Evolution of the CDM:
Toward 2012 and Beyond

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INTRODUCTION

As the market mechanism created for developing countries to participate in the global emission reduction market under the Kyoto Protocol, the Clean Development Mechanism (CDM) has been a vital instrument to learn by doing. The achievements of the CDM are indisputable, and are in fact remarkable given the fact that the climate regime had no market mechanism or market experience just five years ago. The Protocol market mechanisms are in fact the first ever attempt of the United Nations to create and regulate a global commodity, a responsibility otherwise squarely in the hands of the private sector.

However, the Kyoto Protocol (KP) was never meant as the solution to climate change, nor its market mechanisms intended as a final product. The KP is limited in its global emission reduction target, in its time frame, and in the countries that participate. Given the scale of the climate challenge, the KP can only be seen as the preamble of an extended and enhanced effort, which should continue to rely heavily on market mechanisms in order to manage the costs.

In order to identify the ways in which the current CDM could be further strengthened to make it commensurate with the task at hand, it is crucial to review the performance of the CDM. This paper first evaluates both the achievements and the shortcomings of the current project-based CDM, and then identifies the potential posed by the new option of registering CDM programmes of activities during the first commitment period. The paper then proposes a two-pronged strategy for long term climate management through the market place: a) develop the full potential of the CDM through implementation of programmatic CDM, reduction of regulatory and financial risk and uncertainty, and governance reform, and b) introduce new sectoral approaches capable of transforming whole sectors of emerging economies at the speed commensurate with the challenge of taking emission reduction efforts to scale.

The suggested sectoral crediting approach builds on existing literature[3] and is a possible direction in the post 2012 evolution of the market mechanism, the design parameters of which could potentially leverage hundreds of billions of dollars a year of new resources in new low to zero carbon economic development. The paper poses that post 2012 versions of the CDM or equivalent mechanism must be efficient in serving domestic policy objectives and leveraging capital, know-how and technology transfer through the market. In addition, they must be professionally managed in the manner of other commodity markets, acknowledging the unique differences of a global public goods market created by an international political agreement and underpinned by difficult-to-achieve consensus.

This short paper is not meant as a deeply prescriptive document that presents a detailed path toward more robust markets. Rather this paper seeks to propose a direction supported by

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[3] For more information on sectoral crediting see work from: Samaniego and Figueres (2002), Baron and Ellis (2006), ECOFYS (http://www.sectoral.org/), CCAP (http://www.ccap.org/international/future.htm), WBCSD (http://www.wbcsdcement.org/) and GTripleC (http://www.gtriplec.co.nz).

informed observation, sensitive to the art of the possible in the context of international negotiations.

2- PROJECT-BASED CDM

From the perspective of industrialized countries the purpose of the CDM is to lower the cost of global greenhouse gas reduction commitments under the Kyoto Protocol, offering an element of flexibility to their domestic reduction efforts. In this pursuit, and as a market mechanism, the CDM has in fact facilitated a functional market by defining the standards and processes for achieving compliance grade 'carbon' assets, consolidating methodologies, streamlining procedures, reducing costs and enabling larger volumes. The CDM has registered over 700 projects that have a potential of delivering 1 billion tonnes of CO2 by the end of 2012. There are at least another 900 projects in the CDM pipeline (projects in preparation but not yet registered by the Executive Board of the CDM), with a potential delivery of an additional billion tonnes of CO2 by 2012. If the current "issuance success rate" of 80% continues, the total amount of CERs issued by the end of 2012 could be around 1600 Million CERs, or about 300 Million CERs available for each year of the first commitment period. Although the profile of the CDM portfolio is shifting towards more complex and risky energy and infrastructure projects, there is little evidence of a significant slow-down in CDM asset creation by major carbon asset developers, suggesting that supply of 2 gigatonnes may be plausible, even taking declining delivery efficiency into account.

Table 1, CERs from registered projects until 2012

	Annual Average CERs*	Expected CERs until end of 2012**
CDM project pipeline: > 1600 of which:	N/A	> 1,900,000,000
--- 715 are registered	152,231,233	> 960,000,000
--- 63 are requesting registration	12,625,054	> 60,000,000

* Assumption: All activities deliver simultaneously their expected annual average emission reductions
** Assumption: No renewal of crediting periods

