Hamburgisches
WeltWirtschafts
Institut

CDM: current status and possibilities for reform

Axel Michaelowa

HWWI Research
Paper No. 3
by the
HWWI Research Programme
International Climate Policy

Hamburg Institute of International Economics (HWWI) | 2005
ISSN 1861-504X (Internet)

Axel Michaelowa
Hamburg Institute of International Economics (HWWI)
Neuer Jungfernstieg 21 | 20354 Hamburg | Germany
Tel +49 (0)40 34 05 76 - 60 | Fax +49 (0)40 34 05 76 - 76
a-michaelowa@hwwi.org | www.hwwi.org

HWWI Research
Hamburg Institute of International Economics (HWWI)
Neuer Jungfernstieg 21 | 20354 Hamburg | Germany
Tel +49 (0)40 34 05 76 - 0 | Fax +49 (0)40 34 05 76 - 76
info@hwwi.org | www.hwwi.org
ISSN 1861-504X (Internet)

CDM: current status and possibilities for reform

November 2005

Axel Michaelowa

Abstract: The Clean Development Mechanism (CDM) has seen a spectacular rise of activity since mid-2005 that has led to more than 400 project submissions with a combined estimated emission reduction volume of 570 million t CO_2 eq. until the end of the commitment period. Several technologies have been mobilised in a large scale that had not been predicted to play any significant role. However, many observers continue to criticize the CDM Executive Board's handling of the project cycle and the lack of development benefits of CDM projects. Therefore, calls for CDM reform have gained strength. An analysis of the CDM project portfolio shows that Least Developed Countries and Africa have so far been sidelined. However, more small-scale projects have been submitted than expected from theoretical analyses of project cycle transaction cost, maybe due to high CER price expectations and a high share of unilateral projects. While developing country companies have been able to capture almost half of the CDM consultancy market, they have not made an inroad into validation and verification. The concentration of host countries has increased. Development benefits of CDM projects are often limited, especially of the large projects destroying industrial gases. The rejection rate of proposed methodologies remains stubbornly high but consolidation of methodologies simplifies document submissions. The time lag from submission of project documentation to registration has recently been falling. Additionality testing is a key element that also supports the development target of the CDM.

COP 11 should remove the cut-off date for early project CER generation and allow policy-based CDM as well as unlimited bundling of projects. It could streamline the additionality test by defining investment test and barriers more clearly and removing the common practice test. COP could also contemplate levying a higher adaptation fee from end-of pipe non-CO_2 reduction projects. Annex B countries should stop funding CDM capacity building by development aid and support baseline methodology development for hitherto non-represented project types and host country baseline data collection. The EU and Canada would give an important

signal that the CDM continues beyond 2012 by making a unilateral declaration that CERs will be valid in their emissions trading schemes after 2012.

Key words: CDM, sustainable development, baselines, additionality, reform

1. Introduction: the surprising success of the CDM

The Clean Development Mechanism (CDM) was set up in the Kyoto Protocol with the twin aim of generating cost-effective emission reductions for Annex B countries and of promoting sustainable development in the host countries. To ensure environmental integrity of the reduction credits[1] generated by CDM projects, an independent validation of project documentation and verification of emission credits was agreed and a CDM Executive Board (EB) set up. The EB's task is to define the detailed rules for the CDM project cycle and to accredit validators and verifiers; its terms of reference were specified in the Marrakech Accords of 2001.

In the aftermath of the Marrakech Accords, many observers painted a gloomy picture concerning the prospects for the CDM. The main fear was that surplus emission allowances from countries in transition would crowd out Certified Emission Reductions (CERs) from CDM projects as the former could be offered at almost any price. Moreover, it was doubted that developing countries could set up an efficient approval structure for CDM projects. The last fear, mainly voiced by the business community, was that the CDM project cycle would be extremely cumbersome and lead to prohibitive transaction costs. Even in early 2005, Cosbey and al (2005, p. 3) still voiced concerns that the number of projects and the amount of CERs would be too small to cover the demand.

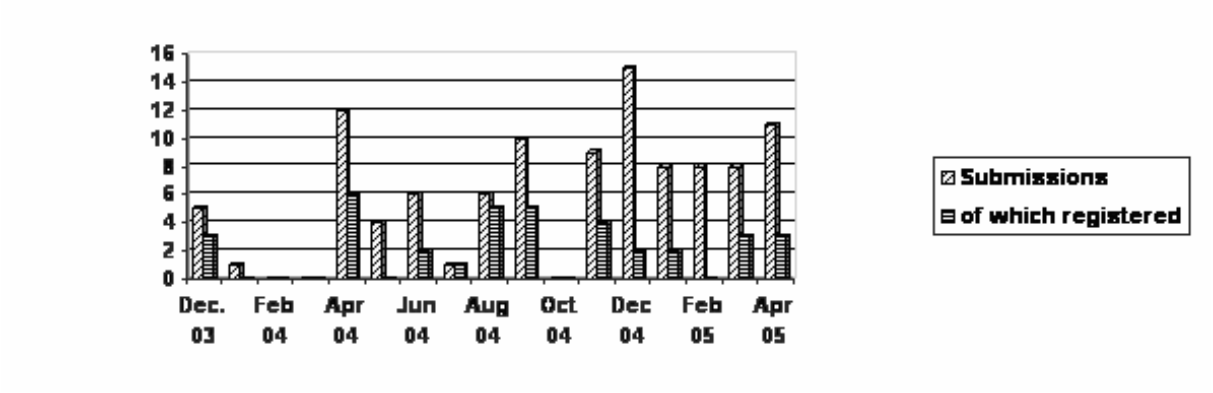
Four years have passed since Marrakech and the CDM has been surprisingly effective both regarding institutional and quantitative aspects. An international body of rules with an unprecedented transparency and independent control has been implemented relatively consistently. Over 70 host countries have set up their national approval authorities (DNAs). Currently, there is almost a gold rush atmosphere when it comes to CDM project submissions[2]. By Nov. 3, 2005 402 projects estimating a CER volume of 570 million until 2012 had been made public on the UNFCCC website, of which 33 had been registered by the EB. Submissions have been coming in since late 2003 and surged from mid-2005 onwards (see Figure 1).

[1] As developing countries have no emission targets, all stakeholders participating in a CDM project have an incentive to overestimate its emission reductions.

[2] In the following, the term "submissions" means publication of Project Design Documents (PDDs) for public comments on the CDM website of the UNFCCC Secretariat. All raw data underlying the analysis have been downloaded from cdm.unfccc.int

