

Sectoral CDM: Opening the CDM to the yet Unrealized Goal of Sustainable Development¹

Christiana Figueres

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1. Introduction

With the entry into force of the Kyoto Protocol, the Clean Development Mechanism (CDM) is now fully operational and has received support from countries worldwide. All countries in Asia and Latin America have an established, or are in the process of establishing, a Designated National Authority (DNA), the institutional framework necessary for CDM project activities. In Africa there are various concrete efforts underway to help establish DNAs in countries wishing to do so. National project portfolios are growing and the number of transactions on the international carbon market is steadily increasing, but it is still far from delivering its full potential.

Despite much activity, relatively little is being achieved in terms of affecting the growth pattern of developing countries. Current CDM project activities tend to be single, isolated attempts at accessing the international greenhouse gas (GHG) emissions reduction market, and fall far short of being an effort to decarbonize the national economy, or even a specific sector of the economy in developing countries. Unless the impact of the CDM can be taken further than discreet project activities and used to spur climate friendly policies, the CDM will not promote much needed sectoral transformation. Thus the CDM would not contribute to the sustainable development of developing countries in any meaningful way, nor would it assist these countries in contributing to stabilizing GHG emissions concentrations, the ultimate goal of the United Nations Framework Convention on Climate Change (UNFCCC).

This paper traces the relationship between the CDM and sustainable development back to its historical roots, and presents the current shortcomings of the CDM. The paper then discusses the opening of the CDM to policy-based, sector wide project activities in order to catalyze sectoral transformation through climate-protecting policies and measures during this crediting period. The paper poses that this type of project activity is eligible under the current CDM and that the Executive Board of the CDM has already begun to regulate some of its aspects. However, some work still needs to be

¹ This paper draws from Figueres, Christiana ed. Establishing National Authorities for the CDM :A Guide for Developing Countries, 2002, and from Samaniego, Joseluis and C. Figueres, *Evolving to a Sector-based Clean Development Mechanism*. Chapter 4 in Building on the Kyoto Protocol: Options for Protecting the Climate, Kevin Baumert, ed. World Resources Institute, 2002.

done if we are to use the CDM to accelerate the decarbonization of economic growth in developing countries.

2. Historical roots of the Clean Development Mechanism

The CDM was not invented under the Kyoto Protocol (KP), but was rather an evolution of a concept born even before the signing of the Climate Convention. Today's CDM can be traced back to 1991, when Norway introduced the notion of 'Joint Implementation' (JI) into the proceedings of the Intergovernmental Negotiating Committee (INC), tasked with drafting the text of the eventual UNFCCC. Though identified by the same name as one of the three flexibility mechanisms later adopted under the Protocol, Norway's original proposal was much broader, embracing the general concept of global emissions trading. The Norwegian negotiators had recognized that due to differences in national circumstances, the costs of greenhouse gas mitigation varied significantly among countries. The Norwegian delegation proposed that it might be more cost-effective for two countries to form a partnership in their greenhouse gas reduction efforts, and share the benefits of implementing emission reduction projects in the country where costs are the lowest. (Dixon, 1999: 407)

The concept was included under Article 4.2(a) in the UNFCCC signed in Rio de Janeiro in 1992. According to this Article, "...[p]arties³ may *implement* such policies and measures *jointly* with other Parties and may assist other Parties in contributing to the achievement of the objective of the Convention[...]". In this Article the term "other parties" does not necessarily refer to developing countries, (could also be other industrialized countries) nor does it make any reference to the economic development, sustainable or otherwise, of developing countries. The only intent of this original proposal was to decrease the cost of global mitigation and help to stabilize emissions. However, the window opened by this text encouraged some countries to initiate some Joint Implementation projects.

Representatives of developing countries began to raise questions about JI during the negotiations leading up to the First Conference of the Parties (COP-1) in 1995. Many saw it as an instrument to allow industrialized countries to buy their way out of reduction commitments, while providing no benefit to developing countries. Since Costa Rica was the only developing country that had embraced the concept, (Michaelowa, 2000: 6) the resistance of the other G-77⁵ countries threatened the future of JI, despite the continued interest of industrialized countries. A salvaging compromise between the G-77 and the Annex I countries restructured JI and established the "Activities Implemented Jointly" (AIJ) pilot phase. In order to respond to the concerns of developing countries, a key criterion was imposed on AIJ: "activities implemented jointly should be compatible with, and supportive of, national environmental and development priorities and strategies of the host country."⁶ For

³ The term "parties" here refers to the group of industrialized countries included in Annex I of the UNFCCC.

⁵ G-77 and China is the United Nations political negotiation block to which all developing countries belong.

⁶ Decision 5/CP.1 in FCCC/CP/1995/7/Add.1

the first time, the international emissions reduction mechanism incorporated the interests of developing countries, albeit in a secondary manner. The mechanism's primary purpose was to *implement activities*, i.e. low cost mitigation projects for the benefit of industrialized countries.

Between 1995 and 2000 several OECD countries, in particular the Scandinavians, the Netherlands, Switzerland, and the United States actively supported the goals and principles of AIJ. They established their own national AIJ offices and invested in institutional capacity building activities abroad. Most of this technical assistance went to Latin America, the region most receptive to AIJ at the time. Ten AIJ entities were established in the region between 1994 and 2000,⁷ although only some of these developed experimental AIJ projects.

Other than achieving GHG reductions and having no international crediting, the only criterion for AIJ projects was that they be compatible with existing national priorities, and little effort was made to develop indicators or other measurements of this compatibility. At a time when the international mechanism was so new, the priority was to identify projects that would be financed by industrialized countries, with little concern about how to integrate GHG mitigation and economic development for the benefit of the host countries.

The AIJ pilot phase was evaluated in Kyoto in 1997 and many governments again expressed dissatisfaction with the results. In addition to the skepticism about the value to developing countries, the small number of projects was not considered representative due to their concentration in Latin America and Eastern Europe. However, faced with the imminent acceptance of reduction commitments under the Protocol, industrialized countries wanted to keep alive the possibility of cheaper reductions abroad. A Brazilian proposal presented a way to resolve international differences over AIJ.