Source: http://cdm.unfccc.int/Statistics/index.html

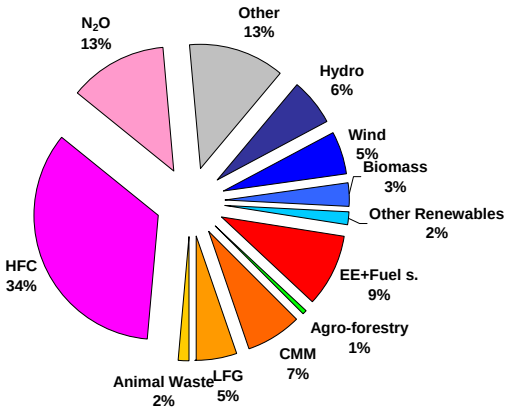
From the perspective of developing countries, the two purposes of the CDM are to promote domestic sustainable development and to contribute to the global stabilization of greenhouse gas (GHG) concentrations in the atmosphere. These goals can only be pursued in as much as the CDM would be an effective instrument for decarbonising the trajectories of production and growth in developing countries. In terms of these goals the CDM has not performed quite as well. Put another way, if non-CO2 industrial gases (mostly HFC23 and N2O) are taken out of the portfolio, the effect of the CDM as a catalyst of low carbon, climate change resilient economic development is much less clear.

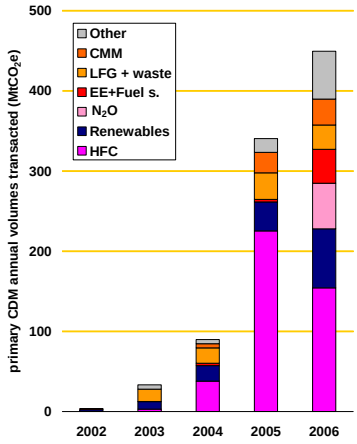
The CDM has set up an international operating structure and achieved capacity building in many developing countries. It has catalysed technology transfer of already commercial lower carbon technologies and expanded the market share of climate friendly practices for most small to medium scale projects in energy and waste management. Its potential to transform agro-industrial waste management practices on a global scale, reducing local as well as global environmental impacts, recycling nutrients and expanding sustainable energy supply, is well demonstrated, including potential co-benefits for local communities and local governments.

The graph here below profiles the source of CERs by asset class. Industrial gases clearly dominate followed by methane avoidance activities of great diversity. Renewable energy and industrial energy efficiency are much smaller, industrial energy efficiency is picking up and the

upstream pipeline will show growth in fuel switching from higher to lower carbon intensity amongst fossil fuels for power generation.

Figure 1: Asset Classes of CDM projects





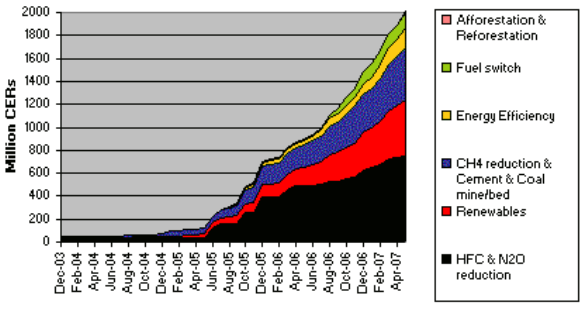
As a share of volumes contracted in 2006

There are many critics of the early dominance of industrial gases, in particular HFC23 and N2O, that have a high global warming potential and comprise about half the current CDM portfolio.

However, from a market point of view, eliminating industrial gases was the obvious place to start a serious effort to manage climate change, for in the absence of the CDM, there would be no incentive for their elimination. Because the baseline is so clear and the methodologies fairly straightforward, eliminating 'end-of-pipe' industrial gases allowed the CDM to generate early volumes consistent with the current scale of demand, build market confidence, and lower the initial cost of CER supply.

Having achieved these critical outcomes for the global carbon market as it was evolving, the role of the CDM in continuing support for industrial gas elimination post 2012 needs careful thought (see Section 5 below). As the cost of their elimination is quite small, the substantial capital flows to purchase these assets would continue to divert from the tougher task of contributing to sustainable development by decarbonising the energy sector and urban growth, a situation which is not recommendable in the long run.

Figure 2, Historic CER supply 2003 - 2007



More recently, the CDM has shown that it can catalyze uptake of commercially proven technologies to capture waste heat and waste gases, increasing efficiency and reducing local environmental impact of major carbon intensive manufacturing industries (iron and steel, cement, chemicals). Likewise, CDM has begun to support a wave of methane capture and use, and efficiency activities in coal mining, oil and gas exploration and distribution.

In contrast with these promising beginnings, the CDM has fallen short of achieving its full potential. To date the CDM has not:

- Demonstrated how project-based emissions reductions can catalyze and support the decarbonisation of the built environment and transportation which comprise more than half global carbon emissions and are the fastest growing sources of carbon emissions in the emerging markets;
- Shown the potential to create carbon sinks through reforestation activities, leaving a huge imbalance in global efforts to manage climate change;
- Supported sustainable livelihoods (improved cooking and lighting) and catalyzed energy access for the rural and peri-urban poor, leaving Sub-Saharan Africa and the least developed countries stranded without access to carbon finance;
- Treated urban waste methane avoidance with sufficient regulatory consistency to have promoted a sustainable solution to the burgeoning urban waste management problem;
- Appropriately addressed the largest source of greenhouse gas emissions globally – coal fired power plants, nor
- Played an important role in fuel switching from high to low carbon intensive fossil fuels.