Figure 1: Submissions per month and registrations

a) "Lean period" December 2003-April 2005



b) "Gold rush" May-November 2005

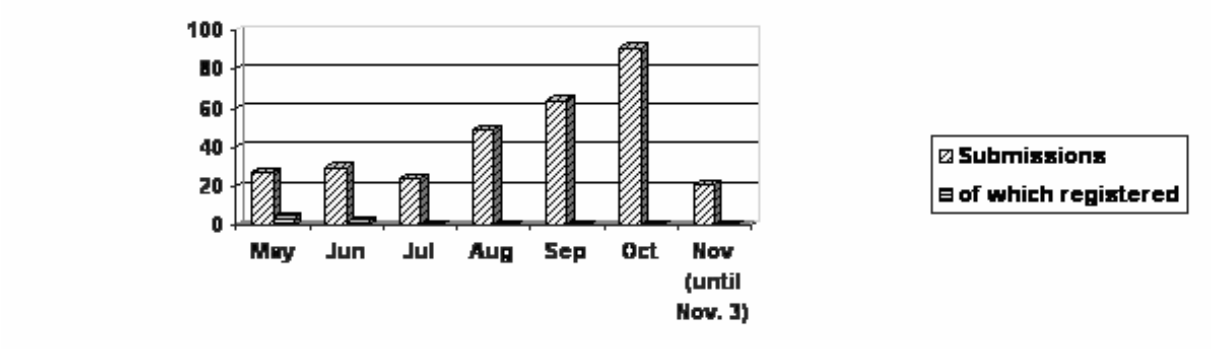
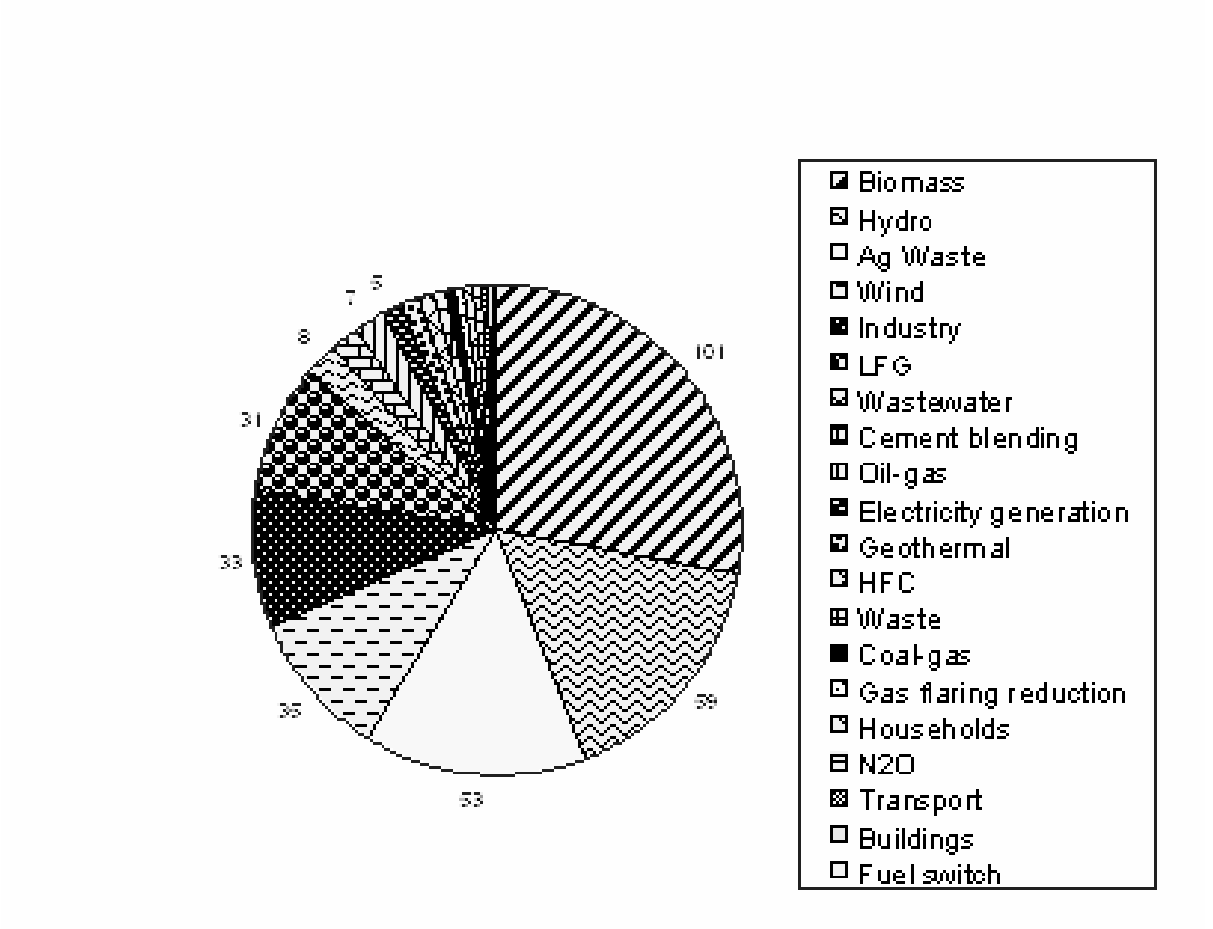


Figure 2 shows the number of projects differentiated according to project types.

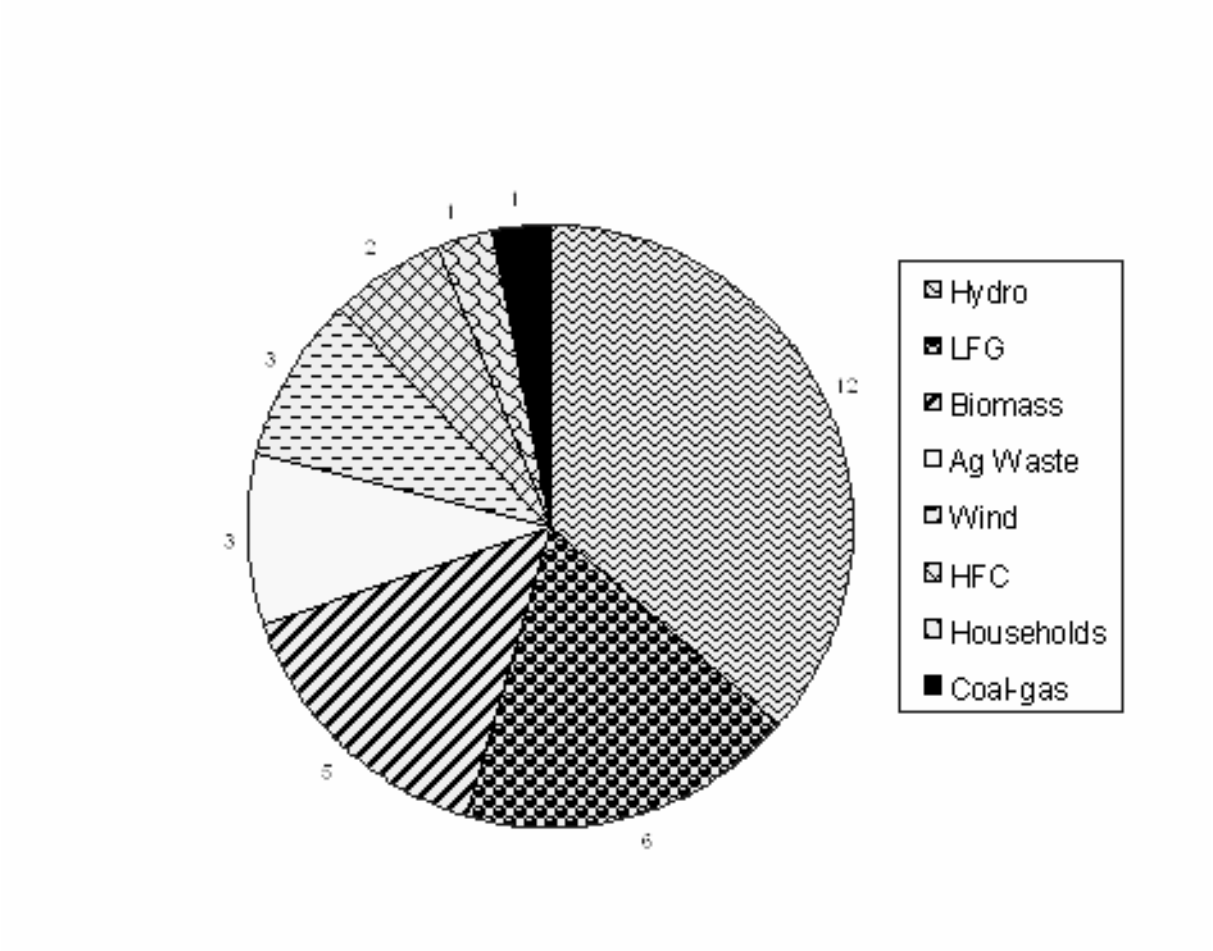
Figure 2: CDM projects according to types – submitted and registered projects

a) Submitted projects[1]



