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**ISSUES RELATED TO A PROGRAMME OF ACTIVITIES UNDER THE CDM**

**Jane Ellis, OECD**

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## FOREWORD

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### Questions and comments should be sent to:

Jane Ellis  
Global and Structural Policies Division  
Organisation for Economic Co-operation and Development  
2, rue André-Pascal  
75775 Paris Cedex 16  
France  
Fax : +33 (0)1 45 24 78 76  
Email : jane.ellis@oecd.org

OECD and IEA information papers for the Annex I Expert Group on the UNFCCC can be downloaded from: <http://www.oecd.org/env/cc/>

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## Executive Summary

Emissions of CO<sub>2</sub> 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. Implementing Clean Development Mechanism (CDM) projects can help achieve this aim, while also assisting non-Annex I countries to move towards sustainable development and Annex I countries achieve their emission commitments under the Kyoto Protocol. There has been rapid progress in the CDM over the last year – in terms of the number of projects in the pipeline and registered, and in terms of credits issued. However, some important sectors are notable by their small share in the CDM portfolio. Several countries have also called attention to the need to accelerate the process of approving CDM methodologies and projects.

In order to improve the effectiveness of the CDM to achieve its dual objectives, the COP/MOP1 agreed a decision on “further guidance relating to the clean development mechanism”. This decision (4/CMP.1) lays out guidance on how to improve the operation of the CDM, and includes provisions that allow:

1. “Bundling” of project activities; and
2. “Project activities under a programmes of activities” to be registered as a CDM project activity.

At present, of the 172 currently-registered CDM project activities, 27 involve “programmes” or “bundles”. These project activities can include more than one project type, be implemented in several locations, and/or occur in more than one sector.

This paper assesses how “project activities under a programme of activities” under the CDM (referred to here as PCDM) could help to increase the effectiveness of the CDM by encouraging a wide spread of emission mitigation activities. This paper also explores the key issues that may need to be considered for the PCDM concept to be further implemented.

The paper concludes that:

1. Key concepts and issues need to be defined and clarified (such as what is meant by a “programme of activities” in the CDM context? How is it different from “bundles” of CDM projects? Does guidance on bundling also apply to PCDM? Is a programme of activities that is designed to implement a local/national/regional policy or standard eligible under the CDM?).
2. Guidance specific to PCDM may need to be established for some issues. For example, since the EB is examining new approaches to demonstrate additionality prior to COP/MOP2, it may wish to assess whether any future guidance on additionality should distinguish between PCDM and other CDM project activities. Other issues may also warrant guidance (or methodologies) specific to PCDM, such as crediting periods, determining baselines, *ex ante* definition (or not) of unique project locations.

## 1. Introduction

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 2004<sup>1</sup>. The current CDM portfolio expects to generate more than 1.3 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. By May 2, 2006, 172 CDM projects had been registered and more than 4.6 million certified emission reductions (CERs) issued.

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, several countries have called attention to the need to accelerate the process of approving CDM methodologies and projects and/or have indicated concern about the relatively low share of energy efficiency and small-scale renewables in the CDM portfolio (summary of interventions at e.g. COP/MOP1 are available at ENB 2005). Many authors have also voiced these concerns, e.g. IETA 2005, Michaelowa 2005, IISD 2005). Both types of concerns led to a decision at COP/MOP1 (decision 4/CMP.1) 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....” Thus, “project activities under a programme of activities” are part of the CDM.

This paper assesses how “project activities under a programme of activities” under the CDM (henceforth referred to as “PCDM”) could help to increase the effectiveness of the CDM by encouraging a wide spread of emission mitigation activities. It also explores the key issues that may need to be considered for the PCDM concept to be further implemented.

## 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 cause 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, operational and environmental effectiveness of the CDM. Examples of issues that may influence the operational effectiveness of the CDM are presented in Table 1<sup>2</sup>.

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

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<sup>1</sup> 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).

<sup>2</sup> Decision 4/CMP.1 also included institutional aspects, such as governance of the CDM and funding for work on the CDM. Although these also have an effect on the effectiveness of the CDM, this paper focuses on operational issues that may influence the effectiveness of the CDM and so institutional issues are not covered further.

