Interdependence between Global Environmental Regimes: The Kyoto Protocol on Climate Change and Forest Protection

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Introduction

The emerging concept of global environmental concerns, that is, serious environmental issues of immediate relevance for the whole State Community and therefore considered to be a "common interest", is a recent development in international environmental law[1].

It is related to the evocative (although not yet clearly legally defined) idea of a "global environment"[2] and to the adoption over the last fifteen years of several multi-lateral treaties relating to the most significant global threats, such as the depletion of the ozone layer, species extinction, climate change and desertification[3]. These multilateral instruments include a specific recognition of the global relevance of the environmental issues they refer to ("common concern of human-

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[1] On the evolution of international environmental law see E. Brown Weiss, International Environmental Law: Contemporary Issues and the Emergence of a New World Order, Georgetown Law Journal 81 (1993), 675 et seq.; U. Beyerlin, Rio-Konferenz 1992: Beginn einer neuen globalen Umweltrechtsordnung?, ZaöRV 54 (1994), 124 et seq.; id., Staatliche Souveränität und internationale Umweltschutz-Kooperation, Gedanken zur Entwicklung des Umweltvölkerrechts, in: Festschrift für R. Bernhardt, 1995, 937 et seq.; J.L. Dunoff, From Green to Global: Toward the Transformation of International Environmental Law, Harvard Environmental Law Review 19 (1995), 241 et seq.; T. Scovazzi, Considerazioni sulle norme internazionali in materia di ambiente, Rivista di diritto internazionale 89 (1989), 591, at 602; R. Wolfrum, Purposes and Principles of International Environmental Law, GYIL 33 (1990), 308 et seq. On the concept of common interest see J. Brunnée, "Common Interest" – Echoes from an Empty Shell?, Some Thoughts on Common Interest and International Environmental Law, ZaöRV 49 (1989), 791 et seq.

[2] That is the idea of the environment (wholly or in part) as a common good to be protected irrespective of the question whether in the given case territorial State interests are at stake. See C.A. Kiss, The Protection of Environmental Interests of the World Community Through International Environmental Law, in: R. Wolfrum (ed.), Enforcing Environmental Standards: Economic Mechanisms as Viable Means?, 1996, at 1 et seq.

[3] Vienna Convention on the Protection of the Ozone Layer, which was adopted on March 22, 1985 and entered into force on September 22, 1988 (text in: ILM 26 [1987], 1529) and the related Montreal Protocol on Substances that Deplete the Ozone Layer, which was adopted on September 16, 1987 and entered into force on January 1, 1989 (text in: ILM 26 [1987], 1541); United Nations

kind"[4]) and demand an internationally coordinated action to deal with them[5]. In the light of their peculiar content these treaties are often referred to as "global accords" or as treaties establishing global régimes[6] and the obligations they include are considered as interdependent obligations[7]. Finally, they are quasi-universal in their sphere of applicability being largely ratified at the international level[8].

The above mentioned multilateral treaties do not, however, reflect the significant ecological interdependence which exists between the environmental problems of global relevance[9] and with respect to which forests ecosystems together with

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Framework Convention on Climate Change (FCCC), which was opened for signature on June 4, 1992 and entered into force on March 21, 1994 (text in: ILM 31 [1992], 849); United Nations Convention on Biological Diversity (CBD), which was opened for signature on June 5, 1992 and entered into force on December 29, 1993 (text in: ILM 31 [1992], 818); United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification Particularly in Africa (CCD), which was adopted on June 17, 1994 and entered into force on December 26, 1996 (text in: ILM 33 [1994], 1328). The three latter instruments are often globally referred to as UNCED (or Rio) Conventions, because of their adoption at the 1992 United Nations Conference on Environment and Development or as a result of it. Under this meaning the expression UNCED Conventions will be used in this study.

[4] Cf. for example the Preamble of the CBD; the Preamble of the FCCC; and the Preamble of the CCD. See also the UN General Assembly Resolution 43/53 of 6 December 1988 on Protection of Global Climate for Present and Future Generations of Mankind, ILM 28 (1989), 1326 (declaring the world climate as a "common concern of mankind").

[5] See P. Sands, Principles of International Environmental Law, Vol. I, 1994, 47 et seq., 61, 218 et seq.; P.W. Birnie/A. Boyle, International Law and the Environment, 1992, 85.

[6] Cf. on the concept of global accord G.M. Danilenko, Law-Making in the International Community, 1993, at 64, who refers to "conventions on issues of vital importance to the international community as a whole" and considers these treaties to be the result of the advent of a number of "global problems calling for universally binding normative regulation". This concept also applies to the multilateral treaties relating to environmental problems considered of "common concern" of all States (cf. A. Kiss/D. Shelton, International Environmental Law, 1992, 144–154; S. Marchisio, Il principio dello sviluppo sostenibile nel diritto internazionale, in: S. Marchisio/F. Raspadori/A. Maneggia (eds.), Rio cinque anni dopo, 1998, 57, at 62 et seq.). On the concept of global régime see M. List/V. Rittberger, Regime Theory and International Environmental Management, in: A. Hurrel/B. Kingsbury (eds.), The International Politics of the Environment, 1992, 89, at 90 ("a regime is a social institution where stable patterns of behaviour result from compliance with certain norms and rules, whether they are laid down in a legally-binding instrument or not"); cf. also R. Tarasofsky, The Global Regime for the Conservation and Sustainable Use of Forests: An Assessment of Progress to Date, ZaöRV 56 (1996), 688 et seq., at 688 ("a set of principles, norms, rules and decision-making procedures, implicit or explicit, around which actors' expectations converge in a manner in which it is possible to measure norm- and rule guided behaviour").

[7] These obligations require simultaneous implementation by all Parties to a treaty, as the very effectiveness of the régime established by the treaty might be precluded in case of non-compliance even of a single Party.

[8] As of 28 May 1998, 174 States have ratified or acceded to the CBD, 176 are Parties to the FCCC (as of 7 October 1998); 145 countries have ratified or acceded to the CCD (as of 4 January, 1999).

[9] For example, between climate change, species extinction and desertification. Changes in climate have an adverse impact on terrestrial and marine biological diversity, as they give rise to a progressive shifting of the climatic zones towards the poles and involve therefore a sudden change in the structure, composition and geographical distribution of ecosystems. They also have an adverse impact on desertification through their influence on water supply and on agricultural productivity. The loss of biodiversity contributes to desertification, as the reduction in the natural vegetation produces soil

oceans play a crucial role[10]. These treaties adopt indeed a "sectorial" approach to environmental problems as each of them refers to a specific environmental issue; that is, climate change, biodiversity loss or desertification. Moreover only very recently have the overlaps existing between these conventional régimes in some "common areas" such as forestry[11] been recognised and some preliminary efforts towards co-operation at the institutional level have been undertaken.

In this context, the Kyoto Protocol[12] to the 1992 Climate Change Convention is a significant effort to come to terms with ecological interdependence. By promoting the adoption of measures aimed at forest protection and enhancement as complementary strategy to emission reductions in climate change mitigation[13], the Protocol simultaneously fulfils two environmental targets; that is, climate change mitigation and forest protection. In this way it complements, *prima facie*, the goals of the Climate Change Convention with those of other UNCED documents with relevance to forests – such as the Biodiversity Convention, the Desertification Convention and the Forest Principles[14], in the perspective of a global (inter-sectorial) environmental policy and of a comprehensive forest policy[15]. It reflects, therefore, an innovative approach to the environmental problems of global relevance.

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impoverishment and accelerates soil erosion; this makes soils more vulnerable to natural or human-induced events (diseases, fires). Finally, soil deterioration has an adverse impact on the local climate, on the carbon cycle and on the reflectivity of the earth's crust (albedo).

[10] Forests contribute to climate change mitigation as carbon pools ("sinks"). Tropical forests are the most considerable "reservoir" of biological diversity, both for plants and animals. Forest ecosystems also play a crucial role in preventing desertification, as they protect soils from erosion and degradation. All these environmental functions performed by forests are interconnected into the unity of each forest ecosystem. Forests however also provide for significant economic and social functions. See FAO, State of the World's Forests, 1997, at 35 and seq. (hereinafter FAO 1997 Report).

[11] Being, as mentioned, the core of the ecological interdependence between climate change, species extinction and desertification, forests are an important area of overlap between the legal régimes relating to these global environmental problems.

[12] Kyoto Protocol to the Framework Convention on Climate Change, adopted at the third session of the Conference of the Parties to the FCCC (COP-3) held in Kyoto in December 1997. The final version of the Protocol is included into the Third Conference of the Parties report, UN Doc. FCCC/CP/1997/7/Add. 2.

[13] Relying on forest potential as carbon "sinks" and "reservoirs"; that is, on their capacity to absorb carbon from the atmosphere and to store it into soil and vegetation. See below, Part I para. 2.

[14] The CBD and the CCD refer to forests in consideration of their significant role, respectively, as reservoir of biological diversity and in preventing soil erosion, and promote their conservation and sustainable use (see below, Part. II para. 4). The Forest Principles (Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests [hereinafter Forest Principles], text in: ILM 31 [1992], 881) comprehensively refer to the whole range of resources and services provided by forest ecosystems and call for their sustainable management (also in this respect see below, para. 4).

[15] The latter point is particularly significant in consideration of the present "fragmentary" approach to forest protection in international law. The three UNCED agreements with relevance to forests mentioned above (the CBD, the FCCC and the CCD) refer indeed to single environmental functions performed by forest ecosystems, and the same "sectorial" (non comprehensive) approach is adopted by all other legally binding instruments existing at international or regional level with relevance to forests (cf. the updated list contained in UN Doc. E/CN.17/IFF/1999/15 Category II of the

However, the approach chosen by the Kyoto Protocol *de facto* proves to be inadequate in complementing the goals of the mentioned UNCED documents. This is chiefly due to the fact that the Kyoto Protocol essentially maintains a sectorial goal in its approach to environmental problems, as it promotes forest enhancement exclusively in order to establish natural carbon sinks. In this way it does not fully take into account the potential impact that such a policy of sink enhancement may have on the goals of other forest-related instruments as a result of the ecological interdependence existing between the different environmental functions performed by forests. For this reason, from the provisions of the Protocol referring to biological sinks several potential[16] issues of compatibility arise with the goals of other forest-related instruments which the Kyoto Protocol seems *prima facie* to complement.

The purpose of this study is to consider the provisions of the Kyoto Protocol relating to "terrestrial sinks" (forests) within the complex "system" of interrelations existing between the UNCED instruments as a result of the interdependence between the global environmental problems they refer to, with a view to examining – although only preliminarily and not exhaustively[17] – the potential impact that these provisions might have on the spirit and objectives of other forest-related UNCED documents[18]. It also intends to discuss the ways and means through which solutions may be found to the compatibility issues that the Kyoto Protocol consequently raises with these UNCED instruments.

IFF Programme of Work, "Forest-related work of international and regional organisations and under existing instruments", Annex 1). These instruments either relate to single forest functions or resources (as in the case of the International Tropical Timber Agreement [ITTA], the Washington Convention on the International Trade of Endangered Species of Wild Flora and Fauna [CITES], the RAMSAR Convention on Wetlands of International Importance especially as Waterfowl Habitat, the Paris Convention for the Protection of the World Cultural and Natural Heritage and the Vienna Convention for the Protection of the Ozone Layer) or to the forest ecosystems of a specific regional area (the Amazon Cooperation Treaty, the Central American Convention of Forests, the IV ACP-EC Lomé Convention and the Alpine Convention). A comprehensive approach to the protection and management of forests is adopted by the Forest Principles and the IPF Proposals for action. However, these instruments are legally non-binding. Moreover, until now all efforts aimed at adopting a "global" forest convention relating to all resources and services provided for by forest ecosystems have failed.

[16] The Kyoto Protocol is indeed not yet in force and significant elements concerning the provisions relating to biological sinks are still under debate within the work of the subsidiary organs to the FCCC because of their ambiguous wording and some technical issues they raise. Some "corrections" to these provisions might be introduced during this process.

[17] Given the potential nature of the issue, the complex inter-relationship existing between the Kyoto Protocol and other biodiversity and forest-related agreements and the possibility of future developments at the level of institutional cross-linkages and governance issues between these treaties.

[18] Although from the sink-related provisions of the Kyoto Protocol issues of compatibility also arise with some other (non-UNCED) instruments with relevance to forests (cf. the list mentioned at note 15) this study only deals with those concerning the UNCED documents (the CBD, the Forest Principles and the Agenda 21) and the instruments arising from the UNCED process (the CCD and the Proposals for action adopted by the Intergovernmental Panel on Forests). Compatibility issues with international pre-UNCED documents and regional agreements with relevance to forests are therefore excluded from this article. Several are the reasons for this limitation of the scope of the analysis. First, the UNCED Conventions share a common approach to environmental problems based on

To this end the study in Part I, through a brief overview of the Kyoto Protocol and a more detailed analysis of its core provisions on sinks, examines the role of the policies and measures aimed at protecting and enhancing terrestrial sinks (forests) within the international climate régime, as a complementary strategy to reductions in greenhouse gas (GHG) emissions at source. It illustrates in particular the content of, as well as the various issues raised by, the text of the provisions on sinks, which were included in the Protocol after a long and very controversial debate and are, for this reason, quite ambiguous as to their wording on all the most crucial points.

In Part II, the study first illustrates some unsolved questions of interpretation raised by the text of the provisions examined in Part I and identifies some negative incentives in terms of global environmental policy potentially arising either from their wording or from some of the implementation measures they promote. Later, it discusses the potential impact of these provisions on the goals of other global environmental instruments related to forests, focusing in particular on the compatibility issues they might raise with the objectives and the spirit of the UNCED agreements and processes providing for biodiversity conservation, soil protection and sustainable management of forest ecosystems, such as the Biodiversity Convention, the Desertification Convention and the Forest Principles.

In Part III, the study examines the potential compatibility issues identified in Part II in the light of the general principles on treaties implementation and taking also into account the intrinsic character of the treaties involved in these potential norm conflicts – that is, "global" and interrelated accords, with a view to identifying possible ways and means to solve these conflicts. Indeed, for such norm conflicts the solutions provided by the rules embodied in Art. 30 of the 1969 Vienna Convention on the law of the treaties (VCLT) seem inadequate.

