



Issues related to implementing “programmatic CDM”

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Jane Ellis¹, Organisation for Economic Co-operation and Development

OECD/IEA Project for the
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and do not necessarily represent views of the OECD, the IEA, or their member countries, or the
endorsement of any approach described herein.*

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Executive Summary

Emissions of CO₂ from the energy and land-use change and forestry sectors are responsible for the majority of emissions in non-Annex I Parties to the UNFCCC. Tackling greenhouse gas (GHG) emissions from these sectors is a key to slowing the growth in GHG emissions in non-Annex I countries. The Clean Development Mechanism (CDM) is one means to accelerate sustainable development and reduce GHG emission growth in these countries. There is widespread agreement among countries about the need to improve the effectiveness of the CDM to achieve these objectives.

Toward this end, the COP/MOP1 by its decision on “further guidance relating to the clean development mechanism”² issued guidance to improve the operation of the CDM. This guidance includes provisions:

1. To allow “bundling” of project activities; and
2. To render “project activities under a programmes of activities” eligible for the CDM.

These project types could involve more than one project type, be implemented in several locations, and/or occur in more than one sector. This paper examines the precedents set by the 20+ already-registered CDM project activities that have these characteristics, and explores the key issues that may need to be considered if “programmatic CDM” is to be further implemented at a larger scale.

1. Define key concepts

“Programme” is a widely-used word to describe activities that can vary substantially in terms of who is involved in a programme, what is targeted by the programme, where the programme is implemented, and when it occurs. Defining what is meant by “project activities under a programme of activities” would thus be useful, as would indicating whether/to what extent this overlaps with “bundled” CDM projects. The use of the terms “bundle” and “programme” by CDM project developers indicates that there is currently no consistent use of each term.

2. Assess if rules governing regular CDM and “programmatic CDM” should be different in places

Since programmatic/bundled CDM project activities have some aspects that are different from CDM projects developed at single sites, some of the requirements for single-site CDM projects may need to be modified for programmatic/bundled activities. These include minor issues such as whether the crediting period for all individual project activities within a programme/bundle have the same start and end date, how feasible it is to require an accurate *ex ante* calculation of expected emission reductions, and at what stage in the process of project registration the exact locations of the underlying project activities need to be identified.

Guidance on more major issues such as additionality and baselines may also need to be re-assessed, depending on what the EB decides that “programme of activities” encompasses. For example, if programmatic CDM activities could include activities that implemented a mandatory policy or standard, how could it also be shown that these activities were additional?

3. Identify and resolve conflicting guidance

The Marrakech Accords indicate that the baseline for a CDM project activity “shall be established... taking into account relevant national and/or sectoral policies”. In order to address concerns about the perverse incentives that this may have set up, the CDM EB subsequently indicated that “national and/or

² Decision -/CMP.1 (the official number for the decision is forthcoming).

sectoral policies or regulations ... that have been implemented since ... 11 November 2001 need not be taken into account” when establishing the baseline. Thus, EB guidance indicates that recent regulations and other policies can be included or excluded from a project activity’s baseline.

However, it may be methodologically challenging to disentangle the effect of one policy from others – particularly in sectors where several policies that impact the GHG performance of the sector may co-exist. This would make it difficult to verify that emission reductions are “real” and “measurable”, as required by the Kyoto Protocol.

1. Introduction

Mandate:

At its last meeting, the AIXG requested the Secretariat to prepare a paper for March 2006, taking into consideration the outcomes of COP11/MOP1 on possible options for improving the effectiveness of CDM. This paper is drafted to fulfil this request.

The CDM is a dual-purpose mechanism, aiming to assist non-Annex I Parties to achieve sustainable development, and to assist Annex I parties to comply with their emission commitments. The first set of guidelines outlining how the CDM would function was agreed at COP7 in 2001, and further “modalities and procedures” were developed and/or approved in 2002, 2003 and 2004³. The current CDM portfolio expects to generate more than a billion credits to 2012. The first CDM project was registered in November 2004, and the first credits from a CDM project issued in October 2005.

There has thus been significant progress in implementing the CDM. This is demonstrated by the number of CDM projects being developed and registered, as well as by the advances being made by the national and international institutions that govern the CDM. This progress has been described in previous papers (see e.g. Ellis and Levina 2005, Ellis and Gagnon-Lebrun 2004). However, a number of authors have called attention to the need to accelerate the process of approving CDM methodologies and projects (e.g. IETA 2005, Michaelowa 2005). This led to a decision at COP/MOP1 on “further guidance to the CDM”. The decision includes the following key phrase: “a local/regional/national policy or standard cannot be considered as a clean development mechanism project activity, but ... project activities under a programme of activities can be registered as a single clean development mechanism project activity....”.

Given the above mandate to take into consideration the outcomes of COP11/MOP1, this paper assesses how a “programmatic CDM” approach could help to increase the effectiveness of the CDM, and explores the key issues that may need to be considered if this concept is to be further implemented.

