How Could Developing Countries Participate In Climate Change Prevention: The Clean Development Mechanism and Beyond

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An agreement on CDM rules is important both for industrialised and developing countries. As a flexibility mechanism, it will allow industrialised countries to benefit from low cost emission reductions but the CDM, as a main goal, should stimulate a more sustainable economic development in DCs.

The CDM is the sole instrument, with GEF, proposed for DCs' participation in climate change prevention. This situation satisfies a majority of DCs, but CDM may not offer sufficient perspectives for some countries with rapid industrialisation given the huge economic stakes linked to the creation of a carbon credits market between Annex I countries.

The operationality of the CDM is not yet established and important questions, such as environmental additionality, are still unresolved. Here we first examine the rules in order to validate project additionality and its possible consequences on the effectiveness and the scope of the mechanism. The different reactions of major DCs groups on the structure of the mechanism will then be analysed. This will lead us to examine the possibilities to enlarge participation of DCs in climate change prevention according to the apparent wish of semi-industrialised countries.

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Since the beginning of climate change negotiations, two different groups of countries have clearly been distinguished. Being mainly responsible for the increase in greenhouse gas (GHG) emissions and the consequent risk of climate change, industrialised countries (ICs) have accepted for themselves the principle of quantitative emission reduction objectives. At the opposite, developing countries (DCs) have always refused to engage in such commitments, citing the limited impact of their cumulated emissions and the necessary increase in energy consumption to meet their economic development needs.

Participation of DCs in climate change prevention strategy should not however be neglected. For a certain number of rapidly industrialising countries, cumulated GHG emissions are increasing, making their participation in climate change prevention necessary. In the long term, it will be impossible to stabilise the concentration of greenhouse gases in the atmosphere at a level compatible with the preservation of climate if the most important DCs are not engaged in this global effort. Emission profiles in newly industrialising countries are unlikely to follow paths similar to industrialised countries. The early adoption of more environment-friendly technologies and practices could help DCs to curb their emission profiles, facilitating the achievement of the Framework Convention on Climate Change's (FCCC or Climate Convention) ultimate goal.

What are the possibilities offered to the DCs to participate actively in climate change prevention strategy? For the time being, the Clean Development Mechanism (CDM), together with the Global Environment Facility (GEF), are the only means by which developing countries can play a specific role in climate change prevention. This situation satisfies most developing countries. It may raise investment funds toward DCs without imposing any commitment to reduce their GHG emission and it allows industrialised countries to benefit from low cost reduction opportunities. But is it totally satisfying for all DCs? In the near future, it is clear that some DCs will wish to play a more active role in reducing their own emissions because of the economic and industrial rewards offered by exchanges of certified emission reductions or permits. The voluntary undertakings announced by certain countries are clearly indicative of a wish to move in that direction.

This article presents the opportunities offered to DCs to participate in the global effort for preventing climate change. During the negotiations, groups of DCs within the G77 expressed different positions regarding participation according to their economic and geopolitical situation. Different solutions for a more active participation of DCs in climate change prevention are considered which take into account this diversity of positions.

In the first part the conditions that led to the creation of the CDM at Kyoto are recalled along with the main differences between this new mechanism and former activities implemented jointly. The second part examines the basic question of environmental additionality of projects. The key issue is to define procedures that are sufficiently simple and easily understood to provide an incentive for investors, without accepting too many non-additional projects and running the risk of introducing "hot air." In the third part the positions of the developing countries on the CDM are presented. It reveals a clear willingness on the part of some countries to move beyond merely hosting emission reduction projects in the context of the CDM and the final part examines the means by which these countries can become more actively involved in reducing their own emissions and also profit from future carbon credit exchange markets.

I. How the CDM Was Created and What is At Stake.

The Climate Convention recognized, and the Berlin Mandate[1] confirmed, that developing countries would not bear historical responsibility for the recent increase in greenhouse gas atmospheric concentrations and would not therefore be required, in the first stage, to adopt binding commitments to limit their emissions. For their part, industrialised countries committed themselves not only to limit their own emissions, but also to facilitate the transfer of climate-friendly technology and to provide developing countries with the "new and additional financial resources" necessary to cover the cost of the steps that they might be required to take (Climate Convention, Article 4 §3). Initially, the involvement of developing countries in the prevention of climatic risk depends mainly on the transfers of technology and finance from the richer countries.

The undertaking by the industrialised countries to supply additional financial resources is evident in the GEF, which has become the financial mechanism of the Convention. However, the GEF resources are still very limited in comparison with what is at stake in terms of climate change risk and in comparison with total North/South transfers made under the Official Development Assistance and foreign direct investments programs. To shift the developing countries' emissions on a long-term basis, it is essential to have a sufficient influence on private investments to enable them to take account of the climatic change dimension.

The aim of Joint Implementation (JI) is to grant emission credits in return for projects that reduce greenhouse gas emissions in developing countries and Eastern countries, and thus encourage private actors to take into account the threat to the climate. Although designed in a

[1] The Berlin Mandate was a decision taken by the first Conference of the Parties in 1995 to strengthen the developed countries commitments (Article 4 § 2 a & b), through the adoption of a protocol in 1997 (decision 1/CP1 in FCCC/CP/1995/7/Add. 1).

project context, the idea is nevertheless distinct from the GEF in that it works on the principle of payment for emission reductions achieved. Its main benefit was to make use of the potential for low-cost reduction in the South and East countries and to allow these countries to be involved in the overall effort to reduce greenhouse gas emissions. This proposal (JI) met with a frosty reception from developing countries and led the Parties to the Convention to launch a pilot phase, to establish whether or not the concerns expressed were founded[2].