[1] Biomass, hydro, wind, geothermal refer to renewable energy generation. Industry, electricity generation, households, transport and buildings refer to energy efficiency improvements. LFG: landfill gas capture.

b) Registered projects

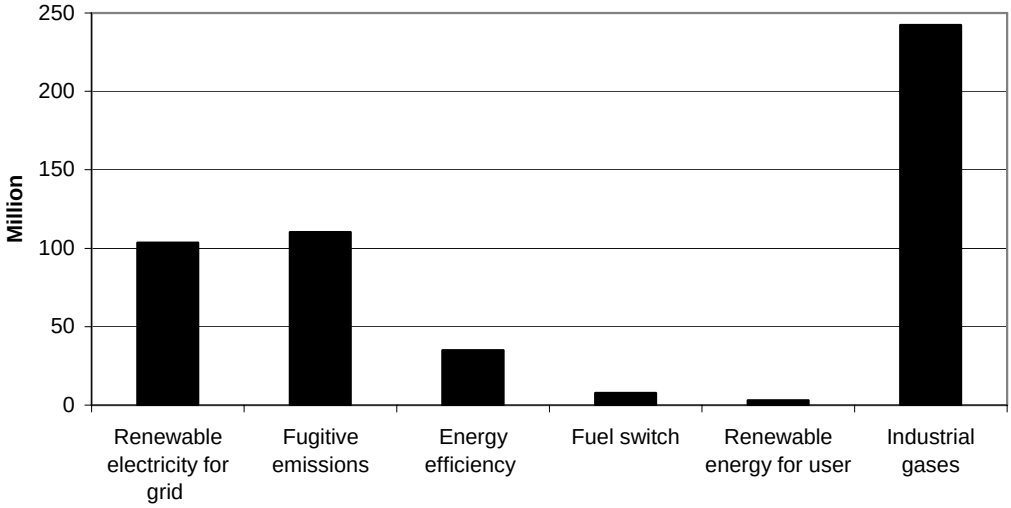


There is no substantial difference between the registered and submitted projects in terms of diversity of project types. Renewable energy and fugitive methane make up the lion's share. However, when one looks at the amount of CERs estimated to be generated by the projects before the end of 2012[3], the picture changes dramatically (see Figure 3).

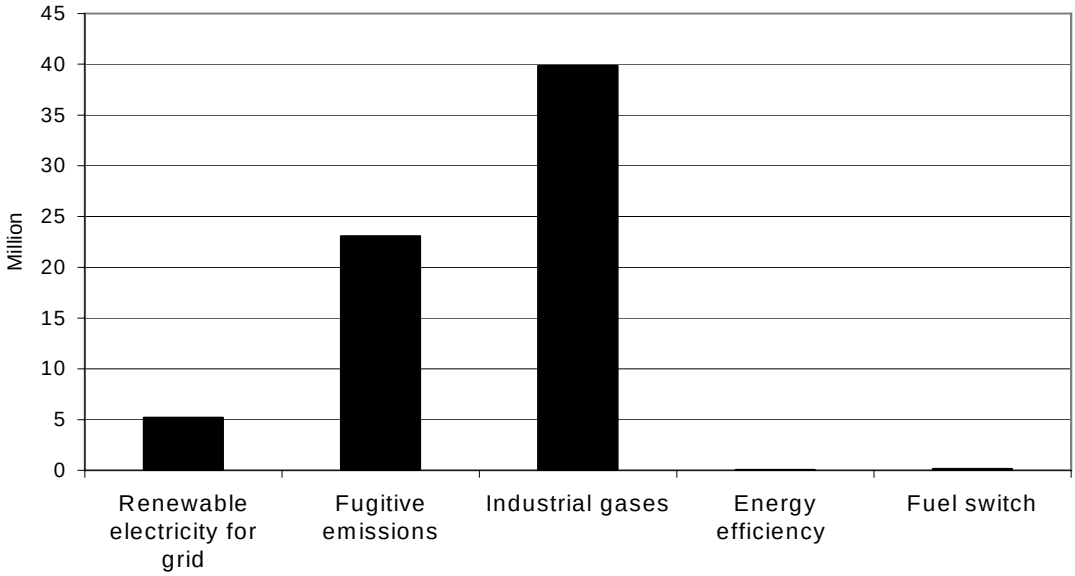
[3] While most CDM projects have crediting periods going beyond 2012, the current uncertainty about post-2012 climate policies has generated negligible demand for post-2012 CERs.

Figure 3: Estimated CER volume from submitted and registered projects until 2012

a) Submitted projects



b) Registered projects



Projects that reduce the industrial gases HFC-23 from production of the refrigerant HCFC-22 and N_2O from the production of adipic acid achieve annual CER volumes of up to 10 million per project and thus dwarf all other project types in terms of CER volumes. These project types are the real "discovery" of the CDM and show the ingenuity of a market mechanism to mobilize cost-efficient reduction options. Other promising large project categories such as N_2O reduction from nitric acid and coal

bed/mine methane capture are not yet visible because they lack an approved baseline methodology. In contrast, most renewable energy projects generate less than 100,000 CERs per year.

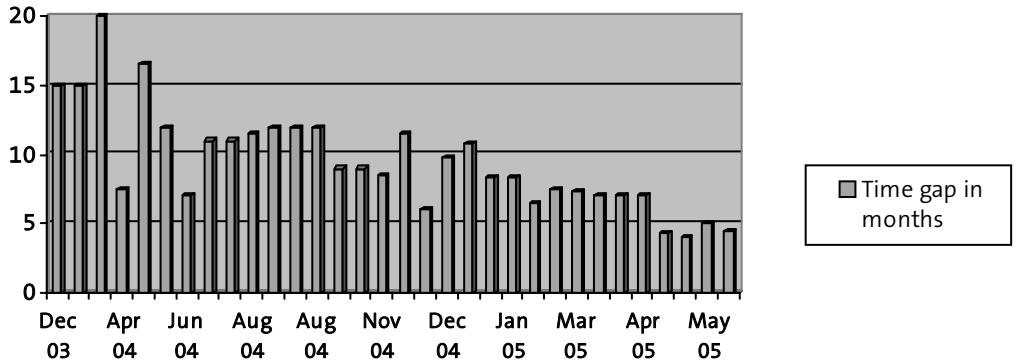
2. Perceived and real current problems with the CDM

Heister (2005) rightly states that project-based mechanisms are always only a second best as they exhibit perverse incentives, methodological difficulties and suffer from incomplete coverage as well as high costs. However, they are the only possible trading instrument available to Parties that cannot agree on emission targets. As the CDM should move towards a cap-and-trade system to increase overall efficiency, CDM rules should not be cast in stone. While the market aspect of the CDM thus can be seen as a clear success, there are several critical issues that prevent an even faster development that would be necessary to mobilize the CER volume necessary to close the Kyoto gap estimated at around 3 billion t CO_2 eq. for the first commitment period. Therefore, from several sides calls for reform of the CDM procedures have been made. These include business (IETA 2004), governments (Canada, India, Japan) but also research institutions (IISD, see Cosbey et al. 2005). I want to discuss problems the current CDM structure faces and make recommendations for reform.