³ These include guidance agreed at COP8 on small-scale CDM emission reduction projects (decision 21/CP.8), at COP9 on re/afforestation projects (decision 19/CP.9), and at COP10 on small-scale re/afforestation projects (decision 14/CP.10).

2. Increasing the effectiveness of the CDM

Developing a CDM project and a methodology to calculate its emissions benefits is a process that includes many different stages and involves both public and private sector actors. The different interests and perspectives of these actors causes each to view an effective CDM differently. For example, some might define an effective CDM as a mechanism that promotes investment in and deployment of widely-applicable environmentally-friendly technology and know-how. Others might define an effective CDM as one that generates large volumes of low-cost emissions credits via a simple procedure where risks and transaction costs are low.

Given the many possible ways of interpreting effectiveness, this paper uses the term broadly, i.e., to include economic and environmental effectiveness. Examples of issues that may influence the effectiveness of the CDM are presented in Table 1.

However, there are some aspects of a market mechanism that are difficult to directly influence by any COP/MOP1 decision. This includes modifying the geographical location of proposed projects (although a decision to e.g. set up training or capacity building programmes in particular countries could help encourage potential project proponents develop projects). Further, unless a COP/MOP1 decision directly prohibits or limits the importance of certain project types, it can also not directly influence the sectoral split of proposed projects. Nevertheless, a COP/MOP1 decision (and subsequent EB clarification and/or guidance) can help to reduce some of the barriers to projects in particular sectors, or of particular types, that are currently under-represented in the CDM portfolio.

In particular, there is significant un-tapped potential for CDM projects in high-emitting sectors such as energy use and transport. Developing methodologies to assess the emission benefits of proposed projects in these sectors has so far proved challenging⁴. The lack (for transport) or scarcity (for energy-efficiency) of approved methodologies limits the importance of these project types in the CDM portfolio. The provisions in the COP/MOP1 decision to allow “bundling” of large-scale projects, and to allow “project activities under a programme of activities” to be eligible could help increase the attractiveness of CDM projects that involve reducing CO₂ emissions from several dispersed/small emissions sources by reducing their CDM-related transaction costs. The potential impact of programmatic CDM, and the decisions needed in order to implement it, will be examined in more detail in the following section.

⁴ To date, the methodologies submitted to the EB to calculate emission reductions from the transport sector have either not been approved, or sent back to the project proponents for revision. Some energy-efficiency methodologies have been approved, including a relatively widely-applicable one on waste heat recovery (UNFCCC 2005e). However, the applicability of other energy efficiency methodologies are much narrower (e.g. UNFCCC 2004). Thus, many potential energy efficiency projects do not yet have an approved methodology that they can use.

Table 1: Issues that may influence the effectiveness of the CDM

| Issue | In COP/MOP1 decision? | Comment |
|---|-----------------------|---|
| Post-2012 continuity of CDM | Yes (to some extent) | The “further guidance” decision on CDM indicates that “there is a need to ensure the continuity of the CDM”. Other decisions taken at COP11 and COP/MOP1 provide a signal that various countries could adopt emission commitments post-2012. This could help encourage the development of projects that have a long lead-time and/or long life times. However, the long-term viability of the CDM will also be determined by the stringency of targets in the post 2012 period. |
| Encourage greater sectoral spread in CDM | Yes (indirectly) | The “further guidance” decision indicates that large-scale CDM projects can be bundled, and that programmatic CDM activities are also eligible. Extending eligibility to “programmatic CDM” could reduce the barriers currently faced by some CDM project types, e.g. in energy efficiency and transport. It could thus encourage a greater amount of GHG mitigation, and thus credits, in these important sectors. |
| Reduce transaction costs | Yes (indirectly) | Allowing “project activities under a programme of activities” and bundled large-scale CDM projects to generate CDM credits should help to reduce transaction costs. |
| Reduce time/risks of methodology approval | Yes (to some extent) | The COP/MOP1 decision requests the UNFCCC Secretariat to (among other tasks) prepare draft recommendations for the EB’s panels. This could lead to: <ul style="list-style-type: none"> - increased consistency of decisions taken across different methodologies (which could in turn reduce the need for revisions of already-approved methodologies). - a quicker methodology approval process (particularly for consolidated methodologies with a wide applicability). |
| Reduce the time/risks of project approval | No | The “further guidance” decision did not address this directly. It should be noted that both the EB and the DNAs influence the time to approve projects. The COP/MOP1 has no jurisdiction over DNAs. However, at its 22 nd meeting the EB established a team to consider requests for registration of proposed CDM projects and to propose revised procedures for the review of projects (UNFCCC 2005a and b). |

3. Implementing “programmatic CDM”

Following debate at COP/MOP1, it was decided that although “a local/regional/national policy or standard cannot be considered as a clean development mechanism project activity... project activities under a programme of activities can be registered as a single clean development mechanism project activity...”. No definition of “project activities under a programme of activities” was provided.

This section outlines experience with “programmes” and project bundles under the CDM, and highlights issues that should be resolved before “programmatic CDM” is implemented.

