The environmental integrity of the CDM mechanism – A legal analysis of its institutional and procedural shortcomings

Working Paper No 2009/24

MAY 2009

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ABSTRACT

There is growing concern that a significant part of the Clean Development Mechanism (CDM) credits doesn't reflect real emission reductions and that the mechanism is inadequate to assist developing countries in their transition towards a low-carbon economy. Hence, any decision to maintain the CDM in its current form within a post 2012 climate agreement has to be considered with great care. This study intends to contribute to the current discussion by highlighting some of the CDM's major institutional and procedural shortcomings. It examines, in particular, how the baseline and the additionality requirements have been interpreted and sheds some light on the verification process and the oversight by he Executive Body (EB). Finally, it shows that the CDM is inadequate to foster significant policy reforms which are a prerequisite for any meaningful change in the emission trends of developing countries

KEY WORDS : CLEAN DEVELOPMENT MECHANISM, ADDITIONALITY, BASELINE, KYOTO PROTOCOL, ENVIRONMENTAL INTEGRITY, CLIMATE CHANGE, COPENHAGEN CLIMATE AGREEMENT

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I. Introduction

When adopting the Bali Action Plan[1] defining the roadmap for the international discussions about a global and comprehensive post-2012 climate agreement, developed countries promised to provide financial resources to support action on mitigation by developing countries "in a measurable, reportable and verifiable manner". This pledge has triggered a vivid discussion on how a cost-efficient financial architecture should be structured.[2] Most authors anticipate that the Clean Development Mechanism (CDM)[3], established by the Kyoto Protocol to allow industrialised countries to receive carbon credits for investments in emission reducing projects in developing countries, will remain an important tool within the new financial regime, though in a somewhat modified form.[4] Key elements being explored include a broadening of its scope[5] and the inclusion of "sectoral" or "policy" CDMs.[6]

The apparent success of the CDM in mobilising private entities in combating climate change[7] should, however, not make oblivious of its shortcomings. There is growing concern that a significant part of the credits generated by the CDM do no reflect real, verifiable emission reductions and that it is inadequate to assist developing countries in their transition towards a low-carbon economy.[8] The track record of the CDM in supporting policy changes in developing countries is indeed not impressive.[9] Leaving the initiative largely to private actors focussing on short-term abatement measures, the CDM has failed to bring about a step change in emissions trajectories of developing countries. Worse still, perverse incentives tend to protract rather than strengthen the implementation of national and local climate policies. Hence, any decision to maintain the CDM in its current form beyond 2012, to upscale or broaden its scope within the new international

[1] The Bali Action Plan was adopted by the adopted by the Conference of the Parties (COP) of the United Nation Framework Convention on Climate Change (UNFCCC) in Bali in December 2007, Decision 1/CP.13.
[2] Fujiwara (2008:1).
[3] Article 12 of the Kyoto Protocol (KP).
[4] See Fujiwara et al. (2008: 3), Ott et al. (2008); Watanabe et al. (2008).
[5] There are proposals to include land use, land-use change and forestry (LULUCF), carbon capture and storage (CCS) and nuclear.
[6] See Sterk (2008), Murphy et al. (2008: 10).
[7] By November 2008, there were 3498 CDM projects under validation and registration in the CDM project pipeline. The current project pipeline has the capacity to reduce 2500 million tonnes of carbon dioxide equivalent and the CDM may have generated around 1000 millions of Certified Emission Reductions (CERs) by 2012. See UNEP Risoe at http://uneprisoe.org/
[8] De Sépibus (2008b), Delbeke (2008), Wara (2008), Wara et al. (2008), Lohmann (2008), International Rivers (2008), Voigt (2008), Boyd et al. (2007), Schneider (2007), Muller (2007), Michaelowa (2007), Pearson (2006), Egenhofer et al. (2005), Meijer et al. (2005), Michaelowa (2005), Bygrave et al. (2004).
[9] See also Fujiwara et al. (2008: 2).

financial architecture should be considered with great care and address the most patent deficiencies.

This study intends to contribute to the current discussion by highlighting some of the most significant shortcomings of the CDM. After a short overview of the goals of the CDM and its project cycle, we examine how the two core safeguards of the environmental integrity of the CDM, the baseline and the additionality requirements, have been interpreted by the Executive Board of the CDM (EB) and implemented by project developers. We show, in particular, that the decision of the EB to allow project developers to ignore climate friendly legislation adopted after 2001 when establishing the baseline has significantly weakened the environmental integrity of the CDM.

In a second section we shed some light on the verification of CDM projects. Like the rating agencies, which bestowed undeserved high ratings to asset-backed obligations issued by their clients and thereby contributed to derail the global financial system, verifiers are chosen and paid by those whose claims they have to check.[10] The resulting conflicts of interest create strong incentives to approve projects, which lead to the validation of meaningless credits. Though more detailed verification rules have been laid down and the oversight on verifiers has recently been enhanced, it is doubtful that the current institutional and procedural safeguards of the CDM are sufficient to guarantee a robust outcome of the verification process. Without a significant strengthening of their independence, the verifiers may well turn out to be for the fight against climate change what the rating agencies were for the world of finance: its Achilles' heel.[11]

In the last section we argue that the CDM as a market-instrument which principally rewards short-term abatements fails to incentivise effectively innovation and structural changes that allow the large-scale deployment of renewable energies and the implementation of energy efficiency programs. Moreover, being principally driven by private actors, the CDM constitutes an inadequate tool in fostering policy reform which is a prerequisite for any long-term action reducing the carbon footprint of developing countries.

Hence, while recognizing the positive role the CDM played in the discovery of cheap emission reductions and its contribution to raise the concern for climate change, we believe that its future role in the financial architecture of the global climate agreement should be made conditional on a significant overhaul of its current institutional structure and limited to projects which additionality can be assessed with sufficient certainty.

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[10] Credit rating agencies provide evaluations of the likelihood that obligations will be repaid. They are normally paid by the investment banks which issue these obligations and sell them on the international market. According to many analysts rating agencies did a poor job of assessing the default risk of asset-backed bonds, so-called CDOs and other instruments based on 'subprime' mortgages. When a large number of borrowers started to default in 2007, the low quality of the ratings was suddenly revealed and created a general panic on the global financial markets. See Hunt (2007: 11).

[11] As rating agencies were paid and chosen by the banks who issued so-called 'toxic' products, there existed strong incentives to minimise the risks of these products. As a result, many investors bought these products based on a biased information about their quality. See Hunt (2007).