Interested in pressing the industrialized countries to comply with the proposed emissions targets, Brazil suggested the introduction of a penalty system that would subject industrialized countries to a fine if they failed to reach the targets. The fines would then be channeled into a "Clean Development Fund" to support greenhouse gas (GHG) emissions mitigation projects and particularly adaptation measures in countries most adversely affected by climate change. Not surprisingly, industrialized countries opposed this punitive system, but they saw an opportunity to extricate the element relating to emission mitigation projects and marry that concept with the moribund AIJ. The resulting "Clean Development Mechanism" (CDM) would devote a 2% levy to adaptation, but otherwise function as a market-based measure to help meet reduction commitments. Recognizing that the mechanism had by now become a key component of industrialized countries' acceptance of reduction targets, developing countries agreed, as long as sustainable development was made a primary goal of the mechanism. The Clean Development Mechanism became the by now familiar Article 12 of the Kyoto Protocol. It was however the first time that text defining the international market mechanism granted equal importance to GHG mitigation and development concerns by placing them both as primary objectives of the instrument.

⁷ In chronological order of establishment: Costa Rica, Guatemala, El Salvador, Bolivia, Argentina, Honduras, Panama, Paraguay, Colombia and Ecuador.

3. Sustainable Development: the Unrealized Goal of the CDM

The Clean Development Mechanism (CDM) is the only market mechanism in the Kyoto Protocol that is open to the participation of developing countries. Similar to its AIJ predecessor, the CDM has a single purpose for industrialized countries:

“to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3”.

However, in contrast to the previous AIJ regime, the CDM has a dual purpose for developing countries:

“to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention”.

While the text of the Protocol places equal emphasis on all of these goals, current efforts in the CDM tend, even if unintentionally, to give more weight to helping industrialized countries meet their KP reduction obligations. The current overwhelming concern in the CDM is whether there will be enough supply into the market, not whether project activities are having any effect on the quality of development in host countries. In fact, current CDM efforts fall sadly short of assisting developing countries in either achieving sustainable development or contributing to the stabilization of emissions concentrations.

Sustainable development and climate protection are often perceived as mutually exclusive pursuits. It is indisputable that developing countries have more pressing priorities than climate change. Poverty, employment, health, education, housing, and food security are undeniable priorities. However, most investments serving UNFCCC goals are actually congruent with national development goals.

The UNFCCC recognizes that in order to achieve sustainable development, a country's economic growth, energy use and GHG emissions must be decoupled. Historic economic growth around the world has been based on increased fossil fuel energy consumption and consequent increased GHG emissions. Future economic growth in both industrialized and developing countries must reverse this trend. While economic growth must continue, the efficiency of energy consumption must improve, and the carbon intensity of production must decrease. Achieving sustainable development in developing countries depends on *decarbonizing* their economies. In order to move toward sustainability, developing countries reliant on importing fossil fuels must decrease the carbon intensity of growing production through enhanced energy efficiency, introduction of clean technologies, and development of distributed renewable energy systems.

Thus with respect to developing countries, the intent of the CDM can be understood as assisting them in decarbonizing their economies. This transformational intent is confirmed by the fact that the CDM goal of “*achieving sustainable development*” is clearly a higher goal than the AIJ criterion of ensuring that projects are “*compatible with national environmental and development priorities and strategies*”. Had the intent of the CDM been merely for individual project activities to be congruent with

existing national policies and reinforce the status quo, the language from the preceding AIJ regime could easily have been adopted. From the perspective of developing countries, the CDM was not intended as the only instrument responsible for sustainable development, but it was seen as a promising global financial vehicle that would catalyze a national transformational transition toward sustainability. At the time it was thought that the CDM would substantially increase the flow of "green" private investment into the energy, transportation and industrial sectors in developing countries,⁸ helping them leapfrog over carbon-intensive technologies. (Esty, 1997)

Today's reality is dramatically different. The goal of achieving sustainable development is not actually being seriously pursued through the CDM. While the international emissions market is growing,⁹ and CDM participation in that market is robust, these project activities are not significantly altering the energy pathways of the economies in which they operate. For the most part these project activities represent isolated opportunities to benefit from the additional income stream of the sale of emissions reductions, but they have not catalyzed a decarbonization of the sector.

There are three main reasons for this underperformance of the CDM:

a. Congruency with existing policies. The CDM modalities and procedures defined in the 2000 Marrakech Accords go to great lengths to characterize additionality, baselines, and leakage - all the issues that impact the level of emission reductions achieved by a project and sellable to industrialized countries. However, the same Accords make only one short indirect reference to the sustainable development of developing countries: the Designated National Authorities (DNAs) in developing countries are given the task of issuing a letter confirming that CDM project activities contribute to their sustainable development. The modalities are silent as to how these project activities should assist in achieving sustainable development, mainly because developing countries understandably argued that international standardization of sustainability criteria would impinge on their sovereignty. However, in the absence of any international guidance, developing countries have reverted back to the familiar AIJ criterion of project-specific congruency with *existing* national policies. (Figueres, 2004) This translates into a curtailing of the potential of the CDM, since most existing sectoral and national policies lead to high GHG emissions. Congruency with this type of policy is not a high threshold in terms of either climate protection or sustainable development.

b. Project-based instrument: Fearing that industrialized countries would earn too many reduction credits through the CDM, the G-77 and China insisted that the CDM be a project-based instrument. Most of the project activities currently submitted to the CDM Executive Board (EB) are individual isolated efforts at a carbon upgrade or "end-of-pipe fix"(Cosbey, 2005: 2) within the limited boundary of a discreet facility or enterprise, with limited transformational effect. While a project activity may well

⁹ According to The State and Trends of the Carbon Market 2005, during 2004 a total of 124 million tons of CO₂ were transacted, 107 million of which were project-based, a 38% increase relative to 2003. In only the first three months of 2005 global transactions reached 80 million tons, suggesting a marked projected increase for this year with respect to 2004.

pilot a new technology or otherwise improve the carbon intensity of its own performance, there is little overarching incentive for other similar project activities in the same sector to follow suit. Given the high transaction costs and the uncertainty of the approval, owners of similar activities typically have a "wait and see" attitude, preferring to see how the competition fares in the stormy CDM seas, rather than jumping in themselves. The current bottom-up single project approach of the CDM severely diminishes its potential to transform carbon-intensive economies and mainstream climate into the economic growth patterns of the South.

c. Perverse incentive of the additionality criterion : According to the Protocol, CDM project activities must be additional to what would have occurred otherwise. The intent of this additionality clause is to ensure that business-as-usual project activities do not receive CDM credits. However, over the past few years the concept has acted as a perverse incentive on policies. For example, if a country institutes a renewable energy obligation of 10-15% of the generation mix, it would hesitate to consider renewable energy projects that contribute to that mix as candidates for the CDM. If a country passes mandatory energy efficiency standards, projects that upgrade their technology in order to meet the standard may be excluded from the CDM. Under this scenario some countries have delayed the introduction of proactive policies, in order to prevent those policies from being integrated into the baseline and thus disqualifying projects from the CDM.