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 (combined with 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 challenging<sup>3</sup>, time-consuming and resource-intensive<sup>4</sup>. The current lack (for transport) or relative scarcity (for energy-efficiency) of approved methodologies limits the importance of these project types in the CDM portfolio. The provisions in decision 4/CMP.1 to allow “bundling” of large-scale projects, and to allow “project activities under a programme of activities” (PCDM) to be eligible could help increase the attractiveness of CDM projects that involve reducing CO<sub>2</sub> emissions from several dispersed/small emissions sources by reducing their CDM-related transaction costs. The potential impact of PCDM, and further clarifications/guidance that would facilitate its implementation, will be examined in more detail in the following section.

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<sup>3</sup> 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. However, the 20<sup>th</sup> Meth Panel meeting recommended one transport-related methodology for approval (production and use of gasohol), and is continuing work on another (for bus rapid transport systems) “with a view to prepare a recommendation for possible approval” at the 21<sup>st</sup> Meth Panel meeting (UNFCCC 2005g). Approval of such methodologies by the EB may therefore occur within its next couple of meetings (EB24 and EB25). 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.

<sup>4</sup> For example, although a recent assessment has found that methodology-related transaction costs are decreasing in general, costs associated with developing methodologies for bus rapid transport systems were very high, at \$1-2m (Figueres 2006). These high costs are partly due to the fact that the EB has requested several rounds of revisions to this particular methodology (NM105-rev, previously NM0105, NM0052).

**Table 1: Operational issues that may influence the effectiveness of the CDM**

Issue	In COP/MOP1 decision?	Comment
Post-2012 continuity of CDM	Yes (to some extent)	Decision 4/CMP.1 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)	Decision 4/CMP.1 indicates that large-scale CDM projects can be bundled, and that “project activities under a programme of activities” are also eligible. Eligibility of PCDM-type project activities 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)	Decision 4/CMP.1 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"> <li>- increased consistency of decisions taken across different methodologies (which could in turn reduce the need for revisions of already-approved methodologies).</li> <li>- a quicker methodology approval process (particularly for consolidated methodologies with a wide applicability).</li> </ul>
Reduce the time/risks of project approval	No	Decision 4/CMP.1 did not address this directly. It should be noted that both the EB and the designated national authorities (DNAs) influence the time to approve projects. The COP/MOP1 has no jurisdiction over DNAs. However, at its 22 <sup>nd</sup> 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 CDM involving “project activities under a programme of activities” (PCDM)

Following debate at COP/MOP1, decision 4/CMP.1 indicated 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 CDM projects that occur at multiple sites, and highlights issues whose clarification would facilitate the implementation of decision 4/CMP.1.

#### 3.1 Examine precedents set by already-registered CDM projects

The number of registered CDM projects has grown extremely rapidly, and by 2 May 2006 stood at 172 (compared to 39 by the end of November 2005). 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, 27 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”. Thirteen of these projects are small-scale CDM project activities in different sectors (for which “bundling” provisions had previously been developed<sup>5</sup>). Fourteen are large-scale project activities reducing emissions from manure management<sup>6</sup>. Some of these large-scale projects were registered well before decision 4/CMP.1 that allows bundling of large-scale project activities had been agreed.

This section outlines experience with CDM project activities that occur at multiple sites (either as bundles or programmes), and outlines the similarities and differences between them, and between single-site CDM projects.

