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EQUITY AND FLEXIBILITY MECHANISMS IN THE CLIMATE CHANGE REGIME

CONCEPTUAL AND PRATICAL ISSUES

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Equity and Flexibility Mechanisms in the Climate Change Regime: Conceptual and Practical Issues

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Introduction

Climate change has become one of the prominent international environmental problems. One of the defining traits of the climate change issue internationally relates to the different contributions of different groups of countries to anthropogenic emissions of Greenhouse Gases (GHGs) and the different capacity to respond to the challenge posed through mitigating activities. Developed countries have thus contributed about two-thirds of cumulative carbon emissions between 1800 and 1988,[1] while the share emitted by developing countries is expected to rise significantly over the next few decades.

The Framework Convention on Climate Change ('the Convention'), which has been ratified by more than 170 states, seeks to address the problem of global warming at the international level. While it does not mandate specific emission reduction targets, the Kyoto Protocol adopted in December 1997 sets out quantified emission limitation and reduction commitments for OECD countries and countries undergoing the process of economic transition to a market economy (Annex B Parties). Annex B Parties commit themselves to reduce their overall GHG emissions by at least 5% below 1990 levels between 2008 and 2012.[2] Developing countries do not take on emission limitation or reduction commitments but have general reporting obligations.[3]

To ensure the effective realization of the Convention's objective to stabilize GHG concentration in the atmosphere, different implementation strategies and mechanisms have been proposed. These include, for instance, the setting up of a financial mechanism to cover part of the costs that developing countries incur in implementing the Convention. Other implementation mechanisms, known as 'flexibility mechanisms' have also been devised to foster the realization of the goals of the Convention. While the concept of 'joint implementation' is not new in international law, it is subject to a lot of attention in the climate change context.

Flexibility mechanisms are in the process of being refined and strengthened in preparation for the coming into force of the Kyoto Protocol.[4] A number of issues remain to be solved both at the conceptual and practical levels. This article focuses on the integration of flexibility mechanisms into the overall structure of the climate change regime. More specifically, it examines ways in which flexibility mechanisms can both contribute to climate change mitigation and to sustainable development, taking into account the common but differentiated responsibilities of state parties. It argues that strict guidelines must be laid down to ensure that flexibility mechanisms foster environmental and socio-economic goals.

Equity in the Climate Change Regime

Relevant Sources of Equity in the Climate Change Context

Equity informs the climate change regime in different ways. The brief presentation that follows focuses on a few general elements and the specific principle of common but differentiated responsibility which translates a number of equity concerns in the international environmental law field.

Solidarity as a Basis of Inter-State Relations

The principle of solidarity constitutes one of the ethical bases of inter-state relations. It is often seen as an essen-

tial element of the existence of the community of states and a basic unalterable feature of international law. In this sense, solidarity is an unenforceable, yet compulsory basic moral standard of peaceful relations among states.[5] It reflects not only the interdependence of states but also the responsibility of states to ensure that their economic, environmental or other policies do not harm other states and a prohibition to interfere with the interests of other states.[6] In practice, states are thus expected to cooperate on issues of common concern.

The principle of solidarity finds its expression, for instance, in Article 55 of the UN Charter which recognizes the need for cooperation among nations to achieve the goals of economic and social development.[7] Recent instruments have reiterated and given content to these principles. Thus, the preamble to the instrument establishing the WTO states that one of the objectives of the organization is to ensure that the least developed countries secure a share in the growth of international trade that is commensurate with their economic development needs.[8]

Differential Treatment

One of the most important manifestations of solidarity in international environmental law is through 'differentiation'. Differential treatment refers to cases where the principle of sovereign equality is sidelined to accommodate extraneous factors, such as divergences in levels of economic development or unequal capacities to tackle a given problem. It seeks to foster a form of substantive equality which cannot be achieved through reliance on sovereign equality in a world where states are unequal in many respects. Differential treatment does not encompass every deviation from the principle of sovereign equality. It refers to non-reciprocal arrangements which seek to foster substantive equality in the international community. In practice, this mainly includes deviations seeking to favour developing countries.

Differentiation can be applied at two different levels. First, in the case of norms, differential treatment refers to cases where the principle of reciprocity of obligations is abandoned in favour of dissimilar obligations for different groups of states. The Kyoto Protocol where developing countries do not take on quantified emission limitation and reduction commitments constitutes an example of differential obligations. Second, differential treatment can apply at the implementation level. This includes all the cases where incentives are given to one group of countries to facilitate the implementation of their commitments under a given treaty. In international environmental law, this form of differentiation has become extremely important and encompasses, for instance, technology transfers and financial mechanisms like the Global Environment Facility (GEF).

Common but Differentiated Responsibility

Equity concerns in international environmental law have crystallized most visibly under the guise of the principle of common but differentiated responsibility (CBDR principle). It constitutes, for instance, one of the basic principles of the Climate Change Convention, Article 3 of which reads as follows:

> The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.[9]

In substance, it posits that states should be held accountable in different measure according to their respective historical and current contributions to the creation of global environmental problems, while recognizing that all countries must participate in solving global problems.[10] In practice, this may imply differentiated commitments.

The importance of this principle is well exemplified in the case of climate change where the contribution of each country cannot be dissociated from its pattern of economic development over time. Since industrialization has not proceeded at a similar pace in all parts of the world, some countries have contributed a higher overall share of GHG while others may increasingly contribute in the future. In the Convention, the CBDR principle is, for instance, concretized through developed countries' pledges of financing the full incremental costs of measures to be taken by developing countries to alleviate the greenhouse effect on the basis of their higher past and present contributions to the problem.[11]

While the CBDR principle emphasizes the different responsibilities and capabilities of states, it also seeks to bring all states together to cooperate in solving international environmental problems. Another dimension of the CBDR principle is thus its emphasis on partnership to avoid further environmental harm. In other words, it strives to find a solution to the problem of finding who has the resources to pay for climate change mitigation and who has the responsibility to do so.[12]

The CBDR principle is not fundamentally different from the polluter pays principle which has constituted one of the basic principles of international environmental law since the early 1970s. In essence, it seeks to bring a new dimension to the latter principle by emphasizing both past contributions and present and future capacity to solve a given problem. The link between the CBDR principle and the polluter pays principle was highlighted in the Brazilian proposal for a Fund in the negotiations for the Kyoto Protocol. According to this proposal, countries which had taken on commitments and were in breach of their obligations would have had to pay a 'fine' to an international fund, which in effect would have constituted a penalty for emitting GHG in excess of their allotted share.[13]

In the context of the Climate Change Convention, the CBDR principle cannot be dissociated from the broader context in which it has developed. It constitutes a mechanism to address climate change 'for the benefit of present and future generations of humankind' and is thus intrinsically linked to both sustainability and human needs. It cannot be seen as a purely environmental principle devoid of socio-economic context. Indeed, equity in international environmental law cannot be dissociated from sustainable development which consti-

tutes the main guiding principle for international environmental policies. The realization of environmental quality cannot be sought in isolation from the socio-economic elements which constitute the backbone of equity in general international law. Equity and its environmental offshoot, the CBDR principle, imply therefore that environment and development goals must be pursued at the same time.[14]

Equity and Climate Change

Equity has become one of the cardinal principles in the development of the climate change regime. The reason why this should be so can be partly explained by the nature of the problem at stake. Indeed, the Climate Change Convention is not a purely environmental instrument. It not only focuses on the human contribution to global warming but also deals with a number of issues which affect directly humankind's well-being. The Convention is thus about balancing environmental interests and human needs.