There are several examples of the stifling effects of this perverse incentive in Latin America. In 2002 the government of Ecuador signed a loan with the Inter American Bank to finance the national plan for renewable grid expansion and decentralized off-grid rural electrification (PROMECA).¹¹ This caused the Ministry of the Environment to worry about losing additionality on the individual projects, despite the fact that the plan is not progressing due to technical, social and political barriers. In Mexico, authorities are concerned that a law approved in 2004 mandating the capture of biogas in solid waste sites (SEMARNAT, 2003) could have disqualified many potential CDM project activities. In recent consultations with the EB, government officials have been told that the EB has no position on the matter yet.

Colombia has a similar concern. The Ethanol Law of 2001 mandates a 10% ethanol additive to gasoline or diesel with the purpose of improving air quality and promoting diversification of fuel supplies (Econergy International, 2005: 71). Deciding that additionality was lost on that effort, the government is now being more cautious with further regulations. Choosing energy (grid connected and non grid), forestry and transportation as the three sectors in which mitigation is most effective in Colombia, the Colombian Climate Change Mitigation Group (CCMG) has performed intensive consultations with each sector in order to define and execute sector-specific work plans that will lead not only to the identification of specific CDM project activities, but also to the internalization of climate change considerations in the future planning of those sectors. However, in order to avoid the risk of losing additionality, climate friendly policies are being purposely kept in the plans-and-programs realm, without

¹¹ <http://www.conelec.gov.ec/pages/textos.php?menu=10&submenu=75>

¹² "Policies and measures to protect the climate system against human-induced change should be appropriate to the specific condition of each Party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change." UNFCCC 1992, Article 3.4 (emphasis added).

moving them into a regulatory framework. In effect, Colombia's decarbonization potential is being held back by the perverse incentive of the additionality criterion in the CDM.

Furthermore, as the ultimate irony, not only is the CDM restraining the enactment of sustainable policies, it is approving project activities with negligible sustainable development impact. The current UNFCCC CDM project pipeline¹³ has five HFC23 and two N₂O destruction project activities, representing 29% and 20% respectively of the entire CER supply on the market. These project activities can certainly dramatically increase the volume of CERs¹⁴ (contributing to the first goal of the CDM), but they do not affect the dynamics of critical emissions-intensive sectors such as transportation or energy, in fact delaying the changes that are necessary in current energy production/consumption pathways (the second goal of the CDM).

The CDM's lofty aim of helping developing countries "achieve sustainable development" and contribute to emission stabilization has been minimized at the operational level. With the current CDM practices, the expectations for the transformative potential of the CDM are dramatically curtailed. In order to rescue its original intent, the CDM would have to include the possibility of an enhanced approach that would directly address the three above listed limitations. It would have to go beyond the project-by-project process, it would have to be consistent not with existent policies but rather promote new policies that protect the climate and promote clean development, and it would have to incorporate a more constructive interpretation of additionality.

4. Sectoral CDM

In a previous publication (Samaniego and Figueres, 2002) the author co-proposed a "Sectoral CDM" (S-CDM) for the post 2012 regime: "Under the S-CDM, developing countries would be encouraged to develop regional, sectoral, sub-sectoral, or cross-sectoral project activities, which would be the result of specific sustainable development policies, measuring the attained reductions, and selling those on the international emission reduction market. Thus, a sectoral S-CDM project activity could be the modernization of the entire cement industry in a country as a result of a government policy, and a cross-sectoral S-CDM project activity could be achieving a certain efficiency standard in all industrial motors as a result of new standard setting."

This paper rescues the original concept of the S-CDM, but proposes that S-CDM could well be implemented now during the current crediting period. There are in fact no impediments to including GHG-reducing public sector policies in the current CDM, thus spurring decarbonization processes in developing countries and raising the volume of CERs on the market without renegotiating the basic architecture of the regime.

¹³ CD4CDM website updated 18 October 2005

¹⁴ It is not uncommon for these projects to achieve 10 million tons CO₂equivalent per year. China is currently considering another HFC23 project that would deliver 13 million tons per year over the next 7 years, for a total of 90 million tons

The S-CDM is a top-down approach that would provide a real incentive for developing countries to enact policies that make relevant sectors (energy, industrial, forestry, etc.) less carbon intensive over time, thus successfully mainstreaming climate considerations into the economic growth model. The current project-by-project approach will continue to be appropriate for some countries and some sectors, and should therefore not be abandoned. But as a complement, the CDM could consider project activities that are policy-based and sector wide, submitted perhaps through a specialized window of the CDM. Participation through the S-CDM window would not limit a country to policy-based project activities. Private sector representatives, and in fact even public agencies, could continue to submit individual project activities to the CDM, while at the same time the government could opt to submit some broader project activities through the S-CDM, as long as the activities do not overlap and get double counted.

The proposal is in line with a growing body of literature on the need for a top-down sectoral approach to mitigation. The 2004 World Energy Outlook published by the International Energy Agency warns that "if governments stick with the policies in force as of mid-2004, the world's energy needs will be almost 60% higher in 2030 than they are now, (IEA, 2004:24) with well over two thirds of the projected increase in emissions coming from developing countries. However, under an Alternative Policy Scenario global energy trends could markedly improve "if countries around the world were to implement a set of *policies and measures* (emphasis added) that they are currently considering or might reasonably be expected to adopt." (IEA, 2004:37)

The desire for broad climate friendly policies has introduced the topic of sectoral approaches to mitigation. However, since the concept is still relatively new, the terms "sectoral" and "policy-based" have been used interchangeably and in several different contexts.