##### 3.1.1 What is bundling and how does it overlap with “programme of activities”?

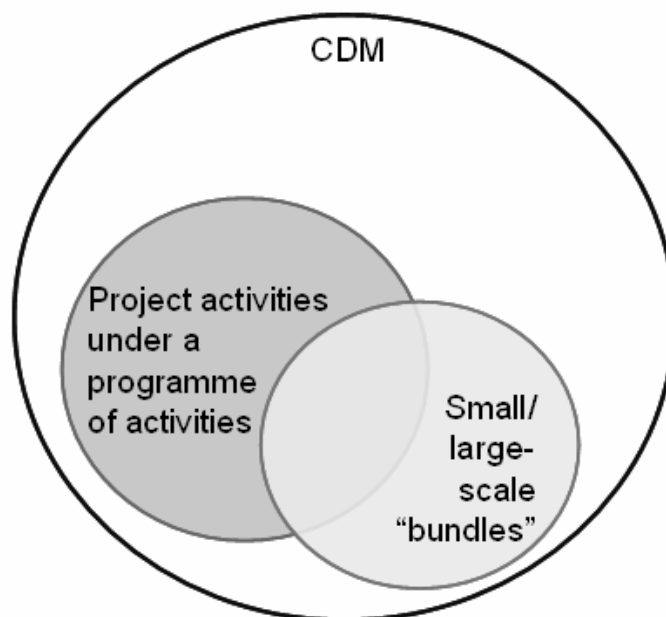
The concept of “bundling” CDM projects was agreed at COP8 (2002) for small-scale projects, following recommendations from the EB that bundling would enable transaction costs for small-scale projects to be reduced (UNFCCC 2002). Bundling was subsequently defined by the EB (2005f) as a “bringing together of several small-scale project activities, to form a single CDM project activity or portfolio without the loss of distinctive characteristics of each project activity”. Decision 4/CMP.1 explicitly recognised that bundles can also be used for large-scale CDM project activities.

The wording of decision 4/CMP.1 indicating that “... a programme of activities can be registered as a single clean development mechanism project activity” also implies that PCDM may involve a bringing-together of several activities. There is thus a potential overlap between “bundles” and “programmes” of project activities. This overlap is illustrated in Figure 1.

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<sup>5</sup> See decision 21/CP.8

<sup>6</sup> 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.

**Figure 1: Potential overlap between PCDM and bundles**

For example, a CDM project activity that involves many similar activities (such as installing biogas digesters, or PV kits) could in theory either be presented as a “bundle” or as a “programme”. Indeed, whether it is presented as one or the other may depend more on how the project activity is organised (i.e. who is undertaking the project activity, why, how it is co-ordinated and developed as a CDM project activity) than on what type of project activity the bundle or programme encompasses.

Since there is significant potential overlap between CDM “bundles” and “programme of activities”, it is important that either all procedures for CDM projects involving bundles and programmes are the same, or that there are clear rules on when a collection of project activities constitutes a bundle, and when it constitutes a programme.

### **3.1.2 Characteristics of some already-registered CDM projects**

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. many thousands of 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 fund and/or initiate and/or implement and/or 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 a sample of 30 out of 2309 households for the Kuyasa project) will be monitored.

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 decision 4/CMP.1 allowing this had been agreed. It also implies *de facto* approval of at least some potential CDM activities that involve a “programme of 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 can also be seen as part of a “programme”. For example, the PDD of the small-scale Kuyasa housing project in South Africa lists the unique project participant as the local government (in this case, the city of Cape Town) and indicates that the project is funded by South African public funds only. The “biogas support program” project in Nepal also classes itself as a programme – reflecting that 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?
- Given the potential overlap between programmes and bundles, should guidance on these types of CDM project activities be the same, or should there be clear rules as to when a collection of activities constitutes a bundle and when it constitutes a programme.
- 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 <sup>7</sup>	Small-scale?	Project participants (PP)	Implementer of GHG-mitigation activity	Credit-ing period	Spread of project activity		
					Geographically	Sectors	Project type(s)
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)
PV kits, Morocco	Yes	Public entity (national elec. office)	Households	Single	>100,000 PV systems in rural areas over entire country	One: rural households	One: provision of PV systems
Biogas support programme, 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
Hydro in Alupola, Baludu, Sri Lanka	Yes	Private company (NAI), 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

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

### 3.2 Define a “programme of activities”

Although decision 4/CMP.1 indicated that “project activities under a programme of activities” were eligible for the CDM, no definition of what this means was provided. 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<sup>8</sup>, and reduce the resources spent assessing the technical aspects of a methodology that is subsequently determined to be non-eligible by the EB<sup>9</sup>. 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 commonly-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). An example is 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 Mexico<sup>10</sup>). 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, for example, the Biogas Support Program in Nepal is described in its PDD as “the second sub-activity of the umbrella biogas program[me] ...[which] is the fourth phase of the Nepali government’s biogas program[me] at the national level”. However, other programmes are voluntary. For

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<sup>8</sup> A few methodologies have been approved within 3-4 months of submission (e.g. AM0001, AM0005). However, the average time between a methodology’s submission and approval has been approximately 220 days for methodologies submitted since March 2005 (UNEP 2006).