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the emerging concept of sustainable development and have close linkages with the common global strategy embodied in Agenda 21. Pre-UNCED documents include references to the concepts of "environmentally sustainable management" and of "reasonable exploitation" of natural resources that may certainly be assimilated with the concept of sustainable development as they require an integrated approach between exploitation and preservation, but are also somehow less comprehensive than the latter concept. Although not yet satisfactorily clarified as regards its content and legal effects the idea of sustainable development, as expressed by instruments such as the 1987 Brundtland Report "Our Common Future", the 1992 Rio Declaration on Environment and Development and the Agenda 21, certainly involves a different approach to environmental problems as it requires that environmental protection constitutes "an integral part of the development process and cannot be considered in isolation from it" (cf. Principle 4 of the Rio Declaration on Environment and Development, text in: ILM 31 [1992], 874). Second, the Rio Conventions also share the same basic principles enshrined in the Rio Declaration. Finally, as mentioned above, the environmental problems to which these instruments refer are intimately related on ecological (but also on socio-economic and institutional grounds), so that several of the policies and measures suggested for achieving the objectives of one convention may also contribute, or have an impact on, the goals of the others.

Part I: The Kyoto Protocol and the Role of Forests Within the International Climate Régime

1. The Kyoto Protocol

The purpose of the Kyoto Protocol, adopted in December 1997 by the Parties to the United Nations Framework Convention on Climate Change, is to prevent dangerous human interference with the climate (climate change)[19] by limiting the emissions of greenhouse gases[20] into the atmosphere.

For this reason, it sets out quantified emission limitation and reduction commitments[21] for two sets of Parties (OECD countries and countries undergoing the process of transition to a market economy, collectively referred to as "Annex I Parties"[22]). Once in force[23], the Protocol will impose on these Parties the obligation to reduce their overall emissions of carbon dioxide and other greenhouse gases listed in Annex A by at least 5 % below 1990 levels between 2008 and 2012 (Art. 3)[24].

As to the implementation of Annex I Parties' commitments, Art. 2 establishes the obligation for these countries to implement or further elaborate, according to

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[19] Art. 1 of the 1992 FCCC includes a definition for "climate change". Art. 1 of the Kyoto Protocol provides that the definitions contained in Art. 1 of the FCCC apply to the Protocol.

[20] These gases include, in addition to carbon dioxide, methane, sulphur hexafluoride, perfluorocarbons, nitrous oxide and hydrofluorocarbons. Other greenhouse gases such as chlorofluorocarbons (CFCs) are not covered by the Kyoto Protocol as, because of their effect on the stratospheric ozone depletion are already controlled by the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer.

[21] By establishing specific emission reduction obligations ("targets") and providing also a timetable for their implementation the Kyoto Protocol is a further step in the process of dealing with the threat of anthropogenic climate change inaugurated in 1992 by the FCCC (which only established an hortatory obligation for Annex I Parties to aim to return GHG emissions at 1990 level instead of a legally binding commitment to return to this level: cf. Art. 4.2 *lit.* b) of the FCCC; cf. however also Art. 4.2 *lit.* d) of the FCCC, and Decision 1/CP.1, June 6, 1995 adopted at the First Session of the Conference of the Parties to the FCCC, UN Doc. FCCC/CP/1995/7/Add.1, Preamble which sets forth a process to take "appropriate action for the period beyond 2000" by establishing an *ad hoc* body to begin the negotiations on a new legal instrument to be adopted at COP-3).

[22] Because of their listing under Annex I to the Climate Change Convention. The list of these countries is reproduced as Annex B to the Protocol.

[23] Art. 25 establishes that the Kyoto Protocol will be in force on the ninetieth day after the ratification by fifty-five Parties to the FCCC, under the condition that the Annex I Parties among those who ratify represent at least fifty-five percent of the total carbon dioxide emissions of those Parties in the year 1990. This provision involves that the participation by all major "polluters" is necessary for the entry into force of the Protocol. As on 16 July 1999, 84 countries signed the Kyoto Protocol (opened for signature on March 16, 1998) and 12 ratified it.

[24] Art. 3.1 establishes a 5 % reduction below 1990 levels of GHG emissions as global target for Annex I countries. The negotiated individual reductions with respect to 1990 emission levels for Annex I Parties are listed in Annex B as percentage of base year emissions, while the procedure for determining the individual targets for Annex I Parties is specified in Art. 3.7. As to "non-Annex I countries" (developing countries) Art. 10 of the Kyoto Protocol further elaborates the commitments of Art. 4.1 of the FCCC without however establishing new commitments for these countries. No specific obligation for emission reduction is consequently imposed on these countries under the Kyoto Protocol in the first commitment period.

their national circumstances, policies and measures in the sector categories covered by the Protocol[25] to meet the reduction targets (so-called domestic measures)[26]. Annex I Parties' reporting obligations are provided by Art. 5 and Art. 7[27], while Art. 8 refers to compliance[28].

Furthermore, the Kyoto Protocol allows Parties to implement their commitments through co-operation with other Parties.

It authorises indeed Annex I Parties in implementing their emission reduction commitments to use, under certain conditions, so-called "market-based mechanisms" such as transboundary trading of emission reduction units from climate change mitigation projects – only among Annex I Parties (Art. 6), transboundary trading of credits from emission reduction projects – also with non-Annex I countries (Art. 12) and transboundary trading of assigned amount units (Art. 17)[29].

The Kyoto Protocol is unanimously considered as an important but only preliminary step on the road towards the specification of the commitments of the Parties to the FCCC[30]. Calling for subsidiary negotiations and for the examination of their outcomes at the coming meetings of the COP to the FCCC (or, for some issues, at the first Meeting of the Parties to the Protocol), the text adopted

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25 The list of these categories is included in Annex A.

26 Art. 2 includes a list of these policies and measures. The non-binding character of the list is demonstrated by the relevance given in this provision to the Parties' "national circumstances" and by the fact that it is introduced by the expression "such as". Consequently, as each Party may determine according to its national situation the policies and measures to be adopted to meet its reduction commitments, Art. 2 *de facto* provides Parties with significant flexibility at the national level in the implementation of their commitments.

27 These provisions expand the reporting obligations provided by Art. 4.1 and Art. 12 of the 1992 FCCC. These enlarged reporting obligations are clearly essential to the verification of the implementation by Annex I Parties of the reduction commitments under Art. 3 of the Protocol.

28 Art. 8 calls for the review of the information submitted under Art. 7 by teams of experts. Cf. also Art. 18, which refers to the future elaboration within the Protocol of compliance procedures. For an analysis of the compliance elements contained in the Kyoto Protocol see C. Breidenich/D. Magraw/A. Rowley/J.W. Rubin, The Kyoto Protocol to the United Nations Framework Convention on Climate Change, American Journal of International Law 92 (1998), at 326 et seq.

29 Besides "national flexibility" in the implementation of emission targets provided by Art. 2, the Protocol allows "flexibility at international level", as the co-operative implementation mechanisms it establishes provide Parties with several options to supplement their domestic implementation measures. Co-operative mechanisms, or market-based mechanisms, are a relatively novel instrument in international law which seek to introduce market principles such as cost-effectiveness in the implementation of international agreements. The main driving force behind these instruments in the context of climate change is the assumption that the beneficial effects of reducing emissions anywhere in the world are equivalent to reducing emissions locally. Cf. T.C. Heller, Environmental Realpolitik: Joint Implementation and Climate Change, Indiana Journal of Global Legal Studies 3 (1996), 295, at 297 et seq.; T. Jackson, Joint Implementation and Cost-effectiveness under the FCCC, Energy Policy 23 (1995), 117 et seq.

30 Cf. (also for a comprehensive examination of the provisions of the Kyoto Protocol and for an evaluation of their importance within the climate régime) Breidenich et al. (note 28), 315 et seq.; P.G.G. Davies, Global Warming and the Kyoto Protocol, International and Comparative Law Quarterly 47 (1998), 446 et seq.; L. Boisson de Chazourne, La gestion de l'intérêt commun à l'épreuve des enjeux économiques – Le Protocole de Kyoto sur les changements climatiques, Annuaire français de droit international XLIII (1997), 700 et seq.

in Kyoto leaves room for significant legal developments in the future[31]. As will be discussed below, some of these developments appear to be important with respect to the implementation of the Kyoto Protocol and others as to the compatibility of some provisions with those of other multilateral environmental agreements, such as the CBD and the CCD.

Moreover, in the text of the Kyoto Protocol the wording of some provisions is ambiguous and it therefore raises significant questions of interpretation. This is the consequence both of the considerable difficulties experienced at COP-3 in achieving a compromise on the most controversial issues at stake[32] and of the intrinsic complexity of the problems under debate.

This ambiguity is particularly evident in the case of the provisions on sinks, whose introduction in the Protocol was highly debated in Kyoto and was discussed until the very last hours of the COP meeting[33]. For this reason, these provisions are very controversial.

2. Sink-related provisions of the Kyoto Protocol

The Kyoto Protocol contains several provisions that refer to, or raise issues regarding terrestrial sinks (forests).

As mentioned above, the relevance of forest concerns within the climate régime is related to the contribution of forest ecosystems to absorb significant amounts of carbon from the atmosphere through respiration and to store greenhouse gases in its soil or vegetation[34].

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[31] Important work still remains to be done in particular to develop guidelines, subsidiary rules and methodologies requiring further scientific data, further legal analysis and further political negotiations.

[32] Because of the many scientific, economic, political and legal issues raised by human-induced climate change and also because of the fact that international efforts to curb climate change potentially involve activities of profound importance to society and the world economy.

[33] During the preparatory process on the elaboration of the draft text of the Protocol to be submitted to COP-3 the debate on the treatment of terrestrial sinks was so controversial that no consensus was achieved, for instance, on the formulation of the provision on the domestic sink-related measures that Parties may use to meet their emission targets, which still contained in the end three options to be discussed at COP-3 (cf. UN Doc. FCCC/CP/1997/2, November 12, 1997 "Revised text under negotiation"). In Kyoto, after a long discussion, a "preliminary" compromise was achieved on this and other issues concerning the provisions on terrestrial sinks. However, on several important points that was not possible to agree on further evaluations were postponed to the future. Cf. below, para. 2.

[34] Cf., for instance, IPCC, Technical Paper on Technologies, Policies and Measures for Mitigating Climate Change, WMO, 1996, especially at 55, pointing out the considerable potential for climate mitigation through improved management of forest lands for carbon conservation, storage and substitution. However, the exact contribution of forests to climate change mitigation is scientifically controversial. Debated are, for example, the long term sink potential of forest ecosystems and the stability of the carbon concentrations stored into them. Furthermore, methodological problems exist in the measurement of the effect on the global climate of improved forest management (on the "state of art" of the knowledge at the scientific level about the sink and reservoir potential of forest ecosystems as well as on the different methodological problems in ascertaining the exact contribution to climate change mitigation of their improved management, cf. S. Brown, Tropical Forests and the Global

In consideration of this contribution the Kyoto Protocol refers to forest-related policies as domestic measures that Annex I Parties are called on implementing in achieving their emission limitation and reduction commitments under Article 3; that is, as a complementary strategy to the policies aimed at directly reducing GHG emissions at source[35]. The Protocol provides, however, that only a limited number of forest-related activities may be used by Parties to meet their emission targets[36]. The Protocol establishes that forest-related activities can also be undertaken by Annex I Parties in other countries – under the framework of co-operative implementation mechanisms, such as emission reduction projects. In this case the emission reduction units or certified emission reductions[37] resulting from such projects may be used for the purpose of meeting the commitments under Article 3.

A thorough analysis of the sink-related provisions of the Protocol and of the terms in which they promote the use of terrestrial sinks as a method to mitigate climate change now seems necessary, with a view also to identifying the issues arising from these provisions which make them very controversial.

An important preliminary remark has to be made with respect to the provisions of the Protocol establishing the core obligations for the definition of Parties' emission targets – that is, Art. 3.1 and Art. 3.7, in consideration of the long and controversial debate preceding their adoption at COP-3.

In both these provisions reference is made to "aggregate anthropogenic emissions" (instead of "net emissions"). This indicates that, at least for the first commitment period, the Protocol establishes the emission targets for Annex I coun-

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Carbon Cycle: Estimating State and Change in Biomass Density, and S.C. Zoltai/P.J. Martikainen, Estimated Extent of Forested Peatlands and Their Role in the Global Carbon Cycle, both in: M.J. Apps/D.T. Price [eds.], Forest Ecosystems, Forest Management and the Global Carbon Cycle, 1996, respectively at 135 et seq. and at 47 et seq.; IPCC, Climate Change 1995 – Impact, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses, 1996 [hereinafter IPCC 1996 Report], above all the study by S. Brown, Management of Forests for Mitigation of Greenhouse Gas Emissions, at 774 et seq.; FAO 1997 Report, [note 10], at 40 et seq.; compare also the comprehensive evaluation contained in the multidisciplinary special report by the Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen [WBGU], Die Anrechnung biologischer Quellen und Senken im Kyoto-Protokoll: Fortschritt oder Rückschlag für den globalen Umweltschutz?, 1998, at 14 et seq. [hereinafter WBGU Special Report]). For this reason, the recognition in legal terms of the role of terrestrial sinks in climate change mitigation has been hotly debated at the international level since the negotiation of the FCCC. The 1992 Climate Change Convention recognised in the end, though only in general terms, forest related measures as a useful instrument to deal with climate change (cf. Art. 4.1 *lit.* b) and Art. 4.2 *lit.* a), which in referring to climate change mitigation measures address, besides emission reductions at source, removals by sinks). In Kyoto, at COP-3, the issue of the role of natural sinks in climate change mitigation was a crucial point in the debate, because of its relevance with respect to both the definition and the implementation of emission targets, two crucial elements for the very effectiveness of the climate régime. In this regard see below, respectively, the comments on Art. 3.1 and Art. 3.3.

[35] Cf. in Art. 2.1 the list of policies and measures that Parties are called to implement at the national level: *lit.* a) ii) refers in particular to the so called sink-related domestic measures.

[36] That is, afforestation, reforestation and deforestation and under the conditions provided in Art. 3.3.

[37] Respectively, in the case of the Joint Implementation (Art. 6) and of the Clean Development Mechanism (Art. 12).

tries without taking into account, in principle[38], greenhouse gas emissions and removals from terrestrial sinks (that is, from the sector "land-use change and forestry"[39]). This so-called gross approach to the definition of emission targets is the result of the uncertainties surrounding the long term sink potential of forest ecosystems[40].

However, the second sentence of Art. 3.7 provides for a significant and very controversial exception to the "gross approach rule" for the definition of emission targets established in the first sentence. This exception applies to Annex I Parties for whom the sector land-use change and forestry was a "net source" of greenhouse gases emissions in 1990[41]. They are allowed to take into account the GHG emissions and removals (net emissions) from the category "land-use change" in determining their 1990 emission level (base year emissions); that is, to determine their emission targets according to a "net approach"[42].