Equity Issues

Equity is present in the Convention in different ways. At a general level, the first principle of the Convention is that equity informs all actions taken to mitigate climate change. More specifically, different groups of countries have agreed to different commitments and obligations. Equity is also present at the procedural level as exemplified by the current governance system of the GEF which is a direct emanation of Article 11 of the Convention.[15]

The general principle of equity in the Convention can be applied to a number of elements and situations of relevance to the achievement of the ultimate objective of the Convention. First, at the level of the apportionment of costs, equity is relevant in determining, for instance, the allocation of the costs of adaptation, the allocation of future emission rights and the fair allocation of GHG emissions in the long term.[16] In practice, it is, for instance, necessary to take into account that some countries are threatened with physical destruction.

Second, the impacts of mitigation activities have significant equity implications. Reducing GHG emitting activities in one given sector has different impacts on different categories of people. Thus, subsistence activities which result in GHG emissions are likely to be linked to the fulfilment of basic needs such as energy for cooking or heating. On the other hand, emissions from better-off people tend to be dominated by activities such as driving cars, central heating and energy embodied in a variety of manufactured goods. The welfare impacts of cutting back GHG emissions may thus differ greatly according to the level of personal wealth.[17]

Third, policies to address climate change must also take into account that environment and development objectives cannot be separated, as recognized by the Convention.[18] For instance, mitigation activities should not aggravate existing disparities between different countries and regions of the world and should further aim at redressing existing inequalities.[19] This is particularly important since climatic change is expected to worsen inequalities among countries and people due to the uneven distribution of the costs of climate change related damages and the costs of the required adaptation and mitigation efforts.[20] In other words, the Convention acknowledges that climate change mitigation activities should at the same time foster socio-economic development.

Fourth, while climate change tends to focus people's attention on the global environment, local and international costs and benefits should not be looked at in isolation. In a world in which all nations bore an equal share of the costs of climate change mitigation, a focus on aggregate equity would be appropriate. In the real world, however, it is important to examine how the burden of adjustment is shared among all countries so as to avoid over-burdening countries which are already disadvantaged, either in environmental or developmental terms.

Fifth, equity in climate change cannot be dissociated from past and current differences among states constituting the international community. Differences in the historical path of economic development, in energy consumption policies, in natural resource endowments or in current levels of development are all relevant factors in assessing how responsibility for climate mitigation action should be shared among countries. Since all these factors should be taken into account, equity may require that some countries make net contributions to the mitigation effort. Thus, if climate mitigation implies a redistribution of resources in a context of limited available resources, some countries may have to accept a reduction in their overall economic welfare.

Equity and the Allocation of Climate Change Mitigation Rights and Costs

The application of equity has drawn significant attention to the costs associated with climate change mitigation. This constitutes one of the concretizations of the CBDR principle in practice. Allocation problems arise, for instance, in the context of the distribution of abatement costs and the distribution of future emission rights.

Different principles of allocation have been proposed. These principles have in common the fact that they all seek to find their justification in the broad notion of equity. Allocation can, for instance, be made on the basis of cumulative historical emissions (natural debt).[21] This is close to the polluter pays principle. Concerning abatement costs, allocation can also be made on the basis of the ability to pay of each country or polluter. This reflects one of the central tenets of the CBDR principle. Both proposals reflect the Aristotelian notion that people should receive in proportion to what they put in and pay in proportion to their contribution to the damage caused.[22]

Allocation schemes have striven to find solutions which respect the principle of equality in one form or another. Some propose that emissions rights should be divided equally among nations, some that emissions

should be allocated according to current emissions (grandfathering) and some other that rights and duties should be divided equally among all human beings. These different kinds of 'egalitarianism' tend to hide underlying political and economic agendas rather than reflect proper ethical considerations. In reality, it is difficult to find an allocation scheme which takes into account the CBDR principle and does not threaten the aim of mitigating climate change. Indeed, while it is impossible to ask developing countries to freeze their per capita emissions at current levels, it is also politically very difficult to seek significant reductions in per capita emissions of developed countries. Further, this debate eventually stumbles on the specific problems of some large and poor countries like India and China where per capita emissions are extremely low but overall emissions quite significant. One solution may be to reject this Manichean debate on per capita emissions. Rather, further attention should be devoted, for instance, to increasing the energy efficiency of sectors where significant gains can be made, to reducing fossil-fuel dependency or to promoting non-GHG emitting renewable energies. This should be done in a context which recognizes the absolute priority of so-called basic needs related emissions, or emissions which directly contribute to the satisfaction of basic needs. Policies which seek to tackle climate change cheaply by reducing local people's use of firewood, for instance, through the setting up of reserves cannot be accepted in this context.[23]

Instruments of Equity

In the climate change regime, equity is concretized through different instruments and mechanisms. A financial mechanism to cover the incremental costs of climate change mitigation measures undertaken by developing countries constitutes the first instrument to ensure an effective implementation of the Convention's objectives. The GEF which fulfils at present this function was established specifically with a view to make the equity provisions adopted in the Convention a reality on the ground.[24]

At a more practical level, technology transfer constitutes one of the primary instruments through which equity is actualized. The Convention acknowledges repeatedly the importance of technology transfer to allow developing countries to participate effectively in the realization of the ultimate objective of the Convention.[25] Further, the Conference of the Parties managed to agree at its fourth meeting that the strengthening of the capacities and capabilities of developing countries to address climate change will help these parties to contribute to the ultimate objective of the Convention and to achieve sustainable development.[26]

Flexibility mechanisms are also noteworthy in this context. They will be examined in more detail in the following sections.

Equity and Flexibility Mechanisms

Flexibility Mechanisms in International Law Instruments

Flexibility Mechanisms in General

The concept of flexibility is still novel and requires explanation. It represents a conscious attempt to liberate international law from some of its structural constraints, in order to both reflect the reality of the current world order and to facilitate the implementation of inter-state agreements.