At Kyoto, the question of strengthening Annex I countries'[3] commitments brought the debate on the North/South joint implementation back onto the agenda. Some Annex I countries only accepted higher reduction targets on condition that they could resort to flexibility measures, especially the North/South flexibility. Even though joint implementation is not specifically mentioned in the Kyoto Protocol (KP), because of its rejection by the developing countries, the concept has been implemented among Annex I countries (East/West) and less clearly between industrialised and developing countries in the CDM. In fact, the CDM should "assist Parties included in Annex I in achieving compliance with their quantified limitation and reduction commitments" by means of "project activities" resulting in "certified emission reductions"; these in turn may be used by the Annex I countries to "contribute to compliance with part of their... commitments" (KP, Art. 12 §3). However, the KP introduces a fundamental new dimension compared to JI, as the CDM should also "assist Parties not included in Annex I in achieving sustainable development" (Art. 12 §2). With the CDM, the developing countries have accepted a measure of flexibility for the North in return for the promise of specific steps to facilitate their development[4].

The CDM is potentially more than just an instrument of flexibility and, unlike JI, it has awakened real expectations from developing countries. By favouring projects more in accordance with development priorities in host countries, the setting up of the CDM could lead to new investment flows and speed up the transfer of technology and know-how. It introduces the possibility of effectively integrating developing countries into the general climate change prevention effort,while respecting their need to further development. Nevertheless, it poses basically the same problems as those encountered by JI: without rigorous checks on additionality of projects and the actuality of associated reductions, the creation of the CDM could undermine the aim of the Convention, namely the stabilisation of greenhouse gas concentrations.

II. A Legitimate Need for Environmental Additionality.

North/South flexibility is considered to be essential for Annex I countries because it allows access to emission reductions at a lower cost. It is however potentially dangerous in terms of the Convention's ultimate aim, as it introduces the possibility of credits being produced in countries that do not have mitigation or reduction quantified objectives. Without the possibility of a verification allowed by quantified emissions targets, there is nothing to prevent the sale of "fictitious" emission reductions and large-scale production of "hot air"[5] in non-Annex I countries.

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[2] R. Dixon, ed., *The U.N. Framework Convention on Climate Change Activities Implemented Jointly (AIJ) Pilot: Experiences and Lessons Learned*, Kluwer Academic Publishers, The Netherlands, 1999.

[3] Industrialised countries subjected to specific obligations by the Climate Convention, namely two groups: (i) the market economy industrialised countries, OECD countries in 1992 ; and (ii) countries moving towards a market economy, Central European countries and European countries from the former USSR.

[4] See especially: Estrada-Oyuela, R. A., "First approaches and unanswered questions", in J. Goldemberg, ed., *Issues and options: the Clean Development Mechanism*, PNUD, 1998.

[5] "Hot air" has been the term usually applied during climate negotiations, on the model of Russian "hot air", to describe also the production of fictitious emission reductions in developing countries because of the implementation of non-additional projects.

It is essential for the activities undertaken in the context of the CDM to bring about additional emission reductions. That is, reductions that occur because of the incentive provided by the CDM. Installing an industrial boiler that runs on natural gas can, for example, lead to a reduction in greenhouse gas emissions compared with a coal boiler. But if natural gas has become the reference option for producing industrial heating in a given country (because of new regulations on pollution emissions or development of the gas supply infrastructure), a gas boiler implemented through the CDM will not produce any additional emission reductions compared to the solution that would have been implemented without the CDM. Not being additional, the project should not therefore be CDM-eligible.

Only effective emission reductions must be validated, and for this purpose, real additional effort must be capable of being distinguished from spontaneous changes. Two major methodological approaches have been proposed in an effort to resolve this question. The first consists in analysing the projects on a case-by-case basis, while the second uses a more standardised process based on the definition of reference practices. Neither of these two approaches, however, appears wholly satisfactory and the question of additionality still remains a major difficulty in terms of putting the CDM into practice.

1. The Project-by-project Approach: More Rigorous But Much More Expensive

Measuring the additionality of a CDM activity is based on the need to know what would have happened if no additional income from the sale of certified emission reductions in the context of the CDM had been available. Would another project have been implemented, or would the project favourable to world environment have been realised in any case?

An economic analysis allows this question to be answered. It can be assumed that a project economically profitable *per se* would probably be implemented without any consideration for global environment. On the other hand, if a project favourable to the environment costs the investor more than a reference option, it will probably be implemented only if the carbon credits make it viable. In that sense, a project is considered as additional if it is not the least-cost option.

In this approach, a specific baseline (reference situation) is defined for each project and the CDM activity is evaluated on comparison with it. The reason for taking this procedure is to limit as far as possible the opportunistic behaviour of investors that could seek to benefit from the CDM, including projects that appear additional but could have been realised without the CDM. For some, this method is the only one that truly allows the environmental additionality of CDM activities to be guaranteed and to guard against mass production of "fictitious credits" in developing countries.

The pilot phase of Activities Implemented Jointly[6] has shown that constructing baselines has in some cases proved particularly difficult and with numerous conflicts[7]. Moreover, this additionality approach, which makes economic profitability a principal parameter, is not necessarily consistent with the investors' real decision-making processes. In practice, provisional profitability is not the only criterion taken into account when deciding on an investment; strategic parameters such as the potential market, enter into play and may encourage a firm to develop a project in a country even if its short-term profitability is limited. Conversely, taking account of risk (market uncertainty, technological and financial risk, for example) may lead a business to postpone an investment whose profitability previously appeared promising.

Decisions to invest also have subjective elements that are difficult to assess through an economic approach of additionality. Projects that appear profitable on paper are sometimes not

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[6] Named "Activities Implemented Jointly" and not "Joint Implementation", into the context of the pilot phase, aimed at indicating that the projects thus realised cannot lead to the granting of emission credits.

