Empirical analysis of performance of CDM projects: rejections and withdrawals

Discussion paper CDM-4

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Abstract: Until mid-2007, 24 CDM projects had been rejected or withdrawn. India and Brazil have an above-average share in rejected projects. The organisation (uni- vs bilateral) and scale of project has no specific impact regarding rejections. Energy efficiency projects play a large role, particularly cement blending. Regarding cement blending, there is an inconsistency as a substantial number of such projects was registered before rejections started. All projects rejected due to additionality performed just a barrier analysis, which was deemed unconvincing by the CDM EB. Only a minority of rejected projects had an open stakeholder analysis.

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1. Introduction

Many EU governments and private companies are looking at the Clean Development Mechanism (CDM) to hedge their exposure under the EU Emissions Trading Scheme (EU ETS) as well as to close part of their Kyoto gaps. As National Allocation Plans for the EU ETS period 2008-2012 set rather lenient limits for use of Certified Emission Reductions (CERs) from CDM projects, the price of EU allowances in the 2008-2012 period strongly depends on the CER supply that will actually materialise.

Since 2005, the CDM has seen a considerable upswing in terms of projects submitted for validation. More than 1500 projects with a reduction volume of over 2.2 billion tonnes CO_2 eq. by 2012 have been submitted. The question remains how many of these CERs will actually materialise and at what time.

This project's general objective is thus to find out whether the CDM projects currently developed will really produce the expected CER volumes according to schedule, so that they can contribute to fill the European governments' Kyoto gaps and companies' obligations under the EU ETS. And further, to identify the key parameters influencing CDM project success.

This paper focuses on the analysis of the 20 rejected and 4 withdrawn CDM projects up to the end of June 2007, whose Project Design Documents (PDDs), validation reports, registration review forms and review reports have been evaluated in terms of their:

- host country
- unilateral vs bilateral character
- type of project developer
- project type
- scale of the project
- additionality argumentation
- intensity and type of stakeholder participation.

The first five criteria – host country, character, type of project developer, type of project and scale of project – have been assessed by analysing what proportion of the rejected / withdrawn projects meet a certain characteristic, and comparing this proportion to the respective one for projects already registered or submitted for validation. By means of this comparison, a first and general conclusion about which characteristics are involved in CDM project failure can be drawn.

The last two criteria – additionality argumentation and stakeholder participation – have been more profoundly assessed. For each project, the type of additionality argumentation has been identified, as well as the remarks from the members of the UNFCCC Executive Board about additionality, both in the registration review forms as in the review reports. In some cases, possible links between additionality argumentation, type of project and host country have been explored.

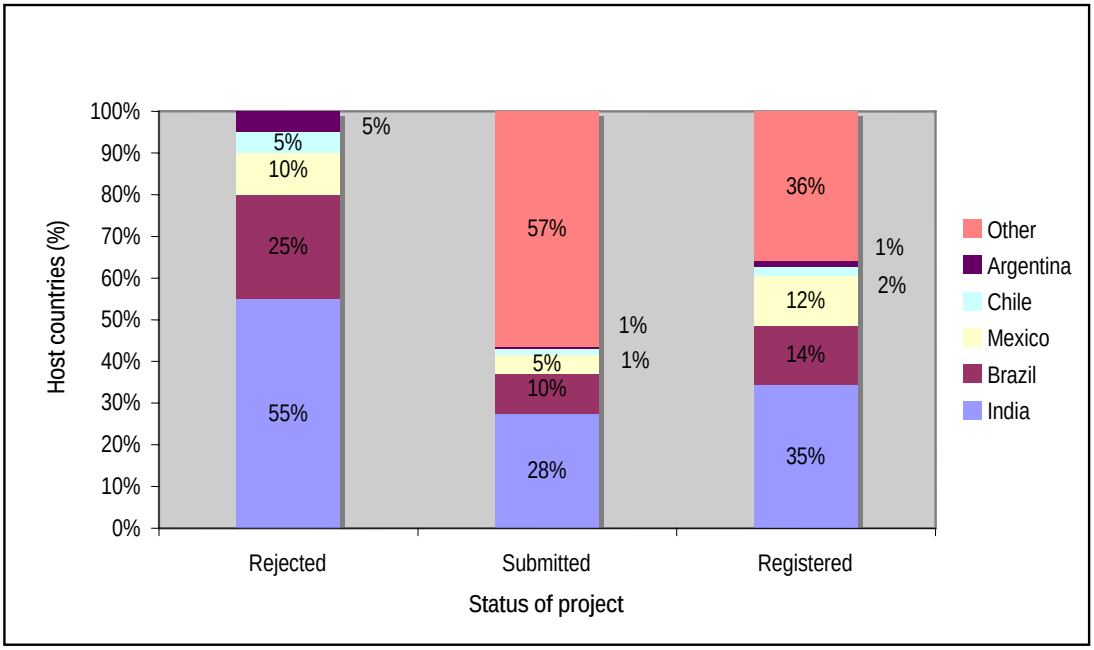
Stakeholder participation has been assessed in terms of communication media used, amount of stakeholders invited, amount of stakeholders participating, type of comments received and answers to comments. The sources for information for stakeholder participation assessment have been the PDDs and the validation reports.

