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**PART 3**

**THE FUTURE MODEL**

## Carbon sinks and emissions trading under the Kyoto Protocol: a legal analysis

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The controversy over the issues of carbon sinks and emissions trading nearly aborted the Kyoto Protocol. The lengthy and intense debate over the roles that each are to play under the Protocol and the consequent political compromises has resulted in a complex set of provisions and an arcane nomenclature. The distinction drawn between the use of carbon sinks in developed countries under Joint Implementation and their use in developing countries under the Clean Development Mechanism (CDM) is a particular source of intricacy. It is at least arguable that key elements of the compromises reached at COP-6 and COP-7 in this regard are inconsistent with the terms of the Protocol and are *ultra vires* the Convention on Climate Change. This is a source of both uncertainty and potential legal challenge.

Not only do the recent decisions create needless complexity, they also clearly discriminate against developing nations. Among the recent political compromises is the creation of a third type of non-bankable but tradeable unit with respect to forest management, which is only available to Annex I countries. The result is an anomalous one in which a variety of otherwise equivalent carbon credits can be generated under three different regimes including one, the CDM, that is subject to an elaborate regulatory overlay that discriminates against carbon sequestration by developing countries. For example, complying developed countries can essentially self-certify sequestration projects. In contrast, projects in developing countries must obtain prior approval from a subsidiary body, the CDM Executive Board, mandated to require detailed information and impose substantive and procedural hurdles not required or imposed by its companion body, the Article 6 Supervisory Committee on Joint Implementation Projects. The parallel and related debate over the third 'flexibility' mechanism, emissions trading, compounded the complexity of an already asymmetric and bifurcated system.

The new requirements devoted to 'environmental integrity' not only have raised the costs of compliance of developing country projects but also virtually ignore the fundamental principle of sustainable economic growth and development embodied in the Convention and related international agreements. The regulations for carbon sinks now being formulated at Conferences of the Parties will have a significant

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impact on their use worldwide. Of key importance, in addition to their successful integration of carbon sinks and emissions trading into other international treaties, is the development of practically achievable and objective standards and an efficient and transparent approval process consistent with the terms of the Convention and the Protocol. Most important of all is a rebalancing that restores the primacy of addressing climate change in the context of sustainable economic growth and development.

**Keywords: environmental law; UN Climate Convention; UNFCCC; Kyoto Protocol; carbon sinks; emissions trading**

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## 1. Background and structure

The United Nations Framework Convention on Climate Change (hereafter referred to as 'Convention') was adopted in 1992, at the Rio Earth Summit to address the adverse effects of climate change.<sup>1</sup> It was the conclusion of work done by the Meteorological Organization and that of the Intergovernmental Panel on Climate Change (IPCC), which developed the scientific consensus on climate change (see IPCC 1990*a-c*). The Convention came into force on 21 March 1994. The Convention has been ratified by 186 countries to date and appears likely to come into force in the near future.

As its name indicates, the Convention is a framework document. This means that it is intended to provide a structure for the Parties to develop laws aimed at achieving the Convention's objectives at regularly scheduled Conferences of the Parties (COPs). The Convention establishes a legal infrastructure, a deliberative process and the administrative bodies to be used to develop and adopt substantive protocols.<sup>2</sup> Article 7(2) establishes the COP as 'the supreme body of this Convention...[which] shall make, within its mandate, the decisions necessary to promote the effective implementation of the Convention'. Article 17(1) provides that the COP 'may...adopt protocols to the Convention'. Thus protocols adopted by and decisions made 'under any protocol' (see Article 17(5)) form the Convention's secondary legislation. Once ratified, and on coming into force, parties to the Convention implement the protocols by adopting national legislation. Rule making is delegated to subsidiary bodies such as the CDM Executive Board. The principles of law and interpretation in this context are no different from those of administrative law in national or multinational treaty regimes (see, for example, Lasok & Lasok 2001). Interpretation should be conducted, 'in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose' (1969 Vienna Convention on the Law of Treaties, Article 31).

The legal and administrative process initiated under the Convention to protect the Earth's climate should therefore be analysed on its own terms and in the context in which it arose, namely, a summit meeting on sustainable growth and development.<sup>3</sup> The deliberations focused not only on the Convention itself but also on the 1992 Convention on Biodiversity, which was also promulgated at the Rio Earth Summit, on the 1971 RAMSAR Convention on Wetlands and on the 1994 International Conference to Combat Desertification. Each of them contemplates conservation in the context of sustainable economic growth and development. Progress over the intervening decade on the achievement of the goals embodied in these Conventions is to be

assessed at the World Summit on Sustainable Development (WSSD) in Johannesburg in Autumn 2002.

## 2. Objective, principles and commitments

The recitals, Objective (Article 2) and Principles (Article 3) articulate the Convention's primary purpose and objectives and constitute its primary legislation to which the various instruments, such as the protocols, are subject. The objective of the 'Convention and any related legal instruments that the Conference of the Parties may adopt' is to achieve 'stabilization of greenhouse-gas (GHG)<sup>4</sup> concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system<sup>5</sup>'. This is to be achieved in such a way that enables 'economic development to proceed in a sustainable manner (Convention Article 2).

The Convention's Principles, set out in Article 3, include the following.

- (i) Intergenerational equity and common but differentiated responsibility between developed and developing countries (Convention Article 3(1)) with special attention given to countries particularly vulnerable to climate change's adverse effects and those that would bear a disproportionate or abnormal cost under the Convention (Convention Article 3(2)).
- (ii) The precautionary principle whereby, despite scientific uncertainty, action must be taken to adopt cost-effective measures and policies to 'anticipate, prevent or minimize the causes of climate change'. These measures and policies must be 'comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases' and 'should be cost-effective so as to ensure global benefits at the lowest possible cost' (Convention Article 3(3)).
- (iii) 'The Parties have a right to, and should, promote sustainable development... taking into account that economic development is essential for adopting measures to address climate change' (Convention Article 3(4)).
- (iv) 'A supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing countries [and] measures taken to combat climate change... should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade' (Convention Article 3(5)).

The objectives and principles set out in Convention Articles 2, 3 and 4(7) specifically link the developed world's compliance with emission-reduction commitments to promoting sustainable economic development in and transfer of technology to developing countries. Convention Article 4(1)(d) provides, *inter alia*, that the Parties are to promote sustainable development and cooperation in the conservation and enhancement of sinks including 'biomass, forests... as well as other terrestrial... ecosystems' (Convention Article 4(d)). Article 4(2)(g)(7) enjoins the Parties to '... take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties'.

It is these primary objectives, principles and commitments to which the protocols, decisions taken under them, and rules made pursuant to them are to conform. It is at least arguable that recent interpretations of, and decisions taken under, the Protocol

discussed here, the Kyoto Protocol, and directions to subsidiary bodies made under it, are inconsistent with the Convention and the terms of the Protocol itself and thus *ultra vires* (Wade & Bradley 1993). It is, in particular, questionable whether decisions which effectively amend the Protocol by excluding 'the conservation and enhancement of' certain terrestrial sinks and which arbitrarily limit and discriminate against developing countries' participation in the economic benefits of emissions trading are legally binding. The exclusion of avoided deforestation as a source of carbon credits from developing countries during the first commitment period, the creation of a new carbon credit exclusively available to Annex I countries and the implementation of a regulatory system which discriminates against developing countries by limiting their access to credits from carbon sequestration are all doubtful in light of the express purposes of the Convention and the express language of the Protocol.