In part these shortcomings are due to short-sighted political decisions of the Parties. In part they are due to an originally inexperienced regulatory body and to destabilising and frequent rule changes affecting investment in key sectors. But to a great extent these weaknesses are due to the fact that the CDM was created as a project-based instrument. Restricting the CDM to emission reductions from single point sources has curtailed its potential to promote the needed sector-wide transformation, attained by cost effectively channelling capital and know-how to decarbonise carbon intensive sectors such as energy, transport and infrastructure. The project-by-project approach cannot stimulate technology development and underwrite the risk of major scale ups in R&D in low carbon/zero carbon technologies. From a financial perspective, project-based CDM cannot stimulate an adequate and reliable new source of risk capital to finance technology shifts and required policies/incentives on the scale of whole economies. It has yet to provide the essential investment climate of regulatory certainty and manageable business risk to ensure that a stream of anticipated CERs is bankable collateral for financing specific projects. Without this assurance, it is also unable to finance rapid expansion of already commercially proven leading edge lower carbon power and infrastructure technologies.

Expectations were high that CDM would also catalyze and promulgate the adoption and implementation of climate friendly policies in developing countries. Ironically however, over the past few years the CDM has acted as a perverse incentive for developing countries, actually motivating them to restrain from undertaking climate protecting policies and measures. Although it was never explicitly stated, for several years there was an underlying notion that the existence or introduction of a climate-friendly policy or regulation in a developing country would make a project in that sector non additional, and thus not eligible for the CDM. Fortunately this unreasonable situation has been rectified. In November 2005 the Executive Board of the CDM ruled that a new policy would not affect the baseline of a project, providing investment-relevant, medium-term certainty for the crediting period (7-10 years).

Just recently, the perverse incentive has been further eroded through the approval of programmatic CDM.

3- PROGRAMMATIC CDM

The decision to include 'programmes of activities" in the CDM was taken at COP/MOP 1 in Montreal at the end of 2005. The Executive Board has only just finalized the guidance for this type of CDM projects[4]. However, it is clear that programmatic CDM (pCDM) is the first opening toward policy-based and sector-wide emission reductions in developing countries.

[4] Annexes 38 and 39 of EB 32

Under a CDM program, emission reductions are achieved by multiple actions executed over time as a result of a government measure or a private sector initiative. Due to the political resistance and methodological difficulties in crediting policies, the Parties were careful to not allow a policy or performance standard, in and of itself, to be submitted as a CDM project activity. Drawing a fine line crafted by difficult consensus, Parties agreed that if a policy is implemented by a concrete program of activities directly achieving emission reductions that can be measured and verified, the program of activities would be eligible under the CDM and can be submitted as a single CDM project activity during the first commitment period.

This new option for registering CDM projects expands the CDM beyond single point source reductions bringing benefits to participating countries and to the system. CDM programs are able to reach large numbers of individual households and small industry, offering them improved technology (efficient cooking stoves, appliances, lighting, motors, air conditioners, etc.). Small countries with no large emitting facilities and therefore not yet participating in the CDM can design CDM programs that involve many small users who achieve reductions not concurrently but over a period of time. The PoA option can be used to incorporate widely diffused emission reductions such as those in end-use energy efficiency and transportation. Unlike traditional CDM that focuses on individual efforts at a "carbon upgrade" within the limited boundary of a single facility with little or no transformational effect on the sector or economy, programmatic CDM promotes decarbonization of the respective sector. Finally, and perhaps most importantly, CDM programs mark an important step in the meaningful participation of developing countries in the global climate regime. By assigning a CER value to reductions achieved under a program of activities, the regime is providing the first incentive for developing countries to adopt and implement climate friendly policies and measures, helping prepare developing countries for a broader participation in the future climate regime (see Section 6).

The rise of pCDM does not imply the abandonment of project-based CDM. Project based CDM must continue to be used by facilities that individually have medium to high emission reduction levels, and that are best incorporated into the CDM as single point sources. Programs play a complementary role in the structure of the market, and provide an important bridge toward further strengthened instruments for carbon asset creation and trade in the post 2012 period.

4- FURTHER STRENGTHENING THE CDM PRE 2012

It is clear that the potential of the CDM has only just been tapped. As we approach 2008 and the beginning of the first commitment period, there is still much that can be done to further strengthen the CDM for this period, assuming the political will can be mobilized.

