principal includes most IOs, and supranational arrangements such as the European Union. The case of the CDM is a clear example of a collective principal—where the ultimate principal is the Parties to the Kyoto Protocol. The proximate principal, which delegates to the implementers of the CDM, is the Executive Board. In general, when I speak of the principal of the CDM, I am referring to the Executive Board.

²⁵ Moe 1984, 756.

²⁶ UNFCCC 2002. The Marrakesh Accords are a lengthy agreement laying out many aspects of the implementation of the Kyoto Protocol; the modalities of the CDM are one component of the document.

²⁷ I distinguish between the “Meeting of the Parties”—the intergovernmentally-constituted body that is the ultimate decisionmaker in the Kyoto Protocol—and the “Parties” more generally, which refers to one or more states that have ratified the treaty, but *not* the official decisionmaking body.

²⁸ The terminology in the literature is inconsistent. Bradley and Kelley 2007 use the term “re-delegation” to describe indirect delegation. They define re-delegation as situations in which “after states delegate to international bodies, these bodies often have the power to re-delegate that authority to other international bodies or to other actors such as a non-governmental organizations.” Hawkins et. al. 2006 use re-delegation in an entirely different way, to refer to those occasions in which states change the terms of delegation to an IO. To avoid the confusion of these two different usages of the same term, I will use the term “indirect delegation” to refer to those instances when states delegate to IOs, which in turn delegate some portion of these delegated tasks to a third party. I thank Christina Davis for this point.

III. Structure and function of the CDM

This section offers a description of how the process of approving, implementing and monitoring of CDM projects works, and of the structure of the CDM and its various component parts. As will become evident, the structure of the CDM is complex. This thick description is necessary to understand the tasks and authority that has been delegated to private and actors. Moreover, the author is not aware of any other in depth examinations of the structure of the CDM.²⁹

A. *An overview of the CDM project cycle*

The CDM is a market-based mechanism that allows developed, or Annex I (AI) countries to receive credits, or “certified emissions reductions” (CERs) for projects that they finance in developing, or Non-Annex I (NAI) countries. It therefore allows AI countries some flexibility in the manner in which they choose to meet their emissions reductions targets. The logic of the CDM is that the marginal cost of emissions reductions will be lower in the developing world, thus achieving global reductions in the most cost-efficient manner.

The CDM is an ambitious attempt to create a new currency, the CER, which can be bought and sold on the open market.³⁰ Each project that wishes to participate in the CDM must undergo a rigorous application process.³¹ The applicants—generally the purchaser(s) of the credits and the project implementer (often an energy company) must first submit a Project Design Document (PDD) to the Executive Board (EB). The PDD requires detailed information about the project activities, estimated emissions reductions, plans for monitoring, and perhaps most importantly, information about baselines and leakage.³² Estimating the emissions reductions requires employing a counterfactual, or baseline: How much carbon dioxide (or its equivalent) would be generated in the absence of this project? The CDM has created many complex methodologies and a number of subsidiary bodies to establish and advise about these baselines and their implementation. Each proposed project must use one of these extant methodologies (or successfully petition for the inclusion of a new one) against which to measure its activities. It must show that the planned emissions reductions will be “additional” to what would have occurred in the absence of the project.³³ This concept is known as “additionality” and is the core of any CDM project. The PDD also requires that the project design avoid the problem of “leakage,” so that the CO₂ producing activities are not simply shifted to another area beyond the project boundaries. Finally, the PDD must demonstrate that stakeholders were consulted in the planning process and that project planners took “due account” of their comments.³⁴

²⁹ The only other analysis of the CDM which focuses on its hybrid form is Streck 2004. However, her discussion mainly focuses on the Designated Operational Entities, without any treatment of the CDM’s other panels.

³⁰ Victor and House 2004.

³¹ For a succinct description of the project cycle, see Wilkins 2002.

³² Complete documentation about rules of procedure and modalities can be found in UNFCCC 2001 Provisions for the contents of the PDD can be found in UNFCCC 2001, Annex B.

³³ UNFCCC 2001, para 37(d) states that: “A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.

³⁴ Stakeholders are defined in UNFCCC 2001, paragraph 1(e) Annex as “the public, including individuals, groups or communities affected, or likely to be affected, by the proposed clean development mechanism project activity.” The most recent version of the PDD can be found at

http://cdm.unfccc.int/Reference/Documents/cdmpdd/English/CDM_PDD.pdf.

Once this document is prepared, it must be validated by an accredited Designated Operational Entity (DOE) of the CDM.³⁵ Currently, there are eighteen accredited DOEs, many of which are large multinational firms with annual budgets in the tens and hundreds of millions.³⁶ The DOE makes a recommendation to the EB about whether the project should go forward, based on criteria set forth in the methodologies for various project types, and those outlined in Article 12 of the Protocol. If the EB approves the PDD, the project is registered. (Section IV conducts an in-depth analysis about the EB's decisions to approve, review or reject the projects validated by the various DOEs.) A different DOE is then responsible for monitoring the project, verifying the specified activities and finally, certifying that the reductions have actually taken place. Certification by the DOE constitutes a formal request to the EB that the CERs should be issued to the project funder.

Project participants must pay fees to participate in the CDM. Two percent of the CERs generated by the project are appropriated to the Adaptation Fund.³⁷ The investing Party must also pay a fee to cover the costs incurred by the Secretariat for administering the project. Once these have been paid, the CERs are transferred to the investing Party via the CDM Registry. The Registry is administered by the Secretariat and is the official repository for credits generated through the CDM.³⁸

B. The Executive Board

The EB is the main governing body of the CDM. It reports to the Meeting of the Parties (MOP). The EB is comprised of ten representatives of Parties to the Protocol—five members and five alternates—who may serve for a total of four consecutive years.³⁹ There is one representative from each of the five UN regions, two additional representatives from both AI and Non-Annex I (NAI) nations, and one representative from Small Island Developing states. EB members must sign a written oath declaring that they have no financial interests at stake in the CDM, and are obligated not to disclose confidential or proprietary information both during and after their tenure as Board members. The Board generally works by consensus, but in the case of disagreement, can take decisions with a three-fourths majority.