In the broadest context sectoral concepts are being considered for the general architecture of the regime post 2012. Here the discussion is whether the sectoral approach should apply to the evolution of the entire regime or only to developing countries. Bodansky et al (2004) offer a menu of policy options for the future, of which the sectoral approach is one. Bosi and Ellis (2005) present the benefits of a possible overall sectoral focus to the entire future climate regime. Three distinct crediting sectoral mechanisms (policy-based crediting, fixed sectoral emission limits, and rate-based or indexed crediting) are examined in terms of their requirements for defining a baseline, generating credits, and institutional needs. The paper presents the benefits of a possible overall sectoral focus to the future climate regime, without ascribing any one of the three crediting mechanisms to either Annex I or non-Annex I. In light of the findings of the World Energy Outlook, the sectoral approach to regime architecture appears to be an effective way to encourage all countries to adopt climate friendly policies thereby reducing the GHG intensity of new investments. By contrast, Schmidt (2005) applies the sectoral lens specifically to the participation of developing countries in the future regime. Schmidt presents five options that range along a continuum of stringency in the possible future commitments for developing countries: fixed emission limits (absolute or growth-based), dynamic emission limits, benchmark-based, sector policy-based credit generation, and harmonized policies and measures.

Most recently the discussion has shifted from the nature of the post-2012 regime to the operation of the CDM during the current 2008-2012 period. Cosbey et al (2005) analyze the shortcomings of the CDM and gather a set of specific recommendations for chronological consideration: some to be considered now, some for the CDM review scheduled in 2006, and some for the second crediting period. Among others, one suggestion is for Parties to allow policy-based CDM (public sector policies), and sectoral CDM (in that paper referring to private sector initiatives), during this commitment period. Sterk and Wittneben (2005) also call for including both government policies and private sector initiatives in the CDM. While both papers use the term "policy-based" for government policies, Cosbey calls private sector initiatives "sectoral" and Sterk and Wittneben term them "clustered".

This paper focuses on the inclusion of public sector policies in the current CDM. In this paper we use the original definition of "Sectoral CDM" as referring to regional, sectoral, sub-sectoral, or cross-sectoral project activities that are the result of deliberate governmental policies. There is no intent to exclude private sector initiatives, merely the interest in exploring what could be perceived -unjustifiably- as the more complex aspect of enhancing the CDM.

Eligibility

Despite hesitations to include sectoral project activities in the CDM, the fact is that there is no regulatory impediment to doing so. The Kyoto Protocol and the Marrakech Accords do not define "project activity". As defined by the EB in the CDM Glossary contained in the project design document for a CDM project activity, "*a project activity is a measure (emphasis added), operation or an action that aims at reducing GHG emissions.*" Sectoral CDM project activities are indeed measures that aim at reducing GHG emissions and are thus eligible under the CDM. Confirmation of this is the fact that the EB has already registered one sectoral CDM project activity¹⁸ submitted by a public entity, and is considering others. Eligibility of S-CDM need no longer be questioned. The challenge lies in the implementation.

Characteristics

The S-CDM operates within the fundamental principles of the CDM:

- **Voluntary-** As in the current CDM structure, only countries wishing to present S-CDM project activities would do so. While smaller countries may choose to develop and submit some S-CDM project activities, in all likelihood most of the volume would come from the larger developing countries. On the one hand this can be seen as a repetition of the 'unfair' geographical distribution of CDM benefits.¹⁹ On the other hand the S-CDM seeks to accelerate decarbonization in

¹⁸ Kuyasa energy upgrade in South Africa

¹⁹ In 2004, India alone supplied 26% of the global market of emissions reductions, and Brazil another 12%. The rest of Asia supplied 17%, and the rest of Latin America sourced 23%. By contrast, the entire continent

key sectors, and the greater share of the decarbonization potential of those sectors is in the larger developing countries.

- **Market instrument-** As in the CDM market, emission reductions achieved through the S-CDM would be sold on the international market to industrialized country entities. In both cases the achievement of emission reductions is financed not by the developing country, but rather by offset purchases on the part of an industrialized country entity. Just as in the current practice, implementation could be unilaterally funded by financial institutions (multilateral or national development banks, private banks, etc) that recognize the monetary value of the offsets and then sold on the international carbon market.
- **No target-** Just as in the current CDM practice, S-CDM would operate without international legally binding targets for developing countries.
- **Measurement against a baseline -** The baseline is the level of GHG emissions that would have occurred without implementation of the project activity. Since in the S-CDM the policy IS the project, the baseline is what would have occurred without the policy. The baseline or business as usual scenario is the measured emission level of the activity prior to, or in the absence of, the enactment of the policy. The emissions reductions achieved in order to comply with the new policy are creditable and internationally sellable.
- **Verifiability-** As a window of the current CDM, S-CDM project activities would undergo the same project cycle as other CDM project activities, and would be subject to the same rigor for validation, verification and certification. Emission reductions need to be real, measurable, and verifiable.

While upholding these basic principles of the CDM, S-CDM does have a defining characteristic that makes it distinct and complementary to the current CDM. S-CDM is policy-based and sectoral in scope. Under the S-CDM, actual emission reductions are achieved by individual actions but these are implemented in response to an overall sectoral or sub-sectoral policy adopted by the government.²⁰ In contrast to the current CDM where credits are generated by a carbon upgrade such as a fuel switch or an improvement in efficiency in one specific facility or company, S-CDM credits are generated by adopting and verifiably implementing GHG-friendly policies in specific sectors. An example of a sectoral project activity could be setting a Best Available Technology (BAT) standard for the country's cement industry or offering incentives for increasing the use of blended cements. A sub-sectoral project activity could be an incentive or regulation for the conversion of natural gas-fueled electricity generation plants to combined cycle.

It is important to underscore that in S-CDM the policy is the project, and the various emission reduction actions that are implemented to comply with the policy do not

of Africa only supplied 3% of the market. The State and Trends of the Carbon Market, International Emissions Trading Association and the World Bank, 2005.

²⁰ Incentives could of course also come from private sector initiatives, but for the purposes of initial analytical simplicity this paper considers only government-enacted policies.

constitute individual project activities in and of themselves. However, it is these reduction activities that must be measured using baseline and monitoring methodologies approved by the Executive Board, before these reductions can be made creditable and sellable on the international carbon market.