2.1 Slow registration of projects and cut-off date issue

While the CDM Executive Board exists for almost four years now, only in late 2004 the first project was registered. The period from submission to registration remained stubbornly long until early 2005 and has only come down seriously in the last six months (see Figure 4).

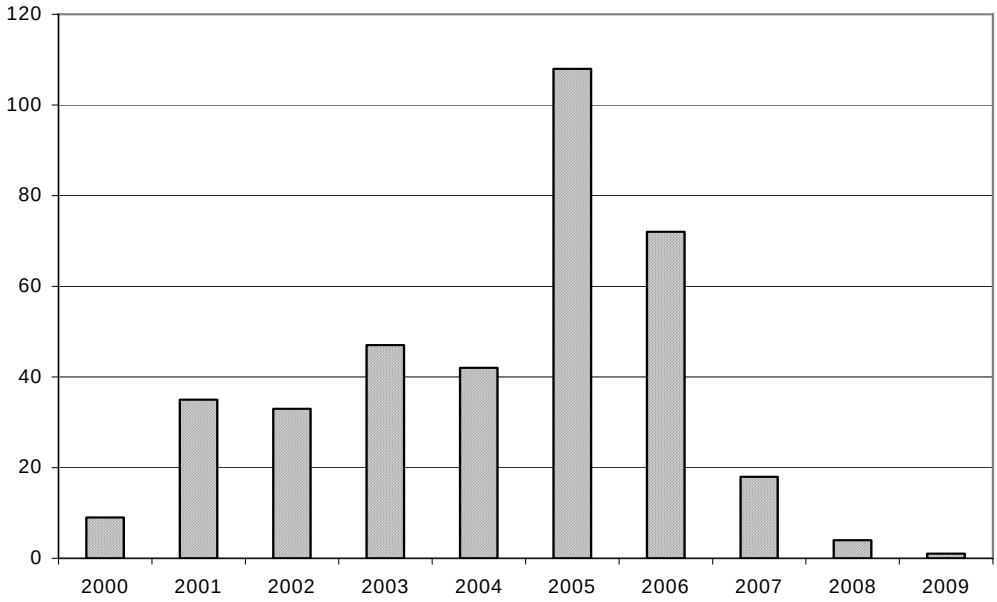
Figure 4: Time gap between submission and registration for the registered projects sorted according to the date of submission



The Dec. 31, 2005 deadline for allowing projects to claim pre-registration-date CERs is approaching and there is no indication that a sizeable share of these projects can be

registered before that deadline (see Figure 5). Fortunately, the EB has declared that such projects can be registered at all. Reasons for slow requests for registration are difficulties in getting host country approval or difficulties in raising the finance to pay registration fees, particularly in the case of unilateral projects.

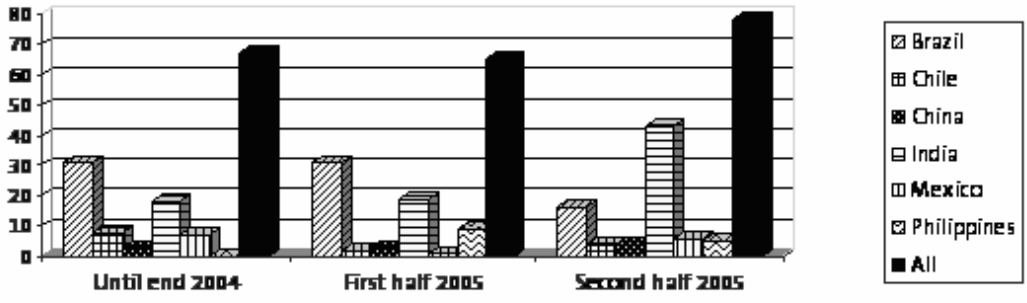
Figure 5: Start date of submitted projects



2.2 Equitable distribution of projects

If the CDM really aims to promote sustainable development in the developing countries, all developing countries would have to participate in the CDM. While 37 host countries have at least one project in the CDM pipeline, currently, we see a strong concentration of both numbers of projects and CER volumes in a small number of host countries which is increasing over time (see Figure 6).

Figure 6: Important host country shares in the CDM (number of projects)



Least developed countries are sidelined in the CDM so far at 1.5% of the projects and 0.4% of projected CER volume until 2012. Africa has a share of 2.2% of projects; its CER share is driven up to 3.1% by a large gas flaring reduction project in Nigeria responsible for 78% of all African reductions.

How far do developing countries benefit from the opportunities to provide consultancy and validation/verification services?

Concerning consultancy, several companies from developing countries have been able to establish themselves in the market, often as supporters of unilateral projects. MGM International, which is based in Argentina provides PDD consultancy all over Latin America and has submitted 12 baseline methodologies, two of which have been approved. Brazilian Econergy and Ecoinvest supported 31 and 27 PDDs.

In India, subsidiaries from multinational companies support high numbers of PDDs. PwC India has supported 10 baseline methodologies (which have all failed) and 30 PDDs. Ernst & Young India has developed 34 PDDs while the small domestic consultants Pandey and Zenith Energy did six and five PDDs. If one analyses all projects, the overall share of host country consultants reaches 49%.
In a big contrast to the consultancy market, so far, only 0.5% of projects are validated by a company from a Non-Annex B country. Even these companies are from Korea which is an OECD member. As the validation market is characterised by a strong concentration, it is unlikely that developing country companies are able to get a relevant market share[4].

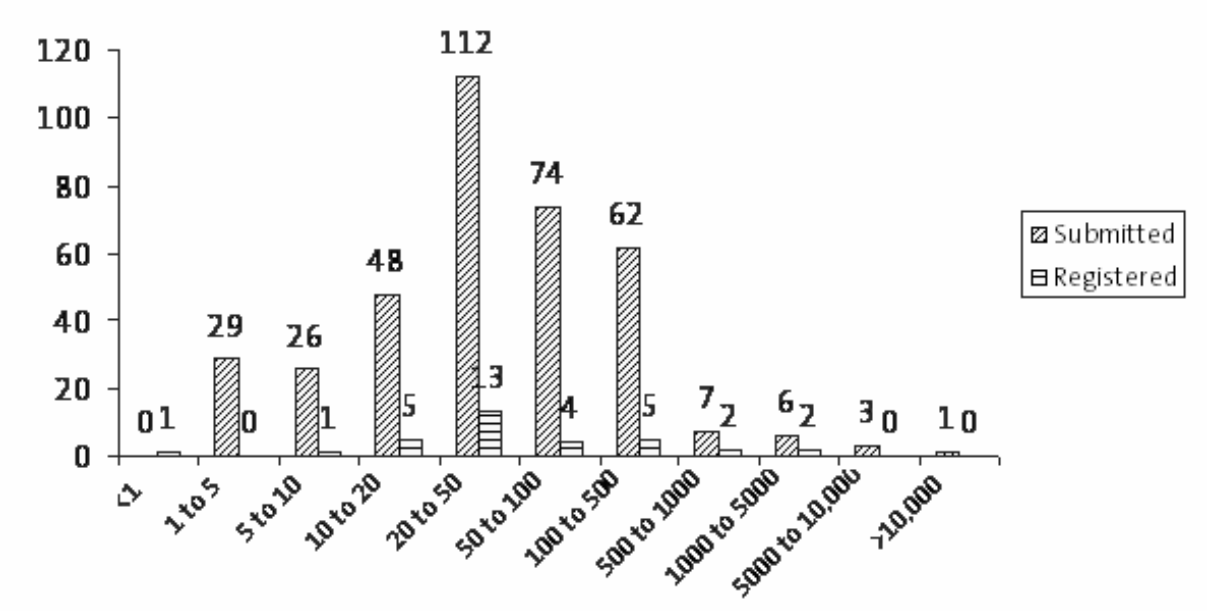
2.3 High transaction costs

Development of a CDM project from the idea to the issuance of CERs is a costly endeavour. The development of a standard PDD for a straightforward project type with an approved methodology costs around 15,000 €; if a new methodology has to be developed and fought through, costs can easily triple. Validation costs 7,000 to 15,000 €. The EB administration fee of 0.2 $/CER for large and 0.15 $/CER for small projects is less cumbersome because it only accrues after CERs have been issued, although a part of it (5000 – 30,000 $) has to be paid up front when submitting the request for registration. Verification costs are still not clear but seem to be around

[4] Market leader Det Norske Veritas has a share of 56% and the three leading companies together achieve 88%.