### 3. COP-3: the Kyoto Protocol

The principal achievements of the third COP held in Kyoto in December 1997 were, first, to agree that Convention Annex I countries would be bound to quantitative GHG-emissions limitations and reductions commitments specified in Protocol Annex B for the first commitment period (2008–2012) and, second, to provide flexible mechanisms (including carbon sequestration and emissions trading) to help achieve these commitments in an economically efficient manner. Protocol Article 3 assigns to each Annex I Party an individual emissions-reduction target based on its 1990 level of domestic emissions: its '1990 baseline'. Annex I<sup>6</sup> Parties agreed to 'ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of greenhouse gases... do not exceed their assigned amounts,... with a view to reducing their overall emissions of such gases by at least 5% below 1990 levels in the commitment period 2008–2012'.<sup>7</sup> Articles 7 and 8 provide for accounting for assigned amount units (AAUs) of emissions.<sup>8</sup>

Convention Article 4(1) contains all of the Parties' general commitments and Article 4(2) refers to specific commitments by Annex I Parties, most notably to revert to 1990 GHG emissions by 2000. (This, of course, was not achieved. With very few exceptions, all Annex I countries' level of emissions exceeded the specified levels. See national communications to the UNFCCC.) Finally, the objectives and principles laid out in Convention Articles 2<sup>9</sup> and 3 (see Appendix A) and Article 4(7)<sup>10</sup> specifically link the meeting of emissions-reduction commitments by the developed world with promoting sustainable economic development and transfer of technology to developing countries.

The Protocol will come into force when at least 55 of the Parties representing at least 55% of the 1990 GHG emissions have ratified it (Protocol Article 25). As of June 2002 the Protocol had been signed by 84 Parties and ratified by 74 (including the European Union and Japan) representing 35.8% of 1990 emissions. To achieve the required percentage in the absence of US participation,<sup>11</sup> compromises on carbon sinks were made, which are discussed in detail (see §§ 6 and 7 b) below.

### 4. Flexibility mechanisms

To enable Annex I Parties to fulfil their commitments in a financially efficient way, the Protocol provides three 'flexibility mechanisms' (Articles 6 ('Joint Implementation'),

12 ('Clean Development Mechanism'), and 17 ('Emissions Trading')) that Annex I countries may use to meet part of their carbon-emissions commitments by reducing or removing atmospheric CO<sub>2</sub> in accordance with Articles 3(3) and 3(4) (see Kyoto Article 3).

Two mechanisms, Joint Implementation (JI, Article 6 (see Appendix B)) and the Clean Development Mechanism (CDM, Article 12 (see Appendix C)) are similar in concept. An Annex I legal (public or private) entity finances emissions reduction or removals in another Annex I country (JI), or non-Annex I country (CDM) and acquires emissions-reduction units (ERUs) for JI or certified emissions reductions (CERs) for CDM projects that count towards fulfilling the financing country's national emission-reduction commitment. The use of different names and acronyms, 'ERUs' for JI projects and 'CERs' for CDM projects, reflects not only the determination to distinguish responsibilities between Annex 1 and non-Annex 1 countries but a persistent debate as to the role, if any, that carbon sinks and the third mechanism, emissions trading, should be permitted to play.

(a) *Article 6: Joint Implementation*

JI projects occur between two Annex I countries: a host and an investor, with the view to reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks (Protocol Article 6(1)). The conditions include, in addition to overall compliance with the Convention, that these reductions in emissions and removals be both additional to what would otherwise have occurred and be supplemental to domestic actions aimed at meeting the Parties' respective reduction commitments. The requirements of 'additionality'<sup>12</sup> and 'supplementarity'<sup>13</sup> reflect concerns that credits only be given for a net overall improvement with respect to emissions. They also help to ensure that the primary focus is on technological change 'domestic action' leading to reduced emissions. In recent COP decisions, such alleged issues of 'integrity' have dominated, to virtual exclusion, issues of sustainable economic growth and practicality of implementation (see § 7 *b* below).

Article 6 provides that '[a]ny Party included in Annex I may transfer to, or acquire from, any other such Party emission reduction units resulting from projects aimed at reducing anthropogenic emissions<sup>14</sup> by sources (Convention Article 1(9): "Source" means any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere'.) or enhancing anthropogenic removals by sinks of greenhouse gases (Protocol Article 6(1)). The ERUs acquired from another party under JI are added to the acquiring party's assigned amount (Protocol Article 3(10)) (thus providing it with the right to emit more than its original assigned amount) and subtracted from the transferring party's assigned amounts (thereby reducing its permitted emissions; Protocol Article 3(11)). These transfers are, in essence, simply a form of emissions trading (see § 4 *c* below) between Annex I countries although not expressed as such.

Article 6, like Article 3, refers specifically to 'removals by sinks' as well as to reductions by source. Article 3(3) provides that 'removals by sinks resulting from human-induced land-use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990 shall be used to meet' each Annex I Party commitment. Article 3(4) provides that '... additional human-induced activities related to... removals by sinks in the agricultural soils and the land-use change and forestry

categories shall be added to, or subtracted from, the assigned amounts for Parties included in Annex I...'. Article 3 also provides for adjustments in assigned amounts based on such acquisitions and transfers (Articles 3(10) and 3(11)).

(b) *Article 12: Clean Development Mechanism*

The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.

Protocol Article 12(2)

Article 3(12) provides that '[A]ny certified emission reductions which a Party acquires...in accordance with the provisions of Article 12 shall be added to the assigned amount for the acquiring Party'. As only Annex I countries are intended acquirers of such reductions, this introduced a relationship, albeit asymmetrical, between the developed and developing worlds, which had not been originally contemplated. The meaning of the words quoted above could hardly be clearer: any certified reduction that contributed to the ultimate objective of the Convention (reducing atmospheric GHG concentrations), assisted Annex I countries to meet their commitments as specified in Article 3 and assisted non-Annex 1 countries to achieve sustainable development shall be given credit. Yet this is not the outcome of recent negotiations.

The CDM came about as a late development (see Werksman 1998) in the Kyoto negotiations, in response to mainly US pressure to make non-Annex I countries participate in achieving the Convention's objectives. By creating incentives for developing countries it not only encouraged their participation but also laid the foundation for global, as opposed to only intra-Annex I country, emissions trading. It did not, however, contemplate the possibility that developing countries might wish to acquire CERs from other developing countries. Developing countries will need to do so if they become subject to emission limits and experience economic growth (it is expected by some that developing countries will ultimately become subject to emission limits under the Convention by means of 'convergence' or otherwise to ensure that 'inter-generational equity' is achieved). The debate failed to deal with the objective of economic growth just as it failed to deal with alternative economic scenarios such as developed countries (like the former Soviet Union) experiencing a rapid contraction of their economies after 1990. The result thus far has been a series of distortions that creates perverse incentives and unexpected results including the US withdrawal from the Kyoto negotiations (see White House 2002).