Furthermore it is essential to understand that as long as there is a verifiable reduction in GHG emissions, the motivation for enacting the policy is irrelevant to its eligibility under the S-CDM. Given developing countries' many other pressing needs, (and current low prices for emission reductions), it is highly unlikely that developing countries will undertake any policy or measure for the exclusive purpose of GHG mitigation. Policies that help lower a sector's emission trajectories can be adopted for several motives, including lowering negative local environmental impacts, improving the balance of payments and reducing the dependence on fossil fuel imports, protecting aquifers, etc. From the atmosphere's perspective the motivation to take on the policy is immaterial, as long as the reductions are real and verifiable. The S-CDM cannot be restricted to policies motivated by climate protection goals, as that would severely impede the mainstreaming of climate considerations into economic development patterns. The Intergovernmental Panel on Climate Change (IPCC) recognizes that "the effectiveness of climate change mitigation can be enhanced when climate policies are integrated with the non-climate objectives of national and sectoral policy development" (IPCC, 2001). The CDM could also recognize this.

A first step

Fortunately the sectoral approach has actually already been introduced into the climate regime. Based on the review of several sectoral project activities that have been submitted (one of which is registered), the EB has recently taken a decision that opens the door to some sectoral project activities during the current commitment period.

The decision provides further guidance to paragraph 45 of the CDM Modalities and Procedures (*"a baseline shall be established ... taking into account relevant national and/or sectoral policies and circumstances..."*).²¹ In its 16th meeting celebrated in October 2004, the EB approved Annex 3: "Clarification on the treatment of national and/or sectoral policies and regulations in determining a baseline scenario."²² The decision identifies four types of national or sectoral policies according to both the nature of the policy and its effect on emissions. The first two are not mandatory in nature but rather only provide incentives.

- Type E+: "Existing national and/or sectoral policies or regulations that give comparative advantages to more emissions-intensive technologies or fuels" (e.g. preferential loan programs for the construction of fossil fuel generation plants, that would not be available to renewable energy plants).
- Type E-: "National and/or sectoral policies or regulations that give positive comparative advantages to less emissions-intensive technologies" (e.g. tax

²¹ Paragraph 45, 17/ CP.7, FCCC/CP/2001/13/Add.2, Modalities and Procedures for a Clean Development Mechanism as defined in Article 12 of the Kyoto Protocol

²² <http://cdm.unfccc.int/EB/Meetings/016/eb16repan3.pdf>

reductions for renewable energy generation plants, public subsidies to finance energy efficiency programs, incentives for reforestation, etc.)

Annex 3 regulates the consideration of these two types of policies in the definition of a baseline. In order to remove the temptation for countries to now or in the future institute harmful policies that would inflate the emission reductions claimed by project activities but be detrimental to the atmosphere, the EB rules that higher emission policies can only be taken into account when developing a baseline scenario if they were implemented before the adoption of the Kyoto Protocol in December, 1997. If such policies were implemented since that date, the baseline scenario of a project activity should refer to a "hypothetical situation without the national and/or sectoral policies or regulations being in place". Countries may decide to enact fiscal or regulatory policies that are harmful to the environment- and they probably will-, but thanks to this ruling they will at least not do so for the benefit they could get out of the CDM.

By contrast, "Type E-" policies are the kind that the UNFCCC wants to promote. Thus in the case of these policies that encourage lower emissions and hence diminish the level of reductions that can be claimed by a CDM project activity, Annex 3 determines that the baseline scenario may not take these policies into account if the policy was implemented since the adoption of the CDM Modalities and Procedures in November, 2001. Finally closing the door to the previously discussed perverse incentive of the CDM, this decision reassures developing countries that their CDM project activities will not be penalized due to climate-friendly voluntary policies that have been enacted by governments since 2001.

In principle the direction of both rulings is the appropriate one for a regime that wants to encourage lower emission policies. However, there are two weaknesses in the treatment of these incentive-based policies. The first is the difference of date. The EB could have decided to use 1997 as the date for both Type E- and Type E+ policies, rewarding the few early movers that introduced emission-reducing incentives soon after the adoption of the Protocol. Instead, the EB took the conservative stance of choosing the later Marrakech date for Type E- lower emission policies. While the decision has the virtue of excluding a few project activities that could be considered false positives by the more conservative regulators, it has the serious drawback of reinforcing the by now frequent message of the regime that early movers are sacrificed.²³ This signal is contrary to the purpose of the Convention, as early

²³ Costa Rica is the most acute example of a visionary early mover that has been repeatedly penalized by CDM regulations. Having signed the UNFCCC in 1992, during 1995-1997 a proactive government helped to develop ten AIJ projects, and put climate friendly policies in place in both the energy and forestry sectors. The AIJ projects were not credited under the CDM regime because of the decision to credit only projects started as of January 1, 2000. Post 2001 renewable energy generation projects are being deemed non-additional due either to the 1995 law requiring all private generation to be sourced with renewables, or because they are in the expansion plan. Nation-wide programs to control illegal logging in national parks were barred from the CDM through the exclusion of conservation activities. The Environmental Services Payment program was designed to decrease the high deforestation rate and to be financed by the CDM. Even excluding conservation, the reforestation component could have been submitted to the CDM but is non additional because it was put in place prior to 2001. The EPS now has to be financed from a 3.5% tax on fossil fuels, national aquifer protection payments from the private sector, a loan from the World Bank and KfW, and a grant from the GEF.

reductions are known to have a decidedly greater positive impact than later reductions.

The second and more important weakness is that the decision does not actually provide an inducement to introduce climate friendly policies, because underlying activities still need to meet all the project-level additionality criteria, and may be hard pressed to do so. There are two new methodologies currently under consideration of the EB that will provide useful test cases on how these project activities fare the test of additionality. The Peruvian fuel switching, NM #0131, is a straightforward fuel switch from petroleum fuels to natural gas. By contrast, NM #0132 is a fuel switch from petroleum fuels to natural gas with an underlying incentive from the Egyptian public utility. It will be illuminating to compare the effect of the incentive policy on the additionality of the project activities.