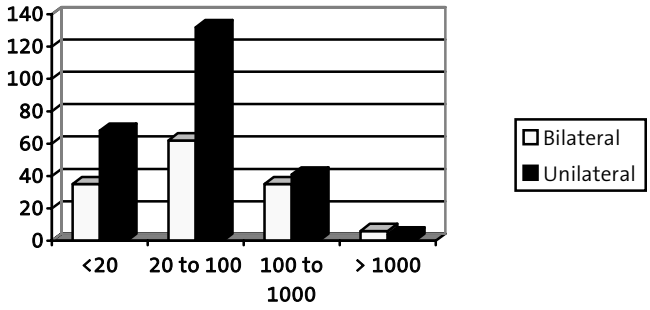
5,000-10,000 € per turn, probably declining over time. Costs for host country approval can be huge due to the delays involved. When the CDM rules were discussed at Marrakech, it was felt that small projects could not cover the transaction costs of the complete project cycle. Therefore, simplified rules were agreed for renewable energy projects below 15 MW, energy efficiency projects of less than 15 GWh annual savings and other projects with emissions of less than 15,000 t CO_2 equivalent. Nevertheless, Michaelowa et al. (2003) estimated that projects below 20,000 annual CERs would not be able to cover their transaction costs. Thus the 44% share of small-scale projects in project submissions and 55% in registrations is a clear surprise. Reasons may be that the quadrupling of the CER price since 2003 has lowered the threshold at which projects become unviable and that many CDM capacity building programmes have subsidized PDD development. Figure 7 shows the distribution of projects according to size classes.

Figure 7: Size categories of submitted and registered CDM projects (average 1000 CERs p.a. until end of 2012)



It is visible that the distribution is more skewed to the right for the registered projects. This may be due to the fact that most of the small projects are so-called "unilateral" projects that have no Annex B participant before registration and thus have problems in mobilizing finance for CDM transaction costs. Figure 8 shows the share of unilateral projects in different size classes. One sees clearly that the distribution is skewed to the left for the unilateral projects.

Figure 8: Unilateral projects and project size (average 1000 CERs p.a. until end of 2012)



Bundling of small-scale projects that would allow to reduce transaction costs is only allowed up to the small-scale project thresholds of 15 MW for renewable energy/15GWh savings/15,000 t of annual emissions. However, the EB has recently given its go-ahead for bundles of large-scale projects which means that bundles of any size could be formed for those projects.

2.4 Perceived lack of development benefits

As shown in Figure 3, a few project types take the lion's share of CER generation. These are the end-of-pipe reduction of industrial gases (HFC and N_2O). Methane avoidance in different forms, especially from landfills is also very attractive. Such projects do not create many jobs and also do not contribute directly to community development unless a part of the CER revenues is spent for this purpose as done in a HFC reduction project in India and a N_2O project in Brazil. Renewable energy is represented through a large number of projects, but usually with relatively low CER volumes per project. Energy efficiency and transport suffer from the lack of approved methodologies and difficulties of organising many different stakeholders. Many host countries criticise this tendency. The government of China has introduced a differentiated CER tax with a rate of 65% for HFC, 30% for N_2O and 2% for renewable energy. However, revenues of this tax are earmarked for further climate policy projects, not general development activities. Olsen (2005) provides a comprehensive overview of the literature on sustainable development and the CDM.

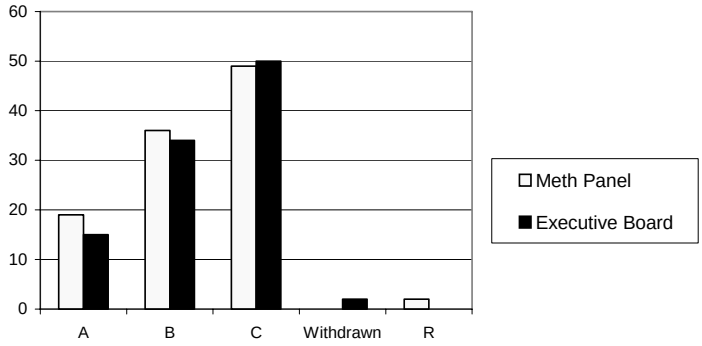
A voluntary label, the "CDM Gold Standard" has been set up to promote CDM projects with high development benefits (see Schlup 2005). It is only available for renewable energy projects (excluding large hydro) and energy efficiency on the demand side. It applies a set of sustainability criteria and requires local expert opinion on whether they are fulfilled. Moreover, it involves a strict additionality

test. The first Gold Standard project (Kuyasa energy efficient housing in South Africa) has been registered in August 2005 and CER forward transactions from that project have been made at a substantial premium over "normal" CERs[5]. Bode (2005) however cautions that labelling non-Gold Standard projects as "dirty" could be counterproductive in reaching climate policy targets. As long as Gold Standard projects continue to have a negligible CER market share this fear may be exaggerated.

2.5 High rejection rate of methodologies, particularly for energy efficiency project types and slow process of standardising methodologies

While the bottom-up process of baseline and monitoring methodology development has the advantage that methodologies are only developed for project types that are really of interest to project developers, it is cumbersome and leads to delays. Moreover, there are continuously high rejection rates (see Fig. 9) and no learning effect visible. Some project types have had much higher rejection rates than average, particularly energy efficiency, forestry and transport.