II. The Clean Development Mechanism

The Kyoto Protocol adopted in 1997 marked the first time that industrialised countries accepted legally binding constraints on their greenhouse gas emissions. To ensure that emission trajectories were curbed globally in a cost-effective way the Kyoto Protocol foresaw three flexibility mechanisms, the CDM, the Joint Implementation[12] and the International Emission Trading[13]. The CDM, which is the object of this study, was designed with the dual aim of helping developing countries in achieving sustainable development and of assisting industrialised countries in achieving compliance with their greenhouse gas (GHG) emission reductions. It allows industrialised countries to achieve a portion of the required emission reductions in countries without emission targets while the latter may define the conditions in which these projects take place

Article 12 of the Kyoto Protocol sets out the basic provisions of the CDM, but has left out many details of its operation. They were completed by the so-called 'Marrakech Accords' which laid down the principal modalities and procedures of the CDM[14] and numerous decisions[15] of the EB.[16] Not all projects are eligible for emission credits, so-called certified reduction units (CERs). CDM rules exclude nuclear projects[17] and allow land use and land-use change projects only to the extent that they are limited to afforestation and reforestation.[18]

A. The CDM project cycle

[12] Article 6 KP.
[13] Article 17 KP.
[14] The 'Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol' were adopted by the 7th session of the UNFCCC COP held in Marrakesh, Morocco, in December 2001 and confirmed by the 1st session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (hereafter 'COP/MOP') in Montreal in December 2005; FCCC/KP/CMP/2005/8/Add.1 Decision 3/CMP.1. Hereafter the 'CDM rules'.
[15] The decisions of the EB have been numbered serially and can be downloaded at the site of the UNFCC under http://cdm.unfccc.int/EB/index.html.
[16] Art. 12 par. 5 (b) KP states that CDM projects must result in real, measurable, and long term benefits related to mitigation of climate change. Whereas the term 'real' alludes to the fact that emission allowances must be additional, the wording 'long term benefits' implies that CDM projects lead to the adoption of technologies or activities that result in a long term trend towards lowering of greenhouse gas emissions, for instance through the increase of energy efficiency or a shift towards less carbon intensive energy sources. The fact that the benefits for the climate must be 'measurable' finally means that a proposed CDM project results in reductions that can be verified with respect to a defined level of greenhouse gas emissions. See UNEP (2004: 13).
[17] COP Decision 17/CP.7, fifth preamble, FCCC/CP/2001/13/Add. 2: "Recognising that Parties included in Annex I are to refrain from using certified emission reductions generated from nuclear facilities to meet their commitments under Article 3, paragraph 1." This decision was confirmed by the COP/MOP at 3/CMP.1, par. 1.
[18] COP Decision 17/CP.7, par. 7, FCCC/CP/2001/13/Add. 2.

The formal project cycle starts with the project design document (PDD)[19], set up by a project developer. The project is hosted by a non-Annex I Party in whose territory it will be based. The PDD substantiates each project's additionality by demonstrating that the project creates emission reductions that are 'additional' to those that would have occurred under a 'business as usual' scenario. Each PDD must describe the baseline scenario from which this additionality is measured and must include a detailed monitoring plan. Moreover, the project developer must make sure that local stakeholders participate in the process of designing the project. The project is hence to be made available to the public for comments and a summary of the comments, as well as a report on how due account was taken of these comments.[20]

The PDD, together with a 'letter of approval' (LOA) from the host country is submitted by the project developer for validation to an independent entity, the Designated Operation Entity (DOE).[21] The latter reviews the PDD and submits it together with the LOA to the EB for registration. The request for registration of the DOE is considered granted within eight weeks of the EB's receipt of it, unless three or more members of the EB (or a party involved in the project) request a review of the proposed CDM activity.[22]

After the implementation of the project, greenhouse gas reductions are calculated by another DOE (unless it is a small-scale project[23]) based on the monitoring plan in the PDD. If everything goes as planned, the EB ultimately issues the credits in the amount of one CER for each ton of carbon dioxide equivalent[24] of emissions reduced.[25] The CERs resulting from a CDM project can be purchased by private and public entities, but are used by an Annex I Party at the end of the Protocol's commitment period to demonstrate its compliance with its commitment.

B. The core environmental safeguards of the CDM

The danger that the CDM leads to 'false' emission reductions is significant, as all parties to a CDM transaction have an interest in demonstrating the additionality of a project and in inflating the level of emission reductions of a project.[26] The designer of the CDM were

[19] The PDD contains details about the proposed CDM project, including of a description of the project activity that will reduce GHG. See CDM rules, Appendix B.
[20] Meijers et al. (2005: 201).
[21] CDM rules, par. 26 ff.
[22] CDM rules, par. 41.
[23] The eligibility criteria for small-scale CDM project activities set out in paragraph 6 c of COP decision 17/CP.7, FCCC/CP/2001/13/Add.2, 21 January 2002.
[24] This measure is used by climate experts to compare the warming potential of other greenhouse gases than CO2 emissions with the latter.
[25] CDM rules, par. 64 ff.
[26] Flues et al. show in their study about the political economy of the CDM that the majority of actors involved in the mechanism have an interest in highlighting its benefits: the host countries of a project country because it generates financial flows for its country, the buyer country because it limits its commitments under the Kyoto Protocol, the designers of the CDM as they have conceived it, the project

well aware of this challenge and set up in response a series of criteria aiming at safeguardinging the environmental integrity of the mechanism, in particular by defining the requirements for the baseline and the additionality of a project. As these definitions remained quite abstract, the EB has in an impressive series of decisions further developed them since the kick-off of the mechanism. Whether the criteria established are sufficiently robust to guarantee the overall environmental integrity of the CDM shall be discussed in the next sections.

1. The baseline

The quantity of emissions, against which the reductions of greenhouse gas emissions due to a CDM project are measured, is termed a 'baseline'.[27] While the concept of a baseline is relatively simple, the establishment of a convincing baseline scenario, which defines the likely activities and sources of greenhouse gas emissions in the absence of a CDM project, is difficult in practice.[28] The problem of determining a baseline scenario for a CDM project is that the situation it describes will never exist because of the project. In other words, a baseline scenario for a CDM project activity is a hypothetical reference case, which can not be monitored and verified.

As any baseline scenario depends on a series of assumptions, multiple baselines are possible in theory, including also baselines which foresee a rise in emissions above current levels.[29] To narrow down the subjectivity of such an analysis, the CDM rules set out a number of criteria, which have to be complied with when establishing a new baseline scenario. First, a baseline must be established in a transparent and conservative manner.[30] This implies that assumptions must be explicitly explained and choices substantiated[31] and that in the case of uncertainties regarding certain parameters the values that lead to the generation of less credits have to be chosen.[32] Second, the baseline must be established on a project-specific basis. This means that the baseline must take into account the specificities of each project,[33] in particular relevant national and/or sectoral policies and circumstances.[34] Third, the project boundary should encompass all anthropogenic emissions by sources of greenhouse gases under the control of the project participants that are significant and that are reasonably attributable to the CDM project activity.[35] Fourth, greenhouse gas reductions have to be adjusted for leakage.[36] Finally,

developer, the verifiers of the projects, several international organisations like the World Bank, which all have important financial stakes in its development. See Flues et al. (2008), Meijer et al. (2005: 193).
[27] UNEP (2004: 14).
[28] Boyd et al. (2007: 3).
[29] CDM rules, par. 46.
[30] CDM rules, par.45.
[31] EB 5, Annex 3, par. 10(a).
[32] EB 5, Annex, 3, par. 10(a).
[33] CDM rules, par. 45 c.
[34] CDM rules, par. 45 e.
[35] CDM rules, par. 52.
[36] CDM rules, par. 50. Leakage is defined as the net change in anthropogenic emissions by sources of greenhouse gases which occurs outside the project boundary, and which are measurable and attributable to the CDM project activity. See CDM rules, par. 51.