In international environmental agreements, flexibility mechanisms have been specifically introduced to enhance the cost-effectiveness of measures to address international environmental problems and to attract new sources of funding. Nations with high costs for meeting environmental obligations can thus invest funds in other nations that can provide low cost opportunities to fulfil the same objectives.[27] This 'spatial flexibility' has the advantage of bringing about global environmental benefits at the lowest possible cost by exploiting comparative advantage opportunities.[28] Flexibility has usually been premised on the idea that it should benefit both parties in addition to fostering international environmental protection. It is noteworthy that the emphasis of Article 12 of the Kyoto Protocol on the Clean Development Mechanism's (CDM) contribution to sustainable development in developing countries is much stronger than in the GEF instrument which focuses principally on global environmental benefits.[29]

More specifically, flexibility relates to the fact that the private sector is to be fully involved in the implementation of an agreement signed exclusively among states. International law is thus opening itself to non-state actors in a much more active way than previously. The involvement of the private sector must further be seen in the context of declining Official Development Assistance (ODA) and the need to find alternative sources of funding for the realization of sustainable development in general. Flexibility mechanisms provide an alternative source which does not depend on ODA.

Finally, flexibility is in large part driven by considerations of equity. Flexibility constitutes one practical application of the idea that international environmental problems must be solved through partnerships among all countries and all actors. Thus, equity is visible in the case of the creation of a 'bubble' which allows some relatively less economically developed countries to increase their emissions while others reduce theirs more drastically to achieve an internationally agreed commitment for the group of countries in question. Similarly, in the case of the CDM, developing countries which do not take on commitments under the Protocol contribute through the CDM to the realization of the ultimate objective of the Convention. Further, the CDM has the potential to participate in the practical implementation of the principle of common but differentiated responsibilities. Indeed, it may at the same time benefit the global

environment by lowering the cost of global environmental protection, foster technology transfer to developing countries and contribute to sustainability in these countries.

Flexibility Mechanisms in the Climate Change Regime

Flexibility mechanisms have slowly developed from being mentioned in passing in the 1992 text of the Convention to being one of the most debated implementation mechanisms. Broadly, flexibility constitutes one of the mechanisms for reducing overall GHG emissions. It involves the transfer of an activity or policy across a boundary or jurisdiction but must refer to the same pollutant.[30] Different kinds of flexibility mechanisms have and are evolving.

Activities Implemented Jointly: Activities Implemented Jointly (AIJ) constitutes historically the first kind of flexibility instrument developed on the basis of Article 4.2(a) of the Convention. It was formally launched at the first Conference of the Parties for a 'pilot phase'.[31] AIJ conjoins countries with commitments and countries without commitments, allowing the former to implement projects in the latter to take advantage of cost differentials. The AIJ Decision specifically acknowledged that AIJ should be supplemental and treated as a subsidiary means of achieving the objectives of the Convention.[32] Moreover, AIJ is expected to contribute long-term environmental benefits that would not have occurred without these activities.[33] Finally, AIJ financing should be additional to current flows of ODA and the financial obligations of developed countries under the Climate Change Convention.[34] As determined by the first Conference of the Parties, no credits accrue under an AIJ project.

Joint Implementation: Joint Implementation (JI) constituted the generic term for flexibility before the adoption of the Kyoto Protocol. JI involves the transfer of entitlements between States and has been tried elsewhere. Under the Montreal Protocol, for instance, Parties with different levels of consumption and production may transfer to one another part of their consumption and production entitlements within limits defined in the Protocol.[35] In the Kyoto Protocol, JI refers specifically to cooperative projects between two Parties with commitments. Credits accrue from such projects. Several elements are reminiscent of AIJ, such as the necessity for participation in JI to be voluntary, the necessity for emission reduction or sink enhancement to be additional to any that would otherwise occur or the fact that JI must be supplemental to domestic actions for the purposes of meeting commitments.[36]

Bubbles: A third kind of flexibility mechanism is the so-called 'bubble' whereby a group of countries is allowed to aggregate individual commitments and then decide within the group on the allocation of the burden. Under the Kyoto Protocol, the EU has, for instance, made use of the possibility to re-allocate the generic EU commitment among member states to allow some less economically advanced countries to increase their emissions.[37]

The Clean Development Mechanism: The Clean Development Mechanism (CDM) defined by Article 12 of the Protocol is conceptually very close to AIJ. It seeks to facilitate joint emission reduction projects between Annex I Parties and developing countries. Further, it also emphasizes the fact that projects must assist developing countries in realizing sustainable development.[38] The most significant departure from AIJ is that the new regime will involve the crediting of certified emission reductions accruing from CDM projects to Annex I Parties.[39]

Other important elements include, for instance, the fact that banking credits will be allowed. Also, while AIJ implies exclusively projects approved directly by the investor and host, one of the proposals for the development of the CDM posits that a multilateral framework could be put in place to centralize projects and distribute them. In this case, credits would accrue to the CDM which would distribute them to investors according to their shares.

Participation in the CDM should in principle have various advantages for actors involved in projects. These include global climate change mitigation through emission reduction or sequestration, credits for investors and various other elements contributing to sustainable development in host countries, such as transfers of technology and capital.[40]

Emissions Trading: Emissions trading constitutes another flexibility mechanism whereby a fully-fledged market mechanism is established. It is modelled on tradable emission permits, credits and offsets schemes that have, for instance, been put in place in the United States to facilitate compliance with the Clean Air Act.[41] Under the Kyoto Protocol, emissions trading can only take place among countries with commitments and must be supplemental to domestic actions.[42]

While emissions trading is often seen as the most developed form of joint implementation, in reality, it is substantially different from the other flexibility mechanisms examined here. First, it is by definition a multilateral mechanism. Second, while JI or the CDM involve the carrying out of actual projects and investor countries earn emission reduction credits, under emissions trading, countries exchange GHG allowances.[43] Third, in emissions trading, permits can be sold to third parties while a JI transaction is typically limited to two partners.[44]

Relevant Equity Issues for Flexibility Mechanisms

As currently conceived and, in the case of AIJ, implemented, flexibility mechanisms are already subjected to a number of equity-related elements. These will be briefly outlined in the remainder of this section. The following section will delve into more details on the practical consequences of equity for these mechanisms.

It has already been noted that flexibility mechanisms are meant to foster additional emission limitation or seques-

tration, to provide developmental benefits to recipients and to maximize the contribution of investors for the global environment in terms of cost efficiency. The general equity framework which guides activities under the Convention and Protocol has other implications. Even if the rationale for the development of flexibility mechanisms is cost-effectiveness, their implementation cannot be dissociated from the guiding principles of the Convention. More generally, flexibility mechanisms, even if they are implemented through private actors, must comply with the general principles of international law. Though the hierarchy of different fields of international law is a contested issue, it is usually conceded that basic human rights or international solidarity constitute fundamental bases of the international system which apply to all actors and all activities.