It is critical to distinguish between a national level policy that provides incentives for climate friendly action within a sector or a country (the above Type E-), and an international regime inducement to foster the rapid adoption of this type of policy throughout the developing world. The current ruling on Type E- policies ensures that the introduction of the policy will not adversely affect the quantification of emission reductions in the project activity, but it does not act as a regime stimulus for climate friendly policies to propagate. A concrete suggestion on this issue is presented in the next section of this paper.

Annex 3 identifies two further types of policies, both of which correspond to legally binding regulations enacted by governments (as contrasted to the previous incentive-based policies).

- Type L+: "Sectoral mandatory regulations adopted by a local or national public authority motivated by the reduction of negative local environmental externalities and which incidentally prevent the adoption/diffusion of less GHG emitting technology" (e.g. a law to replace kerosene lanterns with diesel generators).
- Type L-: "Sectoral mandatory regulations adopted by a local or national public authority motivated by the reduction of negative local environmental externalities and/or energy conservation and which would incidentally also reduce GHG emissions" (e.g. a law that obligates the conversion of public transportation from diesel or gasoline to natural gas, or a regulation that requires the replacement of traditional wood-burning stoves with high efficiency wood stoves).

There are two flaws in the current definition of mandatory policies. The first limitation is the introduction of motivation as a determining factor. Motivation does not play a role in the ruling on Type E incentive-based policies (nor in fact did it play a role in determining Great Britain's decrease in emission levels due to the energy policies that closed the coal mines). In the case of command and control policies in developing countries, regulators have here placed yet another hurdle in the path of project approval. By forcing project developers to analyze and argue the motivation for the policy, regulators have added another additionality test on top of the already existing one. As discussed above, from the atmosphere's perspective, what counts is the emission reduction itself, whether it is motivated by climate protection or not.

The second flaw in the definition of mandatory policies is the fact that the motivation is explicitly linked to local environmental externalities, and in the case of Type L-policies, energy conservation, as the only two possible driving forces. It is not unthinkable that a developing country that does not produce oil would enact a Renewable Portfolio Standard (RPS) requiring a certain percent of installed generation capacity to be sourced with renewables, merely on the basis of protecting the balance of trade and mitigating against uncontrollable international oil price fluctuations. The motivation here is neither reduction of negative environmental externalities nor energy conservation, yet the law has a decided positive impact not only on national emission levels, but also more importantly, on the sustainable development of the country. And yet, according to Annex 3 this law would not be recognized as a Type L-policy.

Furthermore, by confining the scope to local environmental externalities, the definition of L-type policies excludes policies aimed at reducing *global* environmental problems. A developing country might be motivated to implement policies explicitly designed to reduce GHG emissions. While these types of policies are less common in non-Annex I countries than policies to address local environmental externalities, they are certainly not out of the question, and there is no logic to treating them differently than policies aimed at local environmental externalities.

Motivation, linked or not to local environmental externalities, should be removed as a defining characteristic of mandatory emission-lowering regulations. The EB could consider redefining these regulations simply as:

- Type L+: "Sectoral mandatory regulations adopted by a local or national public authority that prevent the adoption/diffusion of less GHG emitting technology"; and
- Type L-: "Sectoral mandatory regulations adopted by a local or national public authority that reduce GHG emissions."

In addition to definitional problems, Type L policies have a gaping omission. Other than identifying these two types of legally binding policies, the EB emitted no guidance regarding their consideration in the determination of a baseline, requesting rather additional recommendations from the Methodology Panel. This lack of guidance is in and of itself a central weakness of Annex 3, as emission reductions efforts are caught in the vacuum. A vivid example is the policy-based methodology NM 0072 submitted by Ghana.²⁴ The methodology proposes the development of mandatory energy efficiency standard for air conditioners, representing a considerable energy conservation measure, but requiring a substantial up-front investment on the part of the government in order to not only develop the appliance standard, but also enforce it. The Methodology Panel asked for guidance from the EB on the admissibility of such a methodology, but at its 19th meeting the EB could not decide whether such a methodology required consultation with the Parties, or whether the EB itself could authorize the consideration of the methodology.

For all its weaknesses, Annex 3 does confirm that the CDM can consider policy-based project activities, for the time being at least those of voluntary nature, during the current crediting period. The missing link is the confirmation that the CDM can also

²⁴ http://cdm.unfccc.int/UserManagement/FileStorage/FS_744558856

consider mandatory governmental policies. Further work needs to be done if we are to maximize the potential of the CDM.

Further Work

Since S-CDM does broaden the scope of project activities that can be submitted to the CDM, there are two main elements of the current CDM modalities that would need to evolve for purposes of the S-CDM window. The aim here is not to re-write or re-negotiate the Marrakech Accords, but rather to identify a few key aspects where further guidance is needed:

- **Project Boundary-** For the time being, there is a clear tendency in the CDM to prepare and present single site project activities. The bundling of similar small-scale project activities is in principle allowed although it has not proven very practical. The S-CDM would require a different concept of project boundary. An S-CDM project activity would have multiple implementing units (e.g. facilities/households, etc.) not needing boundary definition around each unit but rather around the entire project activity. A sectoral project activity in the cement industry, for example, would include all cement production plants in the country within one boundary. In S-CDM project proponents would have to have the possibility of defining either a geographical or a sectoral boundary.
- **Additionality-** The Kyoto Protocol establishes that CDM project activities may only count emissions reductions that are "*additional to what otherwise would have occurred in the absence of the certified project activity.*" Additionality is the most controversial subject surrounding the S-CDM, and the concept that merits most careful thought, particularly when considered in light of the ultimate objective of the Convention. The Additionality Tool approved by the CDM Executive Board in its 15th meeting and presented in Annex 3 of that meeting²⁵ imposes a series of tests to be performed on potential CDM project activities in order to ascertain their additionality. There are two sets of criteria, one of which project activities must pass. According to one set, CDM project activities must *not* be the only alternative under current laws and regulations, *not* be the most financially attractive, and *not* be common practice. The other set of criteria requires project activities to *not* be the only alternative under current laws and regulations, have barriers that would *prevent* it from being carried out, and *not* be common practice. In addition to either set, the project activity must prove that its approval and registration as a CDM project activity alleviates the hurdles previously identified. While motivated by the desire for environmental integrity, in practice the test of additionality has become cumbersome, subjective and unpredictable.