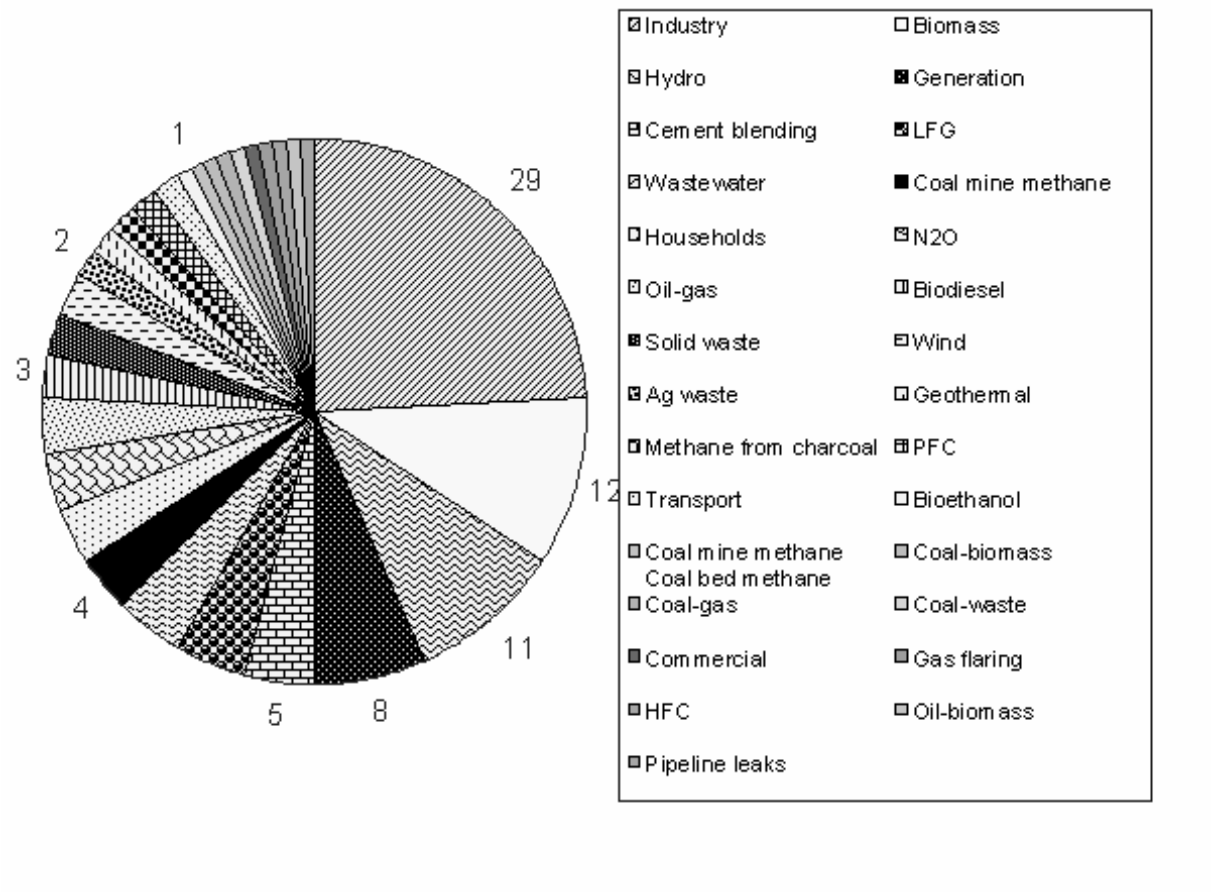
Figure 9: Baseline methodology rejection and revision rates



While methodologies that get grade B (revision) are usually accepted, the overall rejection rate remains 50%. One of the main lessons of the methodology process was the large amount of submissions for the same project types (see Figure 10).

• The British government acquired CER forwards from Kuyasa at 15 €/CER in October 2005 whereas the market price for forwards from registered projects was 10-12 € at that time.

Figure 10: Baseline submissions according to project types



Some observers even feared that every project would have to submit its own methodology. The Executive Board countered this fear by starting the development of consolidated methodologies once a number of methodologies had been approved for a specific project type (landfill gas recovery, renewable electricity for the grid, fuel switch in the cement industry, biomass electricity). Recently, it has started consolidation already once there are several methodologies submitted, but not yet approved (e.g. for coal bed/mine methane, waste heat recovery in industry). Current candidates for consolidation would be N_2O destruction from nitric acid and transport. A problem with consolidation is that it reduces incentives to submit a new methodology in an area where consolidation is looming. Moreover it is problematic if a consolidated methodology substitutes previously approved project-specific ones if the project developers have not yet been able to procure the approvals to lodge a request for registration. This is happening with regard to the consolidated biomass electricity methodology.

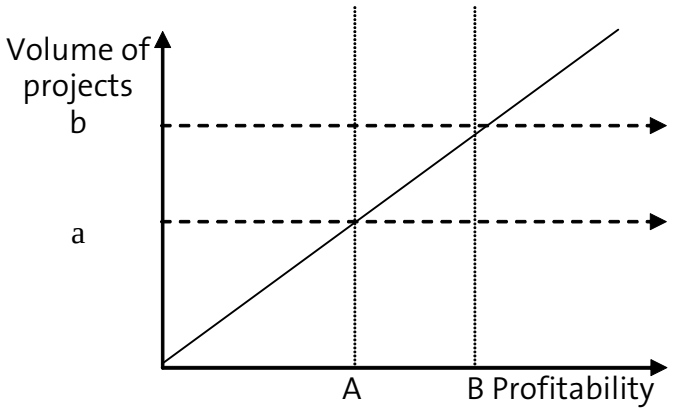
2.6 Difficult determination of additionality

From the start of discussions of a project-based generation of emission credits in countries without absolute emission targets, the discussion has raged how to determine whether projects are "business-as-usual" or are happening due to the revenue from the emissions credits, thus being "additional" (for a summary of the discussion see Greiner and Michaelowa 2003). This led to a relatively vague wording in the Marrakech Accords. The subsequent interpretation by the Executive Board has been relatively strict which led to protests from business and some Parties. As methods to determine additionality differed in the first baseline methodologies that were approved, the EB developed a consolidated additionality test that has since been widely used. This additionality test consists of a series of steps, some of which have not been defined in detail (e.g. the barrier test) while others require a thorough effort of data collection (e.g. on current practice in the host country). Many business representatives (IETA 2004) and representatives of individual companies such as Swiss cement producer Holcim say that additionality determination stifled their involvement in CDM.

If companies behave perfectly rational, they implement all projects that generate a positive net present value at a discount rate equal to the lending rate of commercial banks. Thus in a rational world the stringent additionality test would not lead to a reduction of CDM activities, provided that the lending rate is known. As in such a world no project would be more profitable, the less most-profitable alternative-additionality test would give the same result. The effect of a financial benchmark would depend on its relation to the lending rate. If it is lower than the lending rate, projects would not be implemented.

In a world of risk-averse companies, companies will use a discount rate that is higher than the lending rate. The higher the difference, the higher the volume of projects that is not implemented according to the stringent additionality test (see Figure 11).

Figure 11: Additionality test thresholds and risk aversion



Under perfect rationality and free availability of capital, companies would implement all projects from profitability of o. In a rational world, they would only start at the lending rate A, effectively shifting the x-axis to a. In the risk-averse world, they would add the risk premium to the lending rate, increasing the profitability threshold to B. The difference b-a would be the loss of projects according to the strict additionality test.

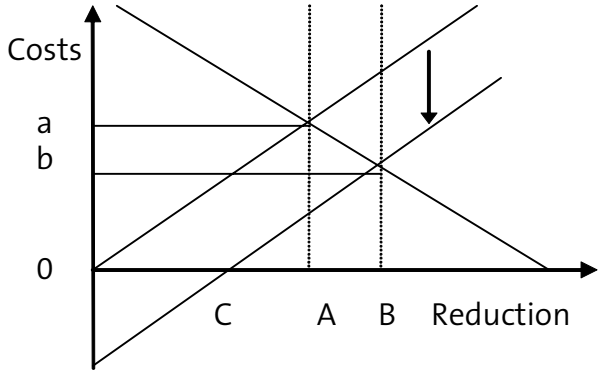
The impact on development depends on the distribution of development benefits according to the profitability of projects. If development impacts are positively correlated with profitability and companies are highly risk-averse, the negative impact of a strict additionality test on development will be high. If development impacts are negatively correlated with profitability, a strict additionality test will further development.

If the additionality test is looking at the most profitable alternative the volume of projects that are not implemented will be reduced. The risk aversion will be reflected in the discount rate that determines the most profitable alternative. If companies have differing degrees of risk aversion, the situation lies between the two extremes described above.

The effects of the barrier test depend on its operationalization. If it is implemented in a way that really captures the companies' decisionmaking process, it is preferable to the profitability tests. However, past experience with the CDM validation process shows that gaming of barriers is relatively simple and not always detected by the validators.

If non-additional projects are labeled as CDM projects, the marginal cost of CER generation is zero. This leads to a downward pressure on the CER price and changes the CER revenue. The revenue change depends on the price elasticity of the CER demand; it is negative if the elasticity is larger than 1 (see Fig. 12).