[7] R. Dixon, ed., op. cit., et Beuermann, C., Langrock, T. & Ott, H., *Evaluation of non-sink AIJ projects in Developing Countries*, Wuppertal Institute for Climate Environment and Energy, Wuppertal, January 2000.

realised, while others, initially less attractive, will be implemented without taking into account carbon credits. In these conditions, it is impossible to assess the additionality of a project using only its economic profitability as a basis.

The additionality of an investment must also be assessed in a context of "asymmetry of information" which leaves investors free to manipulate certain parameters in their favour. It is relatively easy for them, by altering certain economic parameters, to show projects that would have been financed spontaneously, as additional. The Joint Implementation Registration Centre in the Netherlands, thus acknowledged that economic criteria "can be manipulated quite easily and will always be met by creative bookkeeping" and that it was therefore difficult to answer the question "does the investment go beyond the investments that would be made otherwise?"[8] The regulator must decide *in fine*, including a measure of subjectivity, whether or not a CDM candidate project is additional. The consequence of this approach to additionality is greater uncertainty, from the investor's viewpoint, on the eligibility of the project to CDM funding.

The need for the investor to draw up a specific reference situation and the need for the regulator to analyse the relevance and genuineness of information supplied by the proposer of each project, make this method relatively expensive. The more rigorous and precise the checking and validation of the certified emission reductions, the higher the transaction costs and the likelihood that potential investors will be put off.

The risk that the size of the CDM will be limited through investors being put off by the excessive complexity of project validation procedures has led to other means of additionality assessment being introduced. The standardised approaches offer a simplified assessment method by basing themselves on general technical criteria that allow an investor to judge immediately whether or not a project is eligible for the CDM.

[8] Joint Implementation Registration Centre, *Setting a standard for JI and CDM - Recommendations on baselines and certification based on AIJ experience*, The Netherlands, 2000.

2. Standardised Approaches: More Simple But Possibly Less Rigorous

The use of technology lists is the first means by which additionality can be standardised and simplified[9]. Using this method, additional technologies are defined *a priori* according to country or socio-economic context. For example, conversion from coal to natural gas for electricity production may be considered to be additional in India but not in Poland, and photovoltaic technology could always be considered additional in African context. These technology lists should be revised periodically to take into account changes such as dissemination of existing technologies or the advent of new options.

The practice of "benchmarking", an alternative to the above approach, is based on the same logic of standardisation. Reference or standard figures are produced for the environmental efficiency criteria of a sector. Examples of such figures are carbon content per kWh for the electricity sector or per tonne of cement for cement works[10]. Every project that produces an emission level below the limit must be considered to be additional, regardless of the technology used. "Benchmarks" have an advantage over technological matrices[11] because there is no need to identify all the additional technologies beforehand; on the other hand, benchmarking is only likely to be applied in sectors in which there is a common performance standard.

In both cases, the main idea is to lay down references beforehand for use as pointers in

[9] Hargrave, T., Helme, N. & Puhl, I., "*Options for Simplifying Baseline Setting for Joint Implementation and Clean Development Mechanism Projects*", *Workshop on Baseline for CDM*, Centre for Clean Air Policy, Tokyo, 25-26 feb. 1998.

[10] This type of indicator also poses a reference problem. What should be considered: the average for the equipment installed, the upper tenth, the most efficient equipment, or the installation most recently put into service?

[11] Technology lists including a temporal dimension leading to technology matrices.

quickly assessing the additionality of projects and their impact in terms of emissions. It is not necessary to carry out an *ex ante* in-depth study of each project. This may allow a shorter approval procedure and reduced transaction costs even if a complementary assessment would be needed, for example in the case of large projects, for final approval. In addition, these approaches lend themselves to a dynamic application based on periodic redefinition of reference thresholds in order to account for technological progress. Most notably, however, the project approval procedure will become at once more predictable and less expensive and thus meet the wishes of investors for a simpler and more transparent system.

The development of standardised references (technological matrices and/or "benchmarks") greatly simplifies the project assessment process for those offering projects and makes it much more predictable. It does not however completely eliminate the risk of certifying emission reductions for projects that would have been financed in any case. For example, one can consider that micro-hydro power is an additional technology, while it may be the reference option for rural electrification in a number of specific situations. The risk is not so important for renewable energy, but it may be greater for industrial projects. The refurbishment of an old power plant including the replacement of existing turbines by new more efficient ones may lead to a lower production of greenhouse gases, while at the same time be justified on simple economic grounds. Should it be considered as additional and lead to the issuance of certified emission reductions?

Although less accurate than the project-by-project additionality analysis, the standardised approach provides greater certainty and as such does not prevent potential investors from proposing new projects. It is logical to suppose that it would be required for small projects producing only a limited amount of certified emission reductions. The real risk of "fictitious" reductions, from some non-additional validated projects, would then be limited and greatly compensated for by the spillover effect that may result from the acceleration of new technology dissemination.

On the other hand, what is the best approach where large projects are concerned? The adoption of insufficiently strict or accurate validation procedures is likely to encourage opportunistic behaviour from investors looking to benefit from certified emission reductions on projects that are already profitable. For these large projects, a case-by-case approach may be justified initially despite its limitations (transaction costs among others), with the expectation that the benefit of experience will lead to the standardised approach being refined and thus effectively limiting non-additional projects.

3. What Will Be the Environmental Efficiency for the CDM?

Behind the debate on project additionality assessment procedures are broader debates on geographical flexibility and the involvement of developing countries in climate change prevention.

It is essential to be able to assess additionality in order to prevent the large-scale certification of fictitious emission reductions. There is however a risk that laying down excessively complex rules will dissuade potential investors from participating in the CDM and ultimately limit its size.