It is remarkable how much private capital was mobilized to invest in carbon asset creation and trade once the 'rules of the game' were intelligible and growing competency of the regulatory mechanism had been demonstrated. Funds under management in various classes of vehicles (mostly private sector) grew from $4.6 billion in 40 funds in May 2006 to $11.8 billion in 58 funds as of March 2007. Prior to that point, the World Bank's carbon finance business and sovereign investors dominated carbon finance. While the growth in private capital is a remarkable and encouraging development in the global carbon market, it comes despite many constraints. The annual rate of deployment of capital through primary CDM transactions doubled from $2.4 billion to $4.8 billion from 2005 to 2006, but this is still a fraction of the investment needed to cover the incremental costs of decarbonisation, estimated at $20-30 billion per year by the Stern Review of the Economics of Climate Change. The more interesting question is 'what could it be if the constraints were reduced or eliminated'?

Reducing regulatory risk and uncertainty, and increasing certainty of delivery of anticipated streams of CERs are two sides of the same coin. Addressing both in tandem will have a synergetic effect on business confidence and investment levels.

Governance. Many observers have addressed CDM governance issues and this paper adds nothing new to this subject. A well-established and effective support structure, which provides

institutional memory, impartial substantive analysis and regulatory consistency, is fundamental to the success of the CDM. The fledgling institutionalization of the CDM originally put together in 2000-2001 has gradually matured, slowly but surely shifting analytical work from the EB to the growing technical secretariat, thereby increasing the institutional knowledge capacity of the mechanism. A further step, but one which is currently politically much less acceptable, would be to professionalize the market regulator as the market matures and the level of investment regulated becomes globally significant. It is unreasonable to expect a part-time voluntary body with rotating membership, and membership defined more by politics than business experience, to operate a market of tens of billions of dollars in value annually.

Risk and uncertainty. In this paper we choose to focus only on two aspects of ongoing risk and uncertainty for investment in CERs and the underlying climate-friendly projects. Both concern predictability:

- Predictability of volumes of CERs that can be achieved from eligible activities and
- Predictability of CER volumes and hence revenues from registered and commissioned projects.

In the first case, investors in CDM projects have been faced with repeated reductions in allowable CERS through constant review and consolidation of approved methodologies. The commercial significance of these changes is huge. Entrepreneurs willing to put capital at risk in climate-friendly technologies to generate CERs mobilise capital against one set of rules, only to be confronted within months to a year by another set that greatly alters the return on investment, or renders the business in-viable. While it is understandable that methodology development is a learning-by-doing process, there have been instances where in the course of a year of repeated and un-anticipatable changes, eligible activities generate less than 25% the volume yielded by the starting approved methodology.

The solution here is greater transparency and confidence in the technical basis of the judgements being applied, continuity of existing rules for periods that give reasonable confidence to investors, and communication to the public about review processes that are underway and plausible. Just this year the Executive Board (EB) of the CDM has begun to put such improvement processes into place and efforts in this direction need to be strengthened and institutionalized.

In the second case, providing for issuance of guaranteed minimum levels of CERs at the point of project commissioning, or sale of appliance (in pCDM for example), will greatly decrease regulatory risk and uncertainty and increase the level of investment in climate friendly projects. This approach is called 'deeming' and means simply that the project proponent makes a well-informed conservative judgement of the 'certain' emissions reductions arising from specific activities and these are recognized by the regulator, enabling the seller or developer to obtain the benefit of this volume immediately for compliance and trade. This approach allows financiers to lend against a CER revenue stream without risk for a part of the anticipated stream of revenues, lowering the cost of the project or activity, and increasing the level of investment significantly overall.

***Deeming**: For carbon asset creation in its greenhouse gas trading scheme, the Government of New South Wales in Australia has successfully used deeming for its demand side management projects. The United States uses deeming for forestry assets under 1605B legislation. Developers of forests can opt to take 50% of the anticipated future emissions reductions up front at verified plantation establishment. Deeming is also common through the ESCO business in the USA. Deeming could be applied in support of programmatic CDM, and in other activities where the certainty of outcomes is assured. The ability of CDM project developers to raise funds for their projects would be greatly increased in such activities. The greatest impact would be in the poorer countries where business risk is perceived to be the highest and capital hard to mobilize, such as in Africa.*

Non-renewable biomass. Over the past few years repeated efforts have been made to support energy efficient household fuels for the rural poor through the CDM. The efforts have been mired in a political controversy about the non-inclusion of deforestation in the CDM. In the past few weeks the Small Scale Working Group of the EB has proposed two methodologies that could solve the political issue, while demonstrating technical rigor. It is hoped that these proposals (or ones similar) will be adopted by the Parties in Bali and subsequently by the EB. Far from preventing the rural poor from obtaining the benefits of CDM and carbon finance to improve the efficiency of cooking and the quality of health, the CDM should be an effective instrument to help achieve these basic needs while serving the global objective of mitigating climate change.

5- MEASURES FOR A POST 2012 CDM

To strengthen and increase the capacity of the CDM to serve the poorest countries and the rural poor, and to restore some balance in resource allocation globally between adaptation and mitigation, several specific measures deserve close attention in the post 2012 context.