the baseline should be defined in a way that does not take into account emission decreases due to activity levels outside the project boundary or to force majeure.[37]

a) The establishment of baseline methodologies

Baselines are established using a baseline methodology. The latter represents a means which allows project proponents to quantify the emissions that would have been created in the most plausible alternative scenario to the implementation of the project activity.[38] Project developers may decide to use a baseline methodology previously approved by the Executive Board or propose a new methodology. If a new methodology is adopted or if there is a request to revise a methodology, the latter has to be submitted prior to the EB for approval, which decides on it after having received the recommendations of the Methodology Panel. [39]

Since the start of the mechanism the EB has approved more than 100 methodologies, divided into general methodologies for small-[40] and large-scale projects[41] and methodologies for afforestation and reforestation.[42] Some of these methodologies have been consolidated to avoid an inflation of methodologies.[43] As methodologies are developed with a specific CDM project in mind, they usually refer to very specific conditions and data in a given set of policies. Where the main parameters can be expressed by a mathematical formula, they do however not restrict the ability of the methodology to be used for other projects.[44] On the contrary, where this is not possible or where the main data and parameters used by the methodology are difficult to gather, the applicability of the methodology to other projects is severely constrained.

Broadly, there exist three types of methodologies: project-specific, multi-project and hybrid methodologies. Whereas project-specific baselines are determined on a case-by-case basis, with project-specific measurements or assumptions for all key parameters, multi-project baselines can be used for more than one project. The combination of the two is called a hybrid baseline.[45]

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[37] CDM rules, par. 47.
[38] See http://www.cdmrulebook.org/PageId/404.
[39] Flues et al. (2008: 2).
[40] See http://cdm.unfccc.int/methodologies/SSCmethodologies/approve d.html.
[41] See http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html
[42] The methodologies for afforestation and reforestation also distinguish between small- and large-scale projects. See http://cdm.unfccc.int/methodologies/ARmethodologies/index.html.
[43] An important contribution to the development of methodologies has been made by the PROBASE project, supported by the European Union. It has developed operational guidelines for baselines and accounting for JI and CDM projects. Starting from a codification of existing knowledge of baselines determination, PROBASE devoted a considerable part of the research to developing multi-project baselines for power and heat sector projects. See Probase (2007).
[44] UNEP (2004: 18).
[45] See Laurikka (2002: 20).

In choosing a baseline methodology for a project activity, project developers have to select from three approaches the one deemed most appropriate for the project activity.[46] They must justify their choice. The first approach is based on existing actual or historical emissions relevant for the project. This approach assumes that the latter form a good representation of what reasonably could have happened in absence of the project. It is hence applicable to cases where the analysis indicates that the most likely hypothesis is that in the absence of the proposed CDM project existing activities would have been continued.[47]

The second approach calculates a baseline by identifying a technology that represents an economically attractive course of action, taking into account barriers to investment. This approach is adequate for cases, where an economic analysis can be undertaken to identify the economically most attractive project among a variety of options, including the CDM project activity. The emissions from the economically most attractive alternative form the baseline.[48]

The third approach specifies that the baseline is to be derived from the average emissions of similar projects undertaken in the previous five years, in similar circumstances[49], and whose performance is among the top 20 percent of their category. The baseline in this case is determined by the average emissions of the options most commonly used in the previous five years and whose greenhouse gas emissions performance is, defined in terms of CO2 equivalent emissions per unit of output, among the top 20 percent.[50]

b) Critique of the EB's 'clarification' on the definition of a baseline

One of the most problematic issues that have arisen so far with respect to the establishment of baselines is related to paragraph 45 e CDM rules, which requires that project proponents must take into account national and/or sectoral policies and circumstances.[51] The concern this requirement raised was that it had a deterrent effect on the implementation of legislation addressing climate change. Many developing countries became reluctant to implement climate friendly policies for fear that less projects would be hosted in their countries. Indeed if a country decided to pass a law encouraging renewables energy sources through the grant of preferential electricity tariffs, it ran the

[46] CDM rules, par. 48.
[47] UNEP (2004: 20)
[48] UNEP (2004: 20)
[49] Project participants wishing to select this approach must indicate how they determine 'similar social, economic, environmental and technological circumstances', and how they assess the 'performance among the top 20 per cent of their category'. See EB 8 Annex 1, par. 4.
[50] The EB clarified that the most conservative of the two following options have to be chosen: (a) the output-weighted average emissions of the top 20 per cent of similar project activities undertaken in the previous five years in similar circumstances; (b) the output-weighted average emissions of similar project activities undertaken in the previous five years under similar circumstances that are also in the top 20 per cent of all current operating projects in their category. See EB 8, Annex 1, par. 5.
[51] CDM rules, par. 45 e.

risk that such projects would become the 'economically most attractive course of action' and therefore ineligible for the CDM. Without intending it, the CDM had created a perverse disincentive for developing countries to pass laws encouraging emission reductions.[52]

As this effect on the regulation of developing countries was clearly undesirable the EB attempted to mitigate it by issuing guidelines, which 'clarified' in which cases 'national and/or sectoral policies and circumstances' had to be taken into account when establishing the baseline.[53] It stated that, as a general principle, this kind of policies would only have to be considered if they didn't create perverse incentives that may impact host Parties' contributions to the ultimate objective of the Convention. In other words the EB declared that the compliance with this requirement was subject to the condition that it did not undermine the overall effort to reduce greenhouse gas emissions.

The EB decided, in particular, that project proponents would have to differentiate between the legislation of host countries that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels (so called type E+ policies that increase GHG emissions) and the legislation that give comparative advantages to less emissions-intensive technologies or fuels over more emissions-intensive technologies or fuels, i.e. subsidies promoting renewable energies or energy efficiency (so called type E- policies that decrease GHG emissions).

Regarding type E- policies, the EB decided that if they had been implemented after the adoption of the CDM rules on 11 November 2001 they would not need to be taken into account. For instance, a law passed after 11 November 2001 charging an environmental tax on all fossil fuels used for electricity generation and thus favouring renewable energy sources must not be accounted for in the establishment of a baseline of a renewable energy project.[54]

As a result of this decisions, the threat that the CDM would induce a race-to-the-bottom of environmental regulations in developing countries was clearly mitigated. Though this result is to be welcomed, the decision of the EB presents serious drawbacks.

First, the practical implementation of the decision is far from straightforward.[55] It implies that a project proponent must primarily identify the baseline, then all E- policies which have influenced it and finally establish inasmuch they modified it. For example, if a developer intends to submit a project in the field of electricity production, he will have to

[52] See Willis et al. (2006: 18).
[53] See EB 13 and 16, Annex 3, Clarifications on the treatment of national and/or sectoral policies and regulations (paragraph 45 (e) of the CDM rules) in determining a baseline scenario. The two decisions were slightly revised and consolidated in a third decision. See EB 22, Annex 3.
[54] Regarding type E+ policies the EB stated that those that had been implemented after the adoption of the Kyoto Protocol on 11 December 1997 should not be taken into account when developing a baseline scenario. For example, if a host country has introduced a policy of subsidizing coal in the year 1998, the project proponent developing a baseline for a wind power project has to refer to a hypothetical situation without that policy being in place. See EB 22, Annex 3.
[55] Willis (2006).

establish the overall emission intensity of the electricity grid his electricity feeds in and then assess how much the latter has been modified by the E-policies. If such an approach is may be possible in countries with highly sophisticated emission inventories, it is highly problematic in most developing countries where there is a paucity of information available on the emission intensity of electricity. With time passing by, the correct assessment of all E- policies on a baseline will eventually become impossible, as a multitude of factors influence the choice of technologies and fuels.

