Potentials and constraints of private sector participation in the CDM

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1. Introduction

The Kyoto Protocol adopted in December 1997 has introduced three flexibility mechanisms (Kyoto Mechanisms)- i.e. Joint Implementation [1] (Article.6), Clean Development Mechanism (Article.12) and Emissions Trading[2] (Article.17)- to help meet the legally binding quantitative emissions reductions commitments agreed for the Annex I Parties[3]. One of these measures, the Clean Development Mechanism (CDM) has the purpose of contributing to sustainable development of developing countries and to the ultimate objectives of the Convention. It is a mechanism where Annex I (developed) countries implement GHG mitigation project activities in developing countries based on the approval from involved governments, and use a part of generated credit from the projects, Certified Emissions Reductions (CER), in order to meet the reductions targets.

Although the details of the CDM are scheduled to be elaborated at COP 6 in 2000 and are unclear at this point, it is commonly assumed that it will commence from the year 2000 (Article 12.10 of the Protocol) prior to the first commitment period (2008-2012). Despite responsibility for achieving national reductions targets rests with each government, the Kyoto Mechanisms allow participation by private entities. In fact, with declining allocation of ODA, limited financial resources of national governments, and the most relevant climate-friendly technologies owned by the private sector, it is expected that the major source of capital for CDM projects in the future will be the private sector.

2. Potential of the CDM

2.1 Need for domestic policy measures

As experience with Activities Implemented Jointly[4] (AIJ) shows, implementation of

[1] Emissions reductions by projects among Annex-I countries
[2] Trading of a part of assigned amount (emissions right) among Annex I countries
[3] Industrialized countries, countries in former Soviet Union and Eastern Europe
[4] AIJ is a process initiated as a pilot programme in 1995 (COP1) aiming at achieving the most cost-effective emission reductions where Annex I countries carry out greenhouse gas mitigation projects in developing countries (including EITcountries) to make use of their experience for future joint mitigation efforts. It does not allow any crediting of emissions reductions.

domestic policy measures to give incentives to the private sector is essential, in order to attract private flows to the investments in the CDM. Generally, these domestic measures include: allocation of emissions allowances within the context of introducing a domestic emissions trading system, introduction of CO2 or energy tax, application of voluntary agreements, tax cuts, subsidization, arrangements to award credit for early emissions reductions, or direct regulations (e.g. energy efficiency standard). Even in the absence of a domestic emissions trading market, if there is an arrangement for private entities to be channeled directly to the international emissions trading market, they would have some incentive to acquire CER from CDM projects .

2.2 Potential size of the CDM market and possible benefits for host countries

Based on various assumptions, projections made by several studies using economic models (Table 1) suggest that the potential size of the CDM market could be 144-723MtC, in terms of emissions and US$5-21 billion in terms of annual value (Vrolijik1999). This market value corresponds merely to incremental carbon abatement cost from CDM projects. Therefore, considering the total project investment including additional FDI that was previously overlooked and would not have occurred otherwise, it can be argued that the CDM would leverage even larger flows from developed to developing countries than the incremental cost alone suggests (Austin et.al 1998).

Besides the size of its potential inflow, investment in CDM projects is expected to contribute to economic growth and sustainable development of developing countries through transfer of funds and technologies. Moreover, the CDM could allow each country to take region/ country-specific institutional elements into consideration, depending on their project screening ability. In other words, given proper identification of potential CDM projects by developing country governments, CDM flows could provide a substantial source of income which can bring co-benefits, addressing not only GHG mitigation, but also other social development goals such as local and regional environmental problems, rural development, poverty alleviation, and employment generation etc.(Zou, J 1999, Austin, D et.al 1998).

Table 1 Potential size of the CDM market

Study	Market share (%)	Market size (MtC)	Market price ($/tC)	Market value ($bn)/ year
Haites (1998)	27–58	265–575	37	9.8–21
US Administration (1998)	19–46	144–344	24–42	6.0–8.3
Austin et al. (1998)	33–55	397–723	13–26	5.2–17.4
Zhang (1999)	21-61	130-370	-	-

(source) Vrolijk (1999), Zhang (1999)

3 Constraints and incentives for the private sector participation in the CDM

3.1 Comparative advantage/disadvantage of the CDM

Given domestic policy arrangements as well as functional emissions trading markets, the CDM would have the following socioeconomic advantages / disadvantages over other Kyoto mechanisms.