In order to carry out its responsibilities to review and approve projects, the EB is given broad latitude to establish committees, panels or working groups to assist the EB in carrying out its duties: “The executive board may establish committees, panels or working groups to assist it in the performance of its functions. The executive board shall draw on the expertise necessary to perform its functions, including from the UNFCCC roster of experts.”⁴⁰

³⁵ The validation process is outlined in UNFCCC 2002, Annex paras. 35-42.

³⁶ Based on a review of the DOEs' Annual Reports available on line. Not all DOEs had this information available. Eight of the 17 DOEs had annual budgets upwards of US\$30M.

³⁷ 169 project participants involved in CDM activities in least developed countries are exempt from paying this levy.

³⁸ The Subsidiary Body for Implementation (SBI) is in the process of finalizing an International transaction log, which will perform checks to verify transactions of carbon credits under the Kyoto Protocol. The beta version is now functional, and it is anticipated that it will be formally introduced by the end of 2007. The technology is currently being discussed in the SBI meeting in May 2007; additional information is available in FCCC/SBI/2007/INF.3. Accessed at <http://unfccc.int/resource/docs/2007/sbi/eng/inf03.pdf>.

³⁹ This section draws heavily on the Rules of Procedure for the Executive Board, which is found in UNFCCC 2005, Decision 4/CMP.1, Annex I.

⁴⁰ UNFCCC 2002, Annex, para 18.

This seemingly innocuous rule of procedure has given rise to a sizable set of supporting bodies, including the aforementioned designated operational entities, as well as an Accreditation Panel, an ad-hoc accreditation team, and panels focusing on methodologies, afforestation and reforestation, small scale projects and registry and issuance.⁴¹

In addition to creating and overseeing these various panels, the EB also has powers to review recommendations by the DOEs, either before registration of the project or before CERs are issued. These reviews are undertaken by two Board members and members of the Registry and Issuance Team, which was established by the EB “to assist Board members in their task to consider requests for registration of project activities and requests for issuance of CERs submitted to the Board by DOEs.”⁴² In both phases of the project a review is triggered either by a request of the project participants, or by three members of the EB. This review process is discussed at length in Section IV.

C. The Designated Operational Entities

The Designated Operational Entities (DOEs) are at the crux of the design and implementation of the CDM. They are private firms that serve two functions: 1) to validate the proposed projects and then, 2) to verify and certify project activities. (I refer to these two separate activities as “validate” and “verify.”) Most DOEs are private companies, often large risk management firms, which specialize in activities such as standardization, certification, verification, inspection and testing. A small number are non-profit organizations. DOEs must apply for accreditation to the EB, a process that will be outlined in the following section. As of 10 July 2007, there were 18 accredited DOEs. CDM projects are divided into 15 “sectoral scopes”—ranging from activities such as energy distribution to agriculture to waste handling—within which there are a number of approved methodologies for conducting the projects. DOEs are only permitted to validate or verify projects within those sectoral scopes for which they are accredited. For example, a DOE accredited to evaluate transport projects is not permitted to evaluate afforestation and reforestation projects, unless it applies for and receives accreditation to do so. The project purchaser, usually a government, pays the DOE for both its validation and verification services.

To prevent conflicts of interest, the validation and verification functions are (in principle) to be carried out by different DOEs. The logic of this separation of tasks is that a DOE, which is compensated by the project applicant for its services, may have an incentive to ensure the successful completion of the project—either to secure compensation or to earn the trust of a repeat customer. The separation of validation and verification is one way to try to avoid this capture. However, we will see that this is not always the case. Table 1 shows which DOEs are accredited in which scope. Only five of the eighteen DOEs are accredited to validate in more than four scopes. Only three of the eighteen are accredited to verify in more than four scopes. Indeed, more than half of the accredited DOEs are unable to verify in any scope.

⁴¹ Further guidance for the EB on Panels and Working Groups is found in Executive Board 2005, Annex I.

⁴² UNFCCC Executive Board 2006, Annex 43, para 1.

Table 1: List of DOEs and their scope accreditation

Entity Name (short name)	Sectoral scopes for validation	Sectoral scopes for verification
Japan Quality Assurance Organization (JQA)	1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13	
JACO CDM.,LTD (JACO)	1, 2, 3	1, 2, 3
Det Norske Veritas Certification AS (DNV Certification AS)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15
TÜV SÜD Industrie Service GmbH (TÜV-SÜD)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Tohatsu Evaluation and Certification Organization Co., Ltd. (TECO)	1, 2, 3	
Japan Consulting Institute (JCI)	1, 2, 13	
Bureau Veritas Certification Holding S.A. (BVC Holding S.A.)	1, 2, 3	1, 2, 3
SGS United Kingdom Ltd. (SGS)	1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 15	1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 15
The Korea Energy Management Corporation (KEMCO)	1	
TÜV Rheinland Japan Ltd. (TÜV Rheinland)	1, 2, 3, 13	
KPMG Sustainability B.V. (KPMG)	1, 2, 3, 13	
British Standards Institution (BSI)	1, 2, 3	
Spanish Association for Standardisation and Certification (AENOR)	1, 2, 3	1, 2, 3
TÜV NORD CERT GmbH (RWTUV)	1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13	1, 2, 3
Lloyd's Register Quality Assurance Ltd (LRQA)	1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13	
Colombian Institute for Technical Standards and Certification (ICONTEC)		1, 2, 3
Korean Foundation for Quality (KFQ)	1, 2, 3	
PricewaterhouseCoopers - South Africa (PwC)	1, 2, 3	

Source: <http://cdm.unfccc.int/DOE/list/index.html> (accessed July 15 2007)