However, it should also be noted that CDM is aimed at favouring and accelerating cleaner and more efficient technology adoption in developing countries. Some people believe that it would be beneficial to accept a limited percentage of non-additional projects if the CDM were also capable of guiding DCs toward more sustainable development paths. Accordingly, the validation procedure should be simplified so as to favour the instrument's status as an incentive, without losing sight of the need to guarantee project additionality. With a greater incentive level, the CDM would benefit from greater investment and therefore result in a net increase in emission reductions, despite a possible increase in the proportion of non-additional projects. In dynamic terms, the spillover effect produced by enlarged dissemination would also benefit the global environment.

The proposals aimed at developing the sectoral or programme-based approach in the context of the CDM may favour a greater

investment dynamic and less carbon-intensive development paths. The aim is to simplify the baseline production procedure and to widen the scope of action of the CDM beyond a mere project-approach. However, by requiring countries to develop their own sectoral references, one is moving away from the CDM designed on the principle of North/South joint implementation.

The CDM's main function would no longer be to allow countries involved in the fight against climatic change with binding commitments, Annex I countries, to limit their costs by benefiting from less expensive options in non-Annex I countries. The main goal of the CDM would shift, from the dynamic viewpoint, to steering the Southern countries towards long-term development paths by facilitating the adoption of cleaner and more efficient technology.

III. Different Expectations and Strategies Among Developing Countries

The negotiations organised in application of the so-called "Buenos Aires Plan" (1998-2000) allowed the positions, expectations and preferences of developing countries to be made known. This process led to a general agreement on some points, but also revealed sharply differing expectations of what the CDM should bring to developing countries.

The first point of agreement reached between developing countries is that the CDM cannot be limited to Joint Implementation between North and South. Developing countries opposed Joint Implementation because it offered industrialised countries the chance to benefit from low-cost reductions abroad without any changes in their own consumption patterns and technologies. For their part, the host developing countries fear that they will have to implement more costly action when subjected to restrictive undertakings. Finally, most developing countries believe that JI allows industrialised countries to duck their responsibilities without encouraging them to alter their emission levels on a long-term basis.

The role of the CDM should be wider and more fundamental: while allowing developing countries to participate in the overall fight against global warming, it must also contribute to the economic and social development of these countries, especially by bringing additional finances to those already supported by public aid or by foreign direct investments. If this were not the case, action against global change would be nothing more than a basis for reorienting international financing.

Developing countries also believe that the host countries should play the leading role with regard to project eligibility, monitoring and credit availability; this action should be undertaken with respect to national sovereignty and according to national development priorities.

In other respects, the differences between developing countries positions are great, especially with regard to matters of equity, project eligibility and initiatives taken by national actors. These differences are illustrated later on the specific issue of how CDM projects should operate and be financed. They reveal very diverse perceptions of the CDM and its potential effect and interest according to the developing countries.

1. CDM implementation method : three basic approaches[12]

Three basic approaches have been distinguished, with possible variations and combinations. It is currently unlikely that any of the formulae would prevail in their "pure" form. There are still arguments to be heard on the conditions for participation in the CDM and in overall effective action to guard the climate.

- *The bilateral approach*

According to this approach, the CDM is a decentralised structure in which project selection, financing and sharing of credits are arranged

[12] For a more comprehensive treatment of the approaches, see Yamin, F., "Operational and Institutional Challenges", in J. Goldemberg, ed., *Issues and options: the Clean Development Mechanism*, PNUD, 1998; Baumert, K. & Kete, N., "Designing the Clean Development Mechanism: operational and institutional issues", in *2000 Forum on climate change*, OCDE-AIE, 2000.

directly by the interested parties (host country, investors etc.) on a project-by-project basis.

This model is similar to that used in JI. It is consistent with standard industrial project investment methods and gives considerable flexibility to project "developers." Its main advantage is that it does not incur excessive administrative or operating costs.

The drawback is that the transaction costs for each individual project are generally higher[13], thus favouring large-scale, capital-intensive projects and discouraging small-scale projects such as renewable energy production unless such projects could be easily replicated.

- *The multilateral approach*

The principle of the multilateral approach[14] is one of separation (non-communication) between investors and implementation of projects. The financial resources contributed by investors from Annex I countries provide a centralised investment fund and are directed towards activity in developing countries. Once certified, the emission reductions are transferred back to the investors by a central authority at an average price. The investors receive a percentage of the certified emission reductions in proportion to their contribution to the investment fund capital.

The advantage of this arrangement, for developing countries, is that their collective negotiating power is increased. It also allows projects to be organised on the basis of collective criteria, for example to support a specific type of new technology, or to distribute it geographically and share in its benefits. Developing countries are also hoping that this centralised organisation method will allow a higher price to be imposed for certified emission reductions. For investors the attraction is in the improved distribution of risks across the portfolio (compared to individual projects) and in reduced transaction costs (for a small investor, it is easier to buy the certified emission reductions from a fund than to identify a project in a host country).

Some people believe that the drawbacks to the multilateral approach are the creation of an expensive bureaucratic system, less effective than the bilateral approach, and less attractive strategically to large investors.

- *The unilateral approach*

Some developing countries would welcome the opportunity to set up emission reduction projects independently and market the certified emission reductions. With this unilateral approach, the non-Annex I countries can select, implement and fully finance any emission-reducing activity within its own territory or in another developing country, without any Annex I country becoming involved. Once the emission reductions have been certified, they can be marketed directly or sent to the CDM central administration for marketing. These sales will contribute to the repayment of the initial financing.

The advantage of this approach is that the projects decided upon and realised independently by developing countries form an integral part of their national priorities. It is also conducive to a South/South co-operation, which is much recommended but little encouraged in the context of the Kyoto Protocol mechanism.

This approach cannot however be applied generally as few developing countries have sufficient means, financial or otherwise, for realising the projects. Also, it raises the question of developing countries taking on additional responsibility and their capability of so doing.