Figure 12: Price effects of non-additional CDM projects



The supply curve of CERs is shifted downwards due to the inclusion of C reductions from non-additional projects. This increases total CDM volume from A to B, but reduces CER price from a to b. Revenue changes from aA to bB. Revenue is reduced if the slope of the CER demand curve is greater than -1, i.e. price elasticity larger than 1. Even if revenue increases, there will be a crowding-out of CDM projects with costs between b and a.

Projects that do only generate costs but no revenues will pass all additionality tests discussed. There are some project categories with those characteristics that can generate large emission reductions such as N_2O reduction from adipic and nitric acid production or HFC-23 reduction from HCFC-22 production. These project types are high-tech end of the pipe applications with limited employment and local environmental benefits. In the case of landfill gas recovery, flaring is certainly additional but if use of the gas for electricity or heat generation is included, the projects may fail the additionality test due to the revenue from electricity / heat sales. Some host country governments have reacted to this observation by the imposition of differentiated CER taxes, taxing the low-development projects more highly.

Projects with revenues other than CERs will always see the additionality test as a challenge. Cosbey et al. 2005) argue that the additionality test should be scrapped, at least for small-scale projects as it would disadvantage renewable energy and energy efficiency projects. Bode (2005b) has developed a proposal that would allow

to mobilize renewable energy projects through a tender that covers the difference between the revenues achieved through electricity as well as CER sales and the revenue needed to get the project financed.

The growing trend towards unilateral projects increases the incentive of developers to go for non-additional projects. While the economy of a host country as a whole does not benefit from the relabelling of business-as-usual projects, additional revenues may be raised through CERs or taxation of CERs accruing to host country entities. This is obviously the case in the context of unilateral projects where the whole CER revenue remains with the host country project developer. In the pure bilateral case where no CER revenue remains in the host country, non-additional projects are unattractive.

Project developers immediately react on signs from the EB on interpretation of additionality testing. When the first small-scale biomass power projects from India was registered in August 2005 despite serious doubts about its additionality, the inflow of small-scale biomass power projects from India increased – 56% of the total submissions of this project type were done after the registration of the first project.

2.7 Lack of certainty about post-2012 CERs

While CERs can accrue for 21 years, the future of the international climate regime after 2012 is uncertain. Thus market prices of post-2012 CERs are very low and few buyers willing to contract post-2012 vintages. This has a strong impact on projects with long gestation times and high capital costs such as hydropower. Figure 5 shows that projects starting after 2007 remain rare and no project submitted today would start after 2009. If the CDM wants to contribute in bending the emissions path of developing countries downwards, these long-term projects have to be encouraged.

2.8 Insufficient Annex I incentives for private investors

For many years, no Annex I government was giving incentives to private companies to buy CERs or invest in CDM projects. Substantial CER acquisitions were only done by governments or multilateral funds. This has changed recently with the EU Linking Directive that allows the use of CERs in the EU emissions trading scheme. However, the transposition of the Linking Directive into member state law is slow and creates new hurdles such as DNA approval fees, additional requirements for project developers and exclusion of certain project types. Governments continue to

play a key role on the CER acquisition side which impacts negatively on liquidity and transparency of the market.

3. Proposed solutions

3.1 Removal of the cut-off-date and shortening of pre-registration period

COP 11 should decide to remove the cut-off date for allowing pre-registration CER generation. Any project should be allowed to claim pre-registration CERs provided it is additional. The 8 week period between submission for registration and registration should be shortened to one month.

3.2 Concentration of capacity building in low income countries with high emissions

So far, donor-funded capacity building activities have focused on middle-income countries with high emissions. Two of these countries (India, China) are now churning out CDM projects in large numbers and ASEAN countries are likely to follow in the near future due to a large Danish programme (for a critical view of the latter see Hesselager 2005). On the other hand, low income countries have not received substantial amounts of capacity building. ODA use for middle-income countries should be discontinued as it clearly runs against the poverty reduction aims of development assistance (see Michaelowa and Michaelowa 2005). While acknowledging that CDM cannot solve the problems of LDCs, capacity building should be reoriented from middle income countries to low-income countries.

3.3 Reduction of transaction costs

3.3.1 Centralized database for baseline data

For many project developers, getting reliable data for baseline calculation (e.g. operating or build margin emissions factor for electricity grids) is a great challenge. In many host countries, these data are not readily available or have to be bought from government agencies. Baseline determination costs would be strongly reduced if the EB or an organization charged by the EB (e.g. IEA) would administer a database of official baseline data

3.3.2 Sectoral CDM

A "sectoral" approach to the CDM had already been suggested by Samaniego and Figueres (2002) and is becoming fashionable in the discussions about CDM reform. The fascination of this approach is possibly due to the fact that it allows many different definitions in terms of sector. Bosi and Ellis (2005) list three major options:

policy-based, intensity-based and cap-based sectoral CDM. Sterk and Wittneben (2005) add sectoral project clusters.

The latter option could be directly integrated into a cap-and-trade system instead of remaining a project-based mechanism. As experience from the setup of the EU emissions trading scheme shows, data needs are substantial and independent verification of emissions levels is important for the success of the scheme. Negotiation of the allocation of caps to the companies will be difficult and fraught with biases created by powerful interest groups.

An intensity-based system would not be a novelty as it actually exists in most approved baseline methodologies that are emission factors per unit of production. It would only alleviate transaction costs if the additionality test was scrapped and any project with an intensity below the baseline intensity would earn CERs. This would obviously have a serious impact on the environmental integrity of the CDM unless counterbalanced by a discount factor that would take into account the likely level of non-additional projects. Even if that discount factor would match the actual degree of non-additionality, the selection of projects would be biased against additional projects. Non-additional projects would apply for CDM registration regardless whether they get 100% or 50% of the CERs as long as the revenues cover CDM transaction costs.

The policy-based CDM is the most interesting proposal as there is already a baseline methodology submission that wants to credit introduction of an efficiency standard for domestic air conditioners in Ghana. So far, the EB did not show a willingness to decide this case. It would also be logical to credit supportive policies after the EB decision not to take them into account in baseline determination if introduced after the date of the Marrakech Accords. The main problem with a policy-based CDM is that the CER revenues flow to the government while the costs of complying with the policy fall on the private sector. Sterk and Wittneben (2005) discuss different cost and revenue sharing options.

Current EB practice concerning bundling of PDDs suggests that clustering of projects of one technology is already possible now if an intermediary organizes CDM project bundling covering a whole sector. The business model of AgCert which is bundling methane capture from pig farms could serve as the blueprint. A simplification would be that only the first project has to submit a full PDD and subsequent projects

can refer to that PDD for the technology description and application of the baseline methodology.

3.4 Higher adaptation levy for low-development benefit projects

While each host country is free to define what is sustainable development, there could be an increased EB adaptation levy for end-of pipe non-CO_2 reduction projects. This would avoid the problem of "race to the bottom" if measures are left to host countries.

3.5 Government-supported development of methodologies for energy efficiency and transport

As private sector developers are not willing to put a great effort in developing methodologies for project types where all methodologies have so far been rejected, a coalition of governments could support the development of such methodologies. A good example is the government of Japan supporting the development of energy efficiency methodologies for large-scale industrial and small-scale, appliance-based energy efficiency projects.

3.6 Consolidation of methodologies at early stages

It has been a surprising feature that often methodologies for one project type were submitted in clusters. This leads to a waste in scarce resources. Thus the EB could discuss with the DOEs for which project types such a cluster submission could be expected and then announce that after the first submission of such a methodology it would enter into discussions with possible submitters to develop a consolidated methodology from the outset. A less active variant would be to announce ex ante which project types are candidates for methodology consolidation.