As regards the provisions of the Protocol explicitly referring to sinks, Art. 2 relates to the second innovative aspect besides the establishment of binding emission targets introduced by the Kyoto Protocol into the international régime on climate change; that is, the definition of policies and measures that Annex I Parties are called on implementing at the national level in achieving their emission reduction commitments under Art. 3 (domestic policies and measures).

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[38] Art. 3.7 second sentence provides indeed a sectorial exception to this "rule".

[39] The "land-use change and forestry" (LUCF) sector has often been cited as being a source of net GHG emissions to atmosphere (for example, from deforestation) and offering opportunities to reduce net GHG emissions to atmosphere (by activities deemed to improve forest uptaking of carbon from the atmosphere or to prevent the release into the atmosphere of the carbon concentrations stored into soil or vegetation). For this reason, during the preparatory negotiations many countries felt that is was desirable to include LUCF activities in a binding treaty limiting GHG emissions like the Kyoto Protocol.

[40] The question of the inclusion of GHG emissions and removals from terrestrial sinks in the definition of the emission targets was very controversial at COP-3. This question was indeed of great relevance with respect to the level of the reduction commitments established by the Kyoto Protocol (targets), as by taking into account the contribution of sink-related activities in terms of net GHG absorption more ambitious commitments to emission reduction could be undertaken by Parties. The "gross approach" to the definition of emission targets finally adopted in Art. 3.1 reflects the will of Parties to avoid the problems in estimating and verifying (net) anthropogenic emissions – and thus in assessing compliance with legally binding emission reduction targets, that the inclusion of the emissions and removals from LUCF activities could involve because of the above-mentioned uncertainty about the long term sink potential of forests. The emission targets established according to the "gross approach" provided in Art. 3.1 are therefore less ambitious but more realistic than they would have been under a "net approach".

[41] That is, those countries where in 1990 emissions resulting from LUCF activities were higher than removals from these activities (as a result for example of deforestation policies). From the national communications submitted by Parties under Art. 4.1 FCCC it emerges that in 1990 the sector LUCF represented a net source of GHG emissions for Australia and Great Britain. Compare UN Doc. FCCC/TP/1997/5, Table 1 ("Anthropogenic emissions and removals from land-use change and forestry, 1990 and 1995"), at 12.

[42] This is the so called "Australian clause", because of the role of Australia as proponent of the provision and strenuous supporter of its inclusion in the text of the Protocol. The aim of this clause is to take into consideration the negative impact that the procedure established in Article 3.3 for the implementation of targets might have on countries such as Australia with high level of emissions from the category LUCF in 1990. In this regard, see Breidenich et al. (note 28), at 322.

In calling on Annex I Parties to adopt, in accordance with their national circumstances, some policies and measures concerning all the main sector and source categories from which significant GHG emissions may arise[43], it also refers to the protection and enhancement of GHG sinks and reservoirs and to other forestry practices[44]. Given the non-mandatory character of the policies included in Art. 2, each Party may freely decide on the policies and measures to be adopted in fulfilling its emission reduction obligations under the Protocol and therefore, amongst them, also on the specific policies and measures to be undertaken in the field of the protection, enhancement and management of natural sinks[45].

As to the policies relating to the protection and enhancement of sinks and reservoirs, Art. 2 explicitly calls on Parties to take into account the commitments arising from other relevant international environmental agreements[46]. This specification is important because, as it will be discussed in detail below, the adoption of some measures aimed at mitigating climate change through the enhancement of terrestrial sinks might raise issues of compatibility with the objectives of other forest-related agreements or processes (such as the Biodiversity Convention, the Desertification Convention and the Forest Principles). A final remark is that Art. 2 is the only provision of the Protocol that refers to sustainable forest management practices[47].

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[43] The list contained in Art. 2.1 *lit.* a) includes, *inter alia*: the enhancement of energy efficiency, the promotion of sustainable forms of agriculture, the promotion of new and renewable forms of energy and of environmentally sound technologies, the progressive reduction of market imperfections and fiscal incentives, tax and duty exemptions in all GHG emitting sectors, the adoption on measures to limit and/or reduce GHG emissions in the transport sector.

[44] Art. 2.1 *lit.* a) ii) specifically calls for the "protection and enhancement of sinks and reservoirs of greenhouse gases not controlled by the Montreal Protocol..." and the "promotion of sustainable forest management practices, afforestation and reforestation" (emphasis added).

[45] This formulation of Art. 2 is the result of a long and controversial debate during the negotiations in Kyoto. Indeed, while some countries (above all the European countries) proposed the adoption of mandatory as well as coordinated policies and measures by each Party in implementing its commitments under Art. 3, other countries (among them the USA, Canada and Australia) were in favour of a more flexible approach, leaving to each individual Party the decision on the policies and measures to be adopted. It is therefore mainly on this second approach that the final formulation of Art. 2 seems to be based.

[46] In Art. 2.1 *lit.* a) ii) the reference to pre-existing commitments under other relevant agreements is ambiguously limited to the protection and enhancement of sinks. As a result, such reference seems *prima facie* not to cover the afforestation, reforestation and sustainable management practices mentioned in the second part of this provision. However, taking into account that this ambiguity in the drafting may be explained by the fact that in para. 1 *lit.* a) ii) the part of the sentence referring to Parties' obligation to promote afforestation, reforestation and the sustainable management of their sinks was added at a later stage of the negotiation (cf. 17 Earth Negotiations Bulletin, No. 71), and that *de facto* the reference to afforestation/reforestation practices simply specifies the more general reference to the measures of sink enhancement already included in the first part of the sentence, it seems that also the adoption by Parties of afforestation/reforestation measures has to be considered as being submitted to the clause ("taking into account ...") provided by the first part of the provision.

[47] Art. 3.3, as discussed below, only refers indeed to afforestation, reforestation and deforestation practices. The role of sustainable forest management practices, which was highly controversial in Kyoto, is being discussed during the ongoing work relating to Art. 3.4 by the subsidiary organs of the FCCC.

A crucial provision is included in Art. 3.3. It refers to the implementation of emission targets and particularly to the role that sink-related activities may play in this respect.

It states indeed that with the purpose of implementing their emission targets Annex I Parties may use changes in net emissions (that is, emissions from sources minus removals by sinks), resulting from direct human-induced land-use change and forestry activities, limited, however, to afforestation, reforestation and deforestation since 1990 and measured in terms of verifiable changes in carbon stocks in each commitment period[48].

In this way, by giving relevance to biological sources and sinks of greenhouse gases in the implementation of Annex I Parties' commitments Art. 3.3 promotes the fulfilment of Parties' emission reduction obligations under Art. 3.1 of the Protocol, as it legitimates – although only under specific conditions – the use of implementation measures additional to those aimed at reducing greenhouse gas emissions at source.

The drafting and adoption of this provision was very controversial during the negotiation in Kyoto[49], and also under its final formulation Art. 3.3 remains hotly debated.

On the one hand, its phrasing includes expressions where the language lends itself to multiple interpretations (for instance, "since 1990", "direct human activities", carbon "stocks", "changes in carbon stocks") and words for which no definition is provided in the Protocol (for example, afforestation, reforestation, defo-

[48] Cf. Art. 3.3 first sentence. In other words, Art. 3.3 provides that to verify the implementation of the emission target by Parties, for each country consideration has to be given to the amount of its emissions in the commitment period calculated as including, in addition to the emissions resulting from the categories listed in Annex A of the Protocol, also the net emissions from the three activities of the category LUCF that it mentions, if these activities fulfil the requirements it provides (that is, if they are "direct human-induced measures" adopted "since 1990" and measured in terms of "verifiable changes" in "carbon stock" in each commitment period). Art. 3.3 also requires Annex I Parties to report in a transparent and verifiable manner on greenhouse gas emissions by sources and removals by sinks, that are then to be reviewed in accordance with Articles 7 and 8.

[49] The controversy on this provision at COP-3 was essentially due to the lack of agreement among Parties about the activities from the sector land-use change and forestry that should be taken into account in implementing emission targets. A decision on this issue was indeed of great relevance with respect to the achievement of targets by Parties, as compliance with these targets would have been certainly promoted in case Parties could take into account a large number of LUCF activities. Particularly controversial among Parties were activities such as forest management and forest conservation, because of significant uncertainty at the scientific level about their actual contribution to improving the natural sink potential of forest ecosystems. Therefore, although as a matter of principle there are three broad categories of forestry measures that may promote forest sustainable management and at the same time contribute to forest conservation and sequestration (cf. IPCC 1996 Report, [note 34], at 775: a) measures for the "conservation" of existing carbon pools, b) measures for the "enhancement" of carbon sequestration and storage, c) substitution measures aimed at increasing the transfer of the carbon stored in forest biomass into products or energy), in Kyoto in the debate on the LUCF activities to be included in Art. 3.3 a consensus was only achieved in the end on such practices as afforestation, reforestation and slowing deforestation. Cf. in this respect also Art. 3.4 (which, calling for further studies and negotiation on this issue leaves, however, the door open to the future inclusion of additional activities from the categories agricultural soils and LUCF).

restation)[50]. These issues are certainly the consequence of the fact that the Kyoto Protocol was adopted under considerable time pressure, at the end of a very long and complex negotiation[51]. They seem, however, to be extremely significant both with respect to the implementation of the provisions of the Protocol[52] and in consideration of the negative impact that the lack of specification of the meaning of crucial words such as "afforestation", "reforestation" or "deforestation" might have in terms of promoting "individualistic" interpretations of these words by Parties[53]. For this reason, both of these issues arising from the wording of Art. 3.3 (that is, ambiguous phrasing and the lack of definition for crucial words) are under examination by the subsidiary organs of the Climate Change Convention[54].

Another reason why Art. 3.3 is controversial relates, more substantially, to the possibility that: a) the recognition of sink-enhancement measures as a method to mitigate climate change raises issues of equity among the Parties to the climate régime and may also have an impact on the effectiveness of such a régime[55]; and

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[50] For a discussion of the sometimes very complex scientific and technical background of these and other issues arising from Art. 3.3, see B. Schlamadinger/G. Marland, Some technical issues regarding land-use change and forestry in the Kyoto Protocol, 1998 (unpublished manuscript).

[51] Moreover, as mentioned above, in the negotiations in Kyoto significant economic and political interests were at stake. In the end, during the final drafting of the text, the will to achieve a compromise between the very different positions of Parties played a significant role also with respect to the issue of sinks. This explains its ambiguity with respect to the most controversial questions.

[52] The ambiguity of the expressions "since 1990", "direct human activities", "carbon stocks", "changes in carbon stocks" may indeed have significant consequences on the verifiability of the implementation of the commitments under Art. 3, as it could yield different results in the estimation of emission reductions or sequestration by sinks.

[53] The interpretation of these words is clearly crucial for determining the forest-related policies and measures they refer to, and thus for the measurement of the afforested/reforested area that may be claimed by each Party as carbon sinks. On this point and on its potential impact in terms of global environmental policy see below Part II para. 3.

[54] As to the expression "since 1990" an interpretation has been already provided by the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the FCCC at the eighth meeting of the subsidiary bodies to the FCCC held in Bonn from 2 to 12 June 1998 (according to it "since 1990" has to be understood as "since 1 January 1990": cf. "Draft Conclusions by the Chairman" on LUCF, UN Doc. FCCC/SBSTA/1998/CRP. 3 at para. 2). As regards the issue of the definitions of specific words in Art. 3.3, in the same "Draft Conclusions" the SBSTA requested the FCCC Secretariat to organise a workshop of experts, prior to COP-4, to consider the availability of data based on the definitions used by Parties and international organisations in relation to Art. 3.3, and called on the IPCC to prepare a special report on LUCF addressing all the implications of the relevant articles of the Protocol particularly of Art. 3. The SBSTA also invited Parties to submit informations on the issue of the definitions for the activities in Art. 3.3. For an overview of the different definitions proposed by Parties cf. the "Matrix of definitions based on submissions by Parties", UN Doc. FCCC/CP/1998/INF. 4 Annex I. At the recent fourth session of the COP to the FCCC (hereinafter COP-4), held in Buenos Aires in November 1998, it has been decided to postpone the recommendation of a decision on the definitions related to activities under Art. 3.3 at the first session of the COP following the completion of the IPCC special report (cf. Decision 9/CP.4, UN Doc. FCCC/CP/1998/16 Add. 1, January 20, 1999 at para. 3).

[55] The equity question may be raised by the fact that only the countries having large areas to be afforested or reforested can fulfil their obligations under the Protocol also through sink-enhancement policies and measures. As to the question of the impact of sink-related policies and measures on the effectiveness of the climate régime, it has been observed that the massive use of these measures by

that b) some of the forestry practices that it promotes raise issues of compatibility with the objectives of other international environmental agreements. The second of these two points will be dealt with and discussed in detail in Part II together with some significant issues of interpretation raised by Art. 3.3.

Art. 3.4 refers to one of the issues that was not possible to agree on during the negotiation in Kyoto; that is, the use by Annex I Parties of activities from the categories agricultural soils and land-use change and forestry in addition to those included in Art. 3.3 ("afforestation", "reforestation", "deforestation") to meet their emission targets. In this regard it calls for further elaboration and specifies that a decision on the inclusion of additional activities has to be taken by the COP[56], particularly as to "how" and "which" activities from the two above mentioned categories should be accounted by Parties.

The debate on these issues is therefore open at the moment and it is very controversial among the Parties. The inclusion of additional activities such as "forest management" and "use of agricultural soil", promoted by some States and already discussed in Kyoto[57], is opposed by other Parties considering that this could undermine the assessment of compliance with the targets because of the uncertainties relating to the role of sink-related activities additional to those mentioned in Art. 3.3 in enhancing the natural sink potential of terrestrial ecosystems, and also because of methodological difficulties existing in the measurement of the impact of those additional activities on the global climate[58]. The inclusion of practices

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Parties might in the end contribute to undermining the achievement of the substantive goals of this régime; that is, the stabilisation of GHG concentrations in the atmosphere, given the uncertain sink potential of forest ecosystems in the long term. On both these questions see WBGU Special Report (note 34), at 32 et seq.

[56] Serving as Meeting of the Parties (MOP) to the Protocol, at its first session or as soon as practicable thereafter, taking into account uncertainties, transparency in reporting and verifiability and on the basis of the methodological work of the IPCC and of the advice provided by the SBSTA.