These different approaches may be combined to produce a mixed model, the aim of which is to combine the advantages inherent in certain models. It has been suggested that the bilateral and multilateral approaches could be combined so as to profit from both the efficiency of the former and the fairness of the latter. However, it will be difficult to have these two approaches

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[13] See, for example, Strassburg, W., "Activities implemented jointly", in *Proceedings of the International AIJ Workshop*, Leipzig, March 1997.

[14] This multilateral model, also termed the "portfolio" or "fund" approach, may be fully centralised, with a single investment fund, or consists of several funds co-ordinated by common, internationally accepted operating rules (for example, the World Bank carbon fund, funds implemented by developed countries or by industrial groups).

working in parallel; if bilateral financing is possible, a major part of the available funds will probably go towards this approach making the objective of fair geographical distribution uncertain.

2. Expectations About CDM Depends on Economic Circumstances

The preferences expressed for one or another method of organising the CDM[15] are not only affected by the economic situation of the countries or groups of countries in question, but also by their political relationships and related negotiating power.

- *China and India in favour of a strictly bilateral approach*

Economic size and level of development make India and China very attractive for large-scale CDM projects. Studies in which the flow of investments in the context of the CDM has been simulated show that they would be the first recipients of projects[16], followed by the other major semi-industrialised developed countries. Paradoxically, China and India do not have great expectations from the CDM as they are already attracting a significant proportion of private investment[17] and also receiving the most Overseas Development Assistance (ODA)[18].

In the negotiation process, these two countries have expressed a clear opposition to the principle of North/South flexibility. Their arguments as to the specific role of this mechanism are largely rhetorical or political, and aimed at other developing countries and the G77 plus China[19]. It leads them to favour a very rigid CDM of limited size, based on a strict bilateral relation between an Annex I country investor and a non-Annex I country.

The bilateral approach would make it easier to assess the scope and implementation of the projects and limit outside influences on national development options, but the main motivation is the will to limit the extent of North/South flexibility. For the same reason, China and India wish to restrict the use of certified emission reductions produced in favour of the investor country alone. These credits should not be transferable to other parties, or be exchanged on international emissions markets.

- *AOSIS[20], the African countries, and some Central and South American countries are in favour of a multilateral approach aimed at better allocating the benefits of the CDM*

The countries preferring the multilateral approach make up a group of territories of modest economic and geographical size, most of which are vulnerable to climatic change. They consider that they would be marginalized by a purely market-based approach. These fears have been strengthened by the small number of projects their countries received during the pilot phase[21].

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[15] This analysis relies on the official contributions (about the CDM) from the non-Annex I parties to the climate-related negotiations.

[16] See for example Michaelowa, A., "Clean Development Mechanism and Joint Implementation : which instrument is likely to have a higher impact?", 3rd session of the *International Working Group on the CDM*, Paris, March 1999.

[17] Within the DCs, China is the commonest destination of foreign direct investment, with 30,4% of the total in 1997. India is the tenth commonest. K. Baumert & N. Kete, OCDE, 2000, op. cit.

[18] China is the main beneficiary of ODA ; India is the third.

[19] The G77 plus China includes 133 developing countries, and expresses the common negotiation points. Founded in 1964 in the context of UNCTAD, it operates within the United Nations system.

[20] The AOSIS is a coalition of 42 small island countries whose survival is threatened by climate change. It was founded in 1990 during the preparations for the Rio Conference. Very much involved in climate-negotiations, it proposed, in 1994 yet, a protocol draft including a 20% CO_2 emissions cuts.

[21] Menanteau, P., "Application conjointe : les premières leçons de la phase pilote", in *Les Cahiers de Global Chance*, n°9, nov. 1997.

Of these countries the smallest and poorest do not have the means to organise the financing of projects or to implement them independently. A centralised multilateral finance arrangement would have the advantage of directing the funds and projects more fairly from a geographical point of view, without excluding the least developed countries. In addition, dissociating the supply of and demand for projects would have the effect of limiting the dependence on businesses and on the Northern States. Finally, because of their limited power of negotiation, the smaller countries are hoping to obtain more advantageous certified emission reduction prices and a more favourable distribution of profits.

Among these countries a large proportion is particularly vulnerable to climate change and, because of their development level, need capacity building activities in order to be able to select and implement any clean project. So the questions of adaptation to the climate change and capacity building are crucial for this group of countries.

The countries most anxiously awaiting the introduction of the CDM are not only those wishing to be compensated for difficulties experienced in attracting private investments, but also those who run the risk of being excluded if the CDM is put together on a strictly bilateral basis. A multilateral approach could increase these investment flows significantly provided it is exclusive. However, this is not likely to occur given the current state of the negotiations.

- *Most Central and South American countries, and South Korea, favour a unilateral approach*

The countries wishing for a unilateral approach to the CDM are all semi-industrialised countries of average economic size, which have their own clean technology or are capable of implementing it. They have the human skill to select, implement and manage projects and have sufficient infrastructures to limit transaction costs. Finally, they have the strength to mobilise internal or outside finance. Some of them, like Costa Rica, Mexico and Brazil, have already demonstrated their capacity to select and implement projects and to organise financing.

Several arguments have been put forward in favour of unilateral implementation; most notably, greater consistency with national development priorities, a willingness to develop domestic greenhouse gas mitigation programmes, and South/South co-operation initiatives.

However, the main argument in favour of the unilateral approach is that these countries also wish to benefit from selling the certified emission reductions associated with projects in their own territory or in other developing countries. In fact, these semi-industrialised countries do not wish to miss the new industrial and business potential opened by the creation of the CDM. They are fearful that their industrial development will be hampered if the Annex I countries are the only ones to profit from the technological push that could be stimulated by the CDM. At the same time, these countries are advocating prompt implementation of the CDM and its extension to include carbon sequestration plans. Generally speaking, they show a proactive attitude towards climate-related negotiations and the taking of responsibility.