3.1 First step: assess precedents set by already-registered CDM projects

The number of registered CDM projects has grown rapidly, and by 7th March 2006 stood at 135. Most of these project activities focus on one greenhouse gas mitigation measure at one site, e.g. construction of a hydropower station, or installing equipment to decompose high-GWP waste gases in a particular factory. However, 25 of these registered CDM project activities are in fact “bundled” groups of similar project types, and/or projects that have been implemented under some sort of “programme of activities”. Twelve of these projects are small-scale CDM project activities in different sectors (for which “bundling” provisions had previously been developed⁵). Thirteen are large-scale project activities reducing emissions from manure management⁶. Some of these large-scale projects were registered well before the COP/MOP1 decision allowing bundling of large-scale project activities had been agreed.

Some of the registered CDM projects that are bundled and/or that are part of a larger GHG-mitigation programme are briefly outlined in Table 2, below. These project activities include those that:

- Are implemented in several locations (e.g. up to several thousand different buildings, and/or more than hundreds of kilometres apart, and/or in several provinces/states within a country); and
- Mitigate GHG emissions in one or more sectors; and/or
- Include more than one project type (e.g. demand-side and supply-side energy efficiency measures).

Other, CDM-related, aspects of these project activities vary widely. In particular:

- These project activities do not necessarily have one, unique crediting period. For example, the CDM hydro project in Nepal indicates that the crediting period varies with each part of the “bundle” (i.e. in this case one project has two, overlapping, crediting periods);
- The project participants (those who get the credits from the CDM project activity) are sometimes those who also implement and run the equipment installed by the project activity – and sometimes not;
- The provisions for monitoring project emissions and calculating emission reductions varies widely. While many project activities indicate that all systems installed will be monitored, others indicate that only a sub-set (e.g. a “random sample” for the Bagepalli project, or 30/2309 households for the Kuyasa project) will be monitored.

⁵ See decision 21/CP.8

⁶ The first large-scale CDM projects to be registered that include a bundle of projects were the methane capture from swine manure management projects in Chile (e.g. Corneche and Los Guindos, registered in September 2005). A similar project in Mexico (MX05-B-02) was also registered before the bundling provision for large-scale projects had been agreed by the COP/MOP1.

Given that the CDM works in a bottom-up, precedent-setting manner, the fact that these projects are already registered indicates that project bundling was already a reality for large-scale CDM projects – even before the COP/MOP1 decision allowing this had been agreed. It also implies *de facto* approval of at least some potential “programmatic” CDM activities, both for small and large-scale CDM project activities. For example, a registered large-scale project reducing emissions from swine manure operations in Brazil indicates that emission-reducing activities are done under a voluntary, private-sector programme. Other registered CDM project activities also have “programmatic” elements. These include the small-scale Kuyasa housing project in South Africa, where the PDD lists the unique project participant as the local government (in this case, the city of Cape Town). The “biogas support program” project in Nepal also has programmatic elements – indeed, the CDM project corresponds to part of the national government’s biogas programme.

Issues for clarification/further work:

It will be important for the EB to examine registered CDM projects and projects submitted for registration that include several sub-activities. Clarifications would be useful on the following issues:

- Is there a need for generic (“top-down”) guidance, and if so on which issues?
- Can all methods previously applied to single projects be eligible to be applied to a bundle of projects, or to a programme of activities?
- Are there issues (e.g. leakage) in a baseline methodology that were not considered significant when calculating emission reductions from individual projects, but that would need to be examined if applied to a bundle of projects, or to a programme of activities?
- Which, if any, of the simplified modalities and procedures allowed for bundling small-scale CDM project activities are not considered appropriate for larger-scale CDM projects.

Table 2: Characteristics of selected registered CDM projects

| Project name, location ⁷ | Small-scale? | Project participants (PP) | Implementer of GHG-mitigation activity | Crediting period | Spread of project activity | |
|---|--------------|---|--|------------------|---|---|
| | | | | | Geographically | Sectors |
| Solar Cooker project, Indonesia | Yes | Private companies (AI and NAI party), regional government | Households, small industry. | Single | 1000 households in a group of islands in one province, a city in another. | Mixed: households, fishing industry. One: provision of solar cookers |
| Animal waste management, México | No | Private company (NAI) | Same as project participants | Single | Several towns in 1 Mexican state (>200km apart) | One sector: agriculture One: installing anaerobic biodigesters |
| Kuyasa housing upgrade, S. Africa | Yes | Local government (NAI) | Households | Single | >2300 households in low-income housing developments spread over 100 ha | One: households Three: insulation, efficient lighting, installing solar water heaters |
| Moldova rural biomass, Moldova | Yes | IBRD (trustee for CDCF), local public authorities | Some public buildings within these public authorities. | Single | 120 buildings spread over entire country (9 provinces, >400km). | Two sectors: heat production, energy efficiency Several: installing efficient boilers, improved energy efficiency (supply and demand-side) |
| Biogas support program, Nepal | Yes | Government body, 2 households, CDCF | Households | Single | 57 (out of 75) districts in Nepal, spread over the entire country | One: households owning cattle One: selling biogas digesters |
| Small hydro in Alupola, Baludu, Sri Lanka | Yes | Private company (NAD), INCAF | One of project participants | Varies | Two sites. | One: hydro One: electricity generation |
| Bagepalli biogas programme, India | Yes | Two non-government organisations | Households | Single | 5500 households in one district | One: households owning cattle One: biogas digesters to produce biogas for cooking and water heating |