[57] As a consequence of the self-evident economic implications of the decision on the sink-related activities that may be used to meet emission targets, at COP-3 Parties divided themselves into countries in favour of taking into account the removals of GHG from "all verifiable" LUCF activities (Australia, New Zealand, the Russian Federation and the USA), countries cautioning against the uncertainties about the measurement of the impact on the climate of activities other than afforestation, reforestation and deforestation and therefore opposing the consideration by Parties of additional activities to the three latter (Brazil, Argentina, Grenada and the Marshall Island), and countries proposing to take into account, besides afforestation, reforestation and deforestation, those LUCF activities that, according to them, significantly contributed to increase the sink potential of terrestrial sinks – such as "forest management" (Mexico and the same USA), "conservation of currently managed forests" (Canada), "forest management, reforestation and any other forest activities" (Honduras), "natural regeneration" (Costa Rica). Cf. 17 Earth Negotiations Bulletin, No. 71.

[58] The importance attributed by at least some Parties to the inclusion of additional activities is confirmed by the decision adopted by the COP at its third session in Kyoto to set in motion a process of preparatory work by the subsidiary organs of the FCCC on the questions arising from Art. 3.4, aimed at enabling COP-4 to decide on them (cf. UN Doc. FCCC/CP/1997/7 Add. 1 Decision 1/CP.3 March 18, 1998, at para. 5 a)). See also the preliminary list of additional activities included in the note by the FCCC Secretariat "Issues related to land-use change and forestry" (UN Doc. FCCC/SBSTA/1998/INF. 1 Annex II). For an overview of the different positions of Parties with respect to the additional activities that should be included in Art. 3.4 see UN Doc. FCCC/CP/1998/Misc. 9 and its Add. 1 and 2.

such as conversion of primary forests into secondary forests or into plantations, forest degradation and burning of primary forests, to which significant release of GHG into the atmosphere are related, is also proposed by some Parties in consideration of the fact that their impact on the global climate is as significant as that of "deforestation" and that they also have considerable impacts in terms of biodiversity and ecosystems loss.

A decision on this issue may hardly be adopted in the short term because of the complex technical questions it involves[59]. It is, however, clearly crucial both for the implementation of the Kyoto Protocol and for its compatibility with other forest-related agreements, as the former may be considerably influenced by "how" additional activities from LUCF and agricultural soils will be accounted by Parties and the latter by "which" activities Parties may account to meet their emission targets.

Art. 6 and Art. 12 of the Protocol provide for the establishment of two co-operative mechanisms that Annex I Parties may use to supplement domestic actions in fulfilling their emission limitation and reduction commitments under Art. 3. Both these instruments explicitly or implicitly recognise the role of terrestrial sinks in mitigating climate change, providing for the adoption of forest-related measures within co-operative projects between Annex I countries (Art. 6) or with non-Annex I countries (Art. 12)[60].

Art. 6 refers in particular to a mechanism based on the transfer or acquisition of emission reduction units resulting from climate change mitigation projects between Annex I Parties (joint implementation). Art. 6 only draws the preliminary framework of the mechanism[61] and calls for further elaboration of guidelines for its concrete implementation by the COP[62].

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[59] At the eighth meeting of the subsidiary bodies to the FCCC the SBSTA invited Parties to submit information related to the additional human-induced activities that might be included in Art. 3.4, requested the FCCC Secretariat to organise, after COP-4, a workshop on the issues arising from Art. 3.4, and called on the IPCC to examine in its special report on LUCF also the issues related to the latter provision (cf. "Draft Conclusion by the Chairman" on LUCF, UN Doc. FCCC/SBSTA/1998/CRP.3 respectively at para. 2, 3 and 4). At the recent COP-4, Parties decided to postpone at the first session of the COP after the completion of the IPCC special report on LUCF the recommendation of a decision on the modalities, rules and guidelines concerning the additional human-induced activities in the categories agricultural soil and land-use change and forestry that might be included in Art. 3.4 (cf. the above-mentioned Decision 9/CP.4 at para. 4).

[60] These mechanisms represent another instrument (additional to the adoption of forest-related measures at national level) that creates a significant incentive for Annex I Parties to promote forest protection or enhancement, thus complementing – at least in principle – the goals of climate change mitigation and forest protection. See, however, below, Part II para. 3 and para. 4, for an analysis of some negative incentives with respect to the spirit and the goals of other forest-related instruments that these provisions (particularly Art. 12) may give rise to.

[61] Several elements are listed for instance in Art. 6.1 as "preconditions" for any transfer of emission reduction units among Annex I Parties. See also Art. 6.3 and Art. 6.4.

[62] Serving as MOP to the Protocol, at its first session or as soon as practicable thereafter. Cf. the decision 1/CP.3 which calls specifically for preparatory work by the subsidiary organs of the Convention on the elaboration of these guidelines (cf. UN Doc. FCCC/CP/1997/7 Add. 1, at para. 5 c).

It has to be pointed out that although Art. 6 explicitly mentions, as possible aim of these projects, both reduction of emissions at sources and enhancement of removals by sinks in any sector of the economy, it does not, however, specify which activities in the category land-use change and forestry might be pursued by the Parties for this purpose. This may raise the question whether also activities from the category land-use change and forestry additional to the three mentioned in Art. 3.3 (afforestation, reforestation and reduction of deforestation) are to be considered as possible aims of a project between Annex I Parties under Art. 6[63]. This interpretative question clearly has significant consequences in terms of the actual scope of the mechanism.

Art. 12 foresees the establishment of a Clean Development Mechanism (CDM) as a co-operative instrument under which Annex I Parties investing in a sustainable development project in a non-Annex I Party may use the certified emissions reductions resulting from such a project to contribute to compliance with part of their reduction commitments under the Protocol[64]. Art. 12 only defines the global framework for the establishment of the CDM through several provisions[65] which are to be further determined by the COP[66]. With respect to the beginning of the working of the mechanism, Art. 12.10 specifies that the certified emission reductions obtained from the year 2000 up to the beginning of the first commitment period (2008) can be used by Parties "to assist in achieving compliance in the first commitment period"; in this way there is the prospect of an early commencement of the mechanism[67].

Unlike Art. 6, Art. 12 does not specify which activities related to emission limitations and reductions may be included in sustainable development projects. It only refers, in very general terms, to "project activities resulting in certified emission reductions"[68] without explicitly mentioning, as for example Art. 6 does, whether activities aimed at enhancing anthropogenic removals by sinks could also be included in these projects. On this point, as matter of principle, an interpretation of the wording of Art. 12 which includes also the latter activities seems supported by the fact that reducing deforestation is a means of reducing GHG emissions. The issue is, however, at the moment extremely controversial among Parties, mainly because of the potential negative incentives for the global environment (in terms of destruction of primary forests) that co-operative forestry projects in developing countries might promote in case of an early commencement of the

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[63] For a paradox that might arise in case the latter (and the broader) of the two above-mentioned interpretations of the wording of Art. 6 is adopted, see Schlamadinger/Marland (note 50), at 10.

[64] See Art. 12, 3 of the Kyoto Protocol. As to the aims of the CDM, cf. Art. 12.1 as well as Art. 12.6 and Art. 12.8.

[65] Cf. paragraphs from 2 to 9 in Art. 12.

[66] Serving as MOP to the Protocol, at its first session or unspecified.

[67] In this regard see also the decision 1/CP.3 adopted by the COP in Kyoto, which calls for preparatory work by the Secretariat to enable COP-4 to consider the implications of an early commencement of the mechanism. On the decision adopted on this point at COP-4, see below in this paragraph.

[68] Cf. for this wording Art. 12 para. 3 *lit.* a). Cf. also para. 5 *lit.* c) ("certified project activities").

mechanism, in the light of the peculiar framework of commitments established by the Protocol. This point will be extensively discussed in Part II.

The ongoing process of work by the subsidiary organs of the FCCC with a view to elaborating the guidelines for the implementation of the two project-based mechanisms with relevance to forests defined in Art. 6 and Art. 12 of the Kyoto Protocol appears to be extremely difficult and controversial[69].

From the analysis above of the sink-related provisions of the Kyoto Protocol it emerges first the decision of Parties not to consider, in the definition of the reduction obligations for Annex I Parties in the first commitment period, the GHG emissions and removals resulting from land-use change and forestry activities. This is the result of the persistent uncertainty about the exact contribution of terrestrial sinks to climate change mitigation in the long term and it involves the establishment of less ambitious but more realistic emission targets. In the Kyoto Protocol sink-enhancement policies and measures are, however, recognised as important strategies that Parties may adopt in slowing climate change to complement policies aimed at reducing emissions at source, and the net emissions and removals resulting from three activities from the category LUCF (afforestation, reforestation and deforestation) may also be used by Annex I Parties, under the conditions provided in the Protocol, to achieve their emission targets in the period 2008–2012.

In this way, by allowing Parties to use sink-related activities (undertaken both at "home" and "abroad") as a method to mitigate climate change, the Kyoto Protocol clearly provides a considerable incentive for the protection and enhancement of forest ecosystems and establishes a significant link between climate protection and protection of terrestrial sinks. The establishment of this connection between climate and forests certainly is an important achievement of the Protocol in the perspective of a global environmental policy, as protection of climate, preservation of biodiversity – which forests are rich in, and prevention of desertification – to which forests significantly contribute by reducing and preventing soil erosion, are crucial aims of such a policy at international level, as the conventional régimes established over the last decade demonstrate[70]. In this perspective the Kyoto Protocol seems to promote the simultaneous fulfilment of different environmental

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[69] At the eighth meeting of the subsidiary organs of the FCCC no significant progress was made in the definition of the work programme on the flexibility mechanisms: cf. the Group of 77/China's proposed work programme on mechanisms (contained in UN Doc. FCCC/SB/1998/Misc. 1/ Add. 5 which also addresses the CDM) and the proposals by other States (included in UN Doc. FCCC/SB/1998/CRP.2). At the recent COP-4 Parties have agreed on a work programme on mechanisms which places priority on the CDM while postponing the taking of actual decisions on the co-operative mechanisms at COP-6 (see Decision 7/CP.4, UN Doc. FCCC/CP/1998/16 Add. 1, January 20, 1999). In the work programme on the CDM adopted at COP-4 the elements with relevance to sinks to be discussed concern: the inclusion of sink projects in the mechanism, credit (starting from 2000) for qualifying projects having begun before CDM rules become effective and the implications of Art. 12, 10 of the Protocol – including implications for a possible interim phase approach of the CDM: cf. the section on CDM in Decision 7/CP.4, Annex.

[70] Compare above, the Introduction.

targets (climate change mitigation, biodiversity conservation, forest protection, desertification prevention) thereby complementing the goals of various UNCED documents.

However, from the analysis above it also emerges that the sink-related provisions of the Kyoto Protocol leave important work to be done, in terms of clarification of ambiguous wording, definitions, guidelines and subsidiary rules, and raise for this reason a series of important issues. Some of these issues are of immediate relevance, as their resolution would aid in implementing the provisions of the Protocol. The importance of these issues is confirmed by the priority they have on the agenda of the ongoing work of the subsidiary organs to the FCCC[71]. Other issues, more technical, require a longer time for their resolution. They are at the moment under examination by teams of experts[72].

Furthermore some of these issues may also potentially have significant impact on (and therefore raise issues of compatibility with) the spirit and the goals of other forest-related instruments[73], such as the Biodiversity Convention, the Desertification Convention, the Forest Principles, the Agenda 21[74] and the IPF Proposals for action[75]; that is, with those instruments whose goals the Kyoto Protocol seems *prima facie* to effectively complement. Therefore, the causes and the terms of these compatibility issues have to be closely investigated.

Part II: Interdependence and Compatibility Issues with Other Forest-related Global Instruments Raised by the Sink-related Provisions of the Kyoto Protocol

1. Unsolved questions of interpretation and negative incentives in terms of global environmental policy arising from Art. 2, Art. 3.1, Art. 3.3 and Art. 12

A first issue raised by the sink-related provisions of the Kyoto Protocol in terms of global environmental policy arises from Art. 3.3 and concerns the inter-

[71] For a detailed examination of the various and complex issues to be solved with respect to the sink-related provisions of the Kyoto Protocol see the note by the FCCC Secretariat "Issues related to LUCF" (UN Doc. FCCC/SBSTA/1998/INF.1).

[72] A significant contribution to the ongoing work of the subsidiary organs with respect to the issues concerning the sink-related provisions of the Kyoto Protocol, and more in general with respect to the definition of the role that sinks will play under the Kyoto Protocol, will be given by the special report on the scientific aspects of sinks in carbon sequestration which the IPCC has been requested to prepare with a view to enabling the COP to the FCCC to take decisions on land-use, land-use change and forestry at MOP-1. The preliminary outline for the special report has recently been approved by the IPCC at its fourth session (1–3 October 1998): cf. Annex II in UN Doc. FCCC/CP/1998/INF., 4 October 28, 1998.

[73] As mentioned above the analysis of the compatibility issues between the Kyoto Protocol and other forest-related régimes will be limited to the global instruments adopted at UNCED or arising from the so called "UNCED process".

[74] Chapter XI of the action plan adopted at UNCED relates to "Combating deforestation".

[75] Intergovernmental Panel on Forests (IPF) Proposals for Action, adopted at the fourth session of the IPF (held in New York from 11 to 21 February 1997): see Report of the IPF on its fourth session, UN Doc. E/CN.12/1997/12, March 20, 1997.

pretation of words such as "afforestation", "reforestation" and "deforestation"[76], whose meaning is quite controversial among expert commentators[77].

Definitions for "afforestation" and "reforestation" can be found in the Glossary of the 1996 IPCC Guidelines for National GHG Inventories[78]. However, these definitions are not only incomplete (the Glossary does not provide for example a definition for "deforestation") but also, as in the case of "reforestation", not clear[79]. For this reason, the use of the IPCC definitions (under their present formulation) might indirectly promote the adoption of forestry practices running counter to the goals of other global environmental treaties.

As to the word "reforestation", the most significant problem arising from the definition included in the Glossary of the IPCC Guidelines is that it does not indicate the period of time during which a previously forested area has to be kept under a different land-use before starting replanting in order to be considered as reforested area. Such a definition indeed only contains the adverb "historically" to indicate when, before the conversion to another land-use, the area on which replanting is undertaken was covered by forests. As a result, under the IPCC definition all practices involving conversion of natural forests to other land-uses and beginning of a replanting scheme – even those in which such a scheme begins a short while after the conversion, might in principle be considered as "reforestation" and may be therefore counted by Annex I countries in meeting their emission reduction targets.