Protocol Article 12(3) creates 'certified emission reductions' and allows them to be used to meet Annex I Parties' emissions-reduction commitments under Article 3 but the Article is otherwise silent on carbon sinks. It also does not explicitly refer to trading. Article 12 does refer, in Article 12(9), to including activities in paragraph 3(a), i.e. 'project activities resulting in certified emission reductions' and to the 'acquisition' of CERs for purposes of meeting Article 3 'emission limitation and reduction commitments' (Article 12(3)(b)). From an analytical point of view Article 12 must be read in its entirety and read together with Articles 3, 6 and 17 within

the overall clearly expressed purposes of the Convention. The logical conclusion is free trade in emissions reductions generated by carbon sinks in developing countries. Yet the debate proceeded with medieval scholasticism in which language was parsed (so that *any* CER became *some* CERs) and the lack of express reference in one Article (although containing unambiguous reference to other Articles) became a 'silence'; a silence which could be interpreted to include particular agendas unrelated to achieving the goals of the Convention.

If, as was apparently the case, it was intended that CERs be used in accordance with Article 3 (which provides for all 'land use, land-use change and forestry' (LULUCF) activities and for acquisition of CERs by Annex I Parties) and that Article recognized Article 6, which not only provided for trading ('transfer') but for 'removals by sinks', it follows that CERs are intended both to be tradeable and to include all sinks or at least all sinks explicitly provided for in the Protocol and those additional ones approved under Article 3(4). By treating the fungibility of credits and LULUCF projects issues as separate and allowing stand-alone interpretation of clearly related Articles, the negotiators managed to create a hierarchy of units that is inherently biased against developing countries and arbitrarily and artificially increases the cost of compliance by developing countries. It is not surprising that the struggle over the intended scope and meaning of Article 12 nearly caused the collapse of the negotiations of the Protocol in November 2001 and the ultimate withdrawal of the United States from those negotiations.

At COP-6 (see § 6) a compromise was reached limiting LULUCF activities under the CDM to afforestation and reforestation for the first commitment period, postponing consideration of including forest preservation in the CDM and by creating a new non-bankable unit, the Removal Unit (RMU), to deal with forest management in Annex I countries in the first commitment period. This served to increase the asymmetry of treatment of LULUCF activities between developed and developing countries. The principal effect was to exclude, at least for the first commitment period, forest preservation from the CDM, although it is included in JI projects, and to significantly increase the supply of forestry-based credits from Annex I countries, through RMUs (which include avoided deforestation), to the detriment of developing nations. There is no reason in equity or in respect of sustainable development for this result and it is contrary to the text of the Protocol and to the fundamental principles of the Convention. On the contrary it frustrates the object of the Convention, which is to reduce GHGs in the atmosphere. Even ignoring the obvious conservation benefits of forest conservation in the developing world, sustainable development could, and to many observers should, include reductions in deforestation in developing countries not least as deforestation in such countries is the second largest source of GHG emissions (see IPCC 2001*a-c*). The denial of investment and emissions trading revenue from such activity, particularly its denial to poor rural areas, is directly contrary to the 'overriding concern of developing countries' namely poverty eradication. The rationale for increasing sink activity in Annex I countries and reducing incentives for it in developing countries is, to say the least, unclear and according to many commentators, perverse (see Niesten *et al.* 2002; Prance 2002; Bonnie *et al.* 2002; Saunders *et al.* 2002).

What Article 12 is clear about, however, is that both public and private entities may participate in CDM projects (Protocol Article 12(3)(a)), which must produce measurable long-term benefits related to the mitigation of climate change (Protocol

Article 12(5)(b)), are additional to any that would have otherwise occurred (Protocol Article 12(5)(c)), are certified by operational entities supervised by an Executive Board (Protocol Articles 12(5) and (4)), and are independently audited and verified (Protocol Article 12(7)). This apparently straightforward language later provided the basis for an elaborate set of requirements imposed on CDM projects but not on JI projects (see § 7*b*).

(c) *Article 17: emissions trading*

Emissions trading, like carbon sinks, was a key area of controversy. As mentioned above, Articles 3 and 6 refer to 'transfers' and Articles 3, 6 and 12 refer to 'acquisition' of units: the former two in respect to ERUs and the latter in respect to CERs. What was intended by these phrases in practical terms is unclear. Why, for example, would any Annex I country that expected economic growth, and hence growth in emissions, transfer its credits to another Annex I country? (The one exception to this, which was the focus of much discussion, were those countries, such as Russia, which, due to the arbitrary selection of a baseline of 1990 emissions and to the collapse of its economy thereafter, had an unforeseen windfall of so-called 'hot-air' credits.) The ambiguity is addressed, at least in part, by the introduction of the broader concept of 'trading' in Protocol Article 17. Article 17<sup>15</sup> provides that 'Parties included in Annex B may participate in 'emissions trading' for the purpose of fulfilling their commitments under Article 3. The language of Article 17 does not refer either to ERUs or to CERs nor does it refer to Articles 6 or 12. It does, however, refer to meeting both emission-limitation and reduction commitments, as do Articles 3 and 12. (Article 6(1) refers to 'reducing... emissions' and 'enhancing... removals by sinks'.) This language is taken to be broad enough to cover both ERUs and CERs and the subsequently created RMUs.

One potential difficulty with this interpretation is that Articles 3(10) and 3(11), dealing with ERUs acquired and transferred in accordance with either Article 6 or Article 17, contrast with Article 3(12), dealing with CERs, which refers only to acquisitions and not to transfers or to Articles 6 or 17. The inconsistency in drafting could therefore lead to the conclusion that an Annex I Party could acquire and transfer, i.e. 'trade', ERUs freely but would have to first 'acquire' CERs, add them to its assigned amount and then trade the result or a derivative thereof as ERUs. Following decisions taken at COP-7 in response to these debates, ERUs are expected to be recorded in national registries, while CERs are to be registered separately under the auspices of the CDM Executive Board (see § 7*b*). The decision at COP-7 to reject limits on emissions trading and to treat all units as equivalent, i.e. 'fungible' and tradeable seems to have resolved what would otherwise be an unwieldy lack of consistency of treatment between credits and Parties (see § 7*b* below). It would be of equal, if not greater, help if a similar, common sense, resolution could be reached soon in respect to carbon sinks.

## 5. Carbon sinks

Under the Convention, GHG sinks refer to 'human-induced'<sup>16</sup> or 'direct human induced' land use, land-use change, and forestry (LULUCF) activities, including afforestation<sup>17</sup>, reforestation<sup>18</sup> and deforestation<sup>19</sup>. The three activities combined

are also referred to as ARD. The Parties to the Convention recognized that *all* sinks and reservoirs of GHGs have an important impact on terrestrial and marine ecosystems (Convention Preamble, paragraph 4). Sink capacity to reduce the concentration of GHGs in the atmosphere contributes towards reaching the Convention's objective of 'stabilization of greenhouse-gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system' (Convention, Article 2).