Second, the decision represents a serious jeopardy for the environmental integrity of the CDM. Paragraph 45 e CDM rules is of fundamental importance for the environmental integrity of the mechanism as it guarantees that the baseline accounts for the mandatory legislation of a host country. By allowing project proponents to construe a baseline scenario which does not take into account E- policies adopted since 2001, the plausibility that the credits generated by such projects reflect real additional emission reductions is seriously weakened. Indeed, with the exception of projects in countries, in which the requirements of the laws or regulation are systematically not enforced and where non-compliance is widespread, the respect of this provision ensures that project proponents calculate the emission reductions of a project based on a comparison between the level of greenhouse gas gases without the project and the situation after its implementation. This is no longer the case if E-policies are ignored. As a result, the danger that the CDM generates meaningless credits is significantly enhanced.[56] Moreover, time passing by will exacerbate the problem. As developing countries start to adopt policies tackling climate change, the baseline calculated according to these rules will reflect less and less a plausible baseline.

2. The additionality of a CDM project

At the heart of the concerns surrounding the ability of the CDM to lead to real, verifiable emission reductions lies the concept of 'additionality', which ensures that the emission reductions resulting from a particular project are 'additional' with respect to the emission scenario that would have occurred in its absence ('baseline scenario').[57] If additionality is not demonstrated to a high degree of certainty, then the capacity of the CDM as a source of real emission reductions is undermined.

a) The establishment of 'additionality tools' by the Executive Board

Many approaches to assess the additionality of a project have been submitted to the EB in the past years. Some of them have been compiled by the EB in the 'Tool for the demonstration and assessment of additionality'[58] and the 'Combined tool to identify the

[56] See also the 'Tool for the demonstration and assessment of additionality', EB 29, Annex 5.
[57] Meijer et al. (2005: 193).
[58] See at http://cdm.unfccc.int/methodologies/PAmethodologies/AdditionalityTools/Additionality_tool.pdf.

baseline scenario and demonstrate additionality'[59]. Though their observance remains optional, most recent methodologies for large-scale projects have included them.[60]

Both tools distinguish between an investment, a barrier and a common practice test to demonstrate additionality. The barrier and investment analysis are alternative approaches, but may also be combined. The common practice test is used in both tools as a credibility check to demonstrate that the project is not common practice.

The first test, the investment analysis requires the demonstration that the proposed project activity is financially less attractive than at least one other credible alternative with higher emissions or not financially feasible without the revenue from the sale of certified emissions.[61] It has to be based on recognised financial and economic techniques and must provide all relevant assumptions in a transparent manner. Guidance is given on how the financial analysis has to be carried through and which evidence has to be provided.[62] A particular stress is laid on the reproducibility of the analysis. Finally, the tools provide for a sensitivity analysis that shows whether the conclusions regarding the financial/economic attractiveness are robust to reasonable variations in the critical assumptions.

The barrier analysis requires the demonstration that barriers exist that would prevent the proposed project from being carried out if the project activity was not registered as a CDM activity.[63] Moreover, evidence has to be provided that the CDM helps overcome or alleviate the identified barriers. Barriers must be realistic and credible and may include, inter alia, investment barriers, other than economic and financial barriers, technological barriers and barriers due to prevailing practice. The key issue regarding the barrier analysis is to determine how important the barriers are.[64] Indeed, every project encounters barriers otherwise everybody would start a project every day. The crucial issue is thus to demonstrate that a barrier prevents a capable developer to start a project.

Finally, the common practice analysis requires an assessment of the extent to which the proposed project type has already been deployed in the relevant sector and region.[65] Project proponents are requested to analyse, in particular, whether similar activities are widely observed and commonly carried out, in which case the claim that the proposed project activity is unattractive and faces other barriers is called into question.

b) Critique of the 'additionality tools' established by the EB

[59] http://cdm.unfccc.int/methodologies/Tools/EB28_repan14_Combined_tool_rev_2.1.pdf
[60] See Schneider (2007: 28).
[61] See Schneider (2007: 35).
[62] See for instance the Annex to the 'Tool for the demonstration and assessment of additionality'.
[63] See Schneider (2007: 30).
[64] Michaelowa (2005: 11).
[65] See Schneider (2007: 38).

All three tests developed by the EB have given rise to important critique.[66] The principal concern is probably that the criteria established by the tools oblige project proponents to make assumptions that can hardly be verified. This may be illustrated at the example of a CDM project relating to the construction of a large gas power plant.[67] The relevant methodology for this kind of projects allows the combined use of the investment and common practice test.[68] Hence, if coal determines the baseline the project proponent will have to prove that gas power plants are financially less attractive than those using coal. To prove that this is the case he will have to assess risks as varied as the evolution of electricity prices, 'overnight' construction, capital, carbon costs, fuel and network access costs for the next 40 years.[69] Most of these assessments are, however, fraught with a high degree of uncertainty. Accordingly, the range of justifiable assumptions is so large that it makes any control on their objectivity quasi impossible.[70]

The plausibility of the outcome of the investment test is only slightly improved by the 'common practice test'. Indeed, the criteria established by the Executive Board relative to this test remain vague and allow a wide range of interpretations. For instance, neither the projects with which the CDM project has to be compared nor the threshold above which an activity may be regarded as common practice has been defined clearly.[71]

Another line of criticism relates to the adequacy of the project-related approach adopted by the additionality tests. According to Wara the latter is ill-suited as it fails to take into account the general policy context of a country. He illustrates his argument by the example of the 24 planned Chinese gas power plants, which have all been submitted for registration with the CDM.[72] They all have a fair chance to be successfully registered in a country where coal is the dominant fuel for power generation. Wara questions, however, the legitimacy of such an outcome. He argues that the additionality test is based on the assumption that the power plants are built in a fully deregulated power market, which is not the case in China. He sustains accordingly that the decision to use gas instead of coal was not taken thanks to the CDM but based principally on public policy goals pursued by the Chinese. Analysing the Chinese energy plan, he shows that China has recently decided to diversify the energy sources of his highly coal dependent power industry to address growing problems of public health and a shortage of indigenous coal resources. He thus concludes that even if the additionality test is positive for each individual plant, the decision to build 24 gas plan is surely not additional viewed from an overall policy perspective.

[66] Schneider (2007: 45).
[67] The power sector contributes worldwide to more than 40% of CO2 emissions. See de Sépibus (2008a).
[68] See Methodology AM0029 at http://cdm.unfccc.int/methodologies/PAmethodologies/approved.htm
[69] See for a detailed analysis of the risks related to investment in power plants de Sépibus (2008a: 37).
[70] As Awerbuch demonstrates convincingly, the traditional 'discount rates' applied for energy projects generally do not take the risk of an escalation of fossil fuel prices sufficiently into account. See Awerbuch et al. (2003).
[71] See Schneider (2007: 48).
[72] See Wara (2008: 40).