Such a possibility would in fact ensure a "double" economic benefit to the countries undertaking practices of conversion of a natural forest followed by replanting at the beginning of the commitment period. First, after the conversion these countries can use both the area and the resources obtained from clearing; second, at the beginning of the commitment period[80] they may also count as "reforestation" under Art. 3.3 the replanting schemes undertaken on the same area. This possibility would therefore also be an actual incentive for Parties to clear at the moment large areas of natural forests, with a view to converting the

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[76] On other significant unsolved questions of interpretation raised by the wording of this provision see Schlamadinger/Marland (note 50).

[77] Cf. the list of existing definitions contained in UN Doc. FCCC/SBSTA/1998/INF.1 Annex 1.

[78] See IPCC, Revised 1996 Guidelines for National GHG Inventories, Reporting Instructions, Vol. I, Glossary, 1996, 1 et seq. The definition of "afforestation" provided by the IPCC ("Planting of new forests on lands which historically have not contained forests") seems consistent with other definitions existing in literature. Problems arise, on the contrary, from the definition provided by the IPCC for "reforestation" ("Planting of forests on lands which, historically, previously, contained forests, but which have been converted to some other uses"). It differs indeed both from that used by the FAO (which does not imply a previous conversion to other land-use: cf. FAO 1997 Report [note 10], at 173 et seq.) and from other definitions of the words existing in literature (which all have in common the fact of including in the notion also the natural or enhanced regeneration of trees immediately following harvest). Not considering the same practices and measures these definitions for "reforestation" obviously involve different results in the calculation of the area that may be claimed as carbon sinks.

[79] The 1996 Guidelines were not adopted as methodologies for the accounting of the emissions related to LUCF activities, rather as methodologies for the elaboration of estimations to be included into Parties' national inventories of GHG emissions.

[80] That is in 2008, when afforestation and reforestation practices may be taken into account by Annex I Parties in meeting their emission targets.

land to other uses, and to start replanting schemes at the beginning of the commitment period[81]. However, such practices of natural forest clearing involve significant environmental consequences – in terms of loss of the biodiversity and unique ecosystems contained in natural forests[82].

Even more complex is the case of "deforestation", for which no definition is contained in the IPCC Glossary[83]. Problems arise from the fact that if the IPCC guidelines clearly specify that certain practices have to be included into national inventories as "deforestation"[84], such specification is not provided, for example, for forest degradation, conversion of primary into secondary forests and harvesting of natural forests. As a result, it is not clear whether "deforestation" also includes these practices, and therefore whether the GHG emissions resulting from them have to be accounted by Annex I Parties under Art. 3.3 in achieving their emission targets. This might be a further incentive for Parties to the adoption of practices of clearing of primary forests followed by the establishment of a plantation or of conversion of primary forests into secondary forests, as they would be exclusively accounted in terms of GHG removals resulting from reforestation[85].

In consideration of the significant impact that the latter practices produce, both on the global climate[86] and on the global environment – because of the mentioned considerable loss of biodiversity and soil erosion associated to the destruction of primary forests, it is clear that the inadequacy of the IPCC guidelines in providing for a comprehensive definition for "deforestation" not only is a significant gap within the climate régime established by the Kyoto Protocol, but it may also produce negative incentives with respect to the achievement of the goals of other global régimes[87].

For this reason, new definitions for the words "afforestation", "reforestation" and "deforestation" are under consideration by the IPCC. Their elaboration, and

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[81] In this regard cf. the proposal made by the experts of the WBGU that only the replanting on areas not covered by forests in 1990 should be accounted as "reforestation": see WBGU Special Report (note 34), at 42.

[82] On the issues of compatibility with the goals of other global environmental instruments with relevance to forests potentially raised by these practices, see below para. 4.

[83] Several definitions exist in literature (cf. the list included in the note by the FCCC Secretariat on "Issues related to land-use change and forestry", UN Doc. FCCC/SBSTA/1998/INF. 1 Annex I), however, none of them is able to encompass the diversity of situations existing in developing and developed countries.

[84] Such as forest conversion into pasture or grass land and conversion of forests in agricultural fields.

[85] The emissions resulting from the clearing of primary forests (or from their conversion into secondary forests) have not to be counted, under the IPCC guidelines, as "deforestation"; on the contrary, as mentioned above, the storage of carbon in plantations or secondary forests has to be counted as "reforestation". Cf. in this regard the proposal by the experts of the WGBU that not only the removals related to replanting should be counted as sinks, but also the emissions arising from forest harvesting should count as sources of GHG: cf. WBGU Special Report (note 34), at 42.

[86] The emissions of GHG associated to these practices are deemed to be of the same amount of those resulting from deforestation.

[87] On the latter point cf. below, para. 4.

the adoption of a decision on them by the COP to the FCCC before the entry into force of the Kyoto Protocol, are therefore essential with a view to ensuring that compatibility issues between the Kyoto Protocol and other environmental treaties do not arise.

Another issue raised by the sink-related provisions of the Kyoto Protocol with respect to the goals of other global environmental treaties arises from the wording of Art. 12 and concerns the interpretation of the expression "project activities resulting in certified emission reductions".

As matter of principle, an interpretation of such an expression which includes forestry projects seems to be possible in consideration of the fact that the activities aimed at reducing deforestation or at enhancing forests contribute to reducing GHG emissions.

However, from this interpretation of the wording of Art. 12 a negative incentive in terms of global environmental policy might arise in case of "early beginning" of the CDM[88]. In the first commitment period non-Annex I Parties (developing countries) are not submitted to the emission reduction and reporting obligations established by Art. 3 of the Kyoto Protocol for Annex I countries; therefore for the former countries the prospect of financial benefits from Annex I countries in connection with co-operative forestry projects under the CDM between 2000 and 2007 may become an incentive to begin at the moment massive deforestation measures with a view to "preparing" the land for such reforestation projects. Not being developing country Parties under the reduction and reporting obligations provided by the Kyoto Protocol they have no obligation to take into account the emissions related to the deforestation practices they should undertake with the aim of then beginning a reforestation project under the CDM[89].

For this reason, during the ongoing debate on the possibility of an early commencement of the CDM some Parties – mainly the European countries, have proposed not to include forestry projects in the Clean Development Mechanism as long as the developing countries are not under the obligations provided by Art. 3 of the Protocol, and to consider therefore this mechanism only as a "clean energy mechanism"[90].

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[88] As mentioned above, Art. 12.10 foresees the possibility of an early commencement of the Clean Development Mechanism for the projects undertaken between 2000 and 2007 (providing that the certified emission reductions resulting from these projects may be taken into account by Annex I countries in the implementation of their emission targets already in the first commitment period) and calls on the COP to decide on this point.

[89] Moreover, it is significant that the emissions resulting from the deforestation practices that a non-Annex I country should undertake in the perspective indicated above, could not even be ascribed to the Annex I Parties involved in the project, as the obligation under Art. 3.3 only covers the emissions resulting from the LUCF activities that they directly undertake. Therefore, the significant GHG emissions resulting from such deforestation practices would *de facto* "escape" the reporting obligation régime established in the Kyoto Protocol.

[90] Cf. 12 Earth Negotiations Bulletin, No. 86. See also, in the same terms, the proposal formulated by the experts of the WBGU in WBGU Special Report (note 34), at 43 et seq. The exclusion of sinks from the CDM is however opposed by other Parties. During the debate on the CDM at the eighth meeting of the subsidiary organs of the FCCC (June 1998) Canada and the USA pointed out that "it

As in the case of the questions raised by the wording of Art. 3.3, a decision by the COP to the FCCC on the issue of the inclusion of forestry projects in the CDM before the entry into force of the Kyoto Protocol seems to be essential with a view to preventing incompatibility issues with other environmental treaties from arising[91].

A third issue arising from the wording of the sink-related provisions of the Kyoto Protocol concerns a further negative incentive with respect to the goals of other forest-related régimes which some of the implementation measures it promotes in the forestry sector might create.

In promoting the adoption of forest-related measures aimed at improving the carbon sequestration potential of biological sinks as a method to mitigate climate change[92] the Protocol *de facto* provides a considerable incentive for Parties to establish large fast-growing monoculture plantations, as such forestry practices are deemed to provide for the maximum benefit in terms of GHG removals in the short term, particularly when they are composed of non-indigenous species[93]. Obviously, the adoption in Art. 3.1 of the Protocol of a short (five years) commitment period is a further significant incentive for Parties to undertake these practices, and particularly to concentrate on the establishment of fast growing plantations at the beginning of the commitment period[94].

However, the establishment or re-establishment of fast growth monoculture forestry areas with a view to creating new carbon sinks raises several environmental problems. It has been demonstrated that large scale monoculture plantations do not provide the same range of goods and environmental services that a primary forest can produce. They are indeed considerably less rich in non-wood forest products, do not perform the same environmental functions for example in terms of conservation of biodiversity and prevention of soil erosion[95], and are less resis-

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is premature to limit the extent to which the CDM activities may account for emission limitations" and proposed the inclusion of a variety of carbon sinks. Other countries (Costa Rica, Colombia, Nicaragua, Argentina and Iran) also opposed the exclusion of sinks from the CDM, by arguing that forestry projects may significantly contribute to promote biodiversity preservation in developing countries, as demonstrated by the practice of the Pilot Phase of the Activities Implemented Jointly. On the contrary, the group of the Alliance of Small Island States (AOSIS) opposed the inclusion of sinks in the CDM, these countries being concerned that carbon sink projects may shift the focus away from decreasing fossil fuel use. At the recent COP-4 Parties decided, as mentioned above, that the work relating to the Clean Development Mechanism have to be carried out on a priority basis before the entry into force of the Protocol; the issue of the inclusion of sinks is still under examination.

[91] On the terms of this potential norm conflict see below, para. 4.

[92] Cf. Art. 2.1 *lit.* a) ii), and Art. 3.3 as to the taking of these measures into account in the implementation of the Parties' emission targets.

[93] As these species grow faster and sequester therefore more carbon than local varieties.

[94] So that a significant increase in the absorption potential of terrestrial sinks may be obtained over the period, and considerable GHG removals may be therefore counted by Parties at the end of it in implementing emission targets.

[95] See R. Noss/A. Copperrider, Saving Nature's Legacy: Protecting and Restoring Biodiversity, 1994, 195 et seq. Studies on reforestation have found that plantations of non-native species with fast growth rates do not protect soils from erosion at the same extent as natural forests, and lack the adaptation of the natural forest cover to the prevailing soil conditions; therefore, they may contrib-

tant to natural events such as diseases and fire[96]. Finally, plantations including exotic (non-indigenous) species may have significant impact on host environments[97].

The Kyoto Protocol does not include a provision explicitly requiring that afforestation and reforestation practices are adopted by Parties taking into account the environmental impact they may have. Indeed Art. 3.3 does not provide in this regard any specific condition to their adoption[98] and Art. 2.1 at the second sentence in *lit.* a) ii) literally only calls for the "promotion of sustainable forest management practices, afforestation and reforestation" by Parties without any further specification[99].

Therefore, under a literal interpretation of its provisions the Kyoto Protocol seems to promote the adoption by Parties of all sort of forestry measures permitting to establish carbon fixing plantations. In this perspective it even seems to create an indirect potential incentive for Parties to begin or to accelerate practices of harvesting of old growth forests to secure more space for establishing new and more effective carbon fixing plantations.

The incentives to the indiscriminate establishment of fast growth monoculture forestry areas potentially arising from the wording of the Kyoto Protocol raise, however, significant issues of compatibility with other international instruments with relevance to forests.

2. Potential compatibility issues with the goals of other global régimes (CBD, CCD and other forest-related instruments and processes)

As to the potential impact of the above examined interpretative issues and negative incentives arising from the Kyoto Protocol on the goals of other forest-related global instruments, some remarks seem now necessary with respect to the terms of this potential "norm conflict". To this end, an overview of the instru-

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ute in the long term to the impoverishment of the soil (see A. Barnett, Desert of Trees: The Environmental and Social Impacts of Large-Scale Tropical Reforestation in Response to Global Climate Change, Friends of the Earth, unpublished report, at 4, 7).

[96] For this reason all main forestry instruments (Forest Principles, Agenda 21, IPF recommendations) adopt a very cautious approach toward the use of plantations as a method for increasing the forest cover and forest productivity, and refer to specific situations or circumstances in which the establishment of plantations may be suitable or possible. Cf. below, para. 4.

[97] See D.H. Janzen, Wildland Biodiversity Management in the Tropics, in: E.O. Wilson/M.L. Reaka-Kudla (eds.), Biodiversity II – Understanding and Protecting Our Biological Resources, 1997, 411 et seq.

[98] It only states that they have to be measurable in terms of "verifiable changes in carbon stocks in each commitment period" to be taken into account by Parties in implementing their emission targets.

[99] Cf. however above para. 2 for an extensive interpretation of the wording of this provision – which takes into account the "history" of its negotiation and drafting, according to which afforestation and reforestation measures may be considered as implicitly covered by the clause provided by its first sentence (calling on Parties to "take into account" the commitments arising from other international agreements in the field of forest protection and enhancement).

ments with which the sink-related provisions of the Kyoto Protocol may be potentially in conflict is useful.

At the international level several instruments relevant to forests exist[100]. Moreover, the adoption of a global forest convention is at the moment under examination by the Intergovernmental Forum on Forests (IFF)[101].

Among existing forest-related instruments, the UNCED conventions sectorially relate to specific environmental functions performed by forests, while legally non binding UNCED instruments such as the Forest Principles, the Agenda 21 and the IPF recommendations comprehensively refer to all resources and services provided by forest ecosystems.

In particular, the Convention on biological diversity, which focuses on action at the national level with regard to the promotion of, conservation and sustainable use of biological diversity[102], refers to forest ecosystems as reservoirs of genetic diversity and applies for this reason above all to tropical forests[103]. In its programme of work on "Forest Biological Diversity"[104] the CBD includes several elements relevant to forests and to the present work of the Intergovernmental Forum on Forests[105]. In establishing a series of specific obligations for Parties with a view to promoting the adoption of behaviour consistent with the goals of conservation and sustainable use of biological diversity[106], the CBD explicitly requires Parties: to regulate and manage biological resources important for the conservation of biological diversity with a view to ensuring their conservation and sustainable use, to promote the protection of ecosystems, to rehabilitate and restore degraded ecosystems, to prevent the introduction of alien species which threaten ecosystems, to identify and monitor processes and activities likely to have significant adverse impacts on biodiversity preservation and sustainable use[107] and

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[100] See above, the Introduction and cf. the comprehensive list of existing instruments mentioned at note 15. For an overview of these instruments see Tarasofsky (note 6), at 673 et seq.