Each Annex I country Party to the Protocol agrees that it shall, 'in achieving its quantified emission limitation and reduction commitments under Article 3, in order to promote sustainable development [Protocol Article 2(1)]... protect and enhance sinks and reservoirs<sup>20</sup> of greenhouse gases not controlled by the Montreal Protocol<sup>21</sup>, taking into account its commitments under relevant international environmental agreements<sup>22</sup>; promotion of sustainable forest-management practices, afforestation and reforestation' (Protocol Article 2(1)(a)(ii)).

COP-3 requested from the SBSTA advice on what LULUCF activities should be 'additional<sup>23</sup> human-induced activities related to changes in greenhouse-gas emissions by sources and removals by sinks in the agricultural soils and the land-use change and forestry categories... added to, or subtracted from, the assigned amounts for Parties to the Protocol included in Annex I' (Decision 1/CP.3 paragraph 5(a)).

#### (a) *The Kyoto Protocol: Article 3*

Protocol Article 3(3) provides that Annex I Parties may use 'direct human induced'<sup>24</sup> 'net changes' in GHG emissions and removals by sinks since 1990 to meet part of their emissions commitments, provided they are 'measured as verifiable changes in carbon stocks in each commitment period' (the first commitment period is between 2008 and 2012). While Article 3.3 applies expressly to sinks from 'direct human-induced land-use change and forestry activities, limited to afforestation, reforestation, and deforestation', Protocol Article 3(4) requests the COP<sup>25</sup> to choose whether and how additional human-induced activities related to changes in GHG emissions and removals in agricultural soils and LULUCF categories should be accounted for in meeting assigned amounts. Importantly, neither Article 3(4) nor any other Article provide for excluding any of these activities.

The IPCC noted in 2000 that '[t]o implement the Kyoto Protocol, issues related to LULUCF will have to be considered' (IPCC 2000), something that the Parties failed to do until COP-7. Until this matter is addressed, the Protocol's Articles 3.1, 3.3 and 3.4, which indicate how LULUCF activities (or sinks) may count towards meeting targets, and Articles 6, 12 and 17, which provide for creating sinks to count towards meeting targets and for trading rights to emit GHGs, cannot become functional. In short, agreement on the role of sinks in calculating the basis of assigned amounts and on accounting for acquiring reduction credits based on sinks is critical to the entire undertaking.

#### (b) *Article 3(4)*

Article 3(4) provides that each party must submit data to the SBSTA to establish carbon stocks and assigned amounts in 1990 and in subsequent years prior to the next COP. These were to include 'additional human-induced activities related to

changes in greenhouse-gas emissions by sources and removals by sinks in the agricultural soils and the land-use change and forestry categories...'. The language can only meaningfully be read as referring to activities *additional* to the three categories already recognized in Article 3(3). The question of what these additional activities should include was unresolved until COP-7. It was then decided that, for the purposes of Article 12 (the CDM), the additional activities would include afforestation, reforestation and forest and land-management activities but not avoided deforestation (i.e. conservation). This is clearly inconsistent with the express language of the Convention (which requires both protection and enhancement of sinks) and Article 3(3) (which specifically includes deforestation). There is nothing in Article 3(4) or anywhere else in the Protocol that suggests that any decision made under it as to *additional* activities could result in the exclusion of deforestation or either of the two other activities specifically included in the provisions of Article 3(3). The decision at COP-7 may have been politically expedient and may be ameliorated to some extent by its terms of implementation<sup>26</sup> but it cannot be justified in terms of the express language of the Protocol, the Principles and Objective of the Convention or accepted principles of construction (see Mackay 1995).

(c) Article 3(7)

Article 3(7) provides, *inter alia*, that

[I]n the first quantified emission limitation and reduction commitment period, from 2008–2012... Those Parties included in Annex I for whom land-use change and forestry constituted a net source of greenhouse-gas emissions in 1990 shall include in their 1990 emissions base year or period the aggregate anthropogenic carbon dioxide equivalent emissions by sources minus removals by sinks in 1990 from land-use change for the purposes of calculating their assigned amount.

Removals by sink must result from 'direct human-induced land-use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990, measured as verifiable changes in carbon stocks in each commitment period' (Protocol Article 3(3)). In accordance with Article 3(4) they would also include such additional activities specified by the COP, provided that all such activities would be additional to those that would otherwise occur and be supplemental to domestic action. Interpreted in this way, Article 3(7) naturally follows on from Article 3(3), which included three specific activities, and Article 3(4), which provided for the addition of further such activities in calculating carbon stocks and meeting reduction commitments. In other words, what is clearly expressed as a firm basis for included-sink activity (in Article 3(3)), to be extended upon further scientific study (in Article 3(4)) and subject to clearly expressed criteria (in Article 6), leads, in Article 3(7), to the formula for calculating each Annex I Party's assigned amount—the basis on which everything else rests. Nothing in Article 3 provides for the elimination, in any compliance period, of any of the three basis sink activities specified in Article 3(3) or for any distinct treatment of them under Article 6 or under the Protocol as a whole.

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*(d) COP-4*

The Buenos Aires Plan of Action is the political agreement reached at COP-4; it constrains the Parties to demonstrate substantial progress on several issues, including the flexibility mechanisms. COP-4 reached several decisions relevant to them. Decision 7/CP.4 provides for a work programme on mechanisms (priority being given to the CDM) to lead to a decision on the three mechanisms at COP-6, and recommendations on guidelines for JI, modalities and procedures for the CDM, and '[r]elevant principles, modalities, rules and guidelines, in particular for verification, reporting and accountability of emissions trading, pursuant to Article 17 of the Kyoto Protocol'.

Decision 9/CP.4 is specifically dedicated to land-use, land-use change, and forestry. In this decision, the COP noted 'with appreciation' the IPCC's decision to prepare a special report on LULUCF. The COP confirmed that Protocol Article 3(3) means

the adjustment to a Party's assigned amount shall be equal to verifiable changes in carbon stocks during the period 2008–2012 resulting from direct human-induced activities of afforestation, reforestation and deforestation since 1 January 1990. Where the result of this calculation is a net sink, this value shall be added to the Party's assigned amount. Where the result of this calculation is a net emission, this value shall be subtracted from the Party's assigned amount.

Decision 9/CP.4 paragraph 1

The COP then recommended draft decisions for adoption at the COP's first session, on definitions related to Protocol Article 3(3) activities and on 'modalities, rules, and guidelines as to how, and which, additional human-induced activities related to changes in greenhouse-gas emissions by sources and removals by sinks in the agricultural soils and the land-use change and forestry categories might be included under Article 3.4 of the Kyoto Protocol' (Decision 9/CP.4 paragraph 4). This set the scene for the final debates and compromises prior to ratification.

## 6. COP-6

The intense disagreements, particularly between the European Union and the United States, over the role of carbon sinks and emissions trading caused the first round of COP-6 held in The Hague in November 2000 to fail. The shock of that failure, and the subsequent announcement by the Bush Administration that the US would not ratify the Protocol, had the unexpected effect of intensifying efforts to put the negotiations back on track. Negotiations were resumed in Bonn in July 2001 and several important compromises relating to LULUCF were agreed. Essentially, increased use of sinks by Japan, Russia, Australia and Canada (including what amounts to avoided deforestation) was conceded to ensure that Annex I countries, representing an adequate percentage of 1990 emissions to bring the Protocol into force, agreed to ratify it.