Put simply, although eighteen appears to be a small number, when looking at the DOEs accredited in specific scopes, the number shrinks even further. There are only eight DOEs permitted to do *any* verification at all. Table 2 (on page 26) also shows the considerable overlap between those DOEs accredited to validate and verify. This is not surprising given that the majority of the DOEs are specialized in only one or two sectoral scopes. However, there are at least two sectoral scopes—mining/mineral production and metal production—in which there is only one accredited DOE, and hence must undertake both validation and verification. Thus,

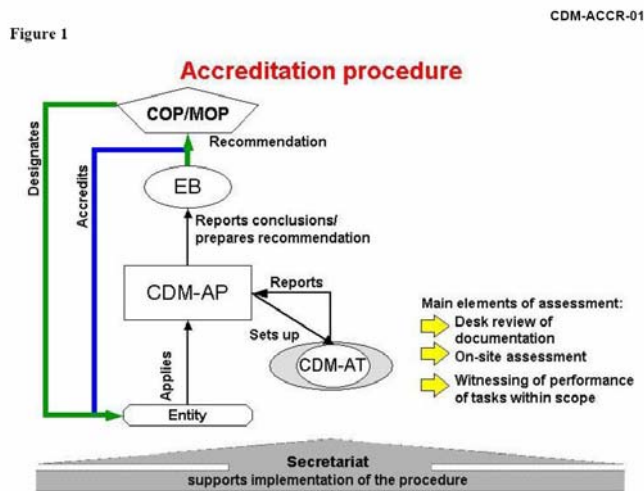
although in principle, these two activities must be undertaken by separate DOEs, in some cases this is not possible. Hence, the EB has a little-publicized provision that permits this practice.⁴³

D. Accrediting the DOEs: The CDM-AP and the CDM-AT

Since the activities of the DOEs hinge on their accreditation, it is worth a brief review of how that process works, and which actors are involved in deciding whether or not a DOE applying for accreditation is approved.⁴⁴ There are two panels that work under the EB in the accreditation of the DOE: the CDM Accreditation Panel (CDM-AP) and the CDM Assessment Team (CDM-AT). To apply to be accredited, applicants must pay a non-refundable US\$15,000 fee (applicants from Non-Annex I countries only have to pay half of the fee up front) and cover the costs incurred by the accreditation teams.

The Accreditation Panel is responsible for preparing the recommendation to the EB regarding the accreditation of the applicant. This recommendation is based on an in-depth evaluation undertaken by the Assessment Team, which involves a desktop review of the application; on-site assessment that verifies that the applicant is capable of carrying out tasks required by a DOE in a given sectoral scope; and witnessing of the performance of those tasks by the applicant.⁴⁵ Based on this evaluation, the Assessment team prepares a document that details how the applicant performed, and makes its recommendation for consideration by the CDM-AP. Based on the input of the Assessment Team, the CDM-AP decides whether or not to recommend accreditation of the applicant to the EB. Figure 1 illustrates this process graphically. As we will see in the following section, this careful screening process is the first of a number of accountability mechanisms built into the CDM’s design (in this case, ex-ante).

Figure 1: Accreditation procedure for DOEs



Source: UNFCCC EB-26 Meeting Report, Annex I.

⁴³ See <http://cdm.unfccc.int/DOE/grapgaccrproc.html>, footnote 1.

⁴⁴ See UNFCCC Executive Board 2007, Annex I. This is an extremely involved process, and the following only characterizes the main steps. It is sufficiently complicated that the Executive Board created a handbook for potential applicants, available at http://cdm.unfccc.int/Reference/Guidclarif/accr_handbook.pdf.

⁴⁵ The CDM-AP decides who will serve on the CDM-AT, but the Secretariat provides suggestions. Each CDM-AT must have at least three members, including the team leader. Depending on the size of the applicant firm, or the number of scopes the applicant is seeking accreditation for, the CDM-AT may be larger.

The CDM-AP and the CDM-ATs are composed of members of the Executive Board, as well as private actors who apply to be considered as experts to serve on each body. Provided that they meet the qualifications set forth in the respect terms of reference, they are added to a “Roster of Experts”. The Executive Board then selects individuals from the Roster to carry out specific assessment activities.⁴⁶ The only stated selection criteria (beyond meeting the basic competency requirements) is ensuring a regional balance in the composition of the body. They do *not* have to be nominated by their governments. It is worth noting here that the CDM-AP in particular has expressed concern about the lack of experts available to undertake the necessary assessments, and has suggested contracting with a set of experts on a longer term basis. The EB is now considering this proposal.⁴⁷

IV. Accountability Mechanisms in principle and in practice

To help make sense of this complex institutional landscape, this section outlines some of the main mechanisms for accountability in the CDM—that is, the various ways in which the principal may constrain the DOEs once they have been accredited. I group these mechanisms into four broad categories: public participation, screening, accountability mechanisms and rights of review.⁴⁸ I first examine what mechanisms exist; I then turn to an examination of the extent to which they have been used to challenge or overturn the recommendations of the DOEs.

A. Accountability Mechanisms in Principle

a) Screening

The principal-agent literature points to screening as an important protection against shirking. Principals can carefully screen agents to try to prevent delegating to those who they believe will be more likely to shirk.⁴⁹ As already detailed in the previous section, the accreditation process for DOEs is rigorous and lengthy. Reviews by the CDM-AP and CDM-AT ensure careful scrutiny of the applicant entity (i.e. the would-be DOE). Finally, each DOE must be accredited for specific scopes, thus ensuring that applicants have sufficient expertise in a given area, and that DOEs applying for additional scopes will be re-examined to ensure their competence.

b) Public participation

As Cassese notes, participation rights—both on the domestic and global levels—are important because “process control or voice encourage people’s cooperation with authorities and lead to legitimacy.”⁵⁰ There are a number of provisions in the CDM that allow for public participation, or encourage it through transparency. First, all of the documentation, including meeting notes, is available on the website. Although meetings are not open to the public, interested groups can see webcasts of the meetings via the UNFCCC website. Second, when Executive Board meetings overlap with other meetings of the UNFCCC, often EB members meet with interested actors.