- **Create a level playing field for LULUCF activities**. The full range of LULUCF interventions to create biological sinks should be included in post-2012 climate change management regimes. A post 2012 CDM could adopt the recently agreed Voluntary Carbon Standard (VCS) approach for using buffer stocks to mitigate permanence risks, and at the same time capture the many co-benefits of sustainable land management, forestry and agriculture, sustainable livelihoods and biodiversity conservation. These measures would also disproportionately support the agrarian economies of Sub-Saharan Africa.
- **Eliminate industrial gases as an eligible asset class for CER/ERU production beyond the first crediting period of existing projects**. With the bulk of industrial gases now eliminated by technically sound and cost-effective means, developing countries would be expected to require their elimination as a production standard. The OECD should consider a grant program for the poorer countries with such facilities to ensure that they have the incremental funds to install the required catalysts and incineration equipment and operate this as per the Multilateral Fund for phase out of Ozone Depleting Substances. Continued eligibility for industrial gases as a compliance asset would exacerbate existing biases in carbon finance flows to middle income industrializing countries and divert capital away from decarbonising their energy supply and infrastructure.

These are some opportunities to increase the efficiency and financial leverage of the CDM, and to address distributional biases of CDM benefits that have plagued it since inception. On the other hand, in order to promote policy reform, underwrite technology development, and stimulate investment flows on a scale that is truly transformational, the market mechanism must graduate to a sectoral approach.

6- SECTORAL CREDITING

It is too early to know whether the CDM will retain its name in the post 2012 regime, but in any event it is highly likely that market mechanisms will be an important component of the new chapter of the regime, and that developing countries will continue to play an important role in supplying reductions into the market. It is equally clear that the market mechanism should build upon the experience acquired during the first commitment period, but must go beyond its current scope. Sectoral crediting is here proposed as a possible post 2012 complement to the Marrakesh- bound CDM.

Programmatic CDM allows developing countries to develop the capacity to organize and submit to the CDM policy-based and sector-wide reductions stemming from transformations of production and consumption patterns. In the medium term the larger rapidly developing countries could use the experience gained from programmatic efforts to graduate into sectoral crediting mechanisms, whereby they define clear-cut “domestic interest” reference lines in

specific sectors, and are then rewarded for the incremental effort of moving beyond this level to capture additional reductions in the "global interest" over a defined period of time.

The fundamental distinction between the sectoral approach and the project-based or programmatic approach is that rapidly industrializing countries would voluntarily opt to set sector-wide reference lines for carbon intensive sectors at levels that coincide with their domestic economic interests. Reference lines would be progressive over time (reduced in carbon intensity year on year), embodying the Government's commitment to reduce the carbon intensity of growth while achieving domestic economic efficiency targets in parallel. These reference line trajectories would be independently assessed by UNFCCC panels, just as the inventories of sources and sinks are independently assessed in Annex B countries.

Rapidly industrializing country Parties would then design and present for independent assessment, additional policies, measures and investments to reduce carbon intensity below the accepted reference level of efficient domestic economic performance, with the purpose of earning emission reductions to the extent that they exceed the agreed domestic reference line, thus performing a global service. On the basis of this rigorous process of review and reporting, Parties would agree to the forward sale of a proportion of the anticipated emissions reductions to help underwrite accelerated low carbon economic growth. This latter provision is crucial to leveraging investment on a scale sufficient to make a difference to the underlying economics of more advanced zero carbon alternatives, and support aggressive fiscal policy instruments (subsidies, tax concessions, matching grant programs etc, etc.) that would otherwise place a heavy burden on domestic budgets.

The key design parameters of a successful sectoral approach include the following:

- **It is optional**. These are not back-door means of getting developing countries to set targets. Countries would typically opt for sectoral approaches where there was a high degree of alignment between domestic development priorities and climate change management, but would set domestic reference lines at levels that already achieve significant reductions in the carbon intensity of growth;
- **Differentiated approach**. Sectoral approaches only make sense for larger middle income countries with world scale carbon intensive industries where aggregation of revenue potential provides financial leverage sufficient to transform the sector over a 10-20 year period (such as the iron and steel industry and cement industries in China and India, and pulp and paper industry in Brazil). This means de facto that the CDM would still serve the great majority of developing country Parties, even if it did not process the majority of the tradable emissions reductions;
- **Allowing choice between project-based and sectoral approaches**. This is essentially a trade-off between volume and enterprise level returns with financial leverage to effect early transformation to low or no-carbon production. In opting for a sectoral approach, countries forgo the option to use CDM project-based emissions reductions in that sector for an extended period. Sectoral reference lines would reduce the opportunity for backward enterprises to profit from relative inefficiency and reward modern enterprises with resources to further increase their advantage and reduce their carbon intensity.
- **Forward sales**. The key incentive to opt for a sectoral approach is the opportunity for forward sales of a large volume of emission reductions against a UNFCCC approved low carbon benchmark of policies and investments. The quid pro quo in the case of non-performance would be no access to carbon finance in the sector until the 'debt' is repaid. Once issued, credits for forward sale could not be revoked.
- **Rewarding climate-friendly domestic policy**. Under sectoral approaches, governments would have the flexibility to manage carbon assets and revenues to achieve their sectoral targets. Emission reductions created from adoption of additional policies and measures beyond domestic reference lines might be allocated to industry in the sector by various means to stimulate lower carbon intensity; or the resources may be used to support fiscal policy measures, underwrite technology development, manage unique risks of technology