Emissions Trading

For private sector participants, project-based flexibility mechanisms such as JI and CDM may hold disadvantages compared with emissions trading, given that the functions of emissions trading markets are equivalent to that of current financial markets. These disadvantages are generally associated with 1) high transaction costs in connection with projects (general costs of project identification, evaluation and administration as well as costs associated with CDM application, documentation, verification and crediting), and 2) time-consuming procedures for project implementation. On the other hand, they could be amplified in effectiveness if it intersects with investing firms' willingness to explore new markets.

Joint Implementation

Some AIJ Studies (Nordic Council 1998, JIN and SEVEn 1997, IGES 1999) point out that regulatory and institutional capacities of the host countries influence decisions about project implementation greatly. Accordingly, this may favour investment in Art.6 JI in EITs, where investment infrastructure is in a relatively more favorable state than in most developing countries. Unlike emissions reductions by JI, which is essentially reallocation of assigned amounts, the CER generated by the CDM would add additional units to the original assigned amount. Ensuring environmentally meaningful results of the CDM may therefore require more time-consuming process. Furthermore, a share of the proceeds from CER, allocated for assisting the cost of adaptation (Art.12.8), can also be a disincentive for the private sector investment.

There are ample cost-effective emissions reduction opportunities in non-Annex I countries, covering wide regions in the world. Moreover, the CDM is assumed to start from the year 2000, allowing the private corporations to take early reduction opportunities. Since the CDM aims to use private flows, it offers potentially a variety of financing tools, meaning the possibility of flexible finances for mitigation projects.

It is generally assumed that the CDM projects could take bilateral, multilateral, and unilateral forms. The bilateral form includes conventional FDI with a contractual agreement to acquire CER generated by the investment or non-recourse project finance including BOO or BOT. This could also involve several investors. The multilateral CDM may include mutual funds similar to the Prototype Carbon Fund (PCF) advanced by the World Bank, which seeks contributions from governments and the private sector, invests in several GHG reduction projects in developing countries and distributes its return to investors in the form of emissions reductions. Under the multilateral form, a kind of securitization may also be possible where a large number of uniform, small scale emissions reductions projects could be bundled as the basis for a single security to be sold in the international capital markets. In the bilateral form, private firms can pursue normal business strategies in choosing investing countries and projects, whereas the multilateral form would make it possible to minimize risks to projects, and lower respective transaction costs. The unilateral form of the CDM is where developing countries make self finance arrangements for projects and manage them under criteria and rules in line with the UNFCCC procedures. However, this form of CDM project would probably only be possible for developing countries with financial resources and management capability.

3.2 Obstacles for private sector participation

Aside from possible disadvantages over other Kyoto mechanisms arising from the design of the CDM, there seems to be other types of obstacles for the private sector participation. These mainly relate to the following.

1) Uncertainty of the ratification of the Kyoto protocol

Having a Protocol that is both fully operational and in force is essential for ensuring greater emissions reductions by industrialized countries. The Protocol will only enter into force and become legally binding when at least 55 countries, including developed countries accounting for at least 55% of total Annex I Co2 emissions in the base year (i.e.1990), have ratified the Protocol. At the timing of COP5 only 16 countries - all from the developing world - have ratified. Eighty-three countries including world's major emitters have taken the initial step of adding their signature to the agreement. A positive political progress was also made on this issue with the EU as well as Japan expressed their intentions to ratify by 2002. However, the ratification of one of the major emitting country, the US is still of uncertain status, which holds the key to constructing an effective global emissions reductions framework.

2) Incompletely –defined aspects of the mechanism

The details of the CDM such as governance, procedures and rules- including linkage with other Kyoto Mechanisms, additionality[5], supplementarity[6], credit issues or establishment of baselines[7]- are due to be elaborated at COP 6 in 2000. These issues hold crucial implications for the private sector, involving as they do tradeoffs between environmental quality and efficiency of the mechanism.

In particular, the issue of additionality has a close relationship with baseline-setting, in the sense that some commercially-viable projects resulting in emissions reductions might reasonably be considered to have gone ahead anyway without CDM activities, and therefore may not be eligible as CDM projects. If additionality criteria are too strict, they could potentially limit the number of transactions, which would result in a dysfunctional market. On top of this, efforts to define methodologies for baseline establishment themselves have been requiring significant discussion. The supplementarity issue could much affect the private sector's involvement. If a quantitative ceiling is set for each mechanism, it could potentially influence the cost and efficiency, restricting cost-effective reduction opportunities. It could also create implementation problems for the Annex-I countries and investing private companies involved[8].However, without a ceiling, ensuring domestic reductions efforts by Annex-I countries would be difficult.