One of the most intricate issues facing the development of 'fair' flexible mechanisms is the inclusion of the private sector in an inter-state agreement. Though the private sector has always been involved at different levels in the implementation of international agreements, this has usually been done until now under the control of states. With these new mechanisms, private enterprises are taking on a much more prominent role and benefiting much more directly from the international regime in place. It becomes extremely important to devise a framework to ensure accountability and liability of these actors since international law is not well equipped at the moment for direct enforcement against private actors. This is all the more important in the case of flexibility mechanisms where the involvement of the private sector is driven mainly by considerations of cost-effectiveness while the other objectives outlined in the international instruments, such as the promotion of sustainable development in the case of the CDM, may not be taken into account. That this may be the case is, for instance, illustrated by adverse developments in the attempts to develop partnerships among private enterprises and with public institutions concerning the development of a vaccine against malaria.[45]

Finally, a major issue is the impact of flexibility mechanisms on sovereignty. First, at a general level, the concern arises because countries go to other countries to undertake activities which help them fulfilling their own obligations. More specifically in the case of climate change, concerns exist that CDM projects may exhaust low-cost mitigation opportunities which will not be available to host countries in case they take on commitments in the future. Second, in the case of land intensive activities such as forestry, there are clear trade-offs between maintaining the land under forest cover and food security or more generally sustainable development in many countries where arable land is in short supply. Third, the CDM raises the issue of credit storing for host countries. If emission reduction or sink enhancement achieved in host countries is credited to the investors, it may be thought that subsequent emissions which arise as a result of the activities should also be allocated to the investor.

Equity Issues in the Clean Development Mechanism

The development of the CDM is fraught with uncertainty because the Protocol leaves many elements unresolved. However, on the basis of the Protocol's provisions and the experience accumulated in AIJ, a few elements can be noted.

First, the CDM is a direct emanation of the principle of common but differentiated responsibility. It constitutes a form of partnership among developed and developing countries to solve a global problem on the basis of the different commitments that countries assume under the Protocol. This is further illustrated by the fact that part of the proceeds derived from CDM projects are to be used to assist developing countries which are particularly vulnerable to the adverse effects of climate change in carrying out climate change mitigation activities.[46]

Second, the CDM is premised on the need to simultaneously foster sustainable development in host countries and cheap climate change mitigation activities for investors. One of the easiest ways in which the development component of the activities can be implemented is through effective technology transfer.

Equity Issues in Emissions Trading

In emissions trading, considerations of equity arise mainly at the level of the first allocation of emissions allowances.[47] The assumption is that the initial allocation method has no material bearing on the efficiency of the system to achieve a given environmental target at a minimum cost if trading in the market is competitive and transaction costs are low. The initial allocation can thus be used to address equity concerns without affecting the cost-effectiveness of the system.

Different allocation methods have been proposed. Firstly, emissions can be allocated on the basis of current emission levels. The consequences of this allocation – grandfathering – would be the promotion of stability in the international economic order by allowing current polluters to carry on and by limiting low polluters' rights to expand their polluting industries. This allocation has the perceived advantage of limiting the disruption caused to the global economy. Secondly, allotment systems can focus on the global good nature of the environment and the need to take action to mitigate climate change. A global burden which has to be shared according to specific criteria is thus recognized. The various proposals, although all claiming an equitable basis, rest on different rationales. Some focus on egalitarian principles and propose an equal per-capita entitlement, some focus on economic development factors and intimate that the allocation should be done according to each nation's ability to pay while other favour an allocation based on the emission intensity of each unit of GDP.[48] However, they all seek to establish a basis which recognizes the different contributions to the creation of the problem, the different capacities to respond to the problem and the link between economic development and environmental degradation in the form of carbon emissions.

Given that none of these proposals attracts widespread support, some attempts have been made to put forward allocation systems based on several criteria. Thus, to stem the tide of criticism against per capita entitlements which is widely seen as creating an incentive for increased population levels,[49] it has been proposed to allocate emissions according to both population and gross national product.[50]

Towards More Equitable Flexibility Mechanisms

In General

Flexibility mechanisms and the involvement of the private sector in the implementation of the Convention constitute positive steps to foster more effective climate change mitigation activities. However, economic instruments in international environmental law should conform with the principles of the Convention and other relevant general principles of international law. Thus, 'efficiency' should not come at the expense of equity or sustainability. This is, for instance, illustrated by the fact that the CDM is first a developmental instrument which should foster local and national benefits not directly related to climate change mitigation.

Flexibility Mechanisms for Climate Change Mitigation: Learning from the AIJ Experience

Following the adoption of the Kyoto Protocol, AIJ will probably be replaced by JI and the CDM. AIJ is nevertheless relevant in the development of other flexibility mechanisms for two reasons. First, it constitutes the only tangible evidence which can be used to measure the overall relevance and usefulness of flexibility mechanisms to mitigate climate change. Second, all climate change flexibility mechanisms must be implemented in accordance with the provisions of the Convention. The relevance is reinforced by the fact that several of the principles outlined in the 1995 Conference of the Parties Decision for AIJ have been retained in the drafting of the Protocol.

However, it is noteworthy that the Protocol is in some regards more conservative than the AIJ Decision. Thus, Article 12.2 of the Protocol states, for instance, that the CDM should assist host parties in achieving sustainable development, a much less precise formulation than the AIJ Decision which sought to see projects 'compatible with and supportive of national environment and development priorities and strategies'.[51] Article 12 also omits a key provision of the AIJ Decision which called for the financing of AIJ to be additional to the financial obligations of Annex II Parties within the framework of the financial mechanism as well as to current official development assistance flows.[52]

Other elements include the fact that while the AIJ Decision called for AIJ to foster 'long-term environmental benefits', Article 12 speaks only of 'benefits' and Articles 6 and 17 omit any mention of benefits.[53] These constitute important omissions which may ruin the prospects for flexibility mechanisms to contribute to sustainable development. Finally, while the key requirements of supplementarity and subsidiarity of flexibility mechanisms in meeting parties' commitments present in the AIJ Decision are mentioned in Articles 6 and 17, they have been omitted in Article 12.[54]

The omission of these elements constitute significant shortcomings of the Protocol. While the flexibility mechanisms of the Protocol may in their current forms contribute to the cost-effectiveness of measures to mitigate climate change, their contribution to national development priorities and strategies, long-term environmental benefits and the additionality of the financing are not assured at present. The AIJ framework should, as a first step, be used to reinforce the environment and socio-economic development sides of the new flexibility mechanisms, otherwise these mechanisms will be no more than a technical device used to reallocate the costs of implementation of an international agreement.

Strengthening Accountability Rules

State Liability: In general international law, the principle is that every international wrongful act of a state entails its international responsibility.[55] In environmental law, liability rules are still developing.[56] In the climate change context, some commentators have referred to state liability issues in assessing whether the emission of GHGs can in itself fulfil the conditions for state responsibility in international law.[57] These questions may find specific application in the context of the flexibility mechanisms.