deployment, back up bond issues to broaden the financial base supporting decarbonising investments from corporate balance sheets and debt to the general public, etc.

- **Regular performance reviews.** Reference line assessments and sector performance reviews against agreed targets for additional reductions in carbon intensity would be held every 3-5 years depending on sector performance risk and scale of the sector, amongst other factors.

The acid test for these changes is whether they would build confidence in the capital markets sufficient to mobilize the level of private investment necessary to transform economies the size of India and China as they grow at 6-8 percent per annum, as well as underwrite refurbishment of the existing carbon-intensive capital stock of the slower growing industrial economies.

A sectoral crediting mechanism might appear to create competition between the two markets, one focused on the smaller and less developed countries/sectors with higher risk, and the other concentrating on the rapidly developing countries, with lower risk. Thus the importance of measures cited herein to reduce risk and uncertainty in the CDM in order to mitigate such a bias. On the other hand, by opting for a sectoral approach, the larger economies would be trading off financial leverage with volume of emission reductions at the enterprise level as under a sectoral approach the less efficient enterprises would only obtain CERs for improvements better than the agreed reference line. Hence the great majority of developing countries that have much smaller economies and only a few representatives of major industrial enterprises such as cement complexes, iron and steel complexes, petrochemical complexes would not find a sectoral approach worth the effort in terms of leveraging investment sector-wide, but would be compensated by getting full crediting for emissions reductions using CDM guidance for the specific enterprise assets concerned.

There are of course several challenges to be met in operationalizing such a sectoral crediting mechanism.

- First is the obvious disincentive to voluntarily set national interest sectoral reference levels, preferring rather to set carbon intensive references that maximize the potential crediting from the mechanism.
- Second, it implies a differentiation in the G77 and China Group, which is a key component for the evolution of the regime, but an extremely difficult process politically, given the long tradition and deeply entrenched negotiating position of the Group as a whole.
- Third, the slow pace of negotiating the implementing provisions of the Kyoto Protocol, i.e. the Marrakech Accords, would have to be avoided. Following signature of the Protocol in 1997, the rules for the carbon market were only agreed in 2001. If a similar delay occurs for the post-2012 regime, even after an optimistic agreement date of 2009, the rules for sectoral crediting would only be in place in 2013 with significant investment flows materialising some years later, possibly after 2015. This is late given the technology lock-in already occurring and the impact of even a few years delay on prospects for stabilisation of atmospheric concentrations of greenhouse gases at the safer end of current projections.
- Finally, the feasibility of exponential supply in the market mechanism is predicated on commensurate growth in demand, stemming from much deeper reduction commitments on the part of Annex I. This is discussed below.

7- THE PARADOX OF SUPPLY AND DEMAND

If adopted, the measures discussed above would not only maintain the growth of the CDM but achieve emission reductions at levels commensurate with the challenge of climate change mitigation globally. In fact a natural evolution in the ability to generate high and sustained growth in emission reductions in developing countries is already underway with the growth in CDM administrative capacity and the adoption of programmatic CDM. Movement to sectoral approaches is one more step in that evolutionary process. Rather than decline rapidly in the face of uncertainty of long term carbon values, the global CDM portfolio continues to grow.

We should delight in this outcome as it should encourage the industrialized countries to take on higher targets, assured of higher supply of carbon offsets through trade at a reasonable cost.

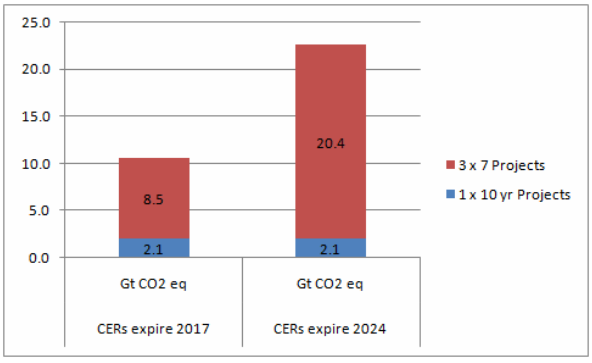
There is little evidence yet that the CDM pipeline is in downturn, despite post-2012 price uncertainty. This is largely due to the EU's unilateral commitment to a 2020 emissions reduction target, the continuation of the European Trading Scheme (EUETS) and its recognition of imported carbon. However, instability in post-2012 demand for carbon assets ironically threatens to undermine the success of the CDM and forestall its natural evolution to a set of instruments that can be effective at scale.