⁴⁶ UNFCCC Executive Board 2006, Annex I.

⁴⁷ UNFCCC Executive Board 2006b, para 7.

⁴⁸ For two varying conceptions of different accountability mechanisms see Grant and Keohane 2005 and Stewart 2006.

⁴⁹ As Bendor, Glazer and Hammond 2001 note, the ally principle suggests that principals are more likely to delegate to agents whom they believe have preferences close to their own.

⁵⁰ Cassese 2006.

Third, the project planning process requires public consultations. These consultations are not pro-forma; the states and firms participating in the project must demonstrate that the issues raised in these consultations were duly considered. Fourth, public participation is further encouraged through notice and comment periods during which all methodologies under consideration are posted to the website. Similarly, the Project Design Document must be made available to the public for a 30-day period; project participants are required to show that they have duly considered any feedback received through this comment period.⁵¹ Fifth and finally, participants in CDM projects, NGOs accredited with the UNFCCC or stakeholders affected by CDM projects may also participate through registering complaints with the EB about DOEs activities. (We will see that in practice this fifth mechanism is little used.)

These mechanisms for transparency and participation have had concrete effects. Large international environmental NGOs as well as smaller more focused groups such as CDMWatch and SinksWatch monitor the discussions and decisions made by the EB. They comment publicly or directly to the EB on current developments. In addition, the wealth of information has permitted independent analyses of the functioning of the CDM. Such an analysis led one researcher to conclude that “accounting tricks that allow participants to manufacture CERs at little or no cost.”⁵² The recognition that the CDM allows the production of these “empty credits” has prompted the EB to respond to the problem.⁵³

c) Accountability

There are two main types of accountability mechanisms present in the CDM structure: supervisory and legal. I discuss each in turn. By supervisory accountability, I refer to those situations where “one organization acts as principal with respect to specified agents.”⁵⁴ In this case, the EB serves as the principal, and the DOEs are the agents. The accreditation process for the DOEs is perhaps the most carefully monitored component of the CDM. This is logical, since the DOEs are at the core of a functioning market for CERs, and careful screening can help mitigate situations of wide preference divergence between agent and principal.⁵⁵ As discussed in the previous section, the accreditation process includes a long chain of actors, each responsible for reviewing and evaluating the work of the previous one. Thus, the Assessment Team reports to the Assessment Panel, which in turn makes a recommendation to the EB.

Once a DOE is accredited, the EB can review any recommendations that it finds questionable. The EB enlists help of the Registration and Issuance Team to ensure that the DOEs have acted according to protocol and made appropriate decisions with respect to validating projects and certifying CERs. The Team is comprised of 34 members, selected from a public call for experts. Like the other experts described above, they are a self-selected group; they are not nominated by

⁵¹ UNFCCC CDM Executive Board 2006a.

⁵² Wara 2006, 8.

⁵³ UNFCCC CDM Executive Board 2005. The EB noted that “issuing certified emission reductions for hydrofluorocarbon- 23 (HFC-23) destruction at new HCFC-22 facilities could lead to higher global production of HCFC-22 and/or HFC-23 than would otherwise occur and that the clean development mechanism should not lead to such increases.”

⁵⁴ Grant and Keohane 2005, 36.

⁵⁵ Nielson and Tierney 2003.

their governments.⁵⁶ Because they serve in their private capacity, the UNFCCC Secretariat was unwilling to share any information about them. Thus, it is unclear whether they have any links to the DOEs, personal or professional. However, they are required to disclose any potential conflicts of interest, which results in assigning a different expert to a given review.

In addition to oversight by the EB and the Registration and Issuance Team, the separation of validation from verification activities is intended to reduce the incentive for DOEs to approve projects solely to ensure that they receive payment. However, as discussed in the previous section, given the small number of DOEs accredited in certain sectoral scopes, this provision does not always apply. In some scopes, only one DOE is accredited to both validation and verification. Moreover, given the small number of DOEs, there could easily be an incentive to approve *other* DOEs' projects with the expectation that such a favor would be reciprocated. This possibility will be investigated further below.

Provisions for legal accountability of private actors involved in the CDM are less well-developed. Legal accountability can be understood as: "a participatory element in any legal system that allows citizens to sue powerful entities for failures of responsibility."⁵⁷ The CDM currently relies on domestic legal systems for this type of accountability. DOEs, for example, are expected to have insurance coverage as well as "sufficient arrangements to cover legal and financial liabilities arising from its activities."⁵⁸ There are no further specifications about legal consequences of failure to comply with CDM procedure. The most serious penalty is revocation of accreditation, though this has not yet occurred. Moreover, there is an unresolved issue about the legal status of non-state actors involved in the CDM's various panels and working groups. These experts are understandably concerned about their potential liability in decisions taken based on their advice. Currently, these actors are not protected from legal action, though there is an ongoing attempt to remedy this problem.⁵⁹ As Cafaggi points out, without enforceable liability rules, regulators may not have proper incentives to do their job or to do it well.⁶⁰ Thus far these rules are not in place in the CDM.

d) Rights of Review

The governance of the CDM provides two separate opportunities for review and challenge of DOE and EB recommendations. In the beginning of the project cycle, before a project is formally registered, any actor participating in the project or the EB can request a review of the DOE's recommendation to the EB. In this case, the EB assembles a review team, which includes both EB members and members of the Registration and Issuance Team. The review team makes a recommendation to the EB, which then takes a final decision: to register the proposed project,

⁵⁶ The original Terms of Reference for the Registration and Issuance team in November 2005 (at that point, simply the registration team), there were six members of the team. Since then, the number has grown incrementally to 34. See UNFCCC Executive Board 2005b and 2007. The most recent figures were supplied to me through a personal communication, Judith Adrien 4 July 2007.

⁵⁷ Grant and Keohane 2005, 36.

⁵⁸ UNFCCC 2006, Appendix A, 21.