The question of the responsibility for GHG emissions arising as a result of or after the end of flexibility projects may, for instance, attain prominence in the future. Its importance should not be underestimated since the relevance of some kinds of projects in flexibility mechanisms is at stake. In the case of forestry projects, for instance, the issue of responsibility for emissions arising as a result of or following the completion of projects has not been resolved; these responsibility issues could negate the contribution of these projects to climate change mitigation. Neither of the two possible scenarios constitute viable options. First, where trees are planted for timber exports to the investor nation, all the carbon sequestered in the host country and credited to the investor is eventually released by the investor state, thus negating all gains. Second, in cases where trees are used or left to decay in the host country, while current practice which allocates emissions to the final user would make the host responsible for these emissions, the idea of crediting the investor and penalizing the host goes against the very essence of the Convention.

More generally, the sharing of responsibility among host and investor states is extremely important and needs to be resolved before the Protocol enters into force. Indeed, if host countries end up being responsible for emissions linked to the implementation of a flexibility mechanism project, this may involve an indirect transfer of responsibility for emissions from investor to host countries. Furthermore, in cases of project non-completion, it is fundamental that responsibility be allo-

cated according not only to normal contract principles but also according to the principles of the Convention. Among the two (private) entities signing the contract for the implementation of a project, contract rules should apply if the host, for instance, fails to deliver the carbon benefits specified in the contract. However, the host entity implementing the project cannot be held responsible if the investor country is in breach of its own international commitment under the Protocol. Similar principles should apply in cases of non-completion due, for instance, to *force majeure*. If, say, a forest under flexibility management is destroyed by a natural cause such as a volcanic eruption, contractual principles should apply between the two private entities at stake but the investor country should remain responsible for meeting its commitments.[58] In other words, flexibility mechanisms should not become a vehicle for the transfer of responsibility for fulfilling international obligations from a country to a private entity in another country.

Private Party Liability: One of the main challenges linked to the introduction of flexibility mechanisms is the involvement of the private sector in the implementation of inter-state agreements. Until now, the private sector has usually not been so directly involved in the implementation of international instruments. This subdued role has been due both to the resistance of private sector actors to formal involvement in intergovernmental fora and to states' fear of loss of power.[59] Thus, the several codes of conduct designed to regulate multinational companies' international activities drafted in the 1980s were mainly developed without the direct participation of the companies.[60]

International law is certainly capable of accommodating actors such as multinational companies. The ICJ resolved early on that the UN was a subject of international law capable of possessing international rights and duties which had the capacity to maintain its rights by bringing international claims.[61] The Court made it clear that the legal personality of the UN and its rights and duties did not have to be the same as those of a state.

The rationale for broadening the number of subjects of international law can be glimpsed from another statement of the Court in the same case. It stated that

> the development of international law has been influenced by the requirements of international life, and the progressive increase in the collective activities of States has already given rise to instances of action upon the international plane by certain entities which are not States.[62]

The rapid internationalization of a number of areas since 1949 makes this conclusion even more relevant today. The significant role of multinational companies in the international economic system calls for their more direct participation in intergovernmental fora.

In this context, the direct involvement of private parties in the implementation of the Convention is significant. Even though the agreement was negotiated in the classical inter-state framework, the private sector is allowed to carry out part of the required implementing activities. With the flexibility mechanisms, the private sector benefits from new business opportunities created by inter-state agreements. The incentives for their participation will normally take the form of credits which can be redeemed domestically.

At this stage, the inclusion of the private sector in the implementation of the flexibility mechanisms suffers from significant shortcomings which should be addressed before the Protocol enters into force. Indeed, while private firms gain access to new markets, there has been no emphasis on the definition of corresponding duties. Liability rules should, for instance, be strengthened. This would not only strengthen the international legal system but also parry claims that multinational companies benefit from their international non-status.[63] The relevance of such issues in the case of flexibility mechanisms which involve the carrying out of projects in a host country is illustrated by a provision of the draft Code of Conduct on Transnational Corporations which stated that transnational corporations should carry on their activities in conformity with the development policies and priorities of host countries and work seriously towards making a positive contribution to the achievement of such goals at the national and regional levels.[64] It is also noteworthy that the draft regulations concerning exploitation of deep seabed resources mention that the contractor has responsibility or liability for any damage arising out of wrongful acts in the conduct of its operations.[65] Such provisions constitute relevant examples for the development of the flexibility mechanisms.

Climate Change and other International Environmental Problems

The principle of equity has other socio-economic implications which should influence the kind of projects that are implemented in the context of the flexibility mechanisms. This stems from the fact that the impacts of climate change will mainly be felt in the future. They are thus of no current relevance to the majority of the world's population faced with much more life threatening environmental issues. It is, however, possible to partly reconcile climate change mitigation with a focus on people's basic needs and sustainable development. This is, for instance, the case with local air pollution in cities. Reducing harmful emissions by promoting better public transportation and more energy efficient vehicles has the twin benefit of promoting better living conditions at the local level and mitigating climate change. This also illustrates that climate change cannot be tackled as a separate environmental problem. Despite the sectoralization which prevails in international environmental law, flexibility mechanisms, and in particular the CDM which is specifically meant to foster sustainable development, should not be thought out on their own without considering other relevant issues.

In the Clean Development Mechanism

The Clean Development Mechanism and Sustainable Development

One of the core elements of the CDM is that it is intended to contribute to the sustainable development of host countries. While this requirement is clearly stated in

Article 12 of the Protocol, it is also evident that similar considerations apply to all flexibility mechanisms. Indeed, all implementation mechanisms should fit within the ambit of the principles of the Convention, Article 2 of which states explicitly that the concept of sustainable development must be integrated into any action taken to implement its provisions. The Protocol further exhorts Annex I Parties, in fulfilling their obligations, to minimize social, environmental and economic impacts, particularly on developing countries.[66]

As expounded in Agenda 21, the concept of sustainable development entails the fulfilment of the basic needs of the world's poor without compromising the capacity of the environment to provide similar benefits for future generations.[67] This implies at the very least that CDM projects contribute not only to climate change mitigation but also to the process of socio-economic development in host countries.

For the CDM to effectively promote sustainable development a number of elements must be integrated. First, it is imperative to modify the overall climate change mitigation strategy which currently focuses on mitigating existing emissions. One of the major tasks of the climate policy should be to focus also on avoiding future emissions in countries which have low current aggregate and per capita emissions but which are likely to industrialize rapidly in the coming decades.

Second, while the AIJ Decision clearly states that resources devoted to joint implementation should be additional to current ODA flows, the Protocol has omitted all reference to this point. This constitutes a significant shortcoming since the CDM may, without additionality, be seen in host countries as a diversion of existing funding to which climate change conditionality is added.

Third, Article 12 surprisingly omits all mention of the need for action taken in the context of the CDM to be subsidiary and supplemental to domestic action. This constitutes a significant omission insofar as the CDM should in no way be used as a substitute for other types of measures.