In the event of serious non-compliance by Annex I governments, the risks of oversupply of CERs are present even in the first commitment period. In the event that 2 billion tonnes of CERs were to be actually issued by 2012 (as currently projected on the official website of the CDM), medium term demand weakness would be manifest as a short term economic issue. The demand from Phase II of the EUETS is estimated to be approximately 1.25 gigatonnes for both the CDM and Joint Implementation. If this is augmented by Annex I demand from sovereign countries , estimated at nearly 1.5 gigatonnes excluding Canada, some of which may be transferred to the private sector as is the case under the EUETS, the resulting demand of 2.7 gigatonnes would be as high as or even exceed supply and could be sufficient to maintain prices at or well above Euro 15. The availability of Removal Units (RMUs) from LULUCF activities in Annex I countries provides only a small contribution to meeting demand (less than 0.3 gigatonnes). If the government of Canada were to recommit to full compliance, Canadian demand would add an additional 1 gigatonne.[5] It seems however, that only concerted and sustained efforts by Kyoto ratifying sovereigns to meet their compliance gap is capable of assuring this outcome, and their resolve must therefore be strengthened and sustained.

Pre-2013 CDM deliveries are a small proportion of total anticipated deliveries. CDM projects can either be 10 years long, or 7 years, renewable twice with a total of 21 year crediting. At the beginning of a project's second crediting period, the project must prove that the original baseline is still valid or revise it. Depending on the rules established for post 2012 crediting of current projects, the average CDM project that delivers the first CERs into the first commitment period could deliver the "tail end" of its reductions after 2012, and this tail could be as high as 65 and 80% of total project reductions. The modalities for the process of 'renewal' have not been defined, hence we provide estimations for several plausible scenarios, fraught as they are with uncertainty.

If pre-2012 deliveries are two gigatonnes, and all current pipeline projects (including the industrial gas projects) are credited beyond 2012, the CDM would possibly deliver 10.6 gigatonnes from now to 2017 and 22 gigas if crediting is recognized until 2024.[6]

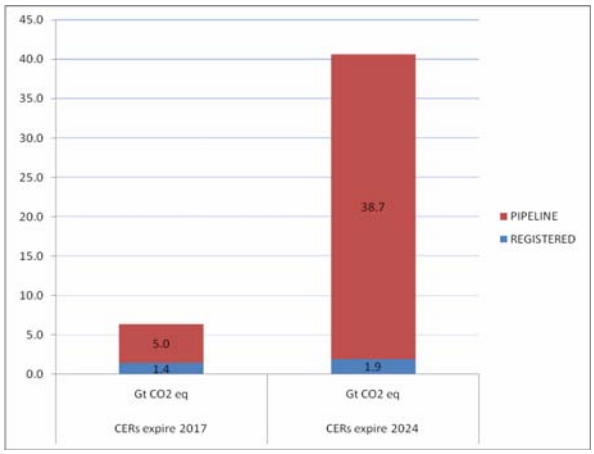
Figure 3. CERs to come beyond 2012



[5] 1 Gt = 1000 000 000 tons

[6] Estimates by A2G Carbon Partners, June 2007 based on UNEP RISOE Data and UNFCCC website data.

Figure 4, CERs to come without N2O and HFCs



Should the Parties decide to exclude industrial gases from the post 2012 market, supply from the rest of the current pipeline would obviously decrease post 2012 with respect to the volumes estimated with industrial gases. Here again we pose some scenarios only to convey a sense of order of magnitude, since supply is sensitive to so many risk factors. The 720 projects that have already been registered by the EB have the potential to deliver 1.4 Gt by 2017 and 1.9 Gt by 2024. In a scenario that would include all the non-industrial gas projects in the current pipeline, and assuming 35% of them eventually achieve certification and issuance, they could generate 38.7 Gt if credited until 2024.

This level of supply, which does not even consider new CDM projects that are not already in the pipeline, far exceeds the demand levels currently envisioned under some plausible scenarios. For example, the two major components of demand are the EU and the US, in the case that the US should decide to enter the market:

- If emissions trading delivers half of the EU's 30% target, and imported carbon meets 75% of that demand, the EU can import 0.18Gt per year or 2.35 Gt cumulatively between 2012 and 2020
- If the US adopts the McCain-Lieberman bill, and uses imported carbon to meet 25% of the demand created due to a preference for domestic offsets over international ones, the US can import 0.13Gt per year or 1.68 Gt cumulatively between 2012 and 2020.[7]

These two components would have a combined demand level of 4 gigatonnes, which could be met by the "tail" of current CDM even if industrial gases were excluded from the market.