[5] Additionality of emissions reductions means "reductions in emissions that are additional to any that would occur in the absence of the certified project activity" (Art.12.5.c) Although there is no specification in the Kyoto protocol, importance of financial additionality - meaning funding for CDM projects additional to existing mechanisms such as ODA or GEF - is recognized among various Parties. Furthermore, financial additionality of a project –i.e. project investment would not occur in the absence of the CDM- is another contentious issue in the debate over additionality.

[6] Supplementarity is, to put it simply, the extent to which an Annex I Party can use flexibility mechanisms (on top of domestic measures) to meet its national commitment.

[7] GHG emissions in case of the absence of the CDM project activity, which is stipulated by Art.12.5 c of the Protocol.

[8] For example, the closer a party approached any such ceiling, the greater the difficulty the party or a private company would have in asessing if it could actually count possible CERs toward compliance with the national target.

Taking these circumstances into consideration, it is conceivable that the private sector may only embark on long-term planning once details for operationalizing the CDM are elaborated.

3) Uncertainty associated with CDM market

There are also uncertainties involved in the CDM market itself, which are related to the market behaviour, price of the CER, and the linkage with other Kyoto Mechanisms (fungibility issue). In reality, at least during the initial period of the market establishment, until the CER market becomes fully liquid and predictable, it is likely that the private sector could only consider projects that are commercially viable with relatively secure revenue streams, and CER serving as added value.

4) Barriers / risks of mitigation projects in developing countries

At more fundamental level, there are barriers/ risks associated with mitigation projects in developing countries. These include, generally, characteristic country risks related to regulatory risk (underdeveloped legislative framework in the field of assets, finance and accounting), political risks (war, nationalization or policy change) and economic risks (foreign exchange, currency availability and transfer risk).

On top of these, projects in the area of climate change mitigation have their own barriers/ risks. Although the nature of the barriers are diverse and varies with national circumstances, resources and kind of transferring technologies, some of the major barriers can be categorized into several elements. These include barriers related to domestic regulatory status such as regulation on investment and import of climate friendly technologies, or uncertainty of energy pricing and subsidy schemes, and local economic status such as possibility of local financing, or creditworthiness of partner industry and customers. In addition, there are the risks associated with climate friendly technologies, including performance risks of the use of unfamiliar technology and commercial risks of non-conventional alternative project itself, such as uncertain rates of return, incapability of analyzing non-conventional projects, higher initial investment cost, or small project size and implicit transaction costs (GEF 1996, EIC1999, APEC1998).

4. Towards reduction of obstacles

As we have seen, the CDM entails several barriers for investment by private companies. These include high transaction costs, time-consuming procedure for project implementation, and adaptation levy. There are also other barriers related to the instability of the mechanism itself, arising from a lack of international consensus on its modalities, rules and status. Furthermore, fundamental problems associated with risks of the projects in developing countries as well as those with CDM projects need to be addressed.

Despite all the obstacles, the CDM still has huge potential and implications for promotion of GHG mitigation projects. The prospects of the creation of a new emissions trading market, where GHG reductions are treated as a commodity with monetary value, would facilitate mitigation measures. It could help not only to achieve cost savings but also to recover a part of their high initial costs. Even when ODA or other public funds are available for mitigation projects, project replication and sustainability often depend on creating conditions for similar investments by private sector (GEF 1999), and in this respect, the CDM is expected to be a promising option.

In order to promote private sector investment in the CDM, Parties should make efforts to reach international consensus on the details for implementation. In designing the mechanisms, governments should take the private sector's investment behaviour into consideration, so as not to hamper establishment of CER market and effectively complement the market, while ensuring environmental quality by appropriate eligibility criteria, baseline setting and monitoring. Once consensus at the international level is reached, then flexible supporting measures at national level can be further strengthened. In this connection, national export credit agencies and multilateral development banks as well as GEF would have a crucial role to play, especially in the area of credit enhancement and risk minimization through guarantees and insurance to support private sector investment. Reinforcement of the financing support by national governments targeted at possible CDM projects could also be effective. Further, some of the risks may be covered by new financial products possibly to be developed by the private financial institutions.

At the same time, in order to create transparent and stable markets where investors have visions for future returns, developing country governments should strive for reduction of investment risks and introduce domestic policy measures to eliminate barriers to investments and help promote the mitigation technology transfer.

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