A database with details on the above-mentioned criteria has been set up.

2. Host country

Out of the 20 rejected CDM projects, 11 (55%) were developed in India and 5 (25%) in Brazil. The other rejected projects took place in Mexico (2), Argentina and Chile (one each). The proportion of rejected projects in India and Brazil is very high, and therefore it could be argued that there might be some correlation between these host countries and rejection of CDM projects. However, these countries also have a very high share of all submitted and registered projects: 28% of submitted and 35% of registered CDM projects are in India, while 10% of submitted and 14% of registered projects are in Brazil (See Figure 1).

Figure 1: Host countries of rejected, submitted and registered projects



The 4 projects withdrawn from CDM registration up to June 2007 were developed in Peru, Malaysia, India and Brazil, respectively. There is thus no clear predominance of a specific host country among the withdrawn projects. However, counting together both the rejected and withdrawn projects, India and Brazil are still over-represented: India hosts 50% of all "failed"[1] (rejected or withdrawn) projects, while Brazil hosts 25% of them.

Further analysis of the projects in India and Brazil shows that in both cases a high share of the rejected projects belongs to the "cement blending" type, and that all these projects were rejected due to insufficient or inadequate demonstration of additionality. Indeed, there seem to be difficulties for demonstrating additionality in cement blending projects in India and Brazil. These two criteria - project type and additionality argumentation - will be analysed in more detail further below.

1 In the following paragraphs, any mention of "failed" projects refers to the group of all 24 rejected and the withdrawn projects.

3. Unilateral or bilateral character

65% of all rejected projects have a unilateral character, this is, they have been presented by the host country without participation of any Annex 1 country. This share of unilateral projects is higher than the one among all projects submitted (52%) or the one among the registered projects (55%). However, as all (100%) withdrawn countries have a bilateral character (were presented by two countries, a host and an Annex 1 country), the overall proportion of unilateral projects among those failed is 54%, which is not outside the normal proportion. Thus, no conclusion can be drawn whether the unilateral or bilateral character of a project has any impact on its failure.

4. Type of project developer

85% of all rejected and 75% of all withdrawn projects were developed by a multi-project developer, this is, a consultancy firm working with different types of CDM projects. The remaining 15% of rejected projects and 25% of withdrawn projects were developed in-house by the project proponents themselves. In comparison, out of a sample of the registered projects, only 57% were developed by multi-project consultants, while 26% were developed by technology-specific consultants and 17% by the project proponents. It might be possible, therefore, that technology-specific consultants have more success than multi-project ones in getting their CDM projects registered.

5. Project type

The majority (65%) of rejected projects belongs to the “energy efficiency” category, while this category only holds 17% of submitted and 14% of registered projects. This could be an indication of correlation between project category and rejection. Looking into the specific project type, we find that 30% of rejected projects are cement blending ones, which represent only 1% of submitted and 2% of registered projects.

It is interesting to note at this stage that the rejected cement blending projects were proposed in India (4 out of 6) and Brazil (the remaining 2). All of them were rejected due to insufficient demonstration of additionality. However, out of the 14 cement blending projects already registered at the EB, 13 (93%) are taking place in India, too. It remains to be studied why additionality argumentation in these 13 projects was found more convincing than in the 4 rejected ones.