⁷ Information on all registered CDM projects (including the PDD and validation report) is available at <http://cdm.unfccc.int/Projects/registered.html>

3.2 Second step: define a “programme of activities”

No definition of “project activities under a programme of activities” was provided at COP/MOP1. However, if a definition was agreed “up-front”, e.g. by the CDM EB, it could help project developers avoid the time and expense associated with developing a project activity and methodology for a non-eligible project type. It could also reduce delays between a methodology’s submission and approval by the EB, and reduce the resources spent assessing the technical aspects of a methodology that is subsequently determined to be non-eligible by the EB⁸. Agreeing to an up-front definition could therefore increase the efficiency of the CDM. Some definitions have already been suggested (e.g. Figueres 2005).

At present, “programme” is a widely-used word to describe a wide variety of GHG measures, including CDM project activities. “Programme” encompasses wide differences in:

- **Who** is involved in a programme, e.g. one or several companies and/or governments and/or other organisations;
- **What** is targeted by the programme, e.g. one or more goals (such as climate change and local pollution), one or more gases, one or more sectors;
- **Where** the programme is implemented, e.g. at the site-specific, local, national level – or across several countries;
- **When** activities occur, e.g. whether the programme is open-ended or not.

Some, already-registered, CDM project activities describe themselves as a “programme” (e.g. as outlined in Table 2). However, these types of “programmes” vary widely. For example, some are led by the public-sector (i.e. national or local government). This includes the Kuyasa housing upgrade project in South Africa, which is financed by the national and provincial government, as well as – to a lesser extent – by the local community and other institutions (REEEP/SSN 2005). Some are financed and managed by the private sector (e.g. the AgCert projects to reduce methane emissions from manure management in different sites in Brazil and Mexico⁹). Other projects are initiated and run by a mixture of organisations, including non-governmental ones, e.g. the Bagepalli biogas programme in India. Some of these programmes are designed to fulfil a government policy, whereas others are voluntary.

⁸ To date, the EB has often reacted on a project-type by project-type basis to proposed methodologies, rather than to propose top-down guidance. This means that in order to determine whether or not a certain project type is eligible, a project needs to be developed and a project design document and new baseline/monitoring methodology written for assessment by the CDM EB and its Meth Panel. Developing these documents can take a significant amount of time and money, which can be wasted if the project type is subsequently judged as ineligible. For example, the methodology which sparked the debate about the eligibility of policies in the CDM (established for a project to develop and implement a mandatory energy efficiency standard for air conditioners in Ghana, NM0072) was submitted to the CDM EB in November 2004 and reviewed by experts and the Meth Panel in April 2005. However, at least part of the associated project activity (i.e. “to develop... a mandatory energy efficiency standard”) was rendered ineligible for the CDM by the COP/MOP1 decision in December 2005.

⁹ An example of a project in Brazil is the one at Faxinal dos Guedes and Toledo (<http://cdm.unfccc.int/UserManagement/FileStorage/PU1CLC4791W8HMEWGYPL2NK1HIBDMD>) or in Sonora, México (<http://cdm.unfccc.int/UserManagement/FileStorage/Z26Q88L8CN18YD2SZ6C5O63RRQ4O4R>)

Other types of “programmes of activities” that are not present in already-registered CDM projects could also be envisaged. These could include project activities:

- That are very large-scale (e.g. to reduce emissions of HFC23, N₂O or other waste gases in industry¹⁰);
- Where the “programme of activities” implements a mandatory standard or policy;
- That are implemented across more than one country¹¹;
- That involve “soft” actions such as labelling the energy efficiency of a product/system;
- That were implemented after 2000, but as part of a programme/policy which was initiated beforehand – or even before the Kyoto Protocol.

Different definitions could have very different implications for the number of credits generated by “programmatic” CDM. In particular, agreeing a definition that encompasses all sectors, and activities that implement mandatory standards, would render many more activities eligible than a definition that included just a few sectors implementing voluntary programmes.

For example, the only large-scale programmatic-type CDM projects that are registered focus on emission reductions from manure management systems. These projects (of which there are many¹², particularly in Mexico and Brazil) typically expect emission reductions of between 20-200 kt CO₂ eq/year. The “further guidance” decision on programmatic CDM did not limit eligibility to particular sectors. Using this provision for sectors other than manure management could greatly increase the level of credit generation. For example, almost 3 billion credits could be generated in 2030 by the energy-sector alone if policies currently under consideration by governments were implemented and were eligible for credits (Baron and Ellis 2006 draft). Potential emission reductions in other sectors can also be significant, e.g. the potential from increased cement blending is estimated to range between 110-370 Mt CO₂-eq, and several different energy efficiency processes in iron and steel manufacture could lead to emission reductions of similar magnitude (IPCC 2001). Potential CDM projects have been proposed in both sectors – normally as individual project activities, but sometimes as a bundle¹³.