C. The implementation of CDM projects by developers

So far, few independent in-depth studies have been undertaken evaluating the correct implementation of the baseline and additionality criteria by project proponents. The most prominent investigation was probably carried out by Schneider,[73] whose conclusions are briefly summarised here.

Schneider studied the PDDs of 93 registered projects. He notes that whereas the barrier test is by far the most used analysis, it is also the least legitimate. According to this author the claims of the proponents frequently lack credibility, are not backed by evidence or/and don't demonstrate how the CDM revenue would alleviate the barrier. He thus concludes that the way in which this test is currently implemented is subjective, non transparent and rarely convincing.[74] As regards the investment analysis, Schneider observes that a large proportion of projects use a black-box approach which doesn't allow the reproduction of the calculations and the assumptions made by project proponents. Moreover, a majority of projects refer exclusively to financial indicators from information sources internal to the developer's company. Overall, the author of this study thus concludes that in many cases there is neither a clear rationale nor a convincing argumentation that the project is additional.[75]

Other studies and surveys corroborate by and large Schneider's findings.[76] Castro et al. who undertook case studies of CDM projects from China, India and Brazil conclude that additionality demonstration 'is still a problem' and that independent evidence supporting the project proponents' argumentation is missing to a large extent.[77] They stress, in particular, that in an assessment of 19 Indian projects only two very good examples of additionality demonstration were found and that at least five provided 'doubtful arguments that should have triggered rejection by the validators'.[78] Similarly, based on a comparison of investment costs, Ellis et al. esteem that 'for many project types, CER revenue is more likely to be the 'icing on the cake' than decisive to the project.[79] As Schneider demonstrates it, this is particularly true for projects in the field of renewable energy and industrial energy efficiency projects, where the revenue generated by the CERs contributes generally only to a marginal part to the profitability of the project.

Another problem pinpointed by independent analysts is that certain project proponents deliberately understate the profitability of a project without the CER income, by ignoring, for instance, tax breaks or by indicating artificially low load factors of hydro power

[73] The projects were chosen randomly and concern the period [from x to x]. See Schneider (2007).
[74] Schneider (2007 : 34)
[75] Schneider (2007: 45).
[76] According to Schneider surveys have shown that participants agreed that in many cases, carbon revenues are not fundamental for the investment decision. See Schneider (2007: 40), McCully (2008: 8).
[77] Castro et al. (2008: 51).
[78] See also Michaelowa et al. (2007), Puhorit et al. (2007), Michaelowa (2007).
[79] Ellis et al. (2007: 14).

stations.[80] McCully highlights that the documentation of certain projects is incoherent with other statements. He shows that in the case of a large Chinese hydro power plant a developer considered the project as very risky whereas the same project was assessed as the cheapest option by the Asian Development Bank which finances it.[81] Finally, additionality is unlikely in cases where the project has been implemented well before the PDD was handed to the Executive Board and where projects entail such a complex decision process that the argument that the project would not have been implemented without the CDM lacks particular credibility. This applies in particular to large hydro dams, which usually require a thorough analysis of their environmental and economical feasibility.

D.The verification of CDM projects by DOEs

The CDM relies primarily on private entities responsible for checking the claims of the project developers. The EB accredits them on the basis of a set of requirements laid down in the CDM rules, while the COP/MOP is responsible for their final designation as DOEs. The DOEs play thus a crucial role in safeguarding the reality of emission reductions by validating CDM projects, preparing them for registration, and verifying emissions reductions for issuance by the EB.

To be eligible as a DOE, an entity must demonstrate that it meets the requirements of the CDM. In particular, it must show that it has no conflict of interests with the project developer.[82] The credibility of the DOE is further enhanced by the fact that generally (unless the EB decides otherwise) the DOE in charge of the validation of a project may not be involved in the verification and certification of emission reductions of the same project.[83] Finally, the accountability of a DOEs is promoted by the possibility for the EB to recommend to the COP/MOP to withdraw or suspend her/him or to request financial penalties if accreditation standards are no longer met, respectively credits have been wrongly issued.[84]

Overall independent studies from NGOs or academics suggest that the procedural and institutional safeguards foreseen by the CDM to guarantee a rigorous audit of the baseline and the additionality criterion by DOEs have proven insufficient. The most problematic aspect probably relates to the fact that DOEs are chosen and paid by project proponents. Like in the case of the rating agencies, which issued undeserved high ratings for asset-backed obligations issued by their clients, the risk that the assessments of the DOEs are not conducted in an objective way is significant. As project proponents can designate the DOEs of their choice and negotiate the price, DOEs which guarantee a positive outcome at the lowest price, will have a competitive advantage. These perverse incentives will

[80] McCully cites the example of a hydro power project in China, which indicated a load factor (equivalent to the proportion of time it can operate at full capacity) of only 21%, whereas the norm is around 50%. See McCully (2008: 8).
[81] McCully (2008: 8).
[82] CDM rules, par. 3 c.
[83] CDM rules, Appendix A.
[84] CDM rules, par. 21.

eventually lead to a 'race to the bottom' in the quality of the validation and verification services.[85]

A leading expert, Axel Michaelowa, acknowledges that with growing competition DOEs have increasingly entrusted tasks to employees hired recently and trained in a hurry while the more experimented employees tend to work in a more superficial way due to the increased workload and time pressure.[86] Wara et al. further stress that there is a constant brain drain from verification firms to project development firms, which can offer substantially better compensation to their key personnel.[87] As a result, a rapid turn-over of employees takes place so that certain observers do not hesitate to conclude that DOEs 'have failed miserably to play their supposed role as competent, independent and objective auditors' and act instead 'as project facilitators, even advocates, rather than auditors'.[88]

Another concern relates to the fact that DOEs have to overcome an important information disadvantage with respect to project proponents when checking the credibility of the claims made by project proponents. Indicators used to determine the additionality of a project can be easily manipulated by modifying project assumptions and DOEs have in most cases neither the time nor the necessary expertise to evaluate the local specificities of a project.[89] Moreover, in most cases, detailed instructions have been lacking as to what exactly had to be assessed by the DOEs.[90] The EB recently addressed this issue by adopting a manual with guidance for DOEs with the aim 'to promote quality and consistency in verification and validation reports'.[91] If this certainly helps to improve the quality of the DOE's work, it will however not solve the perverse incentives provided by the fact that DOEs are paid by project proponents.

The fear that the DOEs don't sufficiently check the assessments made by project proponents is confirmed by Schneider's in-depth study. He notes that only a tiny minority of DOE reports explain in a transparent manner which barriers were assessed, how their relevance was checked, and which type of evidence was provided.[92] He states, in particular, that though DOEs are entitled to request clarifications from project proponents, correction requests usually refer to formal bureaucratic requirements (such as missing approval letters, or wrongly completed tables), but very rarely concern the demonstration of additionality.

[85] As a matter of fact, DOEs that spend less time on each project can offer lower prices and will attract more business. See Schneider (2007: 5, 21).
[86] Michaelowa (2007: 22).
[87] Wara et al. (2008: 16).
[88] McCully (2008: 11).
[89] Sterk (2008: 7).
[90] According to Schneider some validation reports hardly contain any information on whether and how issues have been examined. See Schneider (2007: 6, 21).
[91] See http://cdm.unfccc.int/public_inputs/2008/VVM/index.html, Schneider (2007: 21).
[92] Schneider (2007: 33).