The 'quid pro quo' was restriction on the scope of sinks in the CDM. A proposal that an option be included providing for CDM to incorporate all sink projects of all types was rejected. This was the result of the vehement assertion by some environmentalists that CDM sinks created a 'loophole' in the Convention. Although this

and related arguments put forward in opposition to CDM sinks, particularly avoiding deforestation, do not bear scrutiny (Brown *et al.* 2002), it was agreed that for the first commitment period the COP limited all LULUCF activities under the CDM to afforestation and reforestation projects (Decision 5/CP.6, Annex VII(7)). The Parties agreed that 'the treatment of land use, land-use change and forestry projects under the clean development mechanism in future commitment periods shall be decided as part of the negotiations on the second commitment period' (Decision 5/CP.6 Annex VI, Article 3(9)).

The Bonn Agreement did provide, however, that during the first commitment period, each Party may engage in additional activities under Article 3(4), and thus adjust its assigned amount, provided the activities are human induced and undertaken and accounted for since 1990.<sup>27</sup> For the purposes of Article 3(4), 'forest management', 'cropland management', 'grazing land management' and 'revegetation' are eligible LULUCF activities during the first commitment period, provided the activities occurred since 1990 and are human induced. 'Such activities should not account for emissions and removals resulting from afforestation, reforestation and deforestation as determined under Article 3, paragraph 3' (Decision 5/CP.6 Annex VII(5)).

Draft decisions to develop definitions and modalities to include LULUCF in the CDM were forwarded to COP-7, the SBSTA having been requested to provide biome specific 'forest' definitions (FCCC/CP/2001/L.11/Rev.1). There were also agreements on key technical issues: baselines, additionality, small-scale CDM-project activities, environmental-impact assessment (EIA), public participation, and the executive board review. 'The modalities to be addressed shall include non-permanence, additionality, leakage, scale, uncertainties, socio-economic and environmental impacts (including impacts on biodiversity and natural ecosystems)' (5/CP.6 Annex VI, Article 3(8)).

COP-6 nevertheless affirmed that 'it is the host Party's prerogative to confirm whether an Article 6 project activity assists it in achieving sustainable development' (Decision 5/CP.6 Annex VI, Article 2(1)) and recommended that 'the COP establish a supervisory committee to supervise, *inter alia*, the verification of emission-reduction units generated by Article 6 project activities' (5/CP.6 Annex VI, Article 2(3)). Similarly, the COP affirmed, 'the host Party's prerogative is to confirm whether a clean development mechanism project activity assists it in achieving sustainable development' (Decision 5/CP.6 Annex VI, Article 3(1)). A CDM executive board was created and the details of its composition and role were elaborated. Critically, this body's responsibilities, unlike the JI Supervisory Board, include an active role in approval of CDM projects pursuant to regulations to be developed by it. In contrast the JI Supervisory Board's role is essentially only one of oversight (see COP-7(I) J(2) Annex 1(C)).

## 7. LULUCF agreements

COP-6 also reached an important agreement on the principles guiding LULUCF activities, listed here.

- (i) These activities are to be treated on a 'sound science' basis (Decision 5/CP.6 Annex VII(1)(a)). This suggests that the science must have reached a high level of certainty, and therefore, that the precautionary principle, which requires that

preventive action be taken despite the absence of absolute scientific certainty, does not apply.

- (ii) LULUCF activities must contribute to biodiversity and environmental sustainability (Decision 5/CP.6 Annex VII(1)(e)); therefore some activities, although they contribute to reducing the atmosphere's total GHG concentration, would still not be eligible if they do not pass the biodiversity and sustainability tests.
- (iii) 'Accounting for LULUCF does not imply a transfer of commitments to a future commitment period' (Decision 5/CP.6 Annex VII(1)(f)).
- (iv) 'Reversal of any removal due to LULUCF activities [must] be accounted for at the appropriate point in time' (Decision 5/CP.6 Annex VII(1)(g)).
- (v) Accounting excludes removals resulting from elevated carbon dioxide concentrations above their preindustrial level.
- (vi) The COP also agreed on definitions relating to forestry as they appear in the IPCC report on LULUCF. The Parties agreed to define 'forest', 'afforestation', 'reforestation' and 'deforestation' for the purposes of Protocol Article 3(3) on the basis of land-use change (Decision 5/CP.6 Annex VII(2)).

(a) *Unresolved issues*

Despite these agreements, a number of issues remained unresolved and the Parties forwarded to COP-7 draft decisions on the flexibility mechanisms:

- (1) principles, nature and scope;
- (2) Joint Implementation: implementation guidelines;
- (3) CDM: modalities and procedures;
- (4) emissions trading: modalities, rules and guidelines,

requiring from the IPCC methods to estimate, measure, monitor, and report changes in carbon stocks for the purposes of JI and the CDM relevant to Articles 3.3 and 3.4 and LULUCF; and to produce a report on good practice and uncertainty management.

(b) *COP-7*

Accordingly, COP-7's agenda regarding sinks took the shape of a work programme on mechanisms (Decisions 7/CP.4 and 14/CP.4). Principles, nature and scope of the mechanisms pursuant to Articles 6, 12 and 17 were the subject of the Kyoto Protocol Decision 15-/CP.7. The COP recommended the adoption of a draft decision on mechanisms, which reiterates the principle that 'the use of the mechanisms shall be supplemental to domestic action and that domestic action shall thus constitute a significant element of' Annex I countries' efforts in meeting their commitments. It also made clear that Parties may only avail themselves of the flexibility mechanisms if they are in compliance with their obligations under Article 3 of the Protocol (COP-7, Decision 1J). The compliance committee's enforcement branch is to be

responsible for supervising compliance. COP-7 established that a Party complies with its commitments under the Protocol if 'it has established its assigned amount pursuant to Article 3 and in compliance with the methodological and reporting requirements under Article 5'.

(c) *Article 6: JI*

COP-7 agreed that the COP 'shall provide guidance regarding the implementation of Article 6 and exercise authority over an Article 6 supervisory committee' (COP-7, Draft Decision-/CMP.1 (Article 6) Annex B(2)), which 'shall supervise, *inter alia*, the verification of ERUs generated by Article 6 project activities' (COP-7, Article 3). It provided rules for the qualifications, nomination, election and removal of committee members (COP-7, Draft Decision-/CMP.1 (Article 6) Annexes C(4), (5), (6), (7)). The COP also agreed on a list of standards and procedures for the accreditation of independent entities to provide accounting, monitoring, verification and related services on which the supervisory board can rely in supervising verification of emission reductions (COP-7, J(2), Appendix A(1)(a)). Self-verification of additionality by eligible participating Annex I Parties is also provided for (COP-7, Draft Decision-/CMP.1 (Article 6) Annex D(22)).