The additionality test for the S-CDM could be simpler and more constructive. First, recalling that in SCDM the policy is the project, the additionality test needs to be performed at the policy level, not at the level of the individual units that implement the policy. Second, instead of going to great lengths to define what additionality is not, which at the policy level could become even more complex than at the individual project level, S-CDM could clearly define

²⁵ <http://cdm.unfccc.int/EB/Meetings/015/eb15repan3.pdf>

what is additional. Borrowing from Baumert and Winkler's (forthcoming) suggestion for Sustainable Development Policies and Measures (SD-PAMs), S-CDM could select a short list of policies that would be *de facto* additional. Such a list might include policies such as incentives/subsidies for the dissemination of renewable energy generation (with the exception of large hydro), appliance and /or motor energy efficiency standards, building efficiency standards, gas flaring phase outs, and fuel switching from higher to lower carbon fuels. Climate friendly policies such as these would be considered additional by virtue of their decided GHG reduction effect, and the fact that these activities usually require a supporting policy in order to occur at a significant scale. Individual units that implement the policy would not be submitted to any other additionality test, but would rather be deemed "*additional to what otherwise would have occurred in the absence of the (policy).*" In order to avoid an inappropriate flooding of emission reduction claims (and corresponding non-reductions in industrialized countries), the EB could set stringent criteria to select the areas/sectors of policies. The *de facto* list would of course not be static, but involve continuous monitoring, a process for adding to the list, and a process for sun-setting or up-grading policies currently on the list. Such a list would have the drawback of rewarding countries with low standards since high standard countries would not have as much room for improvement. But this imbalance of opportunity is inherent in the overall CDM structure.

The long-term advantage of such a list of a priori additional policies is that it would act as a clear regime inducement to foster the rapid adoption of those specific policies in developing countries. This would be a notable improvement on the current situation in which national level policies may provide incentives for climate friendly actions within a sector or a country (the above Type E-), but the regime itself is not stimulating the adoption of these policies. Obviously policies not on the list would not be stimulated, but the EB can be strategic in the definition of the selection criteria.

Given the necessary political will among the Parties to the Protocol, the EB could provide helpful guidance on the above issues. At the same time, developing countries would have to strengthen their capacity to participate in S-CDM.

- **Increased technical capacity** - In order to design and monitor S-CDM project activities, developing countries would have to build up their reliable data, at least in the sector/s in which they submit sectoral project activities. They would also need to strengthen their data gathering and management capabilities considerably, since S-CDM requires a rigorous accounting system in order to measure the results of policies. The challenge is however a positive one. Over time, technical capacity, sectoral inventories, and nationwide data would be further developed in non-Annex I countries, facilitating any type of future participation in the regime.

²⁶ Paragraph 45, 17/ CP.7, FCCC/CP/2001/13/Add.2, Modalities and Procedures for a Clean Development Mechanism as defined in Article 12 of the Kyoto Protocol

²⁷ <http://cdm.unfccc.int/EB/Meetings/016/eb16repan3.pdf>

- **Greater role of governments** - Except in the case where a government agency is the developer of a particular project activity, the role of the government under the current CDM is limited to evaluating and approving potential CDM project activities through the DNA. S-CDM challenges governments to a much more involved role and greater responsibility. The government needs to assume the responsibility of quantifying and monitoring emission reductions achieved by the sectoral project activity. The baseline (emission levels before the enactment of the policy) has to be accurately measured, as do the reductions achieved by each of the participating individual plants/motors/households, whatever the implementing unit is. It will be critical to guarantee that double counting of reductions (once at the implementing unit level, once at the government agency level) does not occur. The government would also have to either own the CERs outright, or act as clearinghouse for them, since CERs buyers cannot negotiate with a myriad implementing units. None of these are roles that governments play in the current CDM, and it may well be that smaller countries will decide to not assume such roles, continuing their participation only through the current CDM practices.

Timing

As we prepare for the first COP/MOP there is growing concern about the current underperformance of the CDM. Developing countries, troubled by the scarce "development dividend" of the CDM, are not the only worried ones. Annex I countries are concerned about the low level of supply of CERs. The prevalent project-by-project approach, burdened with high transaction costs and complicated approval procedures, is holding the supply of CERs at a very low level. As at November 6, 2005, two months before the end of the prompt start of the CDM only 34 project activities have been registered,²⁸ and a mere three have reached the CER issuance stage. Supposing the current portfolio of project activities will eventually be successfully registered and certified, it is projected to deliver just an average of 100 Mt CO₂e per year over the five year commitment period. By contrast, the estimated demand for CERs ranges from 217 to 640 Mt CO₂ per year by 2010 (Haites, 2004). Not only will the current CDM not bring substantial development benefits to developing countries, it will also not close the compliance gap for industrialized countries.

The challenge is to strengthen the CDM in the short term without re-negotiating the basic architecture of the Protocol. Without stepping out of the approved modalities and procedures of the CDM, the EB could request views on the approval of a mandatory government policy as a project activity, and then proceed to decide on the pending Ghana methodology. Should the EB approve that, the door would be open to S-CDM, based on both voluntary as well as on mandatory policies. S-CDM would operate under the same principles as the current CDM, and operate in much the same way, except it would have an expanded sense of project boundary and could have clearer definitions of additionality. Under the S-CDM, the incentive of selling emission reductions at a significant scale may accelerate or make viable some large, broad-based climate friendly project activities that otherwise would not be undertaken. The S-CDM could therefore not only substantially increase the volume of CERs on the

²⁸ <http://cdm.unfccc.int/Projects/registered.html>

market during a period when this is clearly needed, but would also promote sectoral transformation and augment sustainability benefits to developing countries.

The question then arises whether the S-CDM would be an appropriate mechanism for the post 2012 period. In principle one could argue that a mechanism that promotes proactive policies in developing countries should be maintained. However, the CDM is predicated on the demand for CERs from Annex I countries, and the S-CDM even more so, given its potential for higher volumes. It is too early to know how the regime will be structured after the first commitment period, as ideas for its architecture and design are just being put on the table. If industrialized countries consider deeper Kyoto-type reductions, there may be a crucial role for S-CDM because it allows stronger commitments. However, the United States will not take on such targets, and it is unlikely that the other OECD countries will do so in the absence of the major player.