⁵⁹ At its May 2006 meeting, the Subsidiary Body for Implementation discussed how to address problem of "privileges and immunities" of those serving on expert review teams. See Earth Negotiations Bulletin, Vol. 12, No. 306 and FCCC/SBI/2006/L.10.

⁶⁰ Cafaggi 2006, pp. 44-56.

to require changes to the proposed project or to reject it outright. The decision of the EB is final, though it is required to make public the reasons for its decision.

At the end of the project cycle, participants can also request a review before the final issuance of the CERs. This is largely to prevent against “fraud, malfeasance or incompetence of the designated operational entities.”⁶¹ In this situation, either a party involved in the project or three members of the EB can request a review after the CERs are certified but before they are formally issued.⁶² The EB undertakes the review, and has thirty days to take a decision: to approve the issuance, to request further action by the DOE or to reject the issuance of CERs. In some situations, such as when the DOE is found to have conducted itself fraudulently, it may be asked to reimburse the EB for the cost of the review. Again, the decision of the EB is final and is not subject to appeal.

B. Accountability Mechanisms in Practice

As the previous section illustrates, there are multiple accountability mechanisms in place designed to constrain the DOEs and minimize shirking. The relevant question then becomes: Are they effective in practice? That is, to what extent do the DOEs act in ways that the principals want them to? In this section, I offer mixed evidence to answer this question.

Before doing so, a caveat is in order. Ideally, an evaluation of the empirical relationship between principal and agent would compare the functioning of the accountability mechanisms to a “perfect” system. Clearly, no such system exists. A second best solution might be to compare the current CDM design to a counterfactual, which examined what the CDM would look like without any accountability mechanisms in place. Again, this is not possible. Thus, I make some assumptions about preferences of principal and agent, and conjectures about what types of conditions would adversely affect the current accountability mechanisms.

First, I scrutinize the relationship between the EB and the DOEs—by examining how often the EB disagrees with DOE recommendations in the registration of projects.⁶³ Then, I look at the substance of these disagreements. Although I cannot use the reasons given to infer the *intentions* of the DOEs (i.e. whether they meant to shirk or not), they do help shed light on whether the actions of the DOEs could have compromised the effectiveness of the CDM itself. Here I assume that the most important preference of the EB is to ensure the “additionality” of credits granted, and thus the credibility of the CDM as a market mechanism. Second, I investigate the possibilities for monopoly by looking at the distribution of validation and verification activities by the DOEs. The data here address the “market share” of the DOEs in practice. I also assume that monopoly provides the enabling conditions for shirking, since monopolists are less reliant on reputation to ensure their competitiveness.

⁶¹ FCCC/KP/CMP/2005/8/Add.1, Annex IV, para 2. FCCC/KP/CMP/2005/8/Add.1, Annex III.

⁶² EB rules of procedure, para 65. See also “Procedures for Review” in EB rules of procedure -- FCCC/KP/CMP/2005/8/Add.1, Annex III. These were further clarified in UNFCCC EB 2007, Annex 16.

⁶³ I look only at the registration process, and not the decision by the EB to *issue* CERs for two reasons. First, presumably the initial scrutiny of project design before registration is intended to eliminate problems with issuing credits toward the end of the process. Second, the N for issuance is too small to be illustrative. Only 6 projects have been formally reviewed at the stage of issuance, and of those, only two were rejected.

The data are drawn from the Executive Board decisions taken from December 2004 (when the first projects were reviewed) to June 2007. During this time, the Executive Board registered 728 projects.⁶⁴ I coded all of the decisions that the EB took with respect to registration of projects. A total of 752 projects were submitted for registration. Of these, 24 were never registered: 20 were rejected by the EB, and four were withdrawn.

The vast majority of projects, 81%, were registered without incident. That is, the EB did not require any changes of the documentation submitted, nor did they undertake a formal review. 144 of the 752 projects—about one-fifth—required additional scrutiny by the EB before registration was granted. Although there is no “optimal” level of review, this figure suggests that the EB is at least reasonable in exercising its oversight powers: it is neither wasting resources assessing every project that comes through, nor is it registering all projects without a second thought. As we will see, the substance of the EB’s concerns to those projects that are reviewed suggests that they are not frivolous in the objections it does raise.

Of those projects that attracted the attention of the EB, the majority required only minor changes to their project documentation before registration. The EB can ask a DOE to clarify a particular issue in the project proposal and then grant registration upon the receipt of a satisfactory response, or it can grant registration outright, requiring small modifications. Once these modifications are received, the project is officially registered. The majority of projects that raised some EB objections, 63.8%, fall into the “minor revisions” category, and did not trigger a formal review.

Of greater interest are those projects which do trigger a formal review. These are relatively few in number: Only 52 projects, or 7.1% of the total number of registered projects, underwent a review before being registered. Of these, 21 were subsequently accepted, 20 were rejected, and 10 have yet to be decided upon by the EB.⁶⁵ Because the number of reviewed projects is relatively small, I also examine which DOEs are involved in them, and the reasons given by the EB for acceptance or rejection.

Of the 52 reviewed projects, 38.5% were rejected and 40.4% were approved.⁶⁶ As Table 3 shows, the majority of reviewed projects—both accepted and rejected—were validated by Det Norske Veritas Certification AS (DNV). DNV also validated three projects that were eventually withdrawn from the registration process. However, when examined as a proportion of the total projects each DOE registered, the numbers change considerably. DNV has validated nearly half of all CDM projects (see Figure 2 below); given this fact, the rate of rejection is quite small. The same is true for TUV Sud and SGS: their overall rejection rates are quite low, given the large volume of projects they have validated. By contrast, some of the less active DOEs, such as AENOR and BVQI have the highest overall rejection rates.

⁶⁴ This includes all projects registered from 18 November 2004 (reported in the December meeting) to 8 July 2007. The total N for the analysis is 752 projects, which includes all of those projects which were rejected and withdrawn.

⁶⁵ These numbers do not add up to 52 because there is one project that began the review process, but the EB said that it could not be completed, and no further record of the project exists. As of 17 August 2007.