Finally, to fulfil its mission, the CDM should foster effective technology transfers. While this does not derive directly from Article 12, it constitutes one the instruments through which sustainable development is to be fostered in the climate change regime. The Convention indicates that technology transfer is one of the principal obligations of Annex I countries. It is so important that the non-fulfilment of this commitment allows developing countries not to comply with their own commitments. Further, the Protocol insists that all parties must cooperate in the promotion of effective modalities for the development, application and diffusion of environmentally sound technologies and that they must take all practicable steps to promote, facilitate and finance their transfer, in particular to developing countries.[68]

The North-South Dimension

The CDM is premised, like other flexibility mechanisms, on the lower marginal costs of climate change mitigation in developing countries. In a context where one of the central tenets of the CDM is its contribution to sustainable development, this economic justification cannot be sufficient. The CDM has to be seen in a longer-term perspective which acknowledges the need for developing countries to substantially raise their standards of living. Even if this is achieved with the most energy efficient technologies in the world, both aggregate and per capita GHG emissions are likely to grow. Since developing countries will by definition need to raise their emissions, equity requires that the cost-effective options for emission limitation or reduction be used by developing countries themselves or at least credited to them. CDM projects should rather focus on development activities which will ensure that future economic growth in developing countries is less climate change averse. This type of project focuses more on limiting future emissions that are unavoidable in a world which recognizes the necessity for standards of living to rise significantly in developing countries.

Similarly, the problem of 'hot air' should be seen in a broader context. While it is now feared that developing countries will one day seek the same favourable conditions offered to Russia and Ukraine, the real issues are elsewhere. From the point of view of equity, it would seem logical to give the same treatment to all countries, once a favour has been given to some of them. However, the problem cannot be seen in the narrow framework of the Convention. From an environmental point of view, extending hot air to all developing countries would probably be catastrophic. A solution must thus be found in seeking increasingly effective free technology transfers to developing countries to allow them to raise their populations' standards of living without contributing too much to climate change.

A Multilateral Institutional Framework

The CDM has the potential to constitute a significant instrument for the furtherance of more sustainable development paths. However, this will depend on the institutional structure chosen to implement Article 12 of the Protocol. The two main alternatives are a bilateral or multilateral solution. In the former case, investor states would negotiate directly with hosts on a given project. This is therefore very similar to current AIJ and proposed JI between Annex I parties. Despite the apparent simplicity and fairness of a bilateral scheme, several elements militate for a multilateral arrangement, at least in the case of the CDM. In other words, the CDM can probably only fulfil the CBDR principle outlined above if it is conceived multilaterally. The advantages of a multilateral arrangement are threefold.

First, the AIJ experience tends to show that a bilateral option offers no guarantee that projects will be either equitably shared among countries or that they will go in priority to countries whose environmental or development needs are greatest. Indeed, AIJ projects are heavily concentrated in a small number of countries and regions and have, for instance, bypassed the African region.[69] A

multilateral clearing-house distributing projects around the world according to the fundamental principles of the Convention could remedy this situation. A 'redistribution' of projects would in no way impair the capacity of the CDM to mitigate climate change, it would only seek to benefit more countries and countries which have greater needs for development or technological assistance. Further, this also has the advantage of spreading risk among investors.[70]

Second, a multilateral CDM would have the advantage of putting all host countries on a more equal footing. It would in particular give smaller and poorer countries a better chance of hosting projects which, for political or economic reasons, they might not obtain in a bilateral scheme. Further, the multilateral CDM would avoid direct trading between countries which may result in pressures on the host and would thus ensure that projects are really compatible with host country priorities.[71]

Third, a multilateral institution would be in a position to foster a better sectoral distribution of projects than is currently the case. It would, for instance, be able to limit the number of projects devoted to climate change adaptation and focus more on mitigation.

Recognizing the Contribution of Developing Countries in the Clean Development Mechanism to Climate Change Mitigation

The asymmetry of commitments in the Protocol has been one of the most contentious elements of the regime. This is due in particular to the fact that the US Senate threatened not to ratify the Protocol if developing countries did not take on commitments at Kyoto.[72]

In practice, with the development of the flexibility mechanisms, it is clear that non-Annex I countries effectively contribute significantly to the implementation of the Convention and Protocol. They thus indirectly fulfil 'commitments' to mitigate climate change even though, on paper, they do not have any obligations to do so. Their contribution can be seen as a reflection of the new worldwide partnership to solve global problems which is also apparent in other areas.

Indeed, by putting to the service of the international community the cheapest climate change mitigation options, host countries make a significant contribution to the realization of the goals of the Convention which would not be possible otherwise. Even though they receive a form of financial compensation for this service, this reward is still slight when it is considered that flexibility mechanisms may end up using most of the cheapest mitigation opportunities. In other words, by participating in the CDM, host countries can be said to take on voluntarily climate change mitigation commitments.

By recognizing the contribution of host countries to climate change mitigation, it is possible to deal with the issue of the exhaustion of cheap mitigation opportunities. Indeed, while using these options is sensible from a global environmental policy point of view, credits should be given to countries which allow the international community to benefit from them. If credits are given to host countries, the problem raised by the exhaustion of cheap mitigation opportunities disappears.

In practice, it is significant that the implementation period of some flexibility projects is much longer than the commitments period for Annex I countries. In the case of forestry projects, it is, for instance, noteworthy that host countries may be asked to keep the land under forest cover for periods ranging from 20 to 99 years. Their contribution to climate change mitigation is thus extremely significant. The issue with regard to host countries' contribution is not necessarily whether credits should be given to them for future use but rather to recognize today their contribution and effort.

Flexibility Mechanisms for Local People

The principle of equity outlined above implies that countries must cooperate in solving international environmental problems. Given that environmental problems do not affect only states but also people, it is imperative that climate change mitigation policies and implementation mechanisms encompass a broader notion of partnership which includes all concerned actors. This is because all actors, including all individuals have an impact on climate change through their daily activities and may be directly affected by climate change mitigation activities.

It is therefore important to ensure that all climate change mitigation activities not only do not harm individuals but more generally benefit all constituencies, especially the weakest. This has implications at several levels. First, to ensure a just distribution of emissions rights around the world, it would, for instance, not be sufficient to grant countries allocations according to their populations. Indeed, if the rights are vested at the state level, it is probable that in many countries the benefits will accrue mainly to a small elite.[73] Second, all implementation activities should aim at directly benefiting local people and groups. This requirement stems both from the elements just outlined and from the fact that international law is intrinsically meant to eventually benefit individuals, not states.[74] More specifically, local people and groups should, for instance, be integrated in the design and implementation of any flexibility project. These requirements are exactly similar to any development project but need to be clearly integrated in the climate change context where development discourses and practices do not seem to be known by a number of concerned actors. Further, the involvement of the private sector which may not be conversant with these elements makes this even more important.

Conclusion

Flexibility in the implementation of international law instruments constitutes a new approach to fostering more effective and economically efficient implementation of international commitments. These new mechanisms are still being developed in the context of the Climate Change Convention. Flexibility mechanisms con-

stitute novel instruments in international environmental law but cannot be conceived and developed in a vacuum. They must, like any other implementation mechanism, conform with the general principles of the instrument they seek to implement and general principles of international law. One of the most significant guiding principles in the Convention and in international environmental law is that of equity. While there may be tensions between equity and efficiency, the two goals can be reconciled since there is no inherent contradiction between the two principles.