[101] Established by the UN General Assembly at its 19th special session in June 1997, the IFF is to report on its work to the Commission on Sustainable Development (CSD) in 1999. Based on that report, and depending on the decision taken at CSD-8, the IFF will engage in further action on establishing an intergovernmental negotiating process on new arrangements and mechanisms or a legally-binding instrument on all types of forests.

[102] Cf. Art. 1 of the CBD.

[103] These forests include indeed more than half of all the identified species of plants and animals and also a large amount of species still to be identified. Cf. FAO 1997 Report (note 10), at 41.

[104] See Draft Programme of Work on Forest Biological Diversity (UN Doc. UNEP/CBD/COP/4/7); and the Work Programme for Forest Biological Diversity consequently endorsed by the COP at its fourth session (Decision IV/7, Annex in: UN Doc. UNEP/CBD/COP/4/27 Annex, June 15, 1998).

[105] Cf. above all the CBD work on ecosystems, genetic resources and traditional knowledge.

[106] Cf. in particular Art. 6 (which requires Parties to develop national strategies, plans and programmes for conservation and sustainable use of biodiversity and to integrate this objective into sectorial and cross-sectorial plans) and Art. 10 (which requires them to conserve and sustainably use biological resources by, *inter alia*, integrating this objective into national decision-making and by adopting measures relating to the use of biological resources aimed at avoiding or minimising adverse impacts on biological diversity).

[107] Cf., respectively, Art. 8 *lit.* c), Art. 8 *lit.* d), Art. 8 *lit.* f), Art. 8 *lit.* h) and Art. 7 *lit.* c) of the CBD.

– in case their significant impacts are ascertained – requires them "to regulate or manage the relevant processes and categories of activities"[108]. Finally, it requires Parties to provide the conditions needed for compatibility between present uses and the conservation of biological diversity[109].

As to the Desertification Convention, its aim is to prevent soil erosion and soil impoverishment with a view to combating desertification and drought and it seeks to establish an integrated approach to address the physical, biological and socio-economic aspects of the process of desertification[110]. From this perspective the CCD relates to forests in consideration of the crucial ecological role they play in mitigating and preventing soil degradation[111]. The CCD affirms the goal of sustainable development[112] and specifically requires Parties to prevent and combat the causes of desertification through, *inter alia*, prevention and reduction of land degradation[113]. In the regional Annexes for Africa, Latin America and the Caribbean it also requires Parties to adopt national action programmes to integrate and sustainably manage natural resources including forests[114]. Furthermore, the CCD explicitly recognises the relationship between desertification and other problems of global dimension[115] and includes in this respect a significant provision which requires States that are also Parties "to other relevant international agreements, particularly to the UN Framework Convention on Climate Change and the Biodiversity Convention" to encourage the coordination of the initiatives carried out under these instruments "in order to derive the maximum benefit from activities under each agreement ..."[116]. In this way the CCD implicitly recognises the "interconnections" existing between the UNCED conventions (as a result of the relationship between the environmental problems they relate to) and the consequent need for a coordination among them in the perspective of an effective global environmental policy.

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[108] See Art. 8 *lit.* l) of the CBD. This provision reaffirms the "preventive approach" postulated in the Preamble ("It is vital to anticipate, prevent and attack the causes of significant reduction or loss of biodiversity at source").

[109] Art. 8 *lit.* i) of the CBD.

[110] Cf. Art. 4.2 *lit.* a) of the CCD.

[111] Cf. for instance the definition of "land degradation" contained in Art. 1 *lit.* f), which recognises the link existing between destruction of forests and degradation of soil. Cf. also Art. 2.2 which explicitly calls for the conservation and sustainable management of land resources to achieve the goals of the convention.

[112] See Art. 2 of the CCD.

[113] Cf. Art. 1 *lit.* a) i) of the CCD.

[114] Cf. Art. 4 *lit.* c) of the Annex for Latin America and the Caribbean and Art. 8.3 *lit.* b) and i) of the Annex for Africa.

[115] See the Preamble ("Bearing in mind the relationship between desertification and other environmental problems of global dimension ... Bearing also in mind the contribution that combating desertification can make to achieving the objectives of the UN Framework Convention on Climate Change, the Biodiversity Convention and other related environmental conventions").

[116] Cf. Art. 8.1 of the CCD (which also calls on Parties to encourage the conduct of joint programmes, particularly in the field of research and information collection and exchange, to the extent that such activities may contribute to achieving of the objectives of the agreements concerned).

As regards the 1992 FCCC, it postulates specific obligations for States in the field of forest protection and management by requiring Parties to promote sustainable forest management and to co-operate in the conservation and enhancement of sinks and reservoirs of all GHG, in consideration of the role played by forest ecosystems in climate change mitigation as terrestrial sinks[117].

The Forest Principles represent the most comprehensive instrument at the international level with relevance to forests as they relate to the management, conservation and sustainable development of all types of forests. Although legally non-binding, the Forest Principles are considered to be a document with legal significance, in codifying and applying existing principles of international law to the context of forests[118]. Furthermore, they are perceived by some States as expressing *opinio juris*[119]. The Forest Principles focus on action at the national level, and promote the conservation of forest ecosystems as well as the sustainable management of their resources. From this perspective they specifically call on States to sustainably manage their forests and to adopt a preventive approach to their protection, to conserve and protect forest ecosystems, particularly the ecologically viable representative or unique examples of forests including old-growth forests[120]. The Forest Principles also provide that environmental impact assessments should be carried out where actions are likely to have significant adverse impact on important forest resources[121], and include some "guidelines" to the adoption of measures aimed at maintaining and increasing forest cover, particularly to the establishment of plantations[122].

As regards the other legally non-binding UNCED instruments with relevance to forests, that is, Agenda 21 and the 1997 IPF "Proposals for action", the former in its Chapter XI entitled "Combating deforestation" contains a series of recommendations directed to States. They provide for guidelines to national forestry policies in four specific fields of action (sustaining the multiple roles and functions of forests, enhancing forest conservation, protection and sustainable management, promoting efficient utilisation and assessment to recover the full valuation of forest goods and services, and strengthening capacities for the planning of forests and related programmes). The IPF "Proposals for action" include more than hundred recommendations on a number of issues related to forest sustainable management, such as, *inter alia*, national forest programmes, forest assessment and traditional forest knowledge. The IPF recommendations are directed to countries, international organisations and major groups including the private sector, and have been endorsed by several international and intergovern-

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[117] See Art. 4.1 *lit.* d) FCCC.

[118] See Tarasofsky (note 6), at 680; H.M. Schally, Forests: Toward an International Legal Regime, YIEL 4 (1993), 30 et seq., at 46.

[119] They were for example relied upon at several points during the renegotiation of the International Tropical Timber Agreement (ITTA) in 1994.

[120] Cf., respectively, Principle 2 *lit.* b), Principles 7 *lit.* b) and Principle 8 *lit.* f).

[121] Cf. Principle 8 *lit.* h).

[122] Cf. Principle 8 *lit.* a) and b).

mental fora[123]. Both the Agenda 21 and the IPF "Proposals for action" recommend a "cautious" use of plantations by States as a method to increase the forest cover or forest productivity[124].

It is clear that from the wording of the sink-related provisions of the Kyoto Protocol significant questions of compatibility may potentially arise either with specific provisions or with "the goals and the spirit" of the above indicated UNCED instruments.

In particular, the incentive which the Kyoto Protocol creates for the establishment of large fast-growing monoculture plantations mainly composed of non-indigenous species with a view to creating new carbon sinks seems indeed hardly consistent with:

a) the above-mentioned obligations under the CBD to maintain and create biodiversity and promote its sustainable use, to promote the protection of ecosystems, to prevent the introduction of non-indigenous species and to monitor processes and activities likely to have significant impact on biodiversity, in consideration of the demonstrated considerable adverse impact of these plantations on biodiversity[125];

b) the obligation under the CCD to prevent soil impoverishment and to protect soil from erosion, given the reduced capacity of monoculture plantations to prevent land degradation[126];

c) the "spirit" of sustainable development – as expressed in the UNCED conventions and in the Rio Declaration[127], and particularly with the goal of "sustainable forest management" as affirmed by the Forest Principles, the CBD, the CCD and the Agenda 21, because of the "unsustainable use" of forests[128] that these plantations give rise to in the long term as a result of their reduced capacity in per-

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123 Such as the fifth session of the CSD, the 19th session of the UN General Assembly, the fourth session of the COP to the CBD, the G8 Action Programme on Forests, the 11th World Forestry Congress, the FAO Committee on Forestry.

124 Cf., respectively, para. 12 in Chapter XI of Agenda 21 and para. 28 *lit.* b) of the IPF "Proposals for action".

125 Cf. above, para. 3. The adverse impact on the preservation and sustainable use of biodiversity of the climate mitigation strategies based on the adoption of forestry measures aimed at replacing primary forests with fast growth monoculture plantations is explicitly pointed out in the Global Biodiversity Strategy, which also affirms the need for a coordination between the international instruments on climate change and biodiversity with a view to preventing specific measures adopted under the climate regime from contravening the spirit and the goals of the Biodiversity Convention. Cf. Global Biodiversity Strategy: Guidelines for Action to Save, Study, and Use Earth's Biotic Health Sustainably and Equitably, WRI/UNEP/IUCN, 1992.

126 Cf. the studies mentioned above in para. 3.

127 Compare, for instance, Art. 10 and 11 CBD, Art. 3, 4 FCCC, Principle 4 of the Rio Declaration.

128 Cf. the definition of sustainable development in the context of forestry provided in: World Bank, OP 4.36 Annex A, Forestry, September 1993 ("controlled utilisation of forest resources to produce wood and non-wood benefits in perpetuity", emphasis added). Cf. also Art. 1 of Protocol 10 to the IV ACP-EC Lomé Convention, as revised by the agreement signed in Mauritius on November 4, 1995 (text in The Courier ACP-EU 155, 1996) which recognises the necessity of the rational and integrated management of forest resources so as to ensure sustainable development in the long term.

forming environmental functions other than carbon sinks and in providing wood and non-wood products; and also with

d) the obligation under the CCD to coordinate the initiatives carried out under the relevant environmental treaties on issues of global dimension with a view to maximising the global benefit arising from these initiatives, as the establishment of monoculture plantations may run counter to (rather than contribute to) the achievement of the goals of other environmental accords, thereby "minimising", instead of maximising, the benefit of forest-related measures in terms of global environmental policy.

Similar remarks may be made as to the compatibility with the provisions and the goals of the forest-related UNCED instruments of the other practices that the Kyoto Protocol, as indicated above, might indirectly promote; that is, practices of massive deforestation in developing countries with a view to undertaking forestry projects under the CDM, and practices of natural forest harvesting by Annex I Parties in the perspective of an immediate change in the land-use and the adoption of replanting schemes right before the beginning of the first commitment period.

The potential future relevance of the compatibility issues examined above is demonstrated by the fact that these issues are under careful examination at the moment in different international fora, such as the CBD, the CCD, the IFF and the IPCC[129].

At the recent fourth meeting of the COP to the CBD the "potential impact of afforestation, reforestation, deforestation and forest degradation on forest biological diversity" has indeed been noted[130] and a specific request for co-operation at the institutional level between the Convention on Biological Diversity and the Climate Change Convention with its Kyoto Protocol has been formulated[131]. Moreover, a similar request for co-operation at the institutional level between the CCD, the FCCC and the CBD has recently been reiterated by the COP to the CCD at its second session[132].

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[129] On request of the SBSTA of the FCCC the IPCC is examining in particular the scientific and technical implications of the carbon sequestration strategies related to LUCF activities for soils and biological diversity.

[130] See UN Doc. UNEP/CBD/COP/4/27 Annex, June 18, 1998, Decision IV/7, at para. 9. See also the "Draft Conclusions by the Chairman" on LUCF adopted at the eighth meeting of the subsidiary organs of the FCCC, which request the IPCC to examine "the scientific and technical implications of carbon sequestration strategies related to ... land-use change and forestry activities for water, soils and biodiversity" (UN Doc. FCCC/SBSTA/1998/CRP.3, June 11, 1998, at para. 6).

[131] The Executive Secretary of the CBD has been requested to "strengthen the relationship with, in particular, the UN Convention on Climate Change and its Kyoto Protocol" (see UN Doc. UNEP/CBD/COP/4/27 Annex, Decision IV/15, at para. 13). See also Decision IV/7 at para. 9, under which the COP, in consideration of the potential impact of afforestation, reforestation, deforestation and forest degradation on forest biological diversity, requests the Executive Secretary "to liaise and co-operate with the Secretariat of the UNFCCC and the Secretariat of the UNCCD ... to achieve the objectives of the Convention on Biological Diversity".

[132] Held in Dakar from 30 November to 11 December 1998. See UN Doc. ICCD/COP(2)/L. 34. Such a request had been formulated at the first session of the COP to the CCD in 1997 (see UN Doc. ICCD/COP[1]/11 December 22, 1997, Decision 13/COP.1, which requests the head of the interim secretariat "to make all efforts to strengthen collaboration with ... in particular the UNFCCC and the CBD").

Among the issues raised by the sink-related provisions of the Kyoto Protocol in terms of global environmental policy those arising from the wording of some provisions because of the lack of definition for certain terms or the possible multiple meaning of some expressions may clearly be capable of being solved more easily than those arising from some implementation measures that the Kyoto Protocol may promote in the forestry sector. Indeed, the negative incentives potentially arising from the wording of Art. 3.3 and of Art. 12 might be eliminated (or at least their scope reduced) during the ongoing work by the subsidiary organs of the FCCC on the definitions in the former provision and on the issue of the inclusion of forestry projects in the CDM.

A more complex issue, on the other hand, is the case of the negative incentives related to the implementation measures in the forestry sector that the wording of Articles 3 and 2 of the Kyoto Protocol may promote. In this respect, the possibility of modification through formal amendment of these provisions is neither a likely nor a viable solution to the compatibility issues raised by the Kyoto Protocol. Taking into account the difficulties experienced in Kyoto by Parties in adopting them and the complex political compromise on which their final drafting was based, it is clear that any modification would be certainly opposed by some Parties and probably by those whose "consensus" is necessary for the entry into force of the Protocol.

Part III: Possible Ways and Means to Solve the Potential Compatibility Issues Between Forest-related Instruments Raised by the Kyoto Protocol

All the treaties involved in the potential compatibility issues arising from the sink-related provisions of the Kyoto Protocol are so-called "global accords"; that is, multilateral agreements dealing with matters of general interest[133] as they relate to environmental problems considered of common concern for all States[134]. These treaties are also quasi-universal in their sphere of applicability being largely ratified at the international level[135], and include interdependent obligations[136].