E. The oversight of the verification process by the EB

The Executive Board of the CDM (EB) is composed of ten members and ten alternate members from Parties to the Kyoto Protocol who are nominated by the COP/MOP. It is 'fully accountable' to the COP/MOP.[93] The main task of the EB is to 'supervise projects' as to whether they provide 'real' and 'measurable' reductions that are 'additional'.[94] It meets in monthly intervals to register individual projects, to approve methodologies and to calculate emission reductions. These tasks require important technical knowledge which cannot be expected from EB members who are usually delegated from national bureaucracies. To carry out their numerous duties, they are thus highly dependent on the various expert panels and the UNFCCC Secretariat (the 'Secretariat') which assist them in their work.

The most prominent of these groups of experts are the technical committee for methodologies (the 'Meth Panel') and the 'Registration and Issuance Team' (RIT), which advise the EB on the approval of methodologies respectively on the registration of individual projects. The expert panels do not take decisions but undertake the technical assessments upon which the decisions of the EB are based.[95]

The Secretariat provides support to all the various actors of the CDM framework. While the members of the EB and the technical panels change, the Secretariat supplies the CDM with long-term career staff, who often has a deeper understanding of the issues than the members serving on the Board and the panels. Accordingly, though it does not take decisions, the Secretariat, which detains the institutional memory, plays a significant role in the decision-making process of the CDM.[96]

The role of the EB is crucial in safeguarding the environmental integrity of the CDM. Though the COP/MOP decides on the strategic development of the CDM, it is the EB which translates these decisions to the project level that interacts with private project participants controls the DOEs work and interprets the Kyoto Protocol and subsequent COP/MOP decisions.[97] To ensure that the EB's decisions are made in an apolitical and professional manner the CDM designers have included several safeguards.[98] For instance, EB members have to act in their own capacity, are prohibited of having a pecuniary or financial interest in any aspect of a CDM project activity and may be suspended in case of misconduct.[99]

Though it can probably be assumed that EB members have no pecuniary interest in the CDM, political conflicts of interest are common as EB members are often at the same

[93] CDM rules, par. 5.
[94] CDM rules, par. 5.
[95] See Streck et al. (2008: 418).
[96] Meijer (2005:
[97] Streck (2007: 95).
[98] See Annex to Decision 17/CP.7, par. 8 (c).
[99] See Annex to Decision 17/CP.7, par. 8 (e), (f), par. 10.

time involved in the climate negotiations, represent the DNA for their country or manage large government purchase programs of CDMs.[100] To verify whether the EB is taking truly independent decisions Flues et al. have examined about 1000 registered projects.[101] They come to the conclusion that though the EB is usually strongly committed to objectivity, political considerations might well have influenced its final decisions in certain cases. The authors show that if a country that has a member in the EB or if the World Bank is involved in a project the latter is more likely to be approved.[102] On average political considerations seem to matter more when decisions are taken with respect to individual projects than relative to methodologies. According to Flues et al. this fact is probably due to the lack of transparency in the decision making process regarding individual projects. [103]

Another critique upheld is that the EB does not scrutinize adequately the DOEs reports. Notwithstanding the precautions taken by the designers of the CDM to avoid that it develops a culture of approval similar to that observed in certain development banks, a very high percent of the projects got approved in the first years.[104] To address the growing criticism, the EB has since 2006 stepped up its level of scrutiny by establishing the RIT, which assesses the documentation of each registration request and is assisted since 2007 by the Secretariat.[105] As a result, the number of projects reviewed and rejected by the EB has increased.[106] Moreover, to strengthen the accountability of DOEs the EB has asked the accreditation panel to work on a policy framework to address non-compliance issues by DOEs in a more systematic manner.[107]

Although the control of the verifiers' work has since then improved, the argument that in the absence of a more neutral source of information the EB is still prone to approve projects cannot be discarded lightly.[108] The problems of asymmetrical information are rampant and compounded by the always increasing number of projects upon which it must decide. Moreover, available staff is clearly insufficient to evaluate the complexities of the economic data presented by a project and the intricacies of its relationship with the climate or energy policy of the host country. Finally, though spot checks have revealed

[100] Streck (2007: 96).
[101] See Flues et al. (2008: 1).
[102] With respect to decisions on individual decisions, both the role of host and buyer countries is significant. For methodologies, only the host country influence is significant. See Flues et al. (2008: 16).
[103] Contrary to the rules established for the review of methodologies by the Meth Panel, neither the recommendations of the RIT nor the deliberations of the EB made public. See Flues et al. (2008: 17).
[104] See Schneider (2007: 23).
[105] See de Jonge (2008 : 2)
[106]The Vice-Chair of the EB in 2007 indicates that before April 2007 82% of the projects were registered automatically, 4% rejected (1%) or withdrawn (3%). These figures changed afterwards as by April 2008 only 57 % of the projects after April 2007 were registered automatically, 13 % rejected (10%) or withdrawn (3%). See de Jonge (2008: 4).
[107] See Schneider (2007: 27).
[108] Wara et al. (2008: 14).

serious shortcomings of some reports, the EB has not yet used his right to propose the suspension or withdrawal of any verifier.[109]

III. The inadequacy of the CDM to assist significantly developing countries in their transition to a low carbon economy

If the world wants to have a fair chance to limit global mean temperature increase to 2 °C above pre-industrial levels, it must decarbonise the global economy to a large extent by the middle of this century.[110] As most of the recent global growth of CO2 emissions occurred in developing countries, in particular in countries like China and India, where emissions are rising by about 9% respectively 3,5% annually,[111] their contribution to mitigation efforts will be crucial.[112] To help developing countries curbing their emission trajectories many analysts have proposed to use the CDM as the primary mechanism for providing financial support and technology assistance to them under the new global climate agreement.[113]

The adequacy of the CDM as a major tool assisting developing countries in their transition to a low carbon economy is however questionable. The CDM has so far only marginally contributed to reduce their dependence on fossil fuels. For instance, renewables were not largely deployed and when such projects were registered, their additionality remains often dubious. As to demand-side efficiency measures and projects in the transport sector, a main emitter of CO2 emissions, the CDM has yet hardly touched upon. Finally, as a principally private driven mechanism the CDM has proven inadequate to incentivise policy reform which is a prerequisite for any meaningful long-term action. Worse still, in certain cases, the CDM creates perverse incentives to protract climate friendly policy.