Early visibility of the rules for renewal and post 2012 crediting is essential in order to avoid capital taking flight. Most CDM projects so far have been financed only on the basis of pre-2012 value, but there are important exceptions, and commercial practice has also begun to change with prices being offered for post-2012 CDM assets that require larger capital expenditure and longer crediting. These projects have an important bearing on the financial viability of decarbonisation activities with important contributions to preventing climate change as well as delivering domestic policy objectives in developing countries, such as energy security and pollution abatement.

Therefore, whether all, some, or none of the post-2012 'tail' of CER deliveries from CDM projects registered by the end of 2012 will be accepted for compliance in the post-2012 regime by Kyoto-ratifying States is of crucial environmental, economic, commercial and political significance. These questions need to be addressed transparently as a matter of urgency so the market can be informed and adjust with minimum disruption.

Obviously, the best solution to rebalance demand and supply is first an exclusion of industrial gases from crediting after 2012, and then an increase in commitments on the part of industrialized countries, preferably not only the currently participating but also those that do not participate in the first Commitment Period market. If these commitments are slow in coming at the level required to eliminate the problem, policy-makers will likely consider a number of second or third best measures such as: limiting the life of CDM projects registered before 2012, arbitrarily discounting the value of the tail of such assets, or, just as we have suggested for industrial gas assets, not allowing certain asset classes into trade in post-2012 compliance regimes.

[7] Estimates by Climate Change Capital and New Carbon Finance (June 2007)

Knee-jerk policy interventions carry the risk of destabilising a healthy and booming global carbon market and the capital flows that are stimulating climate-friendly activities. On the other hand, there are opportunities here to redress imbalances and inherent biases against riskier more capital intensive low or no carbon investments, and against smaller poorer countries and regions. But how these decisions are made, and that they are made in a timely manner to avoid a disruption to the market is of crucial significance to long term climate management efforts.

IN CONCLUSION

The process of climate change management through the market-place is one of never-ending refinement and adjustment. It must be supported by keen observation and analysis, and quick yet thoughtful policy and regulatory adjustment as we understand what works and what doesn't. The contribution of the Kyoto Protocol to our understanding of how to finance decarbonization and climate change resilience through the marketplace in the global economy has been extraordinary and richly insightful. Those charged with this difficult task deserve enormous praise and support to have enabled this learning and positioned us to design and manage scale up with meaningful impact over the medium to long term.

Already many opportunities to improve and enhance the impact of project-based mechanisms have been identified and should be acted upon swiftly. Likewise, the limitations of a project-based mechanism have also become clearer and ideas are emerging that address them. In this note, the authors have sought to provoke thought and share insight from their diverse but rich experience in various aspects of the CDM markets development over fifteen years. They are persuaded that the momentum of action to address climate change through the market is great and cannot easily be derailed, despite the challenges of post 2012 uncertainty. The authors remain optimistic about the future of the CDM while recognizing the need to avoid reliance on a single market instrument.

ANNEX
Possible Timeline of Policy Events that Would Positively Affect Post 2012 Assets

Policy event	***Timing***	***Mitigation of policy risk***
European Commission Communication on the post-2012 regime	*January 2007*	*Provides the expectation of ongoing linking to the CDM, other ETSs and new international mechanisms, such as one-way targets and sectoral mechanisms*
European GHG target	*March 2007*	*Sets the minimum level of ambition at EU level*
ETS Review (including review of the Linking Directive)	*Proposal in November 2007 with resolution in early 2008*	*Sets out:* • *Allocation methodology (providing greater clarity for individual installations)* • *Confirmation of linking* • *Supplementarity rules*
International negotiating mandate	*Bali December 2007*	*Would provide an insight into the possible evolution of the carbon market (new mechanisms, inclusion of avoided deforestation etc)*
Setting an EU-wide cap for the trading sector	*2008-2010*	*This could happen as part of the ETS Review or come later under separate national allocations. This would could set out a minimum and/or maximum level*
US adopts Federal emissions trading scheme	*2008-2010*	*Would increase post-2012 demand for CDM* *Would increase expectation of an international agreement*
Final international agreement	*2009-2010*	*Would set out the maximum level of ambition at international level (possibly up to 30%)*
Entry into force	*2011-2012*	*Would increase likelihood of compliance*
Ongoing CDM decision making (COP and EB)	*Continuous*	*Key developments would include:* • *Further guidance on programmatic CDM* • *Inclusion of renewable biomass* • *Exclusion of new industrial gas projects*
Policy development in key jurisdictions	*Continuous*	*Governments, particularly those of Middle Income Countries, may develop new domestic policy instruments that improve the enabling environment for low carbon investment but may also provide uncertainty over baselines*