Within the energy efficiency category, there are also 5 industry projects (25% of all rejected), which are overrepresented as compared to the submitted (14%) and the registered (11%) industry projects. Likewise, 10% of rejected projects are for electricity generation, which compares to only 2% of submitted projects and 0% of registered ones. This is also a hint that industry and electricity generation are project types more likely to being rejected than others.

Other project types are not so significantly represented among the rejected projects. “Renewable electricity for the grid” is the general category with second highest share: 25% of rejected projects belong to it. However, 50% of submitted and 50% of registered projects belong to this category, hinting that it is reasonable to have so many rejected projects in that category.

With respect to the withdrawn projects, all of them belong to the renewable electricity for grid category, and the biomass sub-type. Out of them, three (75%) involve using bagasse for electricity production, and one involves using biomass waste from the palm oil industry. However, as three of these projects were requested a review but the reasons given for it are different in each case, it can be assumed that these projects were withdrawn due to different causes, despite this similarity in project type.

6. Scale of the project

60% of rejected projects are large-scale, which is a proportion slightly larger that the one existing for submitted projects (56%) and for registered ones (53%). Among the withdrawn projects, however, only one (25%) is large-scale. Therefore, no conclusion can be drawn whether the scale of a project has any impact on its failure.

7. Additionality

70% of rejected and 75% of withdrawn projects identified alternatives to the project activity. 95% of rejected and 100% of withdrawn projects performed a barrier analysis, while in only 20% of rejected and 50% of withdrawn projects an investment analysis was carried out. The type of barrier most commonly mentioned was technological or technical (75% for rejected and 75% for withdrawn projects), followed by investment or financial barriers (55% and 100%, respectively), prevailing practice (50% in both rejected and withdrawn projects) and market barriers (40% of rejected projects). Other barriers mentioned were regulatory risks, climatic uncertainty or resource availability, managerial, and logistics and infrastructure. Although many projects indicate the presence of financial or investment barriers, most of them do not present a proper investment analysis, few present a comparison of the IRR without detailing the input data, and many present just a qualitative description of the financial barrier.

An important characteristic of the barrier analysis in all of these projects is that not enough third-party evidences or references are used to demonstrate the barriers presented: 10 projects (half of all rejected ones) provide no independent sources of information at all in the additionality argumentation in the PDDs; 35% of rejected projects provide few independent sources of information, most of them not enough to substantiate the barriers; and only 15% of rejected projects make a real effort to substantiate their additionality argumentation with independent evidence.

Another problem found in the barrier analysis is the actual nature of the barriers being discussed. In some cases, the barriers do not apply to the CDM project itself, but to the industry sector where it has been applied. In others, the issues presented as barriers are normal characteristics of all investment projects, even without CDM – e.g. going to a tender and bid process to win an electricity concession, or having to invest in new equipment (without explaining why it is especially difficult to find the financing for the investment, or why the returns for the investment are not sufficient to make it financially feasible). The EB members observed in 2 projects that there was lacking information on cost savings due to the CDM project, and thus that the investment barriers could not be accepted. They also required an investment analysis for 3 other projects, due to similar considerations.

In many cases also, it is not clearly shown how the CDM will help to overcome these barriers: 6 projects (30% of all rejected ones) did not explain in the PDD how the CDM will help to

overcome the barriers; 8 (40%) explained it in some detail, but just qualitatively; only the remaining 30% give a quantitative account of how CDM revenues will be used. Withdrawn projects perform better in this sense: 50% of them gave a quantitative explanation of impact of CDM registration, 25% gave a qualitative explanation and 25% gave no explanation.

It is remarkable that 65% of rejected projects were rejected due – at least in part – to additionality. The specific reasons given by the Executive Board for rejecting these projects were:

- Barrier analysis not sufficiently convincing or demonstrated (13 out of 13 projects)
- Lack of financial analysis (3 projects)
- Common practice analysis not sufficiently demonstrated (2 projects)
- Serious consideration of CDM from the beginning of project planning not sufficiently demonstrated (2 projects).

As can be seen, all of the projects rejected due to additionality have problems with the barrier analysis, and some have other additional deficiencies. On the contrary, none of the projects where an investment analysis was carried out was rejected due to additionality.