3.7 Streamlined additionality determination

Additionality testing has to be streamlined by defining one-step criteria and simple barrier tests as far as possible. Investment tests have to take into account the risk premium projects in developing countries face. Projects with the following characteristics should be deemed additional:

a) Projects that are the "first of its kind" in a host country. For this determination, narrow technological project categories are to be used - e.g. rice-husk based power plant, super-critical coal plant, coke dry quenching.

The EB provides a list of technologies. The host country DNA states in its approval letter that the technology is first of its kind. DOEs check whether this is the case during validation.

b) Projects that have an internal rate of return below the lending rate of commercial banks for the maximum loan duration available for private debtors at the date of PDD submission. The accuracy of the information is checked by the validating DOE. Host country DNAs can provide lending rates, but DOEs also check whether this information is true. If commercial bank loans are not at all available (e.g. in case of LDCs), an IRR benchmark could be defined by the DNA and validated by a DOE.

c) Projects that have a payback period longer than the payback period commonly used as cutoff for projects in that economic sector in the host country. The cutoff payback period should be defined by an internationally accredited technical certification body; this statement is checked by the validating DOE. This alternative is more prone to gaming than b)

For all other projects the additionality test of the EB remains a sensible tool. However, steps 4 (common practice test) and 5 (proof of CER revenue overcoming barriers) could be deleted provided that the barrier test is operationalised sensibly:

a) Investment barriers

- Technology/process risks: Project developer provides statement by an internationally accredited technical certification body that the process /technology failure risk in the circumstances of the host country is above [x]%. x could be 33 or 50
- Funding availability: project developer provides letters from the three largest commercial banks in the host country and one international commercial bank that they are not willing to provide loans for the project despite its high IRR. DOEs check with these banks whether they actually refused the loan. (This however rewards badly managed project developers that do not have a credit rating).
- Corruption: project proponent can show that formal acceptance of the project under host country regulations will not be achieved without substantial payments compared to plausible alternatives

b) Technological barriers

- Non-availability of skilled labour: Project proponent provides proof that no education/training institution in the host country provides the needed skill AND that no expatriate workers with these qualifications are working anywhere in that host country

c) Barriers due to prevailing practice

- No project of this type is currently operational [has been successfully operating for at least 5 years] in the host country

Beyond the detailed testing of additionality, experiences from the OECD process to evaluate export credit agencies' allocation of export credit subsidisation could be used. In the context of this process, experience has been accumulated to evaluate which sectors / technologies are viable without subsidies.

3.8 Unilateral declaration of post-2012 CER validity

The EU envisages continuation of its emissions trading scheme regardless of the international post-2012 regime. Canada is starting to develop its own emissions trading scheme. It would be of huge benefit if these two countries declared that they would continue to allow CER imports into their schemes after 2012.

3.9 Crediting of CERs against domestic climate policy instruments

In principle, CERs can be credited against all domestic climate policy instruments that relate to emissions in a quantitative sense. This is immediately clear under an emissions trading scheme but would also be possible under a carbon tax, where an exemption could be granted for a quantity of CERs surrendered. All Annex I countries with quantitative instruments should accommodate CERs in that manner.

3.10 Use of post-2012 CERs for first commitment period compliance

Some Japanese researchers have proposed that post-2012 CERs could be used during the true-up period following the first commitment period. As it will take at least one year until the exact inventory levels for 2012 are known, CERs of 2013 could be used to ensure compliance for countries that face an unexpected shortfall. This would require a second "adjustment period" after the one currently in the compliance rules of the Kyoto Protocol.

4. Conclusions

Contrary to the perceptions of many, the CDM so far is a clear success as it has generated hundreds of project proposals that currently estimate more than 0.5 billion t emission reductions. The market incentive has led to the implementation of technologies that were unknown except to some specialists only three years ago. To further enhance this success, a number of options exists to reduce transaction costs and allow the integration of new project types under the CDM. The international community does not have to make substantial changes to the Marrakech Accords to implement these options. Moreover, several important options exist for Annex I countries to unilaterally increase attractiveness of the CDM. The CDM will however never be able to solve all development problems of the world nor to bring foreign direct investment to least developed countries.

5. References

Bode, Sven (2005a): Dirty certificates? Comments on the "Golden Standard" for CDM projects, in: Oil, Gas & Energy Law Intelligence, 3, 3

Bode, Sven (2005b): Tenders: an option for developing countries to support renewable energies under the CDM, in: Climate Policy, 5, 2, p. 221-228

Bosi, Martina; Ellis, Jane (2005): Exploring options for "sectoral crediting mechanisms", COM/ENV/EPOC/IEA/SLT(2005)1, OECD, Paris

Cosbey, Aaron; Parry, Jo-Ellen; Browne, Jodi; Babu Dinesh; Bhandari, Preety; Drexhage, John; Murphy, Deborah (2005): Realizing the development dividend: Making the CDM work for developing countries, Pre-publication version, IISD, Ottawa

Greiner, Sandra, Michaelowa, Axel (2003): Defining Investment Additionality for CDM projects - practical approaches, in: Energy Policy, 31, p. 1007-1015

Heister, Johannes (2005): Current Issues Facing the CDM, presentation at METI workshop, Tokyo, 22-23 March 2005

Hesselager, Øjvind (2005): For meget fokus på penge og for lidt miljø – Analyse af Danmarks JI og CDM projekter, mimeo, Copenhagen

IETA (2004): COP 10 – Three years after Marrakech. Lessons learned in the Clean Development Mechanism, mimeo, Geneva

Michaelowa, Axel; Buen, Jorund; Eik, Arne; Lokshall, Elisabeth (2005): The market potential of large-scale non-CO_2 CDM projects, submitted to Climate Policy

Michaelowa, Katharina; Michaelowa, Axel (2005): Climate or development: Is ODA diverted from its original purpose?, HWWI Research, Paper No. 2, Hamburg

Michaelowa, Axel, Stronzik, Marcus; Eckermann, Frauke; Hunt, Alistair (2003): Transaction costs of the Kyoto Mechanisms, in: Climate Policy, 3, 3, p. 261-278

Olsen, Karen (2005): The Clean Development Mechanism's contribution to Sustainable Development, mimeo, Copenhagen

Samaniego, Joseluis; Figueres, Christiana (2002): Evolving to a sector-based Clean Development Mechanism, in: Baumert, Kevin (ed.): Building on the Kyoto Protocol: Options for protecting the climate, Washington, p. 89-108

Schlup, Michael (2005): One goal is not enough, in: Carbon Finance, September, p. 14-15

Sterk, Wolfgang; Wittneben, Bettina (2005): Addressing opportunities and challenges of a sectoral approach to the Clean Development Mechanism, JIKO Policy Paper 1, Wuppertal

The **Hamburgisches WeltWirtschaftsInstitut (HWWI)** is an independent economic research institute, based on a non-profit public-private partnership, which was founded in 2005. The University of Hamburg and the Hamburg Chamber of Commerce are shareholders in the Institute .

The HWWI's main goals are to:

- Promote economic sciences in research and teaching;
- Conduct high-quality economic research;
- Transfer and disseminate economic knowledge to policy makers, stakeholders and the general public.

The HWWI carries out interdisciplinary research activities in the context of the following research programmes: Economic Trends and Hamburg, International Trade and Development, Migration Research and International Climate Policy.

Hamburg Institute of International Economics (HWWI)

Neuer Jungfernstieg 21 | 20354 Hamburg | Germany
Tel +49 (0)40 34 05 76 - 0 | Fax +49 (0)40 34 05 76 - 76
info@hwwi.org | www.hwwi.org