Different definitions could also have significant procedural/organisational implications. For example, if a “programme of activities” that involves implementing a mandatory standard and/or that involves “soft” actions such as labelling can generate CDM credits, accounting for these credits will need to be done in such a way as to avoid double-counting. This could occur if those installing/selling equipment that complies with this standard, and those buying/using the equipment both claim credits. (The issue of double-counting is also important for some CDM methodologies developed for single-site and/or non-bundled project activities).

Programmatic CDM could also be looked at as a form of “bundling”. “Bundling” several similar proposed CDM project activities into one PDD will help reduce transaction costs associated with PDD development

¹⁰ However, to date, such projects have been registered as single projects.

¹¹ At present, companies that have implemented similar CDM projects of in different countries (e.g. the AgCert methane reduction from manure management projects) have registered them as separate project activities.

¹² To date, 14 of these projects are registered (13 large-scale, 1 small-scale), and several more under validation.

¹³ For example, the Birla blended cement project in India is for two cement works in the same Indian state. This was opened for public comments as part of the validation process in November 2005, but has not yet been put forward to the CDM EB for registration.

and project registration. This option was already available to small-scale CDM project activities, up to a threshold¹⁴. The COP/MOP1 decision on “further guidance...” extends this possibility to larger-scale projects (no upper size limit is given). Since there is a significant potential overlap between bundling and programmatic CDM, it would be useful if the EB clarified when each was applicable.

Issues for clarification:

The COP/MOP1 decision rendering “project activities under a programme of activities” eligible under the CDM is unclear, and potentially overlaps with the provision on project bundling. Clarification is needed, in particular on:

- The definition of “bundling” and “programme of activities”; and whether they are mutually exclusive. (If not, then any rules/guidelines developed for these types of CDM project activities should be consistent with one another);
- Who can be a project participant in “programmatic CDM” activities (e.g. public and/or private sector?);
- What type of programme types are eligible (mandatory and/or voluntary?, involving “hard” and/or “soft” technologies etc.);
- Whether a “programme” can be implemented in more than one country;
- Whether those implementing the project (i.e. using the GHG-mitigation measure) should be the “project participants” – and if not, how double counting can be avoided.

3.3 Third step: confirm (or not) that all CDM rules apply to “programmatic” CDM

Since the CDM includes “programmatic CDM”, provisions applying to the CDM in the Kyoto Protocol and Marrakech Accords (MA) will presumably also apply to programmatic CDM. These will presumably include the Kyoto Protocol requirements on additionality, and that credits generated represent “real, long-term and measurable” emissions reductions. It will also include guidance in the MA on project boundaries and leakage.

However, since programmatic CDM has aspects that are different from CDM projects that are developed at single sites, the existing guidance for CDM projects may need to be modified in some areas. These could include:

1. Crediting period – should all projects within a programme have the same crediting period?
2. *Ex ante* identification of project activity location – how feasible/possible would this be for a programme that involved many hundreds or more of sites?
3. *Ex ante* calculation of expected emission reductions – how feasible/possible is this for a programme where the number of actions and their timing may not be known up-front?
4. Additionality, baselines, double-counting, leakage and boundaries– how can these be assessed for programmatic activities?

These issues are discussed in more detail below.

¹⁴ 15MW for renewable energy systems, 15 GWh for energy efficiency projects, other projects where emissions are less than 15 ktons CO₂-eq/y.

3.3.1 Crediting period

The CDM glossary defines “crediting period” as “the period for which reductions from the baseline are verified...” (UNFCCC 2003b, emphasis added). Most currently-registered projects apply this definition strictly, using one time period only – even for projects where there are multiple emission-reduction activities in multiple sites. However, as outlined above, at least one registered CDM project includes provision for two overlapping crediting periods within one project activity¹⁵.

In some “programmatic” CDM projects, different project activities may be located in several different sites and implemented at different times. For example, a programme to install energy-efficient systems may install these systems over a period of several months. In these cases, it may be appropriate to allow one “project activity” to have several overlapping crediting periods – e.g. corresponding to when each system was installed. Different crediting periods within a particular programme of activities should be for a single length of time (e.g. 7 or 10y). However, they could start at different dates, corresponding to the implementation time of each individual project activity.

3.3.2 Identifying project location

The CDM project design document requires project participants to provide information about the location of the project activity in order to allow the “unique identification of this project activity”. In order to do this, PDDs often include detailed maps of the country/region, or give the co-ordinates of the project activity, or its address. This is true for projects that are located at a single site, as well as for most project activities that are located in multiple sites. For example, the project activity that involves installing 5000 biodigesters in households across 57 of Nepal’s 75 districts involves taking records of the names and exact locations of the households using these biodigesters¹⁶.