<sup>9</sup> To date, the EB has often reacted on a bottom-up 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 and associated methodology needs to be developed and approved. Such development can take a significant amount of time and money, which could 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. However, decision 4/CMP.1 indicates that a national standard cannot be considered as a CDM project activity and so renders part of the associated project activity (i.e. “to develop... a mandatory energy efficiency standard”) ineligible. A revised version was resubmitted in March 2006.

<sup>10</sup> 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/Z26Q88L8CN18YD2SZ6C5O63RRQ4Q4R>)

example, the swine manure management project at Faxinal dos Guedes and Toledo in Brazil indicates that this project is a result of a “voluntary program” by a large food producer<sup>11</sup>.

Thus, in the context of the CDM, it will also be important to define whether “programmes of activities” could include project activities:

- Where the “programme of activities” implements a mandatory standard or policy (or other measure initiated by a local/regional/national government);
- That are implemented across more than one country<sup>12</sup>;
- That involve “soft” actions such as labelling the energy-efficiency of a product/system, increased awareness of energy-efficiency information, providing training/capacity building<sup>13</sup>;
- That were implemented after 2000, but as part of a programme that was initiated beforehand – or even before the Kyoto Protocol<sup>14</sup>.

Different definitions could have very different implications for the potential number of credits generated by “programme of activities”<sup>15</sup>. In particular, agreeing on 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. The wording of decision 4/CMP.1 is ambiguous in this regard. It indicates that a policy or standard cannot be considered as a CDM project activity but that a programme of activities can. However, it does not indicate whether a programme of activities that has been initiated as a result of a policy or standard is eligible for the CDM or not.

Some have interpreted decision 4/CMP.1 as meaning that a programme of activities aiming to implement a policy, regulation or standard is eligible for the CDM (e.g. Figueres and Haites 2006). The revision and resubmission of a methodology associated with a proposed CDM project whose PDD indicates that it involves “implementing [a] ... project linked to a mandatory energy efficiency standard for air conditioners in Ghana”<sup>16</sup> thus also assumes that although *setting/adopting* a national standard is not eligible to generate CDM credits, *implementing* a standard is. (The original project indicated that it was “to develop and implement a mandatory energy efficiency standard”). However, decision 4/CMP.1 does not distinguish between setting and implementing policies and standards, but just indicates that they “cannot be considered as a clean development mechanism project activity”. This COP/MOP decision text could therefore also be interpreted as meaning that neither setting nor implementing a policy or standard is eligible for the CDM. The EB may need to provide further guidance on this issue. .

<sup>11</sup> See <http://cdm.unfccc.int/UserManagement/FileStorage/PU1CLC4791W8HMEWGYPL2NK1HIBDMD> for the PDD.

<sup>12</sup> 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.

<sup>13</sup> These actions are all included as part of a proposed CDM project (Implementation of an Efficiency Testing, Consumer Labelling and Quality-Assurance Program for Air Conditioners in Ghana – documentation source outlined in footnote 17).

<sup>14</sup> Given that 4/CMP.1 distinguishes between policies and programmes, it is not certain whether the EB22 guidance relating to national policies (discussed in section 3.4) can/should also be applied to programmes, i.e. whether programmes implemented after 11 November 2001 need not be taken into account when determining a baseline scenario.

<sup>15</sup> Of course, the actual number of credits actually issued will depend on how many project activities are approved by the EB, and whether their expected emission reductions are verified.

<sup>16</sup> See <http://cdm.unfccc.int/methodologies/PAMethodologies/publicview.html?OpenRound=14&OpenNM=NM0159&cases=B#NM0159> for documentation associated with the Ghana project and methodology (NM0159).

At present, the only large-scale PCDM-‘type’ projects that are registered focus on emission reductions from manure management systems. These projects (of which there are many<sup>17</sup>, particularly in Mexico and Brazil) typically expect emission reductions of between 20-200 kt CO<sub>2</sub> eq/year. Decision 4/CMP.1 did not limit eligibility of PCDM 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 all had associated implementation programmes that could generate CDM credits (Baron and Ellis 2006)<sup>18</sup>. 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 CO<sub>2</sub>-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 bundle<sup>19</sup>.