By 1 February 2009, the CDM pipeline of projects shows the following distribution of credit volumes that are expected to be reached by 2012. The capture of HFCs, PFCs and NO2 is expected to generate 26% CERs whereas the abatement of CH4 will account for 19% of overall CERs.[114] Measures improving supply energy efficiency are expected to generate 11%, and fuel switch, mostly from coal to gas 7 % of all CERs. On the other

[109] The CDM rules allow the EB, if it finds that a DOE no longer meets accreditations standards or other provisions of COP/MOP decisions, to recommend to the COP/MOP that a DOE is withdrawn or suspended. See Meijer et al. (2005: 208); Wara et al. (2008: 14).
[110] To reach this target, industrialised countries would have to reduce their emissions to between 25% and 40% below 1990 levels by 2020 whereas developing countries would have to keep emissions between 15% and 30% below baseline.[110] See Höhne (2008).
[111] See Sethi (2008: 50).
[112] When the Kyoto Protocol was adopted 57 % of CO2 emissions came from Annex B countries, in 2007 they accounted for 47%. Now developing countries emit the majority of CO2 emissions.
[113] See Murphy et al. (2008: 10).
[114] See Unep Risoe at http://www.cdmpipeline.org/cdm-projects-type.htm#1.

hand, renewable projects are estimated to account for 36% and demand-side energy efficiency projects for about 1%.

These figures show that the initial hope that the CDM would encourage massively renewable energies has not materialised. Though the share of renewable projects has recently increased thanks to the adoption of less bureaucratic rules for small-scale projects[115] the bulk of credits is still being granted to end-of-the pipe technology projects and fossil fuel plant operators.[116] Moreover, the share of 'real' emission reductions generated by renewables is probably much lower than the official numbers suggest as the profitability of many projects is often only marginally enhanced by the CDM revenue, which renders the argument that it was decisive for the start of the project implausible.

The principal reason why renewables, especially small-scale projects, don't fare better is financial. The CDM is a mechanism which favours projects which seize the cheapest opportunities for emissions reductions, regardless of whether they lead to a long-term structural change away from fossil fuels.[117] The costs to abate CO2 emissions through renewables are, however, in general much higher than those engaged to curb other greenhouse gases with a much higher global warming potential such as nitrous oxide or methane. Moreover, projects capturing these industrial gases generate a much higher amount of CERs than renewable energy projects. For instance, though HFC, PFC and N2O projects only account for 2.5% of the projects, they will generate 26% of the CERs by 2012.[118] Conversely, renewable energy projects represent about 63% of all projects but generate about 36% of CERs.[119]

Smaller credit volumes mean also that renewable projects, with the exception of large hydro, suffer disproportionately from transaction costs.[120] Accordingly, for projects with small credit volumes they are quite significant while for large projects they are often negligible. Finally, the sometimes complex requirements of the CDM procedure favour companies best endowed to meet them and these are in general large, often fossil-intensive industries with close government connections and sufficient financial means to hire advisors.[121]

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[115] Small-scale projects enjoy some flexibility in the registration process that reduce transaction costs: a simplified PDD development process, simplified modalities for monitoring emission reductions, a reduced registration fee, and bundling of similar projects to reduce the share of fixed costs. See Leguet et al. (2008: 75).

[116] See McCully (2007: 5).

[117] Lohmann (2008: 7).

[118] See Unep Risoe at http://www.cdmpipeline.org/cdm-projects-type.htm#1.

[119] Willis et al. illustrate this difference by the example of a wind farm and a HCFC22 plant. According to the latter a 50MW wind farm in India is expected to create around 112,500 CERs per year whereas two HCFC22 plants in China are expected to generate 19 million CERs per year. See Willis et al. (2006: 115).

[120] The transaction costs relate to the approval of a CDM project and its subsequent monitoring. They include, in particular, the costs of external auditors, registration fees and consultants' fees. CDM projects require a minimum of 50 000 € (easily above 100 000 €). Accordingly at least 10'000 CERs must be generated to make the project worthwhile. See Stripple et al. (eds.) (2008:9), Willis et al. (2006: 111).

[121] Lohmann (2008: 13).

Another problem related to the deployment of renewables is that they entail a relatively high upfront capital. Contrary to the relatively cheap and quickly installed end-of-the pipe technologies for non-CO2 greenhouse gases, renewable projects are mostly 'greenfield' projects, which will generate credits only after the completion of the works. They are thus discouraged by the prevalent purchase model, which privileges CDM credits that are bought as they are delivered over the crediting period.

Also, the promotion of renewables requires more than just some supplemental finance for individual projects. With some exceptions like biomass, large hydro and wind energy, renewable technologies are not yet mature and require significant research and innovation to bring costs down.[122] Driesen shows, however, that a mechanism as the CDM, which encourages the maximisation of short-term profits of private actors but does not monetise long-term benefits provided by technological innovation, will not optimise investments in R&D.[123] Finally, the deployment of small renewables often requires changes in the prevailing infrastructure of a country. For instance, their large-scale integration in the electricity grid is only possible if the grid is significantly re-engineered and modernised.[124]

To conclude, although the share of renewables has increased in recent years, the capacity of the CDM to foster their technical maturation and diffusion seems to be quite weak.[125] As the example of the European Union shows[126] an effective promotion of renewables is dependent on determined political will and a wide array of measures, such as the setting of targets for renewables, feed-in-tariffs, subsidies for research and development, the creation of technology platforms, education, capacity building, improvement of governance and the construction and maintenance of new infrastructures. A purely project-related financial tool can thus not substitute a more general policy promoting the widespread use of renewables.

Turning now to demand-side energy efficiency measures, the inadequacy of the CDM to stimulate their implementation is even more patent. With less than 1% of all projects, their share has remained insignificant. This may be due to the fact that energy-efficiency projects usually present a large number of small unit savings in scattered locations, which coordination is exacerbated by conflicting stakeholder interests, split incentives and inadequate methodologies.[127] Furthermore, a lack of expertise, tools and indicators for energy management render the estimation of savings often difficult. Again, as for

[122] European Commission (2006b).
[123] Driesen (2003, 2005, 2006). See as regards the performance of the European Emission Trading Scheme de Sépibus (2007).
[124] To be able to integrate an important share of small renewable energies the grids must be able to take into account electricity flows from many different directions, which is not possible under the current structures of the grids. See European Commission (2006a).
[125] Lütken indicates that 90% of the 100 analysed CDM projects were financed unilaterally by actors from developing countries, which seemed to employ exclusively local technology. See Lütken (2008: 88 ff). Other authors view the contribution of the CDM to technology transfer more positively. See de Coninck et al. (2007); Seres (2008), van der Gaast et al. (2009).
[126] See European Commission (2006b).
[127] See Chang et al. (eds) (2008 : 11)

renewables, the encouragement of energy efficiency is a complex task, which requires to take into account the specificities of the different sectors and countries.[128]

Last but not least, the CDM has proven inadequate to foster policy reform, though this seems to be the only way to bring about meaningful improvements. This does not come as a surprise as the CDM primarily rewards private initiative and not policy reform. The current involvement of public authorities in the choice and implementation of CDM projects has, indeed, remained quite limited. Though host countries may influence the choice of CDM projects by formulating sustainability criteria that a project must meet to be hosted or use tax policies to favour certain projects over others[129], their capacity as well as their incentives of gearing the CDM towards certain types of projects is not significant. As any decision to set and enforce strict criteria regarding the sustainability of CDM projects entails that the host country may lose out projects to countries with laxer standards, there exist strong incentives to abstain from doing so.