However, not all registered project activities provide information on the exact locations of the individual GHG mitigation activities. This is the case for the Moldova rural biomass project that involves 120 sub-activities of fuel switching, installing high-efficiency biomass boilers, improving the energy efficiency of heat transmission and installing household energy efficiency measures. The PDD for this project indicates that it is “relatively difficult to determine all the project activities with exact location”¹⁷.

Being able to identify which activities generate emission reductions is important in order to monitor (and verify) emission reductions, and to ensure that there is no “double-counting” of emissions reductions. However, a “programme of activities” may involve many hundreds or even thousands of sub-activities. It may be difficult to accurately identify the locations of these sub-activities before they have been implemented. Further, implementing a multi-site programme of activities can be a time-consuming process. There can also be a significant time lag between drafting the PDD for a project, and the project being registered.

It may therefore be appropriate to allow “programmatic CDM” (and bundled) project activities some flexibility in when they need to provide exact identification for each sub-activity. For example, for programmatic CDM activities, such information could be required when the project is submitted for registration (rather than when a proposed project activity is under validation, or when it accompanies a new methodology submission).

¹⁵ See <http://cdm.unfccc.int/Projects/SGS-UKL1125675302.74/view.html> for project documentation.

¹⁶ See section A4 of the project design document, <http://cdm.unfccc.int/UserManagement/FileStorage/A4NYD8EXQY928HD61LHWHEIM82MBIN>

¹⁷ See section A3 of the project design document, <http://cdm.unfccc.int/UserManagement/FileStorage/QR PUB84Q94GBDV55M00C7C74JEB6JQ>

3.3.3 *Ex ante calculation of expected emission reductions*

The Marrakech Accords require calculations of the project activity’s emissions, baseline emissions, leakage and emission reductions to be included in the project design document. Further guidance on how to complete the CDM-PDD indicates that these calculations are to be provided for each year in the crediting period for the project activity (UNFCCC 2005c). Thus, the CDM-PDD needs to include an *ex ante* estimation of the emission reductions for a project activity. An estimate of how many credits a project activity expects to generate is useful – both for the potential buyer and seller of CERs.

Developing accurate *ex ante* calculations of the amount and timing of emission reductions from programme activities may be challenging, particularly if the number of project activities within a programme are not known up-front. However, any CERs issued are done so on the basis of an *ex post* calculation. There can sometimes be significant differences between the *ex post* and *ex ante* calculations. For example, a CDM project activity reducing HFC23 emissions in India (the “SRF” project in Gujarat) indicated in its PDD that it expected to reduce emissions by 5.75 Mt CO₂-eq between 1 July 2004 and 30 December 2005, corresponding to 5.75 million CERs over this time period¹⁸. Nevertheless, only 32% of these expected CERs (approximately 1.8 million credits) were issued for these 18 months.

At the international (i.e. EB) level, there are no sanctions for large differences in *ex post* and *ex ante* calculations of emissions benefits from CDM projects¹⁹. Given this, and the potential difficulty of developing accurate *ex ante* calculations for programmatic CDM, and the significant variations already noted between the *ex post* and *ex ante* calculations of emission reductions from project activities, it may be worthwhile allowing programmatic-CDM project activities an exception to the Marrakech Accords requirement that they develop *ex ante* emission reduction estimates. Alternatively, if this requirement is kept, the uncertainty associated with an *ex ante* estimate of emission reductions from programmatic CDM activities may need to be highlighted (at least to potential CER buyers).

3.3.4 *Additionality, baselines, double-counting, leakage and boundaries*

“Further guidance” provided by the COP/MOP1 on the CDM indicates that programmatic CDM activities are eligible “provided that approved baseline and monitoring methodologies are used that ... define the appropriate boundary, avoid double counting and account for leakage, ensuring that the emission reductions are ... additional to any that would occur in the absence of the project activity”. This means that methodologies for such activities will need to be submitted to and approved by the EB before they can be used.

Programmatic CDM activities could apply in several sectors (e.g. transport, agriculture, stationary energy use), and could aim to reduce different GHG from various sources. Thus, in order to estimate the emission reductions from different types of programmes, different methodologies will be needed²⁰. It is therefore difficult to generalise about the requirements related to additionality, baselines, double-counting, leakage and boundaries, as these could vary substantially between different programme types.

There is very limited experience in assessing additionality, baselines, double-counting, leakage and boundaries for large-scale programmatic-type CDM projects, although relevant work is being undertaken in some fora (e.g. Sathaye 2005, JEMA 2005). This is because most of the registered CDM projects that

¹⁸ The PDD for this project is available at <http://cdm.unfccc.int/UserManagement/FileStorage/C71S3SONXMHFZ9VBQSJ0NOXOE0DRHA>.

¹⁹ However, depending on the contract between the CER buyer and seller, there may be penalties if the CER seller does not deliver as many CERs as originally expected.