Different definitions of “programme of activities” could also have significant procedural/organisational implications. For example, if a “programme of activities” that involves implementing a 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 potentially important for some CDM project activities of all types, i.e. single-site, bundled and/or ones involving programmes of activities. Further, the double-counting cuts across different definitions of a “programme of activities”, and would e.g. need to be resolved whether this includes mandatory/voluntary standards, “hard” and/or “soft” actions etc.).

#### **Issues for clarification:**

The wording of decision 4/CMP.1 rendering “project activities under a programme of activities” eligible under the CDM is unclear, and potentially overlaps with the provision on project bundling. Clarifications could be considered<sup>20</sup>, 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);
- What type of “programme of activities” are eligible (mandatory and/or voluntary?, initiated as a stand-alone programme or to respond to a local/national policy/standard?, 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.

<sup>17</sup> To date, 15 of these projects are registered (14 large-scale, 1 small-scale), and several more are under validation.

<sup>18</sup> This is a theoretical maximum which is unlikely to ever be achieved, but it nevertheless demonstrates the large numbers of credits that could be generated if implementing national policies in the energy sector is eligible for the CDM.

<sup>19</sup> For example, the GACL blended cement project in India is for six cement works in five Indian states. This was opened for public comments as part of the validation process in October 2005, and submitted to the CDM EB for registration in March 2006. See <http://cdm.unfccc.int/Projects/DNV-CUK1142427357.38/view.html> for associated documentation.

<sup>20</sup> It would be possible to provide some of this clarification up-front, e.g. if the Executive Board decides to make a recommendation on the eligibility or otherwise of a “programme of activities” that is initiated to fulfil a mandatory national policy. Alternatively, the EB may decide that it does not want to provide general guidance in the absence of a large body of CDM projects involving programmes. This could mean that the EB may decide to issue

### 3.3 Indicate whether further guidance is needed for PCDM

Since “project activities under a programme of activities” is part of the CDM, provisions applying to the CDM in the Kyoto Protocol and Marrakech Accords (MA) will also apply to PCDM. These will 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.

Although the framework for, and some detailed guidance on, the CDM was provided by the Kyoto Protocol and the Marrakech Accords, the CDM EB has – subsequent to the agreement of these accords – also provided a significant amount of guidance on how the CDM should operate. For example, it has interpreted the MA text on additionality, and has provided guidance on many methodological issues. It is therefore possible and feasible that the EB could provide guidance specific to CDM project activities that involve programmes of activities. This is particularly true as PCDM project activities can have different characteristics from CDM projects that are developed at single sites. This may mean that guidance developed by the EB for CDM projects in general may need to be modified in some areas for PCDM project activities. These could include:

1. Crediting period – should all projects within a programme have the same crediting period?
2. *Ex ante* identification of unique 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.

#### 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). The EB subsequently clarified that, for small-scale bundles, “all project activities ... shall have ... the same length and same starting date” of crediting period (UNFCCC 2005f). 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 activity<sup>21</sup>.

In some CDM projects that involve a programme of activities, different parts of the programme 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.

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recommendations on a case-by-case basis, e.g. when deciding whether a methodology designed for a programme of activities should be approved, revised or not approved.

<sup>21</sup> See <http://cdm.unfccc.int/Projects/SGS-UKL1125675302.74/view.html> for project documentation. This project was registered after the EB guidance indicating that bundled CDM projects should have a crediting period with the same start date.



### 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 registered CDM projects that are located at a single site, as well as for most registered CDM 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 biodigesters<sup>22</sup>.

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”<sup>23</sup>. The CDM project that involves installing >100,000 PV kits in rural areas indicates that all running PV systems will be monitored, and that these will all be in isolated hamlets in identified regions. However, the exact location of these hamlets is not given.

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 thousands of sub-activities. It may be difficult to accurately identify the locations of these sub-activities before they have been implemented, particularly as there can be a significant time lag between drafting the PDD for a project, and the project being registered<sup>24</sup>.

It may therefore be appropriate to allow CDM project activities that involve many sub-activities (e.g. as part of a programme or bundle) some flexibility in when they need to provide the exact identification for each sub-activity. For example, for PCDM 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.