Further analysis shows that 69% of projects rejected due to additionality took place in India, and 15% each in Brazil and Mexico. Also, as said before, 46% of them belong to the cement blending type, 23% to industry type, and 15% each to wind and hydro generation. There are also differences between large and small projects: while 75% of large projects were rejected due to additionality (all those which did not perform an investment analysis), only 50% of small ones were, even though only 12.5% of small projects performed an investment analysis.

With respect to the withdrawn projects, only one of them had observations with respect to additionality demonstration from the EB members, project that had performed only a barrier analysis.

From this analysis, summarised in Table 1, we can infer that projects with PDDs with only a barrier analysis for additionality demonstration could have a higher risk of being rejected than projects with investment analysis, especially in the case of large projects. However, it remains to be studied what share of registered projects have a barrier analysis, in order to draw a definitive conclusion.

Table 1: Summary of analysis of additionality argumentation in rejected and withdrawn projects

Characteristic of additionality argumentation	Rejected projects	Withdrawn projects
Identified alternatives	14 (70%)	3 (75%)
Investment analysis	4 (20%)	2 (50%)
Barrier analysis	19 (95%)	4 (100%)
Types of barriers		
- Investment barriers	11 (75%)	4 (100%)
- Technological barriers	15 (75%)	3 (75%)
- Prevailing practice barriers	10 (50%)	2 (50%)
- Market related barriers	8 (40%)	0
- Other barriers	9 (45%)	2 (50%)
Common practice analysis		
- Detailed	10 (50%)	2 (50%)
- Not enough	1 (5%)	1 (25%)
- Not detailed	9 (45%)	1 (25%)
Impact of CDM registration		
- Detailed (quantitative)	6 (30%)	2 (50%)
- Detailed (qualitative)	8 (40%)	1 (25%)
- Not detailed	6 (30%)	1 (25%)
Independent sources cited		
- None	10 (50%)	1 (25%)
- Few / not enough	7 (35%)	2 (50%)
- Enough	3 (15%)	1 (25%)

8. Stakeholder participation

In 95% of all rejected projects and 75% of withdrawn projects the relevant stakeholders were identified in the PDDs. However, stakeholder identification was not uniform in the projects: some of them identified just "categories" of stakeholders (e.g. government officials, local population, consultants, equipment suppliers, clients), others identified specific organisations, and others identified persons within organisations.

Also, the amount of stakeholders identified and invited to participate differed greatly: of all failed projects, the majority (71%) identified between 5 and 9 categories of stakeholders, but some identified less than 5 categories (8%), some more than 10 (12.5%) and some did not identify the stakeholders (8%).

Similarly, the number of stakeholders answering the invitation – either attending a stakeholder meeting, writing letters, or posting comments on the projects' webpages – varied significantly or was not given at all: 67% of failed projects did not mention in the PDDs how many stakeholders had answered the invitation (although many offered to disclose this information to the validator), 8% had below 20 answers, 17% had between 20 and 50 answers and 8% had over 50.

With respect to the communication media used for stakeholder consultation, two stages were differentiated: the communication media used for inviting stakeholders to make comments, and the media used during the consultation process itself. The communication media used for inviting stakeholders were again very varied: letters, newspaper adverts, invitations in the notice board of the local village, invitations in the projects' webpages, public broadcasts. 54% of the projects used communication media that were directed to specific stakeholders, such as letters or emails. These projects did not announce the stakeholder consultation process publicly. 25% used both invitations to specific stakeholders and open media, 8.3% used just open media and 12.5% of projects did not describe in the PDD the communication media they used. An important share of the failed projects used various communication media at the same time (33%).

Most of the projects organised meetings for presenting themselves and asking for comments (50%), many expected written comments (29%), others expected comments to be posted on their webpages (17%), and others used other media (questionnaires, forums, seminars, workshops, consultation integrated in the EIA process, interviews). An important share of the failed projects used various forms of consultation at the same time (25%).

50% of failed projects received positive comments from the stakeholders, 21% did not receive positive comments and 29% did not report about receiving or not receiving positive comments. 37.5% of failed projects received negative comments or questions from stakeholders, and they were all answered in the PDDs.

It is interesting to note that one of the rejected projects included social and environmental indicators in the CDM monitoring plan, thus indicating a commitment with sustainable development that went further than was required for CDM registration.