Among the issues that COP-7 resolved is the definition of baselines for Article 6 projects, which it defined as

the scenario that reasonably represents the anthropogenic emissions by sources or anthropogenic removals by sinks of greenhouse gases that would occur in the absence of the proposed project. A baseline shall cover emissions from all gases, sectors and source categories listed in Annex A and anthropogenic removals by sinks within the project boundary.

COP-7, Draft Decision-/CMP.1 (Article 6) Appendices B(1) and B(2)

Defining the baseline is important as it provides the basis on which the calculation of GHG emissions and removals rests. Requirements for a monitoring plan for all JI projects were also specified (COP-7, Draft Decision-/CMP.1 (Article 6) Appendix B(3)).

(d) *Article 12: CDM*

COP-7 designated the COP as having authority over and being authorized to provide guidance to the CDM Executive Board (COP-7, Draft Decision-/CMP.1 (Article 12) Annex 13(2), 3(a), (b) and (c)). It also provides participation requirements parallel to those for Article 6, but importantly is extended to all Parties, including non-Annex I Parties, to the Protocol (COP-7, Draft Decision-/CMP.1 (Article 12) Annex B(4)). No provision is made for self-validation. The CDM Executive Board has been delegated the task of approving all CDM projects according to detailed criteria and directed to develop rules for such approval consistent with the extensive guidance provided by COP-7. Parties participating in the CDM are to designate a national authority for the CDM, which is subject to rules drawn up by COP-7 (COP-7, Draft Decision-/CMP.1 (Article 12) Annex C).

Those rules will need to conform to detailed guidelines, modalities and procedures for the CDM determined at COP-7, which include definitions of LULUCF activities

and the technical terms related to CDM, and administrative roles and procedures. In contrast to the four pages of such guidelines for JI projects, the decision in respect to the guidelines, modalities and procedures for CDM projects runs to some 14 pages. The matters required of CDM projects but not of JI projects include: a CDM registry; a publicly available database; public comment procedure; periodic reviews of methodologies; validation and registration requirements, which include comments by local stakeholders and UNFCCC accredited non-governmental organizations; environmental impact analysis; use of executive-board-approved methodology; written approval of voluntary participation from each Party involved; baselines that take into account national and/or sectoral policies and circumstances; limited crediting periods; adjustments for and periodic recalculation of leakage; a monitoring plan that requires collecting and archiving of all relevant data and all potential sources of emissions and project boundaries; and an extensive project design document (COP-7, Draft Decision-/CMP.1 (Article 12) Annex G and Appendix B).

A critical part of the compromise struck at COP-7 was to limit the total additions to a Party's assigned amounts from LULUCF activities in the first commitment period to 20% of the total (COP-7, Draft Decision-/CMP.1 (Modalities for the accounting of assigned amounts) Annex I(B)(5)). COP-7 did not address directly the details of using LULUCF in the CDM; it requested that the following COP develop definitions and modalities for 'including afforestation and reforestation project activities under Article 12 in the first commitment period, taking into account the issues of non-permanence, additionality, leakage, uncertainties and socio-economic and environmental impacts, including impacts on biodiversity and natural ecosystems' (COP-7, Decision 17/CP.7 10(b)). Further regulation is therefore inevitable.

(e) *Article 17: emissions trading*

In comparison with the guidance on CDM projects, the COP-7 decision on emissions trading is brevity itself. Aside from eligibility requirements parallel to those under Article 6 and the establishment of a national registry, the only matter of note was the decision to make it clear that Annex I Parties are 'eligible to transfer and/or acquire ERUs, CERs, AAUs or RMUs issued in accordance with the relevant provisions. . . ' (COP-7, Draft Decision-/CMP.1 (Article 17) Annex 2) and to adjust the accounting rules accordingly (COP-7, Draft Decision-/CMP.1 (Modalities for the accounting of assigned amounts)).

(f) *Summary*

COP-6 and COP-7 confirmed emissions trading of all classes of carbon-credit unit, increased the range and scale of forestry and land-use-change credits to Annex I countries and severely curtailed the availability of such credits to the developing world, decreased the benefits to developing countries of emissions trading and reduced the likelihood, by raising the regulatory cost, of investment in their rural areas. These results are contrary to the Convention's overriding objectives, and its own and the Kyoto Protocol's express provisions. The directions given to the CDM Executive Board, like the decisions on which they are based, are arguably *ultra vires* the Convention and the Protocol. More importantly they tend to defeat the very purpose of the Convention.

*Phil. Trans. R. Soc. Lond. A* (2002)

## 8. Summary for policy makers

The policy debates and compromises over the participation of developing countries, the role of carbon sinks and of emissions trading have resulted in regulatory complexity, in legal uncertainty and in discriminatory treatment of developing countries. The regulatory complexity is illustrated by the creation of four units of account, three of acquisition and transfer where one would suffice, and the proposed regime for certification of CDM projects. Legal uncertainty is illustrated by the decisions of COP-6 and COP-7 that ignored the founding principles of the Convention, of companion international agreements, and of sustainable economic growth and development, and the express terms of the Protocol.

It is at least arguable that the COP has sought to exercise powers not granted to it and to act *ultra vires* the Convention and the Protocol. It has done so particularly by seeking to eliminate from the crediting system avoided deforestation in developing countries during the first commitment period. To that end it created new units of account not available to developing countries and attempted to add regulatory requirements that discriminate against carbon sequestration in developing countries. In the intense effort to reach agreement it seems to have been forgotten that the climate does not care where or how atmospheric concentrations of carbon dioxide are reduced and, more importantly, that this is the Convention's overriding goal.

Policy makers have burdened the process with qualitative judgements that have nothing to do with efficiently accomplishing the Convention's dual goals: mitigation of global warming and sustainable development in developing countries, particularly the alleviation of poverty.

The detailed regulation imposed on CDM projects under Article 12 and bifurcation of those provisions from those applicable to JI projects, including arbitrary limitations on transfers to Annex I countries, has introduced unnecessary complexity, increased costs of both compliance and administration, and reduced the usefulness of the flexibility mechanisms under the Convention. Arguably these regulations reduce the likelihood of achieving the goals of the Convention. The rationale for all of this is threadbare.

The discriminatory effect of the limitations on carbon sinks in developing countries is inconsistent with the Convention's core principles, including its emphasis on the primacy of economic development in the developing world, on poverty eradication, on an open international economic system, on the clear concern to protect and enhance all carbon sinks and reservoirs wherever located, and on achieving climate stabilization at the lowest possible cost. The administrative bodies, now charged with implementing the Protocol's provisions, must concentrate on simplifying compliance with the rules and reducing the costs of doing so. They should also interpret the COP decisions to be consistent with the Protocol and the Convention and restore to its proper, leading position the overriding goal of sustainable economic growth and development.

## 9. Lexicon

Definitions, modalities, rules and guidelines relate to land use, land-use change and forestry activities under the Kyoto Protocol. 'Article' in this paper refers to an Article of the Kyoto Protocol, unless otherwise specified.