²⁰ This does not mean that a methodology developed for programmatic CDM activities could only be used for one particular programme, as programmes could be replicated within a country, as well as in different countries.

describe themselves as implementing some sort of programme are small-scale (SSC) projects, and consequently use one or more of the simplified methods approved at COP8 to assess additionality, baselines, leakage and boundaries. These SSC methods are often considerably simpler than methods for larger-scale CDM projects, particularly for assessing additionality, determining leakage and monitoring project emissions. Whether it is also appropriate to simplify methodologies for large-scale programmatic CDM activities has not yet been assessed, as the one registered large-scale project activity that indicates it is a programme uses a baseline and monitoring methodology developed for a single site, and applies it to all sites in its programme.

Issues for clarification/further work:

Guidance for CDM projects may need to be modified slightly for CDM project activities that involve several sub-activities on several different sites. In particular, clarification is needed on:

- Whether the crediting period should have a single start/end date, or whether these dates can vary with each underlying activity;
- Whether the requirement to provide information allowing the “unique identification” of a project activity’s location applies to each underlying activity, and if so, from which point in the project approval cycle;
- Whether *ex ante* calculations of expected emission reductions are required for programmatic CDM project activities (as these calculations may be highly uncertain);
- How factors such as additionality, baselines, leakage, boundaries and avoidance of double-counting can be assessed for large-scale programmatic-type CDM project activities.

3.4 Fourth step: identify and resolve conflicting guidance

The Marrakech Accords indicate that a project activity is additional if “anthropogenic emissions of greenhouse gases are reduced below those that would have occurred in the absence of the registered CDM project activity”. The Accords also indicate that a baseline for a CDM project activity “shall be established ...taking into account relevant national and/or sectoral policies”. This latter provision led to concern that the Marrakech Accords created perverse incentives, i.e. incentives to discourage potential CDM host countries from introducing GHG-friendly policies. This is because putting such policies in place could diminish the opportunities for CDM projects in these countries.

In order to address this concern, the EB established guidance on how to take into account national policies when calculating a CDM project’s baseline. The most recent guidance is from the 22nd meeting of the EB (UNFCCC 2005d). The guidance states that “as a general principle, national and/or sectoral policies are to be taken into account on the establishment of a baseline scenario”, but that “national and/or sectoral policies or regulations ... that have been implemented since ... 11 November 2001 need not be taken into account... i.e. the baseline scenario could refer to a hypothetical situation without the national and/or sectoral policies being in place”.

Thus, EB guidance allows for recent regulations and other policies to be included or excluded from a project activity’s baseline. This guidance could have an important impact on potential CDM project activities, including those initiated under a “programme of activities”. However, this EB guidance contradicts the Kyoto Protocol requirement for credits to only be generated by CDM project activities that are additional. As the World Bank (2004) notes, “logically, it is indeed difficult to argue that activities mandated by law would be additional, as this would be defying the very nature of legislations.”.

Further, implementing such guidance could involve significant methodological challenges. For example, “disentangling” the effect of one policy on emissions trends in a sector where several policies impact GHG

emissions levels is unlikely to be straightforward²¹. It would therefore also be difficult to verify the baseline level in such a case. It will thus be difficult to verify that emission reductions from such a project are “real” and “measurable”.

Ultimately, a political decision is needed to determine where the balance should lie between reducing the risk of perverse incentives (to not establish GHG-friendly policies) and reducing the risk of significant levels of free riders (by rendering all activities implemented under a mandatory standard/regulation as eligible to generate credits under the CDM). Developing generic guidance on whether or not to take national/sectoral policies into account when calculating a project’s emission baseline is difficult – as effects may be different in different countries and sectors.

Issues for clarification/further work:

Recent EB guidance on how to account for the effect of national policies is relatively open, could potentially conflict with the requirement that emission credits are only generated by project activities that are “additional”, and may also be difficult to implement. Further guidance on how such guidance should be implemented, e.g. in sectors where programmatic CDM activities could occur, would help to resolve such conflict.

²¹ Electricity generation and use is likely to be an example of such a sector. Several different policy types could be used to encourage reduced emissions (or reduced growth in emissions) in this sector, including targets for renewable electricity generation, subsidies for renewable electricity systems, a guaranteed market for renewable electricity generated by autoproducers.

4. Conclusions

There has been significant progress in implementing the CDM. This is demonstrated in the fast-growing “pipeline” of CDM projects, and the increasing number of registered CDM projects (135 by 7 March 2006). Several national and international institutions needed to supervise the CDM or to approve proposed CDM projects have also been put in place.

The COP/MOP1 decision on “further guidance” to the CDM has made some significant changes to how the CDM might work. This includes changes that reduce the transaction costs associated with developing a CDM project. These changes lay the groundwork for a CDM that is more effective at encouraging projects that reduce GHG from many different sources, and/or from project activities that include more than one project type. The COP/MOP1 decision on “further guidance” does this in two ways:

1. Indicating that “project activities under a programme of activities” are eligible for the CDM; and
2. Indicating that large-scale CDM project activities can be “bundled”.