⁶⁶ Percentages do not add to 100% because 10 projects under review had not yet been decided upon at the time of publication.

Table 3: Breakdown of projects registered, reviewed and rejected by DOE

DOE	Total number of projects registered by each DOE	Number of projects formally reviewed	Number of projects rejected after review	Rejection rate of those reviewed	Rejection rate over total number of projects registered by each DOE
AENOR	14	2	1	50%	7.1%
BVQI	40	5	4	80%	10%
DNV	374	18	10	56%	2.7%
JCI	3	1	0	0	0
JQA	10	2	0	0	0
SGS	92	6	3	50%	3.2%
TUV Sud	174	7	2	29%	1.1%

When the EB requests a review or rejects a project, it is required to give reasons for doing so. This requirement is not only a safeguard against arbitrary rulings, but also allows insight into the types of objections that the EB raises. As noted earlier, the frequency with which certain DOEs have their projects reviewed cannot show whether the gap between principals’ expectations and agents’ behavior was intended by the DOE or simply an accident. Though the issue of intent cannot be definitively resolved, an examination of the types of objections stated by the DOE can help shed further light on the question of shirking.

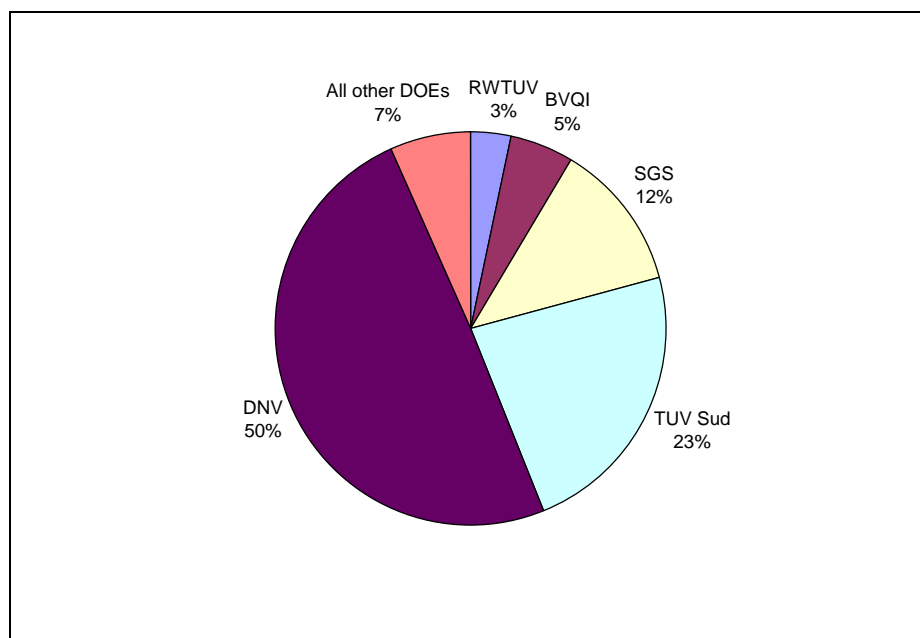
For each formal review, I recoded the reasons given by the EB into two categories: procedural and measurement-related. Procedural reasons for review include issues about the proper ways to fill out the project documents and validation reports; as well as the consultations, assessments and authorizations required in the process. Measurement reasons concern the choice of baselines and methodologies in measuring emissions, as well as evidence of “additionality.” Additionality is at the crux of the CDM: without it, the credits issued have no value, and the CDM loses environmental effectiveness. Since the primary function of the EB and its subsidiary bodies is to develop baselines and methodologies that ensure additionality, I assume that the main preference of the Executive Board is to ensure that all projects produce additional GHG reductions. I classify all reasons related to measurement as central to the issue of additionality.

67% of all reasons given by the EB for triggering a review were related to additionality (note that there may be more than one reason per project). Among those projects eventually rejected, 78% of the trigger reasons and 82% of the rejection reasons stated doubts about project additionality. These figures have two important implications. First, the EB is generally invoking its oversight powers over concerns that are central to the efficacy and credibility of the CDM rather than for relatively less important procedural ones. Second, the dominance of additionality reasons as a trigger for review and a reason for rejection suggests that DOEs are not making small procedural errors in their evaluations of projects, but that are more serious problems in need of attention. Again, one cannot then infer that such infractions were the product of intentional deception on the part of DOEs. Nonetheless, these miscalculations—whether by accident or intention—have significant implications for the efficacy of the CDM.

The overall rejection rates per DOE raise another important issue: the breakdown of validation activities across DOEs. As noted earlier, and shown in Tables 1 and 2, each DOE is only

permitted to validate projects in the sectoral scope in which it is accredited to do so. Tables 1 and 2 show that the majority of DOEs—two-thirds of them—are accredited in four scopes or fewer. Only four DOEs are accredited in 10 or more scopes. An analysis of the number of projects validated by each DOE brings this divide into even sharper contrast. Two DOEs—DNV and TUV Sud—are responsible for the validation of fully 72.1% of CDM projects. When SGS is included, the figure rises to 84.2%. Figure 2 shows the percentage of projects each DOE has validated.