The expectations implicit in these various positions suggest that some countries would like to exceed the limits laid down by the CDM and play a larger and more active part in the prevention of climate change. In this way the first two groups, namely China and India on one hand and the least advanced or poorest countries on the other, are strictly within the context of the CDM. The first group thinks that it will benefit from project flexibility in every way. The second group wishes to benefit from the CDM and, with that in mind, is making proposals aimed at adjusting the market's spontaneous tendencies. Three proposals in The Hague (COP6) are the small projects facilitation, additional financing through a "Convention fund," (named today "special climate change fund"), as well as awareness of vulnerability through an enlarged adaptation fund. If these proposals are accepted, they will be the strategic and partial answers to a category of countries (the poorest and smaller) which cannot be forgotten. With regard to the countries in the third group, it seems essential for the rules of the CDM to be widened in order for them to benefit. They are therefore clearly

advocating more active participation by the developing countries, within the bounds of the mechanism and possibly beyond.

In regard to their aspirations and also to achieve the ultimate objective of the Convention[22], we are led to examine an enlargement of the possibilities for DCs association in climate change prevention.

IV. Which Opportunities for Developing Countries Beyond CDM ?

Currently, the only way of including developing countries in the international climate change prevention strategy is the CDM. However CDM has intrinsic limits, given its project-based approach to flexibility.

The first limit, mentioned above, is that of project additionality assessment procedures. In the absence of quantified commitments by the countries hosting the projects, there is nothing to prevent anyone from increasing artificially the volume of certified emission reductions produced, except effective procedures to assess project additionality. Project flexibility therefore opens the door to the emission of a significant quantity of "hot air."

The second limit relates to the amount of emission reductions likely to arise through project flexibility. Some emission reduction potentials are in fact difficult to mobilise in the limited context of the project-based approach, (energy savings in transportation, for example), and require the implementation of specific programmes, measures and policies. Questions could also be asked about the relatively small amount of certified emission reductions arising from projects completed in the pilot phase for activities implemented jointly, except for the carbon sequestration projects[23]. Of course the absence of real incentives will not allow a definitive conclusion to be drawn from the pilot phase. However will the CDM allow much more to be achieved if complex credit validation procedures are implemented and if the emission reductions brought about in the context of the CDM are subject to taxation[24]?

Finally, the developing countries' opposition to project-based flexibility can be explained in part by the fact that the investments it produces may be conditional in nature. An examination of the first projects in the JI pilot phase showed that a higher level of integration into national environment and development policy would have been desirable[25]. The question may be asked: would things be different with CDM projects, as all developing countries do not have sufficient economic or political weight to compel foreign investors to follow their choices?

These restrictions have led some to suggest that the method of operation of the CDM will leave behind project flexibility in favour of a more sectoral approach, which will give the developing countries control over the projects to be completed, limit the risk of hot air being created, and improve the potential impact of the CDM.

1. Widening the Field of Action of the CDM to Include Sectoral and Programme-based Aspects

Sectoral "caps" are an illustration of the attempts made to exceed the restrictions linked to project flexibility. Originally, these sectoral "caps" were planned for limiting emission credit exchanges in the context of joint implementation within Annex I. The idea is to

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[22] UNFCCC, Art. 2: "...stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interferences with the climate system."

[23] P. Menanteau, op. cit.

[24] The Kyoto Protocol provides for the creation of a so-called "share of proceeds" tax, to be applied to the certified emission reductions produced within CDM; this tax shall cover the mechanism administration cost and finance adaptation projects in the developing countries most vulnerable from climate change. The Protocol does not plan for this tax to be applied to emission trading or to East/West Joint Application projects.

[25] IEPE, *Les pays en transition et les pays en développement dans la négociation sur le changement climatique : les enjeux de la conférence de Kyoto*, Grenoble, oct. 1997.

define, within a given country, the reference emission paths for certain economic sectors and to assess the CDM activities on the basis of this sectoral reference pattern. Because of the stakes that it offers, the electricity sector, for example, could be subjected to a sectoral approach; this would allow the potential certified emission credits to be contained, while making easier the implementation and increasing the field of action of the CDM.

This approach was planned in particular in the context of joint implementation between the Annex I countries, working on the hypothesis that the "national governments of the JI/AIJ host countries would use their overall (emission reduction) commitment as a basis to calculate commitments from various economic sectors or technologies"[26]. The idea is to distribute the national commitments among domestic stakeholders by assigning quantified objectives to the main economic sectors and possibly to the key economic actors. Instead of monitoring the impact of each project closely, it would then be sufficient to check that the amount of certified emission reductions exported is consistent with changes in emission levels for each sector on one hand and the accepted sectoral reference on the other hand. Of course, this approach would necessitate the development of accurate sectoral inventories on a bottom-up basis, which can also be considered as a significant challenge, even in developed countries.

Other proposals intend to facilitate the procedures for obtaining certified emission credits with the aim of increasing the incentive nature of the CDM, while preserving at the same time project additionality[27]. The "programme-based" approach can be considered as an intermediate method between project-based and sectoral approaches. It defines a framework programme that authorises a certain volume of certified emission reductions that consists of specific previously negotiated projects. Every approved project therefore confers the right to a specific volume of certified emission reductions, up to the maximum authorised by the programme.

These various approaches have the common feature of offering a sectoral or programme-based fixing of the volume of certified emission reductions likely to benefit CDM projects, while making their implementation easier and leaving it to the host countries to specify which programmes or sectors will be judged "priority." But, they all encounter the same difficulty, namely the definition of sectoral emission scenarios.

The production of reference scenarios cannot only arise from an unilateral action by the host country. This is a negotiated procedure, stating what the host country is supposed to do in order to improve energy efficiency, facilitate the dissemination of new technology and protect the local environment. In this way, removing or reducing existing energy subsidies for example, or taking into account a reasonable level of local environmental protection, could be considered to form part of the reference situation.