“Project activities under a programme of activities” (also described as “programmatic CDM”) and “bundled” CDM projects differ from the majority of CDM projects currently proposed or registered. The majority of CDM projects focus on reducing GHG emissions from one project (and therefore one project type), at one site and in one sector. However, bundled CDM projects or programmatic CDM activities could include those implemented:

- In several locations;
- In more than one sector, and
- That involve more than one project type.

There are 25 registered CDM projects that are GHG mitigation activities in multiple sites and/or sectors. Some of these CDM project activities describe themselves as a “bundle”, and sometimes as a “programme”.

This suggests that there may be no clear-cut distinction between “programmatic” and “bundled” CDM. Further, “programme” is also used in different contexts to describe activities that can vary widely in terms of:

- Who is involved (e.g. private/public sector entities, governments, a UN body);
- What is targeted (e.g. which gases/sectors, whether climate change only or other goals);
- Where the programme is implemented (e.g. site-specific, local, national or multinational level); and
- When activities occur (e.g. whether the programme is open-ended or not).

The COP/MOP1 decision did not contain a definition of “project activities under a programme of activities”. Developing such a definition would be useful – and could help project developers avoid spending resources developing a “programme of activities” that may subsequently be deemed to be ineligible. Given the potential overlap between programmatic CDM and bundled CDM project activities, it would also be helpful if any guidance on these two issues was compatible.

Guidance on major issues such as additionality and baselines may need to be re-assessed, depending on what the EB decides that “programme of activities” encompasses. For example, if programmatic CDM activities could include activities that implemented a mandatory policy or standard, how could it also be shown that these activities were additional?

Also, since programmatic/bundled CDM project activities have some aspects that are different from CDM projects developed at single sites, it is worth assessing whether some of the requirements for single-site CDM projects should be modified for programmatic/bundled activities.

In addition, the current guidance by the CDM EB on how to take national policies into account when calculating a CDM project’s baseline may need to be re-assessed (both for programmatic and single-site CDM project activities). The current guidance indicates that “national and/or sectoral policies or regulations ... that have been implemented since ... 11 November 2001 need not be taken into account” when establishing the baseline. Thus, EB guidance indicates that recent regulations and other policies can be included or excluded from a project activity’s baseline. Excluding the effect of recent regulations reduces the perverse incentive to not set up climate-friendly policies in CDM host countries. However, it could also lead to substantial levels of free riders, and thus non-additional credits. Further, it may be methodologically challenging to disentangle the effect of one policy from others – particularly in sectors where several policies that impact the GHG performance of the sector may co-exist. This would make it difficult to verify emission reductions.

Finally, guidance may be needed on whether the precedents set by registered small-scale project activities that have a programmatic CDM component can be “scaled up” to large-scale project activities. These precedents include registering projects whose sub-activities have overlapping crediting periods (rather than a single crediting period), projects where the project activity is to sell (not use) a GHG-friendly system, and projects where only a small proportion of total installations are monitored (e.g. the Kuyasa project, which monitors 30/2309 households).

This paper has identified several issues, above, where further clarifications would help the timely implementation of a “programmatic CDM”. To further the development of the CDM, possible future work by the AIXG could include:

1. Developing options for a definition of “project activities under a programme of activities”, providing examples of potential programmes and assessing the potential level of credit generation for each option.
2. In conjunction with sector-specific experts, developing ideas for baseline methodologies, additionality and/or monitoring for a specific type of programme activities. (This could be done e.g. as a paper, or as an expert meeting).
3. Assessing the impact of changes to the governance of the CDM that were made at COP/MOP.
4. Identifying barriers to developing CDM projects in under-represented countries and/or identify other barriers at the national or institutional level that inhibit the timely registration of proposed CDM project activities.

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Glossary

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| AIXG | Annex I Expert Group on the UNFCCC |
| CDM | Clean Development Mechanism |
| CER | Certified Emission Reductions. This is the name given to credits generated by CDM projects. 1 CER = 1 t CO ₂ -eq |
| CO ₂ | Carbon dioxide |
| COP | Conference of the Parties (to the UN Framework Convention on Climate Change) |
| DNA | Designated National Authority. |
| EB | The Clean Development Mechanism’s Executive Board. |
| GHG | Greenhouse gases. |
| HCFC22 | (Also known as R-22). A refrigerant. |
| HFC23 | Powerful greenhouse gas with a global warming potential of 11,700 produced as a by-product in HCFC22 manufacture. |
| IBRD | International Bank for Reconstruction and Development |
| INCAF | International Finance Corporation-Netherlands Carbon Facility |
| MA | Marrakech Accords, adopted at COP7 in 2001. |
| MOP | Meeting of the Parties (to the Kyoto Protocol) |
| N ₂ O | Nitrous oxide |
| PDD | Project design document: this is the form describing the characteristics of a proposed CDM project. |
| SSC | Small-scale CDM |
| UNFCCC | UN Framework Convention on Climate Change |