### 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 project design document (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)

<sup>22</sup> See section A4 of the project design document, <http://cdm.unfccc.int/UserManagement/FileStorage/A4NYD8EXQY928HD61LHWHEIM82MBIN>

<sup>23</sup> See section A3 of the project design document, <http://cdm.unfccc.int/UserManagement/FileStorage/QRUB84Q94GBDV55M00C7C74JEB6JQ>

<sup>24</sup> The exact location of each sub-activity may change during this period.

indicated in its PDD that it expected to reduce emissions by 5.75 Mt CO<sub>2</sub>-eq between 1 July 2004 and 30 December 2005, corresponding to 5.75 million CERs over this time period<sup>25</sup>. 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 projects<sup>26</sup>. 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 distinguishing PCDM ‘type’ activities from other CDM activities, by not requiring them to develop *ex ante* emission reduction estimates. Alternatively, if the requirement for *ex ante* calculations is kept for PCDM activities, the associated uncertainty may need to be highlighted (at least to potential CER buyers).

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

Decision 4/CMP.1 indicates that project activities under a programme of 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”. The small-scale and large-scale project activities that involve programmes and that are registered as CDM projects have used methodologies not specifically developed for programmes. However, as outlined above, there is a current scarcity of approved methodologies in sectors where programmes could play an important role, such as energy-efficiency and transport. This means that methodologies for such activities will need to be submitted to and approved by the EB before they can be used (although it is not certain whether such methodologies need to specify whether they are developed for project activities that occur at a single site, or as part of a programme of activities).

PCDM project 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 needed<sup>27</sup>. 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 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. Further work on how to determine baselines for “programme of activities” will be needed, particularly if programmes that span more than one country are developed as CDM project activities.

Assessing additionality has proved a complex and sometimes contentious point for many different types of CDM project activities undertaken at a single site. Determining additionality for a “programme of

<sup>25</sup> The PDD for this project is available at <http://cdm.unfccc.int/UserManagement/FileStorage/C71S3S0NXMHFZ9VBQJ0NOXOE0DRHA>.

<sup>26</sup> 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.

<sup>27</sup> 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.

activities” and/or for “project activities under a programme of activities” under the CDM may be somewhat more complex. Further, additionality is a subject that is still under discussion at the CDM EB, following the request from COP/MOP1 to consider new proposals “with a view to including approved approaches... in its annual report” to COP/MOP2. The most recent version of the EB’s additionality tool (UNFCCC 2005h) does not distinguish between CDM project activities at single-sites or those that include bundles or programmes. Further guidance on additionality by the EB could usefully explore whether any distinctions are needed between additionality assessments for single-site projects and for project activities involving a programme of activities.

#### **Issues for clarification/further work:**

EB guidance for CDM projects could be reviewed and modified if necessary to account for the different characteristics of CDM project activities that involve several sub-activities on several different sites. In particular, clarifications could be considered 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 PCDM project activities (as these calculations may be highly uncertain);
- How issues such as additionality, baselines, leakage, boundaries and avoidance of double-counting can be assessed for large-scale programme of activities.

### **3.4 Link to EB guidance on national policies**

Decision 7/CP.7 of the Marrakech Accords indicates 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.

The EB has established some generic guidance on how to take into account national policies when calculating a CDM project’s baseline scenario. The most recent guidance is from the 22<sup>nd</sup> 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 initiated under a “programme of activities”, especially if programmes initiated to implement a policy (e.g. a mandatory standard) are eligible as it would allow the baseline scenario to refer to a situation where the mandatory standard is not in place. It may also be worthwhile examining whether such guidance should apply only to the first crediting period of a particular project activity only, or also to possible renewals (i.e. if programmes that implement a mandatory policy are eligible to generate CERs, can the baseline scenario refer to the hypothetical situation of the policy not being in place for up to 21 years?).

This EB guidance on national policies is relatively recent, so there has been little experience in implementing it to date. When more experience with this provision has been gained, it may be worthwhile examining how the practical aspects of this EB decision play out. For example, how does excluding recent regulations impact the additionality assessment, and how can the effects of a policy e.g. to encourage increased uptake of a particular technology or system be quantified (and verified)?

**Issues for clarification/further work:**

Recent EB guidance on how to account for the effect of national policies is very flexible. There is currently very little experience with implementing this guidance. A review of this guidance may be warranted once there has been more practical experience with this issue, e.g. over the next year or two.