In order to be able to draw conclusions about the impact of the stakeholder consultation process for CDM project success, registered projects need to be also analysed and a comparison between registered and failed projects performed.

9. Conclusions

India and Brazil host most of the rejected CDM projects, being overrepresented as compared to their share of submitted and registered projects. There is no predominance of a host country among the withdrawn projects. No conclusion can be drawn whether unilateral or bilateral projects are more prone to fail. Technology-specific consultants have more success than multi-project developers in getting CDM projects registered.

Energy efficiency projects are overrepresented among rejected projects, especially cement blending projects, but also industry and electricity generation ones. Rejected cement blending projects took place in India and Brazil, and were rejected due to insufficient demonstration of additionality. However, there are 13 cement blending projects registered in India (out of a total of 14), which arises doubts about the uniformity of the evaluation of additionality in these projects by the validation team and the CDM Executive Board.

All withdrawn projects belong to the renewable electricity for grid category and biomass sub-type. As the reasons for withdrawal differed, it cannot be concluded that project type was one of the drivers of their failure.

No conclusion can be drawn whether project scale has any impact on its failure.

Additionality is the main cause of project rejection. All projects rejected due to additionality performed just a barrier analysis, and were criticized by the Executive Board due to unconvincing barriers, among other deficiencies. Although many projects indicate the presence of financial or investment barriers, most of them do not present a proper investment analysis, probably because the investment barriers are not strong enough. Most rejected projects are lacking or provide insufficient independent sources of information for substantiating additionality. Projects providing only a barrier analysis for additionality demonstration could have a higher risk of being rejected than projects presenting an investment analysis.

Stakeholder consultation is performed in many different ways, and many projects give insufficient information about the process. Thus, in order to be able to draw conclusions about the impact of the stakeholder consultation process for CDM project success, it needs to be compared between rejected and registered projects. One interesting characteristic, though, is the media used for inviting stakeholders to participate: only 33% of failed projects used open media, while 54% used invitations to specific stakeholders and 12.5% did not disclose which media they used.

References

Project Design Documents, Validation Reports, Registration Review Forms and Review Reports of following rejected projects:

1. Grid-connected electricity generation from renewable sources at Supa, Taluka Parner
2. Grid-connected electricity generation from renewable sources at Satara by M/s Bajaj Auto Ltd.
3. Lazaro Energy Efficiency Project
4. ElDorado Energy Efficiency Project
5. Radhanagari Hydro Electric Project
6. Cosipar Renewable Electricity Generation Project
7. "Agua del Cajón" Thermal Power Plant-Open to Combined Cycle Conversion
8. Aços Villares Natural gas fuel switch project
9. 6.6 MW Seshadadri Iyer Mini Hydel Power project of Atria Hydel Power Limited at Malavalli Taluk, Mandya District, Karnataka
10. Increasing the Additive Blend in cement production by Jaiprakash Associates Ltd (JAL)
11. Ramirana Emission Reduction Project of Agrícola Super Limitada
12. Uruba Renewable Irrigation Project
13. Power generation from proposed 11.2 MW waste heat recovery boiler at the ISA smelt furnace, of the copper smelter, Sterlite Industries India Limited (SIIL), Tuticorin
14. Blended Cement Project with Fly Ash – Lafarge India Private Limited
15. Use of blast furnace slag in the production of blended cement at Votorantim Cimentos
16. Production of Blended Cement with Blast Furnace Slag at Cimento Mizu
17. Optimum utilisation of clinker for Pozzolana Portland Cement (PPC) production at Birla Plus Cement in Bathinda, Punjab, India.
18. Energy efficiency and fuel switching measures in the caustic soda and sodium cyanide plant at Vadodara complex of GACL
19. GHG Emission Reduction by Energy Efficiency Improvement of Clinker Cooler in Cement Manufacturing at Rajashree Cement, India
20. ACEL Blended cement project at Sankrail grinding unit.

Project Design Documents, Validation Reports and Registration Review Forms of following withdrawn projects:

1. Paramonga CDM Bagasse Boiler Project
2. Kunak Bio Energy Project
3. 16 MW Bagasse based cogeneration plant by GMR Industries Ltd. (GIDL)
4. Guaxuma Renewable Irrigation Project.