Worse still, in many cases the CDM has a deterrent effect on the implementation of policies encouraging low-carbon investment, operational and consumption choices. Even though the decisions of the EB relating to E- policies[130] have mitigated certain perverse disincentives of the CDM, this decision has not eliminated all of them. Indeed, the latter only cover pieces of legislation that give comparative advantages to less emissions-intensive technologies or fuels over more emissions-intensive technologies or fuels, but do not cover laws regarding the capture of certain gases such as methane and nitrous oxide. As a result host countries and their industrial sectors may well fare better if they continue to allow the emission of these gases rather than make their capture mandatory.

IV. Conclusions

The EB has in an important number of decisions given more precise contours to the two core environmental safeguards of the CDM, the baseline and the additionality criteria. It thereby increased the legal certainty for project developers, but also contributed to erode the environmental integrity of the mechanism. There is indeed raising concern that the EB, be it through its interpretation of the CDM rules or through the development and the compilation of additionality criteria, has considerably increased the risk that credits are issued that don't reflect real measurable emission reductions. Also, the verification process, which essentially relies on consultants paid and selected by project developers, remains highly problematic.

If the CDM is to be successful its institutional and procedural setting should thus be considerably overhauled. The EB will have to be professionalized, the independence of its members strengthened, the decision-process made more transparent and its decisions made subject to legal review.[131] As regards the verification process, the perverse

[128] See for instance the package of instruments adopted by the European Union …
[129] A government may for instance choose to impose more the revenues of methane gases than from renewable projects.
[130] See EB 22, Annex 3.
[131] See von Ungerer et al. (2009), Purdy (2009), Romanin Jacur (2009).

incentives must be eliminated, the oversight increased and sanctions efficiently applied if verifiers don't live up to their duties

Although the EB exerts regulatory functions comparable to those of a national regulatory agency, its members are not permanent full-time salaried individuals, but unpaid, constantly rotating delegates from Member States with a background in international environmental negotiations. Due to insufficient expertise they are not able to cope efficiently with the numerous, often very technical problems of the daily business of the CDM. The resulting lack of institutional memory and professionalism should thus be remedied by modifying the selection mode, the requirements of expertise and the status of its members.[132] Moreover, their independence should be enhanced by stricter rules guaranteeing that conflicts of interests don't bias the decision-making process. The current rules focusing mainly on the avoidance of financial stakes should be amended so as to include rules preventing conflicts of interests resulting from other functions hold by EB members relative to the CDM. Finally, the selection and modus operandi of the highly influential expert panels and working groups as well as the staff of the Secretariat dealing with CDM matters should be more clearly defined. As a rule, they should abide by similar rules as the members of the EB as regards their selection, expertise and independence.[133]

The EB not being directly subject to the control of national legal systems, it is crucial that its decision-making process is highly transparent. Although the CDM provides for the participation of the public[134] and contains rules on transparency, the decision-making process, in particular in the very influential expert panels, remains often opaque.[135] Rules should therefore be set up to allow for open sessions of almost all official meetings and reasons for restricted access of the public should be duly motivated. Also, all decisions, including those of the expert panels should be published and made accessible to the public in an adequate and timely way.[136]

Further, a review procedure should be introduced which allows that decisions of the EB can be challenged if they put at risk the environmental integrity of the mechanism.[137] Different options exist as to how such a review can be organised.[138] To avoid that a formal appeals procedure makes the CDM unmanageable, strict criteria should be defined to avoid an inflation of procedures. One possibility is to mandate an independent person, a kind of environmental 'watchdog', who would investigate and address complaints

[132] Streck suggests that the EB should be staffed with full-time salaried individuals who should be selected on the basis of their technical expertise and hired by the UNFCC secretariat while being directly responsible to the COP/MOP. See Streck (2007: 98); von Ungerer et al. (2009).
[133] For instance, the current members of the very influential RIT are currently not selected according to an international procedure and their recommendations are not published on the web. This is highly problematic. See Streck (2007: 97).
[134] See CDM rules, par. 16.
[135] Experts and NGOs have repeatedly underlined that project developers have provided scant attention to the comments of stakeholders and criticism has remained largely unheard. See McCully (2008).
[136] Streck suggests that the UNFCCC secretariat should make available a compilation of all rules governing the CDM, which should be thematically organised, referenced and indexed. See Streck (2007: 99).
[137] See for more details on the standardisation of methodologies Stehr (2008: 64).
[138] See for different options of review Stehr (2008: 68 ff.).

reported by individual citizens or undertakings. He should be enabled to make recommendations to the EB and if necessary, bring legal cases in front of a Special Review Committee of the COP/MOP, empowered to revise decisions of the EB.

As regards the criticism related to the additionality tools, a more top-down process could progressively substitute the current bottom-up framework, which led to the formulation of often vague and subjective additionality criteria that can hardly be verified. As it is already the case for small-scale projects, the EB could elaborate more objective criteria, including technology standards, technology penetrations rates and sectoral benchmarks, which would, if set with sufficient rigueur, help avoiding the massive registration of non-additional projects.

Finally, the rules on the verification process and its oversight should be amended. The current perverse incentives of the DOEs to approve projects should be eliminated by mandating the EB or the Secretariat to select and pay verifiers.[139] Further, a fund similar to the one established by the Gold Standard could be created, which would allow to fund random spot checks of verification reports but also more in-depth studies on the verification process. Indeed, even though certain good academic or NGO studies exist, they remain scarce and should be done in a more systematic way and on a larger scale allowing that more insight is gained on the shortcomings of the CDM process. Moreover, steps should be taken to increase the amount of information available on certain technologies and their use by developing countries. Only if more reliable information is available for verifiers and the EB, the additionality check can be conducted with some accuracy. Finally, sanctions should be sufficiently stringent and applied consistently to guarantee a robust verification process.[140]

While the implementation of the above mentioned reform proposals should help improving the environmental integrity of the CDM, they do not lift the perverse incentives of the CDM on the implementation of climate friendly policy. Indeed, if the EB has softened this consequence by allowing that E-policies[141] are not considered when establishing the baseline this decision can probably not be uphold indefinitely without substantially jeopardizing the environmental integrity of the CDM. Hence any decision to maintain the CDM as an offset mechanism for developed countries should take this trade-off into account.[142]

Instead of continuing to pay for projects which additionality is often doubtful, the financial contribution of developed countries would probably be more effective if it was geared to assist developing countries in designing their climate policy and providing financial assistance for their implementation.[143] As the international cooperation under the umbrella of the International Energy Agency in the energy field shows, the creation

[139] See Stehr (2008: 67).
[140] See for more improvements of the oversight on DOEs Stehr (2008: 67).
[141] The EB decided that legislation adopted after 2001 that give comparative advantages to less emissions-intensive technologies or fuels over more emissions-intensive technologies or fuels adopted after 2001 may not be taken into account. See EB 22, Annex 3.
[142] See Boyle et al. (2009).
[143] See also European Commission (2009).

of strong international networks of national experts and decision-makers, where knowledge is shared and best practices are compiled and diffused, might prove an effective means to assist developing countries in tackling climate change. Such a process could moreover be complemented by the (co-) financing of pilot-projects and a tailor-made assistance in the implementation of adequate legal frameworks. Such a roadmap does, of course, not prevent a useful role of the CDM in the new financial architecture. Its use and scope should however be carefully designed so as to support policy reform instead of preventing it and limited to projects which additionality can be checked with sufficient accuracy.

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