This article has shown that the demands of equity on flexibility mechanisms are relatively important and that their current design already shows that efficiency does not completely dominate. Thus, Article 12 of the Protocol which defines the CDM strongly emphasizes the need for CDM projects to foster the realization of sustainable development in host countries. A number of issues must however be resolved for flexibility mechanisms to fit within the framework given by the Convention and other relevant equity principles. If flexibility mechanisms are concretized according to these principles, they could constitute a significant innovation in the realm of implementation mechanisms, fostering at the same time effective environmental harm mitigation action at the international level while contributing to economic and social development in those countries which need it most.

Notes

1. See eg T. Banuri *et al*, 'Equity and Social Considerations' in James P. Bruce *et al* (eds), *Climate Change 1995 – Economic and Social Dimensions of Climate Change – Contributions of Working Group III to the Second Assessment Report of the IPCC* (Cambridge, Cambridge University Press, 1996).
2. Art 2, Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 11 Dec 1997, Decision 1/CP.3/Annex, United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Third Session*, Kyoto, 1–11 Dec 1997, UN Doc. FCCC/CP/1997/7/Add.1 (hereafter Kyoto Protocol).
3. See Arts 4.1 and 12, Framework Convention on Climate Change, New York, 9 May 1992, reprinted (1992) 31 ILM 849 (hereafter Climate Change Convention) and Art 10, of the Kyoto Protocol, n 2 above.
4. See eg Decision 7/CP.4, Work Programme on Mechanisms of the Kyoto Protocol, *Report of the Conference of the Parties on its Fourth Session*, Framework Convention on Climate Change, Conference of the Parties, Buenos Aires, 2–14 Nov 1998, UN Doc. FCCC/CP/1998/16/Add.1.
5. See eg Ronald St. John McDonald, 'The Principle of Solidarity in Public International Law', in Christian Dominicé *et al* (eds), *Etudes de droit international en l'honneur de Pierre Lalive* (Basel, Helbing, 1993) 275.
6. See eg Jerzy Makarczyk, *Principles of a New International Economic Order* (Dordrecht, Nijhoff, 1988).
7. Art 55, UN Charter.
8. Agreement Establishing the World Trade Organization, in Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations, Marrakesh, 15 Apr 1994, reprinted (1994) 33 ILM 1125.
9. Art 3.1, Climate Change Convention, n 3 above. See also Art 10.1, Kyoto Protocol, n 2 above.
10. See eg Philippe Sands, *Principles of International Environmental Law I: Frameworks, Standards and Implementation* (Manchester, Manchester University Press, 1995). The eighth session of the UNCTAD recognized, for instance that all countries have a common but differentiated responsibility for the main environmental problems. See *Proceedings of the United Nations Conference on Trade and Development*, Eighth Session, Cartagena de Indias, Colombia (8–25 February 1992) Report and Annexes, UN Doc. TD/364/Rev.1.
11. See eg Jyoti K. Parikh, 'North-South Cooperation for Joint Implementation' in Jyoti K. Parikh *et al* (eds), *Climate Change and North-South Cooperation: Indo-Canadian Cooperation in Joint Implementation* (New Delhi, Tata, McGraw-Hill, 1997) 192.
12. See eg K.R. Smith, 'The Natural Debt: North and South' in T.W. Giambelluca and A. Henderson-Sellers (eds), *Climate Change: Developing Southern Hemisphere Perspectives* (Chichester, Wiley, 1996) 423.
13. An exposition of the Brazilian proposal can be found in *Implementation of the Berlin Mandate – Additional Proposals from Parties*, UNFCCC Ad Hoc Group on the Berlin Mandate, 7th Session, 31 July – 7 Aug 1997, UN Doc. FCCC/AGBM/1997/MISC.1/Add.3.
14. This constituted, for instance, a central theme of the Rio Declaration on Environment and Development, 14 June 1992, Rio de Janeiro, reprinted (1992) 31 ILM 874.
15. See also Art 21.3, Climate Change Convention, n 3 above.
16. See eg Michael Thompson and Steve Rayner, 'Cultural Discourses' in Steve Rayner and Elizabeth L. Malone (eds), *Human Choice and Climate Change, Volume One, The Societal Framework* (Columbus Ohio, Battelle Press, 1998) 265.
17. Banuri *et al*, n 1 above.
18. See Art 2, of the Climate Change Convention, n 3 above.
19. James P. Bruce *et al* (eds), *Climate Change 1995 – Economic and Social Dimensions of Climate Change – Contributions of Working Group III to the Second Assessment Report of the IPCC* (Cambridge, Cambridge University Press, 1996).
20. Catrinus J. Jepma and Mohan Munasinghe, *Climate Change Policy: Facts, Issues and Analyses* (Cambridge, Cambridge University Press, 1998).
21. See Smith, n 12 above.
22. See Aristotle, *The Nicomachean Ethics* (trans D. Ross, revised by J.L. Ackrill and J.O. Urmson, 1991).
23. See eg Banuri *et al*, n 1 above.
24. See Instrument for the Establishment of the Restructured Global Environment Facility, Geneva, 16 Mar 1994, reprinted (1994) 33 ILM 1273 (hereafter 1994 GEF Instrument).
25. See Arts 4.3, 4.7, 4.9 and 11 of the Climate Change Convention, n 3 above.
26. Decision 4/CP.4, Development and Transfer of Technologies, *Report of the Conference of the Parties on its Fourth Session*, Framework Convention on Climate Change, Conference of the Parties, Buenos Aires, 2–14 Nov 1998, UN Doc. FCCC/CP/1998/16/Add.1. Concerning the debates in Buenos Aires on this item, See eg Chad Carpenter *et al*, 'Report of the Fourth Conference of the Parties to the UN Framework Convention on Climate Change' *Earth Negotiations Bulletin* 12/97 (1998).
27. See eg Thomas Heller, *Joint Implementation and the Path to a Climate Change Regime* (Jean Monnet Chair Paper, The Robert Schuman Centre at the European University Institute, 1995).
28. See eg David Pearce, 'Joint Implementation – A General Overview' in Catrinus J. Jepma (ed), *The Feasibility of Joint Implementation* (Dordrecht, Kluwer, 1995) 15.
29. See 1994 GEF Instrument, n 24 above.
30. Michael Ridley, *Lowering the Cost of Emission Reduction: Joint Implementation in the Framework Convention on Climate Change* (Dordrecht, Kluwer, 1998).
31. See eg Decision 5/CP.1, Activities Implemented Jointly Under the Pilot Phase, in *Report of the Conference of the Parties on its First Session*, Framework Convention on Climate Change, Conference of the Parties, First Sess., Berlin 28 Mar – 7 Apr 1995, UN Doc. FCCC/CP/1995/7/Add.1 (hereafter AIJ Decision). The continuation of the pilot phase was decided at the fourth meeting of the Conference of the Parties. See Decision 6/CP.4, Activities Implemented Jointly under the Pilot Phase, *Report of the Conference of the Parties on its Fourth Session*, Framework Convention on Climate Change, Conference of the Parties, Buenos Aires, 2–14 Nov 1998, UN Doc. FCCC/CP/1998/16/Add.1.
32. Preamble § (c) of the AIJ Decision, n 31 above. See also Peter Usher, 'Costa Rica Conference Perspectives: A Frank Exchange on AIJ Benefits and Concerns' in Kalipada Chatterjee (ed), *Activities Implemented Jointly to Mitigate Climate Change: Developing Countries Perspectives* (Delhi, Development Alternatives, 1997).