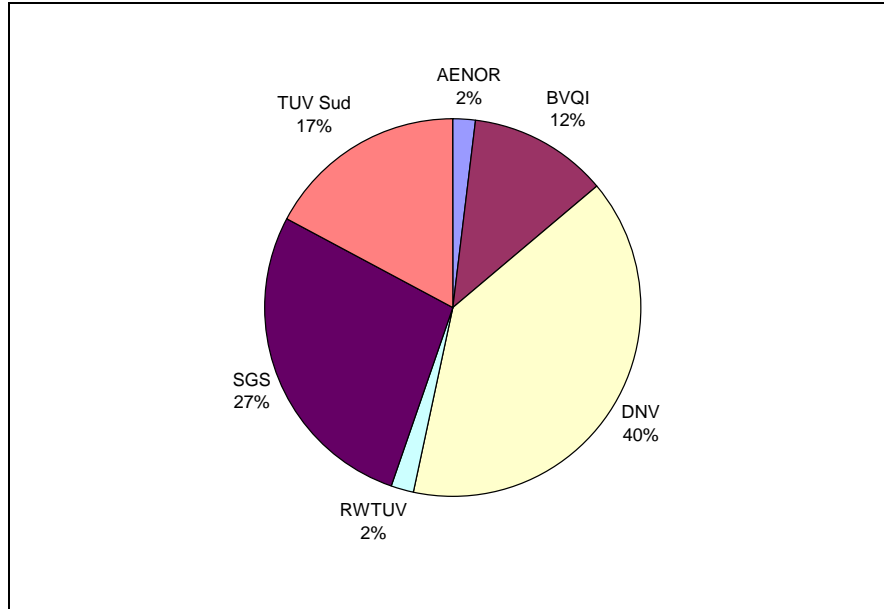
Figure 2: CDM Projects validated, by DOE



Similar patterns exist for verification. After the project is underway, DOEs verify that the stated activities and reductions have indeed occurred, and recommend whether credits should be issued. Figure 3 shows that the same three firms—DNV, TUV Sud and SGS—dominate the verification process as well, representing 84% of all projects verified.⁶⁷

⁶⁷ As of 19 July 2007, there have been 296 separate verifications, though these include multiple verifications of the same project during different time periods. See http://cdm.unfccc.int/Issuance/cers_iss.html for a complete list.

Figure 3: CDM Projects verified, by DOE



As mentioned earlier, the modalities of the CDM mandate that different DOEs undertake the validation and verification of each project to avoid potential conflict of interest (a given DOE would have an incentive to approve projects to please its client). There is a provision that allows for exceptions, and an analysis of the projects that have been verified shows that it is invoked quite frequently. 27% of all projects for which credits have been issued were validated and verified by the same DOE. Table 4 breaks down this figure by DOE. The three biggest DOEs have a fewer number of projects for which they served as both validator and verifier, though the percentages are still quite high—much higher than the occasional exception that is outlined in the CDM modalities.

It is also noteworthy that the three most active DOEs often validate or verify each others' projects—increasing the potential payoff of reciprocity. Since it is extremely likely that one of two firms will be verifying the work of the third, there is a benefit to approving their projects increases, as well as a potential cost to not doing so. DNV, SGS and TUV Sud verify each others' work very frequently within the framework of the CDM. When DNV serves as validator, SGS and TUV Sud verify its work in 80% of projects. When SGS validates, TUV Sud and DNV together verified 96% of its projects. The same proportion was true of TUV Sud, which had 96% of the projects it validated and verified by DNV and SGS.

Table 4: Projects validated and verified by the same DOE

DOE	Number of projects validated	Of validated projects, number “auto-verified” (by the same DOE)	Percentage of projects validated and verified by same DOE
AENOR	6	3	50%
BVQI	35	13	37%
DNV	116	37	32%
JACO	1	1	100%
RWTUV	6	5	83%
SGS	81	6	7%
TUV Sud	51	14	27%

Figures 2 and 3 and Table 4 reaffirm that the concerns about monopoly are valid. A small number of firms lowers competition among them, and increases the importance of maintaining reputation to ensure business. In turn, this increases the possibility that DOEs will choose to engage in shirking or rent-seeking behavior. In the case of validation of projects, rent-seeking behavior would mean that DOEs sign off on projects that may not abate GHG emissions, or do not do so at the level stated in the project’s documentation. There is a risk of monopoly with a small number of firms, but this risk is exacerbated by the fact that an even smaller number—only three—represent almost three-quarters of all validation activities. Admittedly, concerns about shirking could be mitigated by the fact that the review and rejection rates for these three DOEs are relatively low. However, this low numbers could also be construed as evidence that these three DOEs are simply more practiced at presenting projects in a favorable light and escaping formal reviews.

There are three additional factors which may affect the functioning of the accountability mechanisms in practice. Again, there is no “ideal” system of accountability to which we can compare the CDM; this makes evaluating the facts more challenging. However, there are three reasons which suggest that the accountability mechanisms are not working as well as their designers intended. First, although project participants are invited to monitor the behavior of the DOEs, there are *no instances* of this type of “fire alarm” monitoring. The CDM modalities provide that a request from a project participant may also trigger a formal review of a DOE’s validation, but as described above, all formal reviews were triggered by EB requests, not by participants. This is not surprising: it is in the fiscal interest of the project participants to ensure that the project is approved and the credits issued. Thus, this monitoring mechanism has thus far proven to be without impact.

Second, the volume of projects (especially the recent influx) taxes the ability of the EB to examine each one thoroughly. Indeed, it was precisely because of the number of projects and the amount of work of the EB that the “conditional” registration procedure was put in place.⁶⁸ This

⁶⁸ UNFCCC 2005, Annex 18. Paragraph 10 states: “If the Board decides to register the activity it may do while requesting the DOE and project participants to make corrections based on the findings from its consideration of the request of review before proceeding with registration. This revised documentation shall be checked by the

change allows the EB to request changes of projects without the lengthy review process. The steady increase in the number of projects registered in this manner over the short life of the EB is testimony that costly and time-consuming process of a formal review is not feasible in many cases, given the sheer volume of projects.

Finally, as mentioned earlier, the EB works with members of the Registration and Issuance Team to undertake reviews of the DOEs submissions when needed. However, there are only 34 members on the team. One member of the R&I Team must serve on each review; currently there are 56 projects either under review or for which a review has been requested.⁶⁹ The heavy workload for the EB in general, and the R&I Team in particular is a hindrance to the effective implementation of the oversight mechanisms in place. It increases the likelihood that some projects will not be reviewed, or only cursorily reviewed to facilitate the functioning of the CDM and prevent bottlenecks in the process.