(a) *General definitions*

**Additionality.** Reduction in emissions by sources or enhancement of removals by sinks that is additional to any that would occur in the absence of a Joint Implementation or a Clean Development Mechanism project activity as defined in the Kyoto Protocol Articles on Joint Implementation and the Clean Development Mechanism. This definition may be further broadened to include financial, investment, and technology additionality. Under financial additionality, the project activity funding shall be additional to existing Global Environmental Facility, other financial commitments of Parties included in Annex I, Official Development Assistance, and other systems of cooperation. Under investment additionality, the value of the emissions-reduction Unit/Certified Emission Reduction Unit shall significantly improve the financial and/or commercial viability of the project activity. Under technology additionality, the technology used for the project activity shall be the best available for the circumstances of the host Party.

**Baseline.** A non-intervention scenario used as a base in the analysis of intervention scenarios ([www.ipcc.ch/pub/tar/wg3/456.htm](http://www.ipcc.ch/pub/tar/wg3/456.htm)).

**Carbon offset.** Carbon offsets are analogous to tradeable carbon-emissions permits. Carbon offsets are typically carbon sequestration services, such as afforestation/reforestation or preventing deforestation.

**Leakage.** 'The part of emissions reductions in Annex B countries that may be offset by an increase of the emission in the non-constrained countries above their baseline levels. This can occur through

- (1) relocation of energy-intensive production in non-constrained regions;
- (2) increased consumption of fossil fuels in these regions through decline in the international price of oil and gas triggered by lower demand for these energies; and
- (3) changes in incomes (and thus in energy demand) because of better terms of trade. Leakage also refers to the situation in which a carbon sequestration activity (e.g. tree planting) on one piece of land inadvertently, directly or indirectly, triggers an activity, which in whole or part, counteracts the carbon effects of the initial activity' ([www.ipcc.ch/pub/tar/wg3/465.htm](http://www.ipcc.ch/pub/tar/wg3/465.htm)).

Alternatively, leakage can also refer 'to the situation in which a carbon sequestration activity (e.g. tree planting) on one piece of land inadvertently, directly or indirectly, triggers an activity which, in whole or part, counteracts the carbon effects of the initial activity' ([www.ipcc.ch/pub/tar/wg3/174.htm](http://www.ipcc.ch/pub/tar/wg3/174.htm)).

**Reservoir (Convention Article 1(7)).** A component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored.

**Sink (Convention Article 1(8)).** Any process, activity or mechanism that removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.

**Stakeholder (COP-7 Provisional report, Sect. J, Para. 2, Annex A).** The public, including individuals, groups or communities affected, or likely to be affected, by the project.

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**Supplementarity.** 'The Kyoto Protocol states that emissions trading and Joint Implementation activities are to be supplemental to domestic actions (e.g. energy taxes, fuel efficiency standards, etc.) taken by developed countries to reduce their greenhouse-gas emissions. Under some proposed definitions of supplementarity (e.g. a concrete ceiling on level of use), developed countries could be restricted in their use of the Kyoto mechanisms to achieve their reduction targets. This is a subject for further negotiation and clarification by the parties' ([www.ipcc.ch/pub/tar/wg3/472.htm](http://www.ipcc.ch/pub/tar/wg3/472.htm)).

(b) *Acronyms*

An 'assigned amount unit' (COP-7 Provisional report, Sect. J, Para. 2, Annex A) or 'AAU' is a unit issued pursuant to the relevant provisions on registries in Draft Decision-/CMP.1 21/CP.7 (Article 5.2). (Modalities for the accounting of assigned amounts), and is equal to one metric tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.

A 'certified emission reduction' (COP-7 Provisional report, Sect. J, Para. 2, Annex A) or 'CER' is a unit issued pursuant to Article 12 and requirements thereunder, and is equal to one metric tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.

An 'emission-reduction unit' (COP-7 Provisional report, Sect. J, Para. 2, Annex A) or 'ERU' is a unit issued pursuant to Article 6 and requirements thereunder and is equal to one metric tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.

A 'removal unit' (COP-7 Provisional report, Sect. J, Para. 2, Annex A) or 'RMU' is a unit issued pursuant to the relevant provisions on registries in decision -/CMP.1 (modalities for the accounting of assigned amounts), and is equal to one tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.

(c) *Forest-related definitions*

As established (IPCC 2001a-c) under Articles 2, 3.3 and 3.4, the following definitions shall apply.

- (a) 'Afforestation' is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources.
- (b) 'Cropland management' is the system of practices on land on which agricultural crops are grown and on land that is set aside or temporarily not being used for crop production.
- (c) 'Deforestation' is the direct human-induced conversion of forested land to non-forested land.

- (d) 'Forest' is a minimum area of land of 0.05–1.0 ha with tree-crown cover (or equivalent stocking level) of more than 10–30% with trees with the potential to reach a minimum height of 2–5 m at maturity *in situ*. A forest may consist of either closed-forest formations, where trees of various stories and undergrowth cover a high proportion of the ground, or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10–30% or tree height of 2–5 m are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention, such as harvesting or natural causes, but which are expected to revert to forest. An alternative definition of forest is a 'vegetation type dominated by trees. Many definitions of the term forest are in use throughout the world, reflecting wide differences in bio-geophysical conditions, social structure, and economics' (see IPCC 2000).
- (e) 'Forest management' is a system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner.
- (f) 'Grazing land management' is the system of practices on land used for livestock production aimed at manipulating the amount and type of vegetation and livestock produced.
- (g) 'Reforestation' is the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. For the first commitment period, reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31 December 1989.
- (h) 'Revegetation' is a direct human-induced activity to increase carbon stocks on sites through the establishment of vegetation that covers a minimum area of 0.05 ha and does not meet the definitions of afforestation and reforestation contained here.

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### Appendix A. Convention Article 3 principles

In their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, *inter alia*, by the following.

- (1) ... 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.
- (2) ... The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate

change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, should be given full consideration.

- (3) ... The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties.
- (4) ... The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change.
- (5) ... The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

### **Appendix B. Protocol Article 6**

- (1) For the purpose of meeting its commitments under Article 3, any Party included in Annex I may transfer to, or acquire from, any other such Party emission-reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy, provided that
  - (a) any such project has the approval of the Parties involved;
  - (b) any such project provides a reduction in emissions by sources, or an enhancement of removals by sinks, that is additional to any that would otherwise occur;
  - (c) it does not acquire any emission-reduction units if it is not in compliance with its obligations under Articles 5 and 7; and
  - (d) the acquisition of emission-reduction units shall be supplemental to domestic actions for the purposes of meeting commitments under Article 3.

- (2) The Conference of the Parties serving as the meeting of the Parties to this Protocol may, at its first session or as soon as practicable thereafter, further elaborate guidelines for the implementation of this Article, including for verification and reporting.
- (3) A Party included in Annex I may authorize legal entities to participate, under its responsibility, in actions leading to the generation, transfer or acquisition under this Article of emission-reduction units.
- (4) If a question of implementation by a Party included in Annex I of the requirements referred to in this Article is identified in accordance with the relevant provisions of Article 8, transfers and acquisitions of emission-reduction units may continue to be made after the question has been identified, provided that any such units may not be used by a Party to meet its commitments under Article 3 until any issue of compliance is resolved.