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[133] The concept of "multilateral treaties" was formulated by the International Law Commission as including those agreements that "either purport to lay down general norms of international law or deal with ... matters of general concern" (see A/CN.4, at 13). In literature see A.D. McNair, The Law of Treaties, 1961, at 221 (who distinguishes between "multipartite law-making treaties" and bilateral treaties); cf. also G. Morelli, Nozioni di diritto internazionale, 7th ed., 1967, at 33–34, and Oppenheim's International Law (ed. by R. Jennings/A. Watts), vol. I: Peace, 9th ed., 1992, at 1203–1205.

[134] These treaties establish general principles and a uniform discipline aimed at regulating the environmental problems they refer to (global régimes).

[135] This involves that there is a substantial identity of Parties among these agreements and that it is very unlikely that a State would become a Party to the Kyoto Protocol without already being a Party to the other global treaties related to forests.

[136] As mentioned above, the obligations included into the agreements on environmental problems of global relevance are considered as "interdependent" as their simultaneous implementation by all Parties is a condition for the effective achievement of the goals of the régime, which might be jeopardised in case of non-compliance even by a single Party.

Furthermore, as a result of the ecological interdependence existing between the environmental problems they refer to these treaties are interrelated the one to the other, so that several of the measures suggested for achieving the objective of one convention may also contribute to the fulfilment of – or, as the Kyoto Protocol demonstrates, may have an adverse impact on, the goals of other conventional régimes.

These characters of the treaties involved in the potential norm conflicts raised by the Kyoto Protocol are significant with a view to analysing the possible solutions to these conflicts[137].

1. Compatibility issues in the light of Art. 30 of the VCLT[138]

As preliminary step, an analysis of the Kyoto Protocol in the light of Art. 30 of the VCLT seems opportune[139].

Art. 2 of the Kyoto Protocol includes, as already mentioned, a significant provision with respect to the relationship between the Protocol and other forest-related instruments. By calling on Parties to adopt domestic policies aimed at limiting and reducing GHG emissions in all sectors of their economy, it refers to the protection and enhancement of sinks and reservoirs of GHG and specifies that these latter measures have to be adopted by Parties "taking into account ... commitments under relevant international environmental agreements"[140].

This provision seems *prima facie* to subordinate the adoption by Parties of measures aimed at mitigating climate change by protecting and enhancing terrestrial sinks to the condition that these measures are compatible with the commitments arising from pre-existing international environmental treaties on the matter. It might be therefore considered as a conflict clause under Art. 30.2 of the VCLT,

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[137] On the rules applicable to conflicts between treaties in international law see generally P. Reuter, Introduction au droit de traités, 1985, 110–133; McNair (note 133), 219–222; C. Rousseau, De la compatibilité des normes juridiques contradictoires dans l'ordre international, Revue générale de droit international public 39 (1932), 133–192; M. Zuleeg, Vertragskonkurrenz im Völkerrecht, Teil I: Verträge zwischen souveränen Staaten, German Yearbook of International Law 20 (1977), 246–276; E.W. Vierdag, The Time of the Conclusion of a Multilateral Treaty: Article 30 of the Vienna Convention on the Law of Treaties and Related Provisions, British Year Book of International Law 59 (1988), 92–111; E. Sciso, Gli accordi internazionali confliggenti, 1986, at 17 et seq.; G. Strozzi, Il diritto dei trattati, 1999, at 70 et seq.

[138] 1969 Vienna Convention on the law of the treaties, entered into force on January 27, 1980.

[139] Art. 30 of the VCLT ("Application of successive treaties relating to the same subject-matter") provides that: "... 2. When a treaty specifies that it is subject to, or that it is not to be considered as incompatible with, an earlier or later treaty, the provisions of that other treaty prevail.

3. When all the parties to the earlier treaty are parties also to the later treaty but the earlier treaty is not terminated or suspended in operation under article 59, the earlier treaty applies only to the extent that its provisions are compatible with those of the later treaty.

4. When parties to the later treaty do not include all the parties to the earlier one: a) as between States parties to both treaties the same rule applies as in paragraph 3; b) as between a State party to both treaties and a State party to only one of the treaties, the treaty to which both States are parties governs their mutual rights and obligations ...".

[140] Cf. Art. 2.1 *lit.* a) ii).

particularly as a compatibility clause between the Kyoto Protocol and these agreements[141].

However, this provision is quite generic and unspecific in its reference to the commitments arising from other environmental treaties relating to sink protection and enhancement. These agreements are indeed not specifically mentioned; they are rather referred to as a broad category ("commitments under relevant international environmental agreements"). Moreover, no clear criterion is provided in the provision to establish which obligations should prevail in case of conflict, as Parties are only required "to take into account", that is to consider, the pre-existing obligations they have undertaken.

For these reasons, it seems that the provision contained in Art. 2.1 of the Kyoto Protocol cannot be considered as a traditional compatibility clause according to Art. 30.2 of the VCLT, as it is inadequate (too generic and unspecific) to automatically operate in preventing and solving *a priori* "conflicts" with other forest-related agreements.

Moreover, neither the *lex posterior* principle[142] nor other principles of international law regulating the relationship between conventional obligations (such as the hierarchical principle and the *lex specialis* principle[143]) do seem useful in providing a solution to the compatibility issues potentially arising from the sink-related provisions of the Kyoto Protocol. These principles are in fact inadequate to solve "conflicts" between the goals of multilateral treaties on interrelated issues of common interest for the Community of States as a whole, such as those raised by the Kyoto Protocol[144].

In particular as to the *lex posterior* principle, its applicability appears to be excluded first of all by the provision included in Art. 2.1 *lit.* a) of the Kyoto Protocol. Although unspecific and generic in its reference to pre-existing obligations of the Parties, this provision expresses an evident will of the Parties to recognise the relevance of the commitments arising from other international environmental agreements[145]. Moreover, even if no specific provision on the relevance of Parties' pre-existing commitments was included in the Kyoto Protocol, the *lex posterior* principle seems in any case not to be an adequate instrument to solve complex

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[141] On the function of the conflict clauses see Rousseau (note 137), at 154–164; Zuleeg (note 137), at 251–255, 259.

[142] The *lex posterior* principle is incorporated in Art. 30.3 and 4 of the VCLT and operates in case treaties do not include a compatibility clause or when such a clause is not clear enough to operate automatically.

[143] These principles are not incorporated in Art. 30 of the VCLT; however, they are often referred to in literature to justify the supremacy of certain categories of treaties.

[144] The compatibility issues between global environmental treaties cannot indeed be examined under the perspective of ascertaining which obligation should prevail, as this would involve in any case grotesque results in terms of lowering of the environmental standards established by these treaties and, therefore, in terms of damage to the global environment. In this respect, see below in para. 6.

[145] In other words the provision in Art. 2.1 *lit.* a) ii) seems clearly to exclude any intention of the Parties to the Kyoto Protocol to abrogate or suspend among them the commitments arising from pre-existing treaties relating to the protection and enhancement of sinks and reservoirs of GHG.

issues of compatibility between conventional régimes that do not cover the same subject-matter (biodiversity, desertification, climate change) and which are, however, interrelated one to the other because of the ecological interdependence existing between the environmental problems they refer to, and involve almost the same Parties (quasi-universality).

Furthermore, the hierarchical principle cannot apply to the compatibility issues raised by the Kyoto Protocol as there seems to be no way to establish a hierarchical order among the treaties involved in the conflict, neither according to their content nor according to their purpose. As to their content, all the treaties involved in the conflict are indeed "global accords"; they all deal with matters of general interest, such as biodiversity preservation, desertification prevention and climate change mitigation, and regulate in a general manner these collective interests. Moreover, as to their purpose, all these treaties establish a "specific régime" aimed at regulating an issue of global relevance.

Finally, the applicability of the *lex specialis* principle seems also to be excluded in consideration of the fact that it is unclear on which basis the supremacy of the Kyoto Protocol as *lex specialis* with respect to other pre-existing conventional obligations of the Parties might be justified[146].

As a result, given the inadequacy of an approach to the compatibility issues between global environmental treaties with relevance to forests based on the application of the mechanical provisions embodied in Art. 30 of the VCLT[147], and given the inadequacy also of the international law principles regulating the relationship between conventional obligations in providing for viable solutions to these issues, a solution to them has to be found by a different approach.

2. The "harmonising approach" and the solutions at the State level

From the perspective indicated above, the obligations arising for States from the general principles on the implementation of treaties are a useful point of departure.

From the general principle in international law according to which States should not enter into conflicting obligations and from the general obligation for States to

[146] Even in case of an absolute identity of Parties between the Kyoto Protocol and, for example, the Convention on Biological Diversity, the applicability of the *lex specialis* principle seems to be excluded by the difficulties in ascertaining a supremacy *ratione materiae* of the Kyoto Protocol with respect to the latter treaty – as they do refer to different subject-matters but they have significant interconnections on ecological grounds and therefore also significant areas of overlap in which their obligations seem to be interrelated in a complex manner. Furthermore, as regards the possibility of a supremacy *ratione personarum* of the Kyoto Protocol one may argue that as the agreements on environmental problems of global relevance are treaties including interdependent obligations – for which compliance by all Parties is essential in order to ensure the very effectiveness of the regime they establish, they cannot be derogated by a subsequent agreement concluded by some of the Parties as this would certainly jeopardise the achievement of their goals.

[147] Because of the lack in the Kyoto Protocol of a clear conflict clause and in consideration of the inapplicability of the *lex posterior* principle to the compatibility issues above examined.

interpret and perform every treaty in force in good faith with a view to fulfilling all their international commitments *(pacta sunt servanda)*[148], an obligation for the Parties to the Kyoto Protocol to fulfil the commitments arising from it without violating pre-existing obligations under other international agreements certainly arises[149].

This obligation clearly covers also Parties' commitments arising from pre-existing forest-related treaties, and involves therefore a specific duty for Parties to interpret the provisions of the Kyoto Protocol relating to sinks potentially conflicting with pre-existing commitments under other treaties in such a way as to make them compatible with these commitments.

Therefore, the general principles on treaties' implementation seem to require Parties to adopt a "harmonising approach" to the potential issues of compatibility between the Kyoto Protocol and other global environmental régimes.

The relevance of such an approach to the compatibility issues raised by the sink-related provisions of the Kyoto Protocol seems to be also confirmed by the text of the Kyoto Protocol.

In it a clear intent of the Parties to the Protocol to a harmonised interpretation of its provisions with pre-existing commitments in the field of forest protection appears to emerge from Art. 2.1 *lit.* a) ii)[150].

Indeed, in this provision the call on Parties to consider ("taking into account"), in implementing sink-related measures under the Kyoto Protocol, their pre-existing international commitments on the matter seems more to express the need for a harmonised interpretation by Parties of all their international commitments than, as mentioned above, to recognise an absolute priority of their pre-existing commitments. In this perspective Art. 2.1 of the Kyoto Protocol seems to include a "harmonising clause" which establishes a duty for Parties to the Kyoto Protocol to interpret the provisions relating to sinks in the light of ("taking into account") pre-existing obligations on the matter and in such a way as to harmonise them, and therefore to adopt measures in the forestry sector (afforestation/reforestation) which may complement the goals of other instruments providing for obligations in this respect.

A confirmation of the above indicated interpretation of Art. 2 and therefore of the need for a "harmonising approach" to the compatibility issues raised by the Kyoto Protocol seems to be provided for also by the provisions of the agreements with which the Kyoto Protocol raises issues of compatibility[151].

The treaties on environmental problems of global relevance usually include provisions which, by categorically excluding the Parties from making reservations

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148 Cf. Art. 26 of the 1969 VCLT.

149 Such an obligation will arise also for the Parties to the Kyoto Protocol once it is in force.

150 On the relevance of the empirical instrument of treaty interpretation with a view to ascertaining Parties' intent, as a method to solve treaty conflicts in case of lack or inadequacy of a conflict clause cf. C. Rousseau, Droit international public, Vol. I, 1970, at 163.

151 Cf. Art. 31.1 *lit.* c) of the 1969 VCLT, which includes in the supplementary criteria for the interpretation of a treaty the reference to the provisions of other agreements concluded by the same Parties.

to these conventions[152], indirectly demonstrate the importance attributed to the principles embodied in these agreements[153]. Such provisions seem to establish an implicit duty for Parties to refrain from undertaking subsequent conventional commitments overtly conflicting with their obligations, and seem therefore also to establish a positive duty on Parties to interpret all potentially conflicting obligations arising from subsequent commitments on the same or related matters in such a way as to make them compatible with pre-existing commitments. Such a duty clearly exists for the Parties to the Kyoto Protocol who are also Parties to other global environmental treaties with relevance to forests.

Finally, a "harmonising approach" to the compatibility issues raised by the Kyoto Protocol with other forest-related global instruments seems to be necessary in the light of the intrinsic character of the treaties involved in the conflict.

As mentioned above, the treaties on environmental problems of global relevance establish general principles, a uniform discipline and specific standards on environmental issues of common interest. For this reason, they are referred to as "common interest treaties"[154]. These treaties are also significantly interrelated one to the other because of the ecological interconnection existing between the environmental problems they relate to, and they include interdependent obligations which have to be simultaneously implemented by all Parties with a view to effectively fulfilling the goals of each agreement.

Therefore, in consideration of the common interest of the whole State community in an effective preservation of the global environment, Parties to global accords seem also to be under the "moral obligation" to harmonise the interpretation of the provisions of these treaties to prevent an uncoordinated interpretation and consequent "unilateralistic behaviours" from jeopardising the achievement of the environmental targets provided by these agreements. In other words, Parties to global environmental treaties seem to be under the obligation to interpret these instruments in the light of a sort of "common interest clause", complementing their provisions with the obligations arising from other interrelated global treaties in order to achieve the common goal of an integrated and effective environmental policy.

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[152] Cf. Art. 34 CBD, Art. 24 FCCC, Art. 37 CCD. Similar provisions are included in Art. 18 of the 1985 Vienna Convention on the Protection of the Ozone Layer and in Art. 18 of the 1987 Montreal Protocol. Cf. also Art. 22.1 CBD.

[153] On the relevance of these sort of provisions also in human rights treaties, and on their role as an element which permits to recognise the priority of a treaty on other international obligations cf. L. Lijnzaad, Reservation to UN-Human Rights Treaties, 1995, at 82 et seq.

[154] These treaties also include some operative norms reflecting an emerging institution-building at the level of rule-making and compliance-control that, although far from being an indication of a complete decrease of the traditional thinking of States based on sovereignty (as there is no delegation of substantial power to these treaty-related institutions), may be interpreted as another significant element pointing to the common interest character of a treaty. See on this point U. Beyerlin, State Community Interest and Institution-Building in International Environmental Law, ZaöRV 56 (1996), 602, at 608.