In sum, this analysis presents a mixed assessment of the behavior of the DOEs as private agents and the functioning of the accountability mechanisms in place to constrain their behavior. On one hand, the EB appears to be taking its oversight role seriously—but not so seriously as to cripple the registration process with innumerable reviews. It formally reviews only about 7% of all projects, but has developed streamlined processes through which projects requiring smaller adjustments may be revised as needed, and it has made thorough use of this new capacity.

On the other hand, the dominance of a small sub-group of an already small number of DOEs raises legitimate concerns about monopoly. One might argue that this is simply due to the fact that this is a new market, and it will take time for firms to develop the expertise to be accredited. However, the evidence does not suggest that this is the case. There are only seven additional firms that have applied to become DOEs. Moreover, this is an extremely lengthy process. There are some firms that have been waiting two or three years for the final elements of their assessments to be completed, and their accreditation to be formally granted.⁷⁰ An influx of a new wave of DOEs in the near future therefore seems unlikely. Thus, concerns about monopoly—and the associated risks of shirking—will persist.

Conclusion

This paper has analyzed the principal-agent relationship as embodied in the Clean Development Mechanism of the Kyoto Protocol. The data paint a mixed picture of the accountability of the agents. Oversight by the EB appears to be working reasonably well, but conditions for monopoly and collusion are ripe. The accountability mechanisms put in place in the CDM allow

secretariat, in consultation with the registration team member and/or the Chair of the Executive Board, if needed, before the activity is displayed as registered.”

⁶⁹ This figure is as of 27 July 2007. The updated tally of projects under review and for which there is a request for review is compiled by the UNFCCC Secretariat. Available at: <http://cdm.unfccc.int/Projects/index.html>.

⁷⁰ This delay is due to the “witnessing” requirement. The CDM-Assessment Panel, which is responsible for evaluating whether or not an applicant should be accredited, must witness the firm undertaking the activities, to whether the applicant is truly competent in implementing the tasks, procedures and policies needed in both validation and verification of projects. The CDM-AP must witness in each scope for which the applicant applies, and in both validation and verification processes.

the EB a certain degree of control over the DOEs. Given limited human and financial resources, the EB has done a reasonable job of requiring changes to problematic projects, and denying registrations to those deemed unacceptable. Their concerns about additionality suggest earnest efforts at preserving the environmental efficacy of the CDM. However, because perfect control of agents is impossible, it is difficult to know how many projects get approved without meeting the EB's additionality criteria. This is complicated by the fact that the measurement issues involved with GHG abatement are extremely complex, and quite new.

Because of these difficulties, and because one cannot know the true preferences of the DOEs, it is impossible to know how much slack is occurring. However, it is clear that the conditions are ripe for DOEs to exploit their position as quasi-monopolists on the market. Moreover, the high level of interaction between DOEs as validators and verifiers of each others' work increases the incentive for collusion.

The CDM was a pivotal piece of the political bargain that enabled both the drafting and the ratification of the Kyoto Protocol.⁷¹ It will likely persist in the next incarnation of the Kyoto Protocol. Moreover, as other emission trading markets expand, their relationship to the CDM—the largest intergovernmentally-agreed market mechanism—will be of great importance. But the proper functioning of the CDM relies on honest behavior of the DOEs; thus a fully functional and *sustainable* system for monitoring them will be paramount to the future of emissions trading.

⁷¹ Victor 2001, see especially the Preface.

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Table 2: List of DOEs by Sectoral Scope

Sectoral Scope		DOEs accredited for validation		DOEs accredited for verification
1	Energy industries (renewable - / non-renewable sources)	JQA DNV-CUK SGS-UKL TUEV-SUED TUEV-RHEIN JACO JCI AENOR BVQI	KPMG RWTUV KEMCO KFQ TECO BSI PriceWaterhouseCoopers LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED JACO AENOR BVQI RWTUV ICONTEC
2	Energy distribution	JQA DNV-CUK SGS-UKL TUEV-SUED TUEV-RHEIN JACO JCI AENOR	BVQI KPMG RWTUV KFQ TECO BSI PriceWaterhouseCoopers LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED JACO AENOR BVQI RWTUV ICONTEC
3	Energy demand	JQA DNV-CUK SGS-UKL TUEV-SUED TUEV-RHEIN JACO AENOR BVQI	KPMG RWTUV KFQ TECO BSI PriceWaterhouseCoopers LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED JACO AENOR BVQI RWTUV ICONTEC
4	Manufacturing industries	JQA DNV-CUK SGS-UKL	TUEV-SUED RWTUV LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED
5	Chemical industries	JQA DNV-CUK SGS-UKL	TUEV-SUED RWTUV LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED
6	Construction	JQA DNV-CUK SGS-UKL	TUEV-SUED RWTUV LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED
7	Transport	JQA DNV-CUK SGS-UKL	TUEV-SUED RWTUV LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED
8	Mining/mineral production	DNV-CUK TUEV-SUED		DNV-CUK TUEV-SUED
9	Metal production	DNV-CUK TUEV-SUED		DNV-CUK TUEV-SUED
10	Fugitive emissions from fuels (solid, oil and gas)	JQA DNV-CUK SGS-UKL	TUEV-SUED RWTUV LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED

Sectoral Scope		DOEs accredited for validation		DOEs accredited for verification
<u>11</u>	Fugitive emissions from halocarbons and SF ₆	JQA DNV-CUK SGS-UKL	TUEV-SUED RWTUV LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED
<u>12</u>	Solvent use	JQA DNV-CUK SGS-UKL	TUEV-SUED RWTUV LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED
<u>13</u>	Waste handling and disposal	JQA DNV-CUK SGS-UKL TUEV-SUED TUEV-RHEIN	JCI KPMG RWTUV LRQA Ltd	DNV-CUK SGS-UKL TUEV-SUED
<u>14</u>	Afforestation and reforestation	TUEV-SUED		
<u>15</u>	Agriculture	DNV-CUK SGS-UKL TUEV-SUED		DNV-CUK SGS-UKL TUEV-SUED

Source: <http://cdm.unfccc.int/DOE/scopes.html>