33. Para 1, AIJ Decision, n 31 above.
34. Art 4.3, Climate Change Convention, n 3 above, and para 1.e, AIJ Decision, n 31 above.
35. Art 2.5 and 2.5.bis of the Protocol on Substances that Deplete the Ozone Layer, Montreal, 16 Sept 1987, reprinted in Ozone Secretariat – UNEP, *Handbook for the International Treaties for the Protection of the Ozone Layer* (4th ed, 1996) (hereafter Montreal Protocol).
36. Art 6.1, Kyoto Protocol, n 2 above.
37. Arts 3 and 4, of the Kyoto Protocol, n 2 above. See also, Fanny Missfeldt, 'Flexibility Mechanisms: Which Path to Take after Kyoto?' *RECIEL*, 7 (1998) 128.
38. Art 12, Kyoto Protocol, n 2 above.
39. Art 3.12, Kyoto Protocol, n 2 above.
40. See eg Axel Michaelowa and Michael Dutschke, 'Creation and Sharing of Credits Through the Clean Development Mechanisms under the Kyoto Protocol' (paper presented at the experts workshop 'Dealing with Carbon Credits After Kyoto', 1998, on file with the author).
41. See Clean Air Act, 42 USC §§ 7401 *et seq* (1988). See also Michael Grubb *et al*, *Greenhouse Gas Emissions Trading* (UNCTAD, 1998).
42. Art 17, Kyoto Protocol, n 2 above.
43. See eg Pamel Chasek *et al*, *European Union Views on International Greenhouse Gas Emissions Trading* (Columbia University School of International and Public Affairs, Environmental Policy Studies, Working Paper #3, 1998).
44. Ridley, n 30 above.
45. See eg Nigel Williams, 'Drug Companies Decline to Collaborate' *Science* 278 (5 Dec 1997) 1704 reporting that a group of leading pharmaceutical companies rejected a proposal to set up a not-for-profit company to develop new treatments for the world's most threatening tropical diseases, particularly malaria.
46. Art 12.8, Kyoto Protocol, n 2 above.
47. Cf Russell B. Korobkin and Thomas S. Ulen, 'Efficiency and Equity: What Can be Gained by Combining Coase and Rawls?' *Washington L Rev,* 73 (1998) 329.
48. See generally Prodipto Ghosh and Jyotsna Puri (eds), *Joint Implementation of Climate Change Commitments: Opportunities and Apprehensions* (New Delhi, Tata Energy Research Institute, 1994).
49. Cf Olav Benestad, 'Energy Needs and CO_2 Emissions: Constructing a Formula for Just Distributions' *Energy Policy* 22 (1994) 725.
50. See eg Kirk R. Smith *et al*, 'Who Pays (to Solve the Problem and How Much)?' in Peter Hayes and Kirk Smith (eds), *The Global Greenhouse Regime – Who Pays? Science, Economics and North-South Politics in the Climate Change Convention* (London, Earthscan, 1993) 70.
51. Art 12.2, Kyoto Protocol, n 2 above and para 1.b, AIJ Decision, n 31 above.
52. Para 1.e, AIJ Decision, n 31 above.
53. Para 1.d, AIJ Decision, n 31 above.
54. Preamble para (c), AIJ Decision, n 31 above.
55. See Art 1, Draft Articles on State Responsibility, in *Report of the International Law Commission on the work of its forty-eighth Session*, 6 May-26 July 1996, General Assembly Official Records, 51st Session, Supplement No. 10 (A/51/10).
56. See eg Institute of International Law, 'Responsibility and Liability under International Law for Environmental Damage' Resolution of 4 Sept 1997, reprinted *RECIEL*, 7 (1998) 99. See also Sands, n 10 above.
57. See eg Frank Biermann, ' "Common Concern of Humankind": The Emergence of a New Concept of International Environmental Law' *Archiv des Völkerrechts*, 34 (1996) 426.
58. Cf Art. 4.6, Kyoto Protocol, n 2 above, in the case of 'bubbles'.
59. See eg Jonathan I. Charney, 'Transnational Corporations and Developing Public International Law', *Duke L J,* (1983) 748.
60. *Id*.
61. *Reparation for Injuries Suffered in the Service of the United Nations*, 11 Apr 1949, (1949) ICJ Rep 174.
62. *Id*, 178.
63. Cf Sudhir K. Chopra, 'Multinational Corporations in the Aftermath of Bhopal: The Need for a New Comprehensive Global Regime for Transnational Corporate Activity', *Valparaiso U L Rev*, 29 (1994) 235.
64. Draft United Nations Code of Conduct on Transnational Corporations (status as of 1986), reprinted in *United Nations Conference on Trade and Development, International Investment Instruments: A Compendium* (Geneva, UNCTAD, 1996) 161.
65. Draft Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, International Seabed Authority, 4th Sess., 16–27 Mar 1998, Doc. ISBA/4/C/4.
66. See Arts 2.3 and 3.14, Kyoto Protocol, n 2 above.
67. See Agenda 21, in *Report of the United Nations Conference on Environment and Development,* United Nations, Rio de Janeiro, 3–14 June 1992, UN Doc. A/CONF.151/26/Rev.1 (Vol. 1) Annex II.
68. Art 10.c, Kyoto Protocol, n 2 above.
69. See eg *Second Synthesis Report on Activities Implemented Jointly*, Framework Convention on Climate Change, Conference of the Parties, 4th Sess, Buenos Aires, 2–14 Nov 1998, UN Doc. FCCC/CP/1998/2 mentioning that as of 30 June 1998, out of 95 projects only one was in Africa.
70. See eg Michaelowa and Dutschke, n 40 above.
71. See eg Farhana Yamin, 'Unanswered Questions' in José Goldemberg (ed), *Issues & Options – The Clean Development Mechanism* (UNDP, 1998).
72. See eg Byrd-Hagel Resolution (S. Res. 98) Expressing Sense of Senate Regarding UN Framework Convention on Climate Change, 143 *Cong Rec* S8113–05, S8139 (25 July 1997).
73. See eg Thompson and Rayner, n 16 above.
74. See eg D.P. O'Connell, *International Law* (London, Stevens, Vol 1, 2nd ed, 1970).

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