### **Appendix C. Protocol Article 12**

- (1) A clean development mechanism is hereby defined.
- (2) The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.
- (3) Under the clean development mechanism:
  - (a) Parties not included in Annex I will benefit from project activities resulting in certified emission reductions; and
  - (b) Parties included in Annex I may use the certified emission reductions accruing from such project activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3, as determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol.
- (4) The clean development mechanism shall be subject to the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Protocol and be supervised by an executive board of the clean development mechanism.
- (5) Emission reductions resulting from each project activity shall be certified by operational entities to be designated by the Conference of the Parties serving as the meeting of the Parties to this Protocol, on the basis of
  - (a) voluntary participation approved by each Party involved;
  - (b) real, measurable, and long-term benefits related to the mitigation of climate change; and
  - (c) reductions in emissions that are additional to any that would occur in the absence of the certified project activity.

- (6) The clean development mechanism shall assist in arranging funding of certified project activities as necessary.

### Endnotes

<sup>1</sup>Convention Article 1(1): ‘“Adverse effects of climate change” means changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.’

<sup>2</sup>The principal structural elements of the Convention for present purposes are the following: Article 1 defines relevant terms, such as ‘climate change’, ‘emissions’ and ‘greenhouse gases’; Article 7 establishes the Conference of the Parties as the Convention’s supreme body, which may create subsidiary bodies; Article 8 establishes a Secretariat to manage the COP’s and its subsidiary bodies’ activities; Article 9 establishes a Subsidiary Body for Scientific and Technological advice (SBSTA) to provide scientific and technological advice to the COP; Article 10 establishes a Subsidiary Body for Implementation (SBI) to ‘assist the Conference of the Parties in the assessment and review of the effective implementation of the Convention’; and Article 17 establishes that only parties to the Convention may adopt a protocol to the Convention and that only Parties to a particular protocol may take decisions under that protocol.

<sup>3</sup>The 1987 Brundtland Report introduced the term ‘sustainable development’, which it defined as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’. It is noteworthy how often the goal of sustainable ‘economic growth’ is omitted in much of the literature.

<sup>4</sup>Convention Article 1(5): ‘“Greenhouse gases” means those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation’. They include: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride (SF<sub>6</sub>).

<sup>5</sup>Convention Article 1(3): ‘“Climate system” means the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions.’

<sup>6</sup>The Convention lists in Annex I the economically developed parties and parties with economies in transition which agree to commit to the Convention’s objectives and principles.

<sup>7</sup>Article 3(1): ‘The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5% below 1990 levels in the commitment period 2008–2012.’

<sup>8</sup>Protocol Article 7(4): ‘The Conference of the Parties serving as the meeting of the Parties to this Protocol shall adopt at its first session, and review periodically thereafter, guidelines for the preparation of the information required under this Article, taking into account guidelines for the preparation of national communications by Parties included in Annex I adopted by the Conference of the Parties. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall also, prior to the first commitment period, decide upon modalities for the accounting of assigned amounts.’

<sup>9</sup>The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse-gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate

change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.’

<sup>10</sup>Article 4(7) Commitments: ‘The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.’

<sup>11</sup>The United States announced on 28 March 2001 that it would not ratify the Protocol (Environment News Network 2001; CNN 2001).

<sup>12</sup>Protocol Article 6(1)(b); additionality tests whether projects reduce or remove emissions in addition to what would have been reduced or removed had the project not taken place (action versus business as usual).

<sup>13</sup>Protocol Article 6(1)(d); ‘[t]he acquisition of emission-reduction units shall be supplemental to domestic action for the purposes of meeting commitments under Article 3.’

<sup>14</sup>Convention Article 1(4): ‘“Emissions” means the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time’.

<sup>15</sup>Article 17: ‘The Conference of the Parties shall define the relevant principles, modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions trading. The Parties included in Annex B may participate in emissions trading for the purposes of fulfilling their commitments under Article 3. Any such trading shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments under that Article.’

<sup>16</sup>Kyoto Article 3(4). While Parties have not yet defined ‘human-induced’, it is understood to mean that humans could have indirectly provoked a land-use change, for instance by not farming deforested land and letting it reforest naturally without direct human interference to plant a new forest.

<sup>17</sup>The proposed definition for afforestation is ‘the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding, and/or the human induced promotion of natural resources’ (FCCC/CP/2001/5/Add.2 Part Four, p. 9).

<sup>18</sup>The proposed definition for reforestation is ‘the direct human-induced conversion of non-forested land to forested land through planting, seeding, and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. For the first commitment period, reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31 December 1989’ (FCCC/CP/2001/5/Add.2 Part Four, p. 9).

<sup>19</sup>The proposed definition for deforestation is ‘the direct human-induced conversion of forested land to non-forested land’. Kyoto Article 3.3: ‘direct human-induced’ is understood to mean that humans willingly and actively changed the land’s use (FCCC/CP/2001/5/Add.2 Part Four, p. 9).

<sup>20</sup>Convention Article 1(7) ‘Reservoir’ means a component or components of the climate system where a GHG or a precursor of a GHG is stored.

<sup>21</sup>The 1989 Montreal Protocol on Substances that Deplete the Ozone Layer 1987 (as adjusted and amended on 29 June 1990) to the 1985 Vienna Convention for the Protection of the Ozone Layer, banned the use of a number of ozone-layer-depleting substances, some of which are also GHGs.

<sup>22</sup>The Convention cites: the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on 16 June 1972; General Assembly resolutions 44/228 (22 December 1989) on the United Nations Conference on Environment and Development, 43/53 (6 December 1988), 44/207 (22 December 1989), 45/212 (21 December 1990), 46/169 (19 December 1991) on protection of global climate for present and future generations of mankind, resolution 44/206 (22 December 1989) on the possible adverse effects of sea-level rise on islands and coastal areas, particularly low-lying coastal areas, and 44/172 (19 December 1989) on the implementation of the Plan of Action to Combat Desertification; the Vienna Convention for the Protection of the Ozone Layer 1985, and the Montreal Protocol on Substances that Deplete the Ozone Layer 1987 (adjusted and amended on 29 June 1990); the Ministerial Declaration of the Second World Climate Conference adopted on 7 November 1990.

<sup>23</sup>Protocol Article 3(4).

<sup>24</sup>'Direct human-induced' is used in distinction from 'human-induced'.

<sup>25</sup>Convention Article 7 establishes the Conference of the Parties. Kyoto Article 13.1 establishes that 'the Conference of the Parties, the supreme body of the Convention, shall serve as the meeting of the Parties to this Protocol'; Parties to the Convention who are not Parties to the Protocol may attend the COP/MOP only as observers (Kyoto Article 13.2).

<sup>26</sup>Article 3(4) provides that the decision shall apply at the second and subsequent commitment periods although parties may choose to apply it to activities for the first commitment period, provided the activities have occurred after 1990.

<sup>27</sup>Appendix Z, in relation to forest management, provides: 'the COP is to establish how these emission rights will be allocated at least two years prior to the commitment period; accounting methods; cropland management; grazing land management; revegetation'.

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