In the absence of fixed targets for the industrialized countries post 2012, developing countries may wish to consider non-binding pledge-based Sustainable Development Policies and Measures (SD-PAMs) as presented by Baumert and Winkler (forthcoming). Under that scenario, an active S-CDM during 2008-2012 would have built up necessary technical capacity and system tools (quantification, accounting, registry, etc) in developing countries, which would serve as a useful platform for SD-PAMs.

This sequence of participation modes for developing countries makes inherent sense. One of the most acrimonious topics in North-South relations is the ever-present question "Who pays?" During the first commitment period, industrialized countries help finance mitigation in developing countries through the purchase of CERs from the CDM. S-CDM would operate within that established *modus operandi*. After 2012 the funding for emission reduction efforts in the form of SD-PAMs that are not Kyoto bound could come from several sources: bilateral aid agencies, the GEF, multilateral development banks, the private sector, the host government, etc. (Bradley and Pershing, forthcoming).

However, even if S-CDM and SD-PAMs dovetailed successfully into each other in 2013 and beyond, the critical issue of the value of current CERs remains unaddressed. If there is no continuation of CERs beyond December 2012, the current value of CERs would be heavily discounted with respect to ERUs and AAUs, the emissions reductions in industrialized countries. In fact, Annex I countries would lose much of their interest in the current CDM, thus leaving developing countries unaided in their efforts of decarbonization.

5. Conclusion

The AIJ experiment of the mid nineties was considered a failure by most countries. If the current state and trends of the CDM are reasonable predictors of the next seven years, the CDM will neither deliver the CERs needed by Annex I countries, nor will it significantly assist developing countries in achieving sustainable development. Yet the climate regime cannot afford a second failure of the one mechanism that involves developing countries. Neither can it afford to fail at a mechanism involving the private sector. If currently willing enterprises are burned by their involvement in the CDM,

they will not quickly return to the table for other efforts, either in the climate regime or in other multilateral environmental arenas.

If we want to rescue the CDM we must enhance its scope. S-CDM offers the opportunity to strengthen the CDM in the near term without re-designing the structure of the Protocol or the Marrakech Accords. With further guidance from the EB the CDM could significantly augment its impact during the first commitment period.

From a longer-term perspective, it is undeniable that whatever participation developing countries will have in the post 2012 period must grow out of previous experiences and lessons learned. Developing countries' investment in CDM capacity building has been too expensive and extensive to not use it as a springboard for future participation in the regime. By participating in S-CDM, developing countries in turn expand the regime options for which they will be ready in 2012. Mainstreamed into the current CDM, S-CDM could be a rich learning ground for future effective participation of developing countries in the climate regime.

REFERENCES

- Baumert Kevin and H. Winkler, "SD-PAMs and International Climate Agreements" pg. 9, in Growing in the Greenhouse: Protecting the Climate by Putting Development First, World Resources Institute, Washington DC, forthcoming. Rob Bradley and K. Baumert, eds.
- Bodansky, Daniel et al, *Strawman Elements: Possible Approaches to Advancing the International Climate Change Efforts*, Pew Center on Global Climate Change, November 2004.
- Bosi, Martina and Jane Ellis, *Exploring Options for 'Sectoral Crediting Mechanisms'*, OECD/IEA Paper for the Annex I Experts Group on the UNFCCC. Paris, February 2005.
- Bradley, Rob and J. Pershing, "Introduction to SD-PAMs" in Growing in the Greenhouse: Protecting the Climate by Putting Development First, Rob Bradley and K. Baumert, eds . World Resources Institute, Washington DC, forthcoming.
- Cosbey, et al. *Realizing the Development Dividend: Making the CDM work for Developing Countries*, International Institute for Sustainable Development, 2005.
- Dixon, Robert K. and Irving Mitzer. *Implications of AIJ for CDM in The UNFCCC Activities Implemented Jointly (AIJ) Pilot: Experiences and Lessons Learned*. Kluwer Academic Publishers, 1999.
- Econergy International Corporation, *Renewable Energy and Energy Efficiency Projects in Colombia*, US Trade and Development Agency, Washington 2005
- Esty, Dan with Gentry, Brad. *Foreign Investment, Globalization and Environment in Globalization and Environment*. 1997

Figueres, Christiana. *Institutional Capacity to Integrate Economic Development and Climate Change Considerations: An Assessment of DNAs in Latin America and the Caribbean*. InterAmerican Development Bank, 2004.

Figueres, Christiana ed. Establishing National Authorities for the CDM: A Guide for Developing Countries, Center for Sustainable Development in the Americas and International Institute for Sustainable Development, 2002

Haites, Erik. *Estimating the Market Potential for the Clean Development Mechanism: Review of Models and Lessons Learned* - PCFplus Research Report #19. World Bank. 2004

International Energy Agency, *World Energy and Environmental Outlook*, Paris, France. 2004

IPCC, Climate Change 2001- Mitigation, Contribution of Working Group III to the Third Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press.

Michaelowa, A. and M. Dutschke, eds. Climate Policy and Development - Flexible Instruments and Developing Countries. Edward Elgar Publishers, 2000.

Samaniego, Joseluis and C. Figueres, *Evolving to a Sector-based Clean Development Mechanism*. Chapter 4 in Building on the Kyoto Protocol: Options for Protecting the Climate, Kevin Baumert, ed. World Resources Institute, 2002.

Secretaria de Recursos Naturales y Medio Ambiente, Norma Oficial Mexicana NOM-083-SEMARNAT-2003, Diario Oficial, Estados Unidos Mexicanos, 20 de octubre, 2004.

Schmidt, Jake, Karen Lawson and Jin Lee, *Sector-Based Greenhouse Gas Emissions Reduction Approach for Developing Countries: Some Options*, Center for Clean Air Policy, November 2004

Sterk, Wolfgang and Bettina Wittneben, 2005. *Addressing Opportunities and Challenges of a Sectoral Approach to the Clean Development Mechanism*. JIKO Policy Paper 1/2005. Wuppertal Institut für Klima, Umwelt und Energie, Wuppertal, Germany.

UNFCCC Decision 17/CP.7, FCCC/CP/2001/13/Add.2, Modalities and Procedures for a Clean Development Mechanism as defined in Article 12 of the Kyoto Protocol

World Bank and International Emissions Trading Association, *State and Trends of the Carbon Market 2005*.