Producing a reference scenario is therefore already leading developing countries to agree to discuss their development strategy with other Parties to the Convention, which some countries are not prepared to accept. These sectoral or programme-based approaches allow the total volume of certified emission reductions likely to benefit from CDM activities to be fixed, but they do not provide a real operational solution to the question of additionality, neither do they offer the adaptability, independence or overall flexibility based on the exchange of emission permits.

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[26] Jepma, C. J., et al, *Overview of the UN FCCC Activities Implemented Jointly Pilot: COP1 Decision 5, Reporting Guidelines and Case Studies*, in R. Dison, ed, *The UN Framework Convention on Climate Change Activities Implemented Jointly (AIJ) Pilot: Experiences and Lessons Learned*, Kluwer Academic Publishers, The Netherlands, 1999.

[27] See especially the analysis of the potential lever effect of the CDM on policies and measures in developing countries : Mathy, S., De Gouvello, C. & Hourcade, J.C., "Le MDP : vers une harmonisation entre environnement et développement ? ", *Actes du séminaire Dialogue entre les ONG et les institutions officielles sur les mécanismes de Kyoto*, Nogent-sur-Marne, July 2000.

2. Quantified Commitments: the Main Restriction in a Generalised Permit Exchange Scheme

Emission trading systems have an advantage over project-based instruments such as the CDM, in that they produce "closed trading" systems that bring together countries bound by quantified emission reduction objectives. The CDM, like JI, is defined in the other way, as an "open trading" system that allows all the parties to the Convention to come together, including those who have not taken quantified commitments.

Closed trading is a nul sum game; whatever one wins, the other loses, as the country transferring the certified emission credits to another has its objective altered in consequence. Monitoring this trading is a simple procedure, but the system can only be set up between countries that have accepted quantified emission reduction objectives.

In the absence of binding commitments, the CDM remains the only means of benefiting from emission reductions in developing countries, but carries the disadvantages mentioned above and also does not encourage those countries to make any real effort to control their greenhouse gas emissions. On the contrary, as it is easier to reduce emissions in countries that have not made yet a specific effort in this area, the less scrupulous countries will be those that most easily attract CDM investors by offering major reduction potential at a low cost.

The question can then be asked whether general application of binding commitments in developing countries is not the solution to look for in order to allow North/South emission reduction credits exchanges. The developing countries could then benefit from credits in return for efforts made to set up environmentally friendly policies, especially energy policies. "Such commitments would create new opportunities for developing countries to benefit not only from project-level climate mitigation investments but also from efforts to reform broader energy policies"[28].

By allowing emissions to increase in order to satisfy these countries' development needs, the allocation of an emissions budget would provide great incentive to implement more climate-friendly policies. Resulting reductions could be negotiated and produce additional income to the implementing country. The volume of credits and the income arising from them would be very much higher than those from the CDM projects alone. In addition, developing countries would enjoy a greater measure of independence in choosing the emission reduction policies to be implemented according to their own development aims.

Although in theory it is more satisfying in terms of efficiency of climatic change prevention strategy, extending the binding commitments to developing countries is not on the agenda. No developing country is prepared to take a quantified commitment to reduce or even mitigate its greenhouse gas emissions, primarily because of the restrictive effect that such an undertaking would have on its economic development[29].

In the absence of a wholly satisfactory solution, intermediate solutions have been proposed in an attempt to benefit from the adaptability and size of a global flexibility system; this overcomes the stumbling block of negotiating restrictive undertakings with developing countries.

3."Non-binding Emission Commitment": a Way of Including Developing Countries in Emission Trading?

At the time of the Kyoto Conference, several countries expressed favourable opinions on the principle of voluntary commitments by developing countries. The idea defended by the USA was that countries that voluntarily undertook to reduce their emissions could

[28] Center for Clean Air Policy, *Setting Priorities for the Implementation of the Kyoto Agreement: Making Flexibility Mechanisms Work*, Washington, 1998.

[29] Developing countries are unwilling to accept restrictive undertakings as first the Convention and then the Berlin Mandate laid down quantitative undertakings on Annex I countries and not on non-Annex I countries, because the responsibilities are similar but different.

participate in the same way as the Annex I countries in the emission market. This proposal was a means of associating developing countries to the international climate change prevention strategy effort at an early stage. It would have given them the opportunity to benefit from national efforts toward climate change prevention without imposing the same restrictions on them as on the industrialised countries.

However, during the Kyoto and Buenos Aires conferences, China and the G77 were radically opposed to the idea. These countries refused to include the question on the agenda and even to allow the use of the term "voluntary" in the negotiations. Eventually only one country, Argentina, mentioned the idea of voluntary commitments specifically during COP5 (Bonn) and suggested the objective of limiting its greenhouse gas emissions by 2-10% (sic) below the "business as usual" level for the period 2008 to 2012[30].

This idea of voluntary commitments was subsequently adapted, but in a more sophisticated form of "non-binding targets"[31], to bring developing countries into the emission trading system. The concept of "emissions budget" consists in allocating permits to a country on the basis of its foreseeable emissions level in order to allow it to participate in the exchanges. The country will be allowed to sell permits if its emissions are below the budget at the end of the period, but will not be penalised if its emissions exceed the allocated budget.

Although attractive, the system also has its limit. If a country is allowed to sell certified emission credits during the budgetary period, it is logical that non-compliance measures should be applied against it if its agreed emissions level is exceeded. More specifically, there is a problem when the country has sold more credits than it has reduced emissions in relation to its overall budget because it would then have sold "hot air." On the other hand, however, if the sale of certified emission reductions is not authorised until the end of the period, there may be a problem of finance for countries that do not have sufficient resources to undertake programmes independently.