In the final analysis, from the international law principles relating to treaties' implementation, from the intention of the Parties (as it emerges from the text of the Kyoto Protocol as well as from the provisions of pre-existing treaties between the same Parties) and in the light of the intrinsic character of the treaties involved in the compatibility issues, an obligation for the Parties to the Kyoto Protocol to solve the potential conflicts with other forest-related global treaties by the way of an approach aimed at harmonising its provisions with pre-existing commitments on the matter seems to emerge. This obligation involves a duty for Parties to interpret all provisions potentially conflicting with the commitments under other forest-related global treaties in such a way as to make them compatible.

The "harmonising approach" to the compatibility issues between the goals of global environmental treaties related to forests has concrete implications both for State Parties to the multilateral environmental régimes and for the treaty-specific institutions established by these régimes. For, as to the means by which the above identified compatibility issues may be solved, a distinction may be drawn between solutions to be adopted at the State and institution levels.

As far as Parties are concerned, the "harmonising approach" implies that solutions to the compatibility issues between global environmental treaties with relevance to forests have to be found by them first at the interpretative level. In this respect some remarks have to be made.

According to Art. 2.1 of the Kyoto Protocol Parties have to adopt forestry measures "taking into account ... commitments under relevant international environmental agreements ..."[155].

The wording of this provision *prima facie* only seems to include international treaties in the group of instruments in the light of which Parties have to interpret the commitments under the Kyoto Protocol, thereby excluding legally non-binding instruments with relevance to forests such as the Forest Principles.

However, taking into account that, as mentioned above, the Forest Principles are considered as a document of some legal significance and that in any case from legally non-binding instruments a *bona fide* obligation emerges (at least for the States having expressed an explicit consensus to their adoption) not to behave in overt contrast to their provisions and not to interpret other provisions in a way that a possible conflict with them arises[156], it seems that also the Forest Principles may be considered as a useful interpretative instrument in the perspective indicated in Art. 2.1 of the Kyoto Protocol.

As a result, Parties to the Kyoto Protocol seem to be under the obligation to interpret its sink-related provisions not only in the light of pre-existing "agreements" but also of other instruments of legal significance on the matter, if they contributed to the adoption of the latter.

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[155] Emphasis added.

[156] Cf. *lato sensu* Art. 18 of the 1969 VCLT.

Under this obligation, Parties should in general interpret the sink-related provisions of the Kyoto Protocol in the light of those international law principles which are a "common denominator" to the UNCED documents (precautionary principle, principle of prevention, principle of sustainable use and sustainable management), and in their interpretation they should also make use of the guidelines provided for by instruments such as Chapter XI of the Agenda 21 and the IPF recommendations to specify the sometimes generic content of the above-mentioned principles, as for instance in the case of the emerging principle of "sustainable forest management". In other words, the general principles embodied in the Rio documents should be used by Parties to the Kyoto Protocol as "common principles of interpretation" to achieve the goal of a harmonised interpretation of its provisions on sinks with those of other forest-related UNCED instruments, thereby preventing conflicts with them.

Parties to the Kyoto Protocol should also interpret in particular the provisions of the Protocol from which significant compatibility issues with other forest-related agreements may arise – such as Art. 3.3, Art. 3.1, Art. 12 and Art. 2, in the light above all of some provisions of the CBD and the Forest Principles, as these instruments may be considered respectively as a "framework convention" in the field of the conservation and sustainable management of forest resources[157] and the most comprehensive international document in the field of forest management, conservation and sustainable development.

In this perspective, for instance, "afforestation" and "reforestation" measures under Art. 2 of the Kyoto Protocol should be undertaken by Parties in the light of: a) the duties under the CBD to prevent the introduction of those species which may threaten forest ecosystems (non-indigenous species) and to protect ecosystems and natural habitats[158], b) the precautionary and preventive approach adopted by both the CBD and the Forest Principles[159], c) the emerging duty to sustainable forest management under which forest resources and forest lands should be managed in such a way as to maintain their full value in the long run[160], d) the "guidelines" to the establishment of plantations provided by the Forest Principles[161], and also e) the duty under the CCD to coordinate the initiatives

[157] Cf. Tarasofsky (note 6), at 673.

[158] See respectively Art. 8 *lit.* h) and Art. 8 *lit.* d) of the CBD.

[159] Cf. Art. 7 *lit.* c), Art. 8 *lit.* l) and the Preamble of the CBD. See also Principle 8 *lit.* h) of the 1992 Forest Principles.

[160] Cf. Principle 2 *lit.* b) of the 1992 Forest Principles (which stipulates that forest resources and lands should be managed "to meet the social, economic, ecological, cultural and spiritual human needs of present and future generations").

[161] Cf. Principle 8 *lit.* a), which calls for "positive and transparent action towards reforestation and afforestation ..." (emphasis added); Principle 8 *lit.* b), which states that efforts to maintain and increase forest cover should be undertaken "in ecologically, economically and socially sound ways" (emphasis added). Cf. also Principle 6 *lit.* a) and d), specifying the circumstances under which the role of planted forests should be promoted; para. 12 in Chapter XI of the Agenda 21 (which suggests the greening of the world of "suitable areas") and para. 28 b) of the 1997 IPF Proposals for action (which affirms that plantations should be "complementary to natural forests", emphasis added).

adopted under each conventional régime relating to global environmental problems to maximise the global benefit potentially arising from them[162].

The same interpretative approach should be adopted by Parties also to deal with all other unsolved questions of interpretation that the sink-related provisions of the Kyoto Protocol raise, such as those concerning the scope of the CDM, the type of forestry practices that may be undertaken under this mechanism, and the practices to be accounted as "afforestation", "reforestation" and "deforestation" under Art. 3.3, in case these issues are not going to be solved before the entry into force of the Protocol.

Moreover, under the "harmonising approach" solutions to the compatibility issues between global environmental treaties with relevance to forests must also be adopted by Parties at an operative level.

In this respect, a coordination of the measures undertaken at the national level with a view to implementing the obligations arising from the different but interrelated conventional régimes relating to forests is required to Parties. Such a coordination is necessary to promote effective measures dealing with "multi-sectorial" problems such as deforestation, climate change, species extinction and desertification, as explicitly recognised by the above-mentioned Art. 8 of the CCD.

This coordination is particularly important in the case of the measures relating to the forestry sector adopted under each conventional régime (CBD, CCD, FCCC), in order to maximise the benefit that each measure may produce in terms of global environmental policy by minimising the negative impact that it may have on the goals of other régimes.

3. Inter-institutional co-operation

As regards the treaty-specific institutions operating within each conventional régime, the "harmonising approach" to the compatibility issues between forest-related instruments requires an increased co-operation between the Conventions through their respective Secretariats with a view to coordinating their action and complementing it at different levels.

As the Kyoto Protocol demonstrates, the emerging significant overlaps between these treaties and the consequent potential conflicts between their goals involve an urgent need also for enhanced inter-institutional collaboration to prevent such conflicts from in fact arising.

The need for an increased collaboration among the Secretariats of the decision-making bodies concerned with various aspects of sustainable development, and particularly for collaborative work among the COP of the Conventions adopted at the Rio Conference on Environment and Development or as a result of the UNCED process was affirmed by the Commission on Sustainable Development (CSD) at its fifth session, with a view to expediting the implementation of these instruments and to ensuring an integrative approach in international efforts to

[162] Cf. Art. 8.1 CCD.

combat global environmental problems[163]. Furthermore, the nineteenth Special Session of the UN General Assembly explicitly recommended that the COP of the UNCED Conventions co-operate in exploring ways of collaborating in their work in order to advance the effective implementation of these conventions[164].

Particularly in areas of "common" relevance such as forestry, this co-operation among conventional régimes is significant, in order to avoid duplication of efforts, to prevent uncoordinated implementation measures with possible negative impacts at the global level (such as forestry projects exclusively climate- or biodiversity-oriented)[165] and also, eventually, to promote "common criteria" for the evaluation of the measures adopted.

The Kyoto Protocol shows that the need for institutional cross-linkages and enhanced collaboration between global treaties is urgent in the case of the biodiversity and climate régimes, as increasing interconnections and potential conflicts between their goals are likely to arise once the mechanisms for co-operative implementation with possible relevance to forests (Joint Implementation and Clean Development Mechanism) start operating within the climate régime.

In this perspective the recent practice shows some, although very preliminary, indications of the future establishment of inter-institutional co-operation between the forest-related conventional régimes (CBD, FCCC, CCD)[166]. These efforts are certainly important. It is clear, however, that the actual adoption of a "co-opera-

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[163] CDS-5, held in New York (8–25 April 1997). Cf. the recommendations for the proposed outcome of the UN General Assembly Special Session (UNGASS) adopted by the CSD (UN Doc. A/S – 19/14 E/1997/60 May 27, 1997, at para. 109 et seq.).

[164] As a result, the establishment of institutional co-operation, better coordination among implementation activities, enhancement of information capacities and exchanges, and the definition of a "partnership" among the Convention Secretariats to be supported by other relevant international organisations (such as UNEP, UNDP, GEF, World Bank and IUCN) were proposed as possible forms of this collaborative work. Cf. "Programme for the further implementation of Agenda 21", UN Doc. A/RES/S – 19/2, 19 September, 1997 (adopted at the 11th Plenary Meeting of the General Assembly, New York, 23–28 June 1997), at para. 117 et seq.

[165] Criticisms have been made for instance of the Joint Implementation Forestry Projects (JIFP) undertaken under the Pilot Phase of the Activities Implemented Jointly (AIJ) of the FCCC, for having been sometimes (those adopted in Latin American countries for example) exclusively biodiversity-oriented, with almost no transfer of climate-friendly technologies to the developing country hosting the project. Cf. P. Cullet/A.P. Kameri-Mbote, Joint Implementation and Forestry Projects: Conceptual and Operational Fallacies, International Affairs 74 (1998), 393 et seq., at 401 et seq.

[166] At the fourth session of the COP to the CBD by Decision IV/2 Parties instructed the CBD Secretariat to improve synergy in regards to information exchange with other biodiversity-related conventions, to contribute to the harmonisation of the information management of other treaties and to continue to discuss the possibilities of joint and harmonised approaches with the UNFCCC and the UNCCD (cf. UN Doc. UNEP/CBD/COP/4/27 Annex, June 15, 1998, at para. 10g). Moreover, in its Decision IV/7 the COP underscored that collaboration should be strengthened with the UNCCD and the UNFCCC in order to advance the effective implementation of the CBD (cf. ibidem, at Annex, para. 9). Finally, by Decision IV/15 Parties reaffirmed the importance of mutually supportive activities under the CBD and activities under the other conventions relevant to the achievement of the objectives of the CBD (Preamble), welcomed the progress made in the "development of co-operative arrangements with relevant conventions" (Preamble, emphasis added) and requested – as mentioned above – the Executive Secretary to strengthen the relationship with in particular the UNFCCC and its Kyoto Protocol and the UNCCD with a view to making its imple-

tive strategy" between the different conventions requires further initiatives and presupposes that egoism and sectorial approaches are overcome to promote an integrated management of inter-sectorial environmental issues.

Finally, in the short term, an approach aimed at complementing the different forest-related global instruments should also guide the elaboration of possible "correctives" to the sink-related provisions of the Kyoto Protocol during the ongoing process of specification of its provisions through the adoption of subsidiary rules, definitions and guidelines.

In this regard several proposals have already been made[167] and some are discussed at the level of subsidiary organs to the FCCC.

In particular, with a view to complementing the goals of the different forest-related instruments the following measures seem suitable as possible "correctives" to the Kyoto Protocol: a) elaboration of more comprehensive and clear definitions for the words afforestation, reforestation and deforestation in Art. 3.3, in order to eliminate the negative incentives in the perspective of a global environmental policy potentially arising from the definitions available at the moment[168], b) introduction of the consideration of the goal of biodiversity preservation into the forestry projects adopted under the Clean Development Mechanism through, for example, the application of the procedure of environmental impact assessment established under the Biodiversity Convention[169], c) introduction, through the procedure of Art. 3.4, of those forest-related activities having significant impact on the climate in terms of GHG emissions into the atmosphere (forest burning, conversion of natural forests into secondary forests, primary forest harvesting[170]) in the group of the additional measures that Parties may use to meet their emission targets. The inclusion of these activities, by acting as a considerable disincentive for Parties to their adoption, would also indirectly promote the preservation of primary forests, thereby contributing to a better coordination of the Kyoto Protocol with the goals of other global régimes (CBD, CCD, Forest Principles).

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mentation activities and institutional arrangements mutually supportive (cf. ibid., at para. 13). Furthermore, at the first session of the COP to the CCD by Decision 13/COP.1 Parties requested the head of the interim secretariat "to make all efforts to strengthen further the collaboration with other relevant conventions, in particular the CBD, the UNFCCC..." (cf. UN Doc. ICCD/COP(1)/11 December 22, 1997). At its second session the COP to the CCD has recently requested the Secretariat to continue the dialogue with other relevant convention secretariats as well as international organisations, with a view to seeking synergy and to continue the collaboration initiated with these convention secretariats and with international organisations such as UNDP, UNEP, IUCN and GEF (cf. UN Doc. ICCD/COP(2)/L. 34). In this regard the CCD Secretariat has already concluded a Memorandum of collaboration with the CBD Secretariat and discussions have also been initiated with the FCCC Secretariat (cf. UN Doc. ICCD/COP(2)/7, November 17, 1998, at 7). Finally, the CBD, FCCC and CCD Secretariats have also started a process to develop a joint program to explore synergy in information management, as first step towards increasing the exchange and sharing of information among them (ibid., at 25).

167 Cf. WBGU Special Report (note 34), at 40 et seq.

168 Compare above, para. 3.

169 Cf. Art. 7 *lit.* c) and Art. 14.1 *lit.* a) CBD.

170 Compare above, para. 3.

IV. Conclusions

It emerges from the analysis above that an approach aimed at harmonising the interpretation of the provisions of the Kyoto Protocol on sinks with those of other UNCED instruments concerning forests is necessary in order to prevent conflicts between global environmental régimes from arising.

From this perspective, the "harmonising approach" may significantly contribute first to improving the effectiveness of a global environmental policy at the international level.

A coordination of the initiatives adopted at State and institution levels under the different conventional régimes is, indeed, essential in order to come to terms with the ecological interdependence between global environmental problems such as climate change, biodiversity loss and desertification, which