## 4. Conclusions

There has been significant progress in implementing the CDM. This is demonstrated in the fast-growing “pipeline” of CDM projects, which includes almost 1000 projects expecting to generate 1.3 billion CERs by 2012 (Ellis and Karousakis 2006). It is also demonstrated by the increasing number of registered CDM projects (172 by 2 May 2006). Several national and international institutions needed to supervise the CDM or to approve proposed CDM projects have also been put in place.

However, in response to concern raised in many different quarters about the efficiency of the CDM process and the sectoral split of the CDM portfolio, the COP/MOP1 has made some significant changes to how the CDM might work. In particular, its decision on “further guidance” on the CDM (decision 4/CMP.1) 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 diffuse sources, and/or from project activities that include more than one project type. Decision 4/CMP.1 does this by indicating that:

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

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, 27 of the 172 currently-registered CDM projects are GHG mitigation activities that take place in multiple sites and/or sectors. Some of these CDM project activities describe themselves as a “bundle”, and some as a “programme”. These project activities include those that are implemented:

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

The EB defines small-scale CDM bundles as a "bringing together of several small-scale project activities, to form a single CDM project activity". This definition potentially overlaps with a "programme of activities", which presumably also brings together several individual activities. This suggests that there is currently no clear-cut distinction between "programmes" and "bundles" of CDM project activities. However, both "programmes" and "bundles" have some characteristics that are different from those of single-site CDM projects. For example, these project activities may have overlapping crediting periods (rather than a single crediting period), and the project monitoring provisions may vary widely (from <1.5% to 100% of sub-systems). Further, the project participants (i.e. those who get the credits from the CDM project activity) are sometimes those who also fund/initiate/implement/run the equipment installed by the project activity - and sometimes not.

At present, “programme” is 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).

While the general CDM framework, and some detailed guidance, was provided by the Kyoto Protocol and the Marrakech Accords, the CDM EB has subsequently provided a significant amount of guidance on how the CDM should operate. It is therefore both possible and feasible that the EB could provide guidance specific to CDM project activities that involve programmes of activities. This guidance could either be provided up-front, or established once there is more experience with developing and implementing CDM projects (and potentially also methodologies) for project activities involving a programme of activities.

For example, Decision 4/CMP.1 did not contain a definition of what “project activities under a programme of activities” means in the context of the CDM. 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. Since there is a potential overlap between CDM project activities that involve a programme of activities and those that involve a bundle, it would also be helpful if any guidance on these two issues was compatible (or alternatively if there is clear guidance on when a collection of project activities constitutes a bundle, and when it constitutes a programme).

Clarification may also be warranted on whether:

- A programme of activities that is designed to *implement* a local/national/regional policy or standard is eligible to generate credits under the CDM. The COP/MOP1 decision is not clear in this regard as it indicates that a “policy or standard cannot be considered” as a CDM project (without indicating whether this refers to establishing and/or implementing a policy/standard), but that a programme of activities “can be registered”.
- Emission reductions from “project activities under a programme of activities” should be estimated by methodologies designed specifically for programmes, or whether (as at present) such project activities can use methodologies designed for single-site projects.
- Any revisions to the EB-approved additionality tool – or any new approach for assessing additionality that is developed in response to the request by COP/MOP1 - should distinguish between single-site projects and project activities under a programme of activities. Such a distinction may be needed particularly if a definition of project activities under a programme of activities encompasses programmes designed to implement a mandatory policy or standard.
- Some of the current EB guidance to CDM project developers should distinguish between single-site CDM projects and project activities under a programme of activities, e.g. for the identification of project location or *ex ante* provision of emission reduction estimates.
- The precedents set by registered small-scale project activities that could be defined as a “programme of activities” can be “scaled up” to large-scale project activities. These precedents include registering projects whose sub-activities have multiple overlapping crediting periods, projects where the project activity is to sell (not use) a GHG-friendly system, and projects where only a very small proportion of total installations are monitored (e.g. the Kuyasa project, where <1.5% of households are monitored).

A further assessment of how national policies should be taken into account when determining baseline scenarios may also be useful after more experience has been gained with implementing EB 22’s guidance on this issue.

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## Glossary

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 <sub>2</sub> -eq
CO <sub>2</sub>	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 <sub>2</sub> O	Nitrous oxide
PCDM	CDM activities that involve "project activities under a programme of activities"
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