Above all, this proposal does nothing to solve the basic problem of allocation of emission quotas. If the emissions budgets have to take account of potential growth in the countries concerned, could they be based only on business-as-usual emission trend? How can the level of effort that one should rightly expect from these countries, in respect of their economic development, be determined? The question of the reference scenario, raised at the start of this text in order to assess the additionality of the CDM projects is raised in the same way at macroeconomic level. However, while developing countries could conclude that the onus is on them to define independently the reference used to assess the CDM projects, it is clear that it must arise from a collective process in order to be used as a basis for organising a tradable permit system at an international level.

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None of these proposals, aimed at integrating developing countries more closely into the international efforts to prevent climatic changes, appears wholly satisfactory or indeed applicable to all developing countries.

In the future, however, methods for participation in a generalised tradable permit system should be offered to developing countries who want them. This will raise the difficult question of initial allocation of quotas (initial entitlements). Among others, the concepts of "contraction and convergence" put forward in particular by the Global Commons Institute and A. Agarwal[32], are interesting proposals for the long-term debate on emission

[30] This unilateral proposal raised several difficulties because there was no debate between the Parties, and because of the nature of the aims, some of which were, and others were not, restrictive.

[31] Philibert, C., "How could emissions trading benefit developing countries", *Energy Policy*, vol. 28, n° 13, 2000.

[32] Agarwal, A., Nurain, S., "The atmospheric rights of all people on earth; a CSE statement" in *NGO workshop on Per Capita Entitlements,* Bonn, june 1-12 1998.

entitlements; the basic idea is to allocate similar levels of emissions per capita to developed or developing countries in the long run (2050 or 2100), inciting industrialised countries to progressively reduce their emissions and allowing for economic development in less developed ones. According to the Global Commons Institute, similar emissions level per capita would be the only fair allocation of emission rights among developing and developed countries. However, the difficult questions of convergence levels and time horizons remain.

For some developing countries, however, the question of extending the scope of emission reduction trade to non-Annex I countries has already arisen. For them, the key question is that of not being penalised in the technological race with the major industrialised countries because the incentive mechanisms created by the Climate Convention could primarily benefit industries in Northern countries. We are convinced that it is essential that these countries should be encouraged to implement global environmentally-friendly policies. The possibility to complete CDM projects, either in their own territory or in other Southern countries, could be seen by these rapidly industrialising countries as an appropriate economic incentive.

Expectations from low-income countries regarding the design of CDM are totally different. Their concerns are related to sustainable development, national sovereignty, equity in funding and vulnerability, some of the issues that have been discussed during the last negotiation period. According to recent propositions, small projects and renewable or energy efficient technologies would be encouraged in the CDM, which could help poorer countries to host a greater number of projects. Fair participation of DCs in the Executive Board of the CDM could also help to take into account concerns of low income countries but it should be clear that their expectations regarding equity in projects financing or technology transfer will possibly not be addressed in the framework of the CDM. This could be the aim of a separate work program to be established by COP in favour of poorer countries, or the "Special Climate Change Fund" that will collect additional funding for sustainable development, outside of the Kyoto Protocol framework[33].

Despite these concerns of low income countries and its mentioned limitations, the CDM is still very much of interest to many developing countries; its main interest being to initiate a co-operation between North and South on climatic change prevention. Even if it fails to meet all the expectations of developing countries, its main function will be to generate additional finance for projects beneficial to both development and the environment. In this way, it will contribute to the beginning of a learning process that will allow developing countries to adopt more environmentally friendly growth paths in the future.

At the present time the CDM design is not completed. That is one of the aims of the negotiation process initiated with the Buenos Aires Plan, which would have ended during COP 6 (The Hague, 2000) and will continue in COP 6 part two (Bonn, July 2001). If these negotiations on the Kyoto Protocol, then on the CDM, do not succeed an important opportunity to associate developing countries with climate change prevention would be lost. The Global Environmental Facility and dedicated funds such as the "Special Climate Change Fund" or the "Adaptation Fund," if they are accepted, would then be the only solutions addressing the climate change issue in DCs. We believe that their impact on investment and technological change would be far less significant than CDM could be.

[33] The attention given to the concerns of low income countries in the negotiation process can also be seen in the evolution of the "Adaptation Fund" the financing of which will be extended to a significant level and will be disconnected from the CDM.

CDM milestones

- COP 3 – Kyoto, 1997 : adoption of the Kyoto Protocol to the UNFCCC ; Annex I parties have accepted to reduce their overall GHG emissions by 5% ; to facilitate this objective, the basis for three "flexibility" mechanisms (Joint Implementation, International Emission Trading and CDM) was provided ; CDM is created to encourage joint projects between industrialised and developing countries.

- The Buenos Aires Plan of Action (BAPA) was adopted at COP 4, 1998, as a work schedule for reaching an operational Kyoto Protocol and strengthening also the Convention. Regarding CDM, BAPA concerned basis aspects (purposes, eligibility criteria, supplementarity, ...) as well as methodology (environmental additionality, baselines, ...), and institutional framework. This two years plan should have been completed at COP 6.

- "Crunch issues" in The Hague and beyond: during the negotiations, president Pronk asked for discussions on "crunch issues" (Pronk's Note, 23/11/2000). After failure, consultations on these issues were decided and permitted the publication of a consolidated negotiating text (18/06/2001), to be discussed at COP 6, part 2, in Bonn, july 2001 (FCCC/CP/2001/2/Rev.1 and Add.1 to 6). Regarding the CDM, decisions are needed on guiding principles, supplementarity issue (part of reduction to be realised internally), the use of certified emission reductions and credits from emission trading and JI (full exchange of credits between the different flexibility instruments), eligibility criteria (nuclear or sinks are controversial) and the starting date of the CDM.