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How Is the CDM Compatible with Sustainable Development?

—A View from Project Guidelines and Adaptation Measures—

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Abstract

The Clean Development Mechanism has its meaning to be a tool that the sustainable development in the host developing country is compatible with the climate change mitigation, as well as, a flexible instrument for developed countries to meet their quantified commitments.

This paper considers how the CDM works properly as a tool to assist developing countries for their sustainable development from the view points of conditions for design and also operational aspects. In this regard, the *guidelines* for project eligibility and approval are considered focusing on their operations. The aspect of adaptation funding mechanism for vulnerable countries, characteristic to the CDM, are also discussed.

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I. Introduction

I.1 CDM and Sustainable Development of Developing Countries

The Kyoto Protocol as well as the UN Framework Convention on Climate Change emphasizes the importance of sustainable development of the developing countries as one of the most principal and guiding concept to tackle the climate change internationally. Especially, the Kyoto Protocol states in the Clean Development Mechanism (CDM) article (Article 12) that the purpose of the CDM is

- to assist non-Annex I Parties in achieving sustainable development in contributing to the ultimate objective of the Convention, and
- to assist Annex I Parties in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.

Considering the process of its original proposal and negotiations in Kyoto, the first point should be recognized to be very important. However, few concrete ideas or examples are studied/proposed how to support the sustainable development of the developing countries. This paper focuses on this aspect of the CDM.

Concrete points concerning the sustainable development of the developing countries in the design of CDM are categorized as follows:

Organizational issues:

(1) Regional balance of Executive Board members;

(2) Role and Functions of Operational Entities;

(3) Initiation of Information Clearinghouse Function,[1]

Operational Issues:

(1) Criteria and Guidelines for project approval as CDM project;

(2) Methodology of the adaptation measures for vulnerable developing countries;

(3) Utilization of skilful project brokers.

[1] The function of information clearinghouse might play a very important role to match needs and seeds of the projects, although not specified in the Protocol provisions. The official information clearing house is expected to be settled under the Executive Board. This system can form a network with other related systems (CC:INFO of UNFCCC, GREEN TIE of IEA, ALGAS of ADB, US Country Studies Program of US government, Green Aid Plan of Japanese government, …), project brokers and NGOs. On the other hand, each project broker has its own commercial based database.

This paper focuses on the latter operational issue. The Guidelines for project approval as the eligibility condition are considered, followed by the discussion of the adaptation funding mechanism nature of the CDM.

We envisage other points such as credit sharing (Article 12. 3 (a)) and funding issue of certified project activities (Article 12. 6) are outside of the scope of this paper.[2]

II. Project Eligibility and Its Guidelines

II.1 Eligibility Stipulated in the Protocol

Regarding the certification of project activities, the following three points are listed in the Protocol (Article 12. 5) as items of certification of GHGs reductions by the Operational Entities:

(a) Voluntary participation approved by each Party involved;

(b) Real, measurable, and long-term benefits related to the mitigation of climate change; and

(c) Reductions in emissions that are additional to any that would occur in the absence of the certified project activity.

These principles should also be the basis for the eligibility criteria to approve a project as a CDM project. The Article 12. 7 also points the necessity of independent auditing and verification of project activities ensuring transparency, efficiency and accountability.

This paper considers the way to ensure the support of developing countries' sustainable development through the discussion of the issues related to the Criteria, expected to be adopted by the COP(/MOP) or Executive Board, and the Guidelines set by each Party.

II.2 Procedures for Project Approval

Article 12. 5 of the Protocol states that the approval by each Party involved is necessary for the project *participation*. In contrast, the emission reductions are certified by the Operational Entities. This Article indicates that a project is approved as a CDM project by each government involved, not by Operational Entity.

[2] The author's opinion related to the credit sharing is that the certified credits generated by the project should be shared by the project participants as well as the shared cost (Matsuo, *et al.*, 1998). He also proposes that the new Fund can be settled using the funds by purchasing high-fixed rate permits for the avoidance for non-compliance (but not penalized fine) of Annex I Parties. This idea is similar to the original Clean Development Fund (CDF) concept (Matsuo, 1998).

Although a government can entrust the approval to a skilful Operational Entity, this paper assumes the procedures as follows:

1. A project should be approved by each government concerned to be a CDM project. Each government may approve with its own judgement using its indigenous Guidelines in accordance with the eligibility Criteria set by the COP(/MOP) or the Executive Board;
2. The Executive Board designates an Operational Entity for the project at the request of the governments concerned;[3]
3. The Operational Entity, designated by the Executive Board, verifies, defines, certifies the GHGs emission reductions annually after the fact, and reports them (with difference from the original application and other problems) to the Executive Board;
4. The certified emission reductions are shared by the implementation bodies of the project.[4]

Each government inspects the Guidelines for project approval; the Operational Entity is responsible for the verification/definition/certification of the emission reductions after the fact. In case that the implemented project may not comply with the Criteria, anyone such as Operational Entity, project workers or local residents may notify the Executive Board for assessment. Approval as a CDM project may be revoked afterwards depending on the results of the assessment process.

II.3 Criteria for Project Approval

As stated above, the countries involved should approve the CDM project in advance. Although there is no particular mention in the Protocol of required approval conditions, some Criteria need to be formulated for the Operational Entities to certify emission reductions smoothly. The COP(/MOP) might be the suitable body to establish the Criteria.

The Criteria proposed advances the spirit of the Protocol:

1. Assisting non-Annex I Parties in achieving long-term sustainable development;
2. Contributing to regional economic development and preservation of the environment of non-Annex I countries;
3. The projects must contribute to real, measurable and long-term GHGs reductions;

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[3] A project broker can be licensed to be an Operational Entity utilizing its specialty, however, it cannot be an Operational Entity of its own project.

[4] The certified emission reductions are converted to the emission permits and serially numbered automatically by application to the Administrative Body of the Emissions Trading. These permits can be traded in the emissions market.

4. Reductions in emissions are expected to be additional to any that would occur in the absence of the project activity (additionality of emission reductions);
5. Information that satisfies the above Criteria should be submitted to all relevant Parties and be up-dated regularly.

The "financial" additionality is not referred to in the Protocol. This concept should be implied or interpreted as the complementary of the "reductions" additionality.

Among these Criteria, the first and the second ones are important to ensure that the project supports the sustainable development of the host country.

II.4 Necessary Provisions for Guidelines

Countries approving CDM projects would do so in line based on Criteria presented above. However, Guidelines are needed for the government to assess the project for approval process in operation. Guidelines are set by each government individually in order to follow appropriate Criteria. However, all of these operational Guidelines may not be mandatory. They are not needed to be common to each country for the indigenous condition and sovereignty of each country.

Each operational Guideline associated with the Criterion should be specified in detail. Following items are expected to be considered in the Guidelines by each Criterion mentioned above:

1. Assisting non-Annex I Parties in achieving long-term sustainable development;

- The projects should not be temporary and should accompany technology transfer. At the same time they should have a middle/long-term effect including capacity building so that the transferred technology to can take root in the host country. Depending on the scale of the project, macro-economic effects should also be considered.
- Direct impacts include the increase in foreign currency reserve and inflow of capital, while indirect ones include new employment opportunities and economic growth. As the project proceeds, capital and technology will flow into the country concerned. However, the extent of the influence on creation of new employment is generally uncertain.[5]
- In the case of forestry-related (reforestation/afforestation/forest conservation) projects, introduction of measures ensuring sustainable forestry management is desirable.
- Although, this Guideline is difficult to demonstrate, it might be applied to the questionable case. A project might be problematic after the implementation as in the case of failure; this Guideline can be applied not to approve the

[5] In some cases, introducing efficient technology could put pressure on regional employment.

project as CDM anymore.[6] However, approval as CDM project should be separated from the issue of business contract.[7]

2. Contributing to regional economic development and preservation of the environment of non-Annex I countries;

- The guidelines should take regional character into consideration. In operation, this Guideline ensures the principal part for the condition to support host country's sustainable development.
- Evaluation should include, *e.g.*, environmental assessment such as analysis of emissions of pollutants related to the quality of water and air and preservation of biodiversity, creation of new employment, and avoidance of negative impacts on regional culture and community.
- Attaining the host country's environmental standards is necessary as other projects, of course, some stricter standards like those of investor country can be specified in this Guideline.
- For the local employment, introduction of eco-tourism and/or fuel-use of biomass might be examples for the evaluation in the case of forestry related projects. Cooperation with consultants and/or local NGOs might be recommended as well. Local education, training and capacity building programmes (sometimes implemented in the investor country) are very important for the technology and know-how to take the root locally.
- On the other hand, proceeds of the counter-part in the host country should be dealt in the business contract, not in the governmental Guidelines for project approval. For example, a performance-based contract might be possible as in the case of energy service companies' (ESCOs).

3. The projects must contribute to real, measurable and long-term GHGs reductions;

- Measurability of emission reductions throughout the project life is important. Those who implement the project as well as the investors must have comprehensive knowledge of the methods of data collection and measurement and their accuracy prior to project implementation.
- It is also important to assure that the overall effectiveness of the emission reductions from the project should not be canceled out by any negative effects. For example, in the case of forestry projects (such as afforestation, reforestation, and forest preservation) implementing entities should guarantee that the forest would not be cut down soon after the termination of the project.

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[6] In this case, it is ambiguous whether the reductions before the failure can be certified as the CERs. They should be certified for the period when the Guidelines are met unless the reductions are offset after the failure.

[7] The case in which the generated CERs are less than expected should be an issue of business contract.

4. **Reductions in emissions are expected to be additional to any that would occur in the absence of the project activity (additionality of emission reductions);**

   - The Executive Board should have the authority to decide the method of baseline setting, and the operational entities certify the amount of emissions reductions.[8] Project implementing entities should evaluate the effectiveness of the emission reductions from projects in advance, allowing a certain latitude, when applying for the government approval. In this case, such entities should show that the least expected effects should be positive in GHGs reductions.
   - This effect is very much dependent on the methodology for baseline setting. It is desirable that these pre-project estimates should be corrected according to the results of actual "certification of the emission reduction by Operational Entities" which should ideally happen every year.

5. **Information that satisfies the above Criteria should be submitted to all relevant Parties and be up-dated regularly.**

   - Those who implement the projects must guarantee that relevant information is clearly reported and regularly updated. In the event of a failure in meeting the conditions required by the Guidelines due to unexpected conditions, immediate notice should be given to the governments concerned so that they may cancel the approval.

Especially, the second Guideline can be differentiated by the government by the type of project. Each government sets its original set of Guidelines based on its unique conditions and the its view on the CDM. Moreover, these Guidelines are expected to be refined through the exchange of information such as the workshops, and to be harmonized incorporating advantageous ideas.

However, large transaction cost may initially impede the introduction and development of the CDM projects themselves. The conditions required by the Guidelines are preferable to be limited to least necessities.[9] These conditions might be obviously met or impossible to assess for some cases. In these cases, case-by-case approach and/or prototype setting by the government are helpful.

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[8] The Guidelines for baseline setting are completely different from those of project approval mentioned in this section.

[9] In some AIJ projects, transaction cost is bigger than the implementation cost. In reality, getting host country approval can be a big (mental) barrier for Annex I investing firms. Mutual cooperation with host country counter-part is desired. In other words, not much of the projects are expected to be implemented in the high-transaction countries.

III. The Adaptation Funding Mechanism

III.1 Adaptation Funding Stipulated in the Protocol

A distinguishing characteristic of the CDM is the provision to advance both mitigation and adaptation measures. CDM does not contribute directly to the host country, however, it is important for vulnerable countries to adapt to the adverse effects of climate change.

Article 12. 8 states that the CDM shall cover its administrative costs and *assist developing country parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation* using a share of proceeds.

Article 4. 8 of the Convention enumerates measures such as funding, insurance and technological transfer that meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change, especially on small island countries, countries with low-lying coastal areas, *etc*. Considering the fact that almost no concrete progress has been so far, it can reasonably be assumed that the relevant developing countries will have high expectations of the CDM. However, it cannot be denied that raising funds for adaptation measures using the CDM may distort Annex I countries' incentive to invest, especially, since Article 6 JI does not bear such a levy. Here we would like to examine some of the points relating to the funding for adaptation characteristic for the CDM.

Based on vulnerability assessments in developing countries, many adaptation options have been identified: coastal zone management, agriculture, forestry, water resource, fisheries, *etc*. Thus, potential adaptation project activities are numerous.

Judging from the potentially broad coverage area of the adaptation project activities, it is unrealistic to expect that CDM would be able to deliver substantial resources to the regions mentioned in the Article 4. 8 of the Convention. For example, estimated amount of CDM funds for adaptation measures in 2010: Suppose that Annex I countries apply the credits from the CDM for 5% of their total emissions. If the market price of CDM credit was $20 per ton carbon and 10% of each credit were to be used for adaptation measures, the total funds for adaptation would amount to be around $400 million annually.

Annex II Country Parties, in principle, are to have obligations for the adaptation under the Convention, regardless of the funding from CDM mechanism. Identification of the vulnerable countries, nature and kind of assistance and the 'share' of the proceeds to be used for this purpose will depend largely on the political choice of the future negotiations.

III.2 How to Raise Funds for Adaptation

There are two points to be considered in this respect:

- What is the potential source of funds; and
- How should the funds raised in the form of credits from CDM projects be converted into money.

On the first point, possible options include:

1. Individual projects may be levied as lump-sum tax, or credit for the costs of adaptation. This will, from an economics perspective, cause the minimum distortion of the incentive to invest. However, this may discourage participation in the projects;
2. Funds may be raised by charging a certain percent of a project costs. The effect of this is equivalent to increase in the costs necessary to implement the projects, thus resulting in reduction of the incentive to invest; and
3. Funds may be raised by collecting a certain percent of the certified emission reduction credits. The revenue from selling the credits will be used for meeting the costs of adaptation. This would mean a reduction of the credit the investor could receive. Although this option may discourage appetite for the investment, it might be rightful in light of the faithful interpretation of the Protocol.

Under the third option, the way to convert the credits into money may be another questionable issue. Should the credits be given to the country vulnerable to the adverse effects of climate change in the form of credit? Or should the organizations collecting the credits (*e.g.*, Operational Entities) convert them in money in the emissions trading market to provide the fund for that purpose? In the latter case, it would be desirable that Operational Entities entrust the conversion to brokers, since they are more familiar with market trading. The Protocol only states that the aim of the raised fund is to meet the costs of adaptation, while Article 4. 8 and 4. 9 of the Convention include not only funding, but also insurance and the transfer of technology to meet the specific needs of the relevant countries arising from the adverse effects of climate change. In this sense, besides providing funds, the adaptation measures including the implementation of the adaptation projects may also need to be addressed.

Considering the above points, it may be more practical for the Executive Board (or COP/MOP) to manage the adaptation funds raised by operational entities and decide the eligible countries or projects for their use. This rule is applied in harmony with the plural Operational Entities collecting the adaptation funds.

III.3 Use of Adaptation Funding

Regarding funds for adaptation measures, various uses may be envisaged. These include,

- Adaptation projects (including capacity-building, technology transfer);

- Adaptation technology R&D programs (*e.g.*, improvement of agronomic species);
- Insurance/Reinsurance;
- Trust the fund to GEF and utilize it for adaptation projects in vulnerable countries;
- Distribute credit among relevant vulnerable countries;
- Provide cash for vulnerable countries; and
- Reserve funds for disaster preparation.

Combination of these options are also possible. However, it requires an examination on the limit of the interpretation of the Protocol to decide whether funds from CDM can be used for this broad purposes.

If the funds are decided to be used for adaptation projects, they includes the projects demanding much funds such as development of infrastructures for sea-level rise. The lack of funds is expected in addition to the difficulty to select targeted countries/regions.

R&D funding for the adaptation technology needs less cost. Some leverage effect can be expected, however, it cannot be a quick remedy for the countries facing difficulty.

Although the use for insurance/re-insurance has a merit of providing huge resources against potential catastrophic events, it limits the fund use to passive purposes and raises some doubt about satisfaction of the relevant developing countries. Moreover, arbitrariness is left to judge the separation of pure natural disasters and anthropogenic climate change events.

Furthermore, since distribution of credit or cash may lead to the problematic concept of 'compensation', considerable negotiation efforts will be needed to agree on the criteria of their distribution. Considering that implementation of adaptation measures is an issue of utmost priority for the relevant developing country Parties, prompt international agreement is desirable. Therefore one should avoid the choice of additional disputes at least at the initial stage of the mechanism.

Based on the above arguments, appropriate use of funds and the kinds of the targeted adaptation project activities require an urgent discussion, taking the needs of relevant countries into consideration. In this regard, a study and/or guidelines by IPCC, *etc*. would be highly useful. Especially, a study program should be initiated considering the CDM adaptation funds expected to expand in the future. An IPCC Special Report might be appropriate for scenario development with realistic, efficient and equitable usage of funds.

IV. Concluding Remarks

This paper is motivated by the awareness of the issue what should be considered when we see the CDM from the perspective of developing countries' sustainability and try to wipe out the developing countries' concerns.

Here we see that the operational "approval Guideline approach" might be realistic and effective to meet this purpose and consider some points related to this approach. However, this paper only summarizes the concepts. We need some specific and concrete setting of Guidelines by project-type through the study of AIJ experiences both successful and failure cases.

We also discussed the issue how we make use of the aspect of adaptation funding mechanism. In reality, design of proper selection of options within the (expected to increase but) limited funds are focused. Studies by the IPCC or other multilateral bodies are desirable.

However, fulfillment of these Guidelines and adaptation funds might tend to limit the increase/development of the CDM owing to their transaction costs. Therefore, we need to take balance and use our brain for workable scheme design within limited time constraint.[10]

We hope that the discussion made in this paper will be helpful as a useful input for evaluating and identifying modalities of the Kyoto Protocol/UNFCCC.

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[10] Some timetable related to the scheme design of flexibility measures in the near future is expected to be settled at the COP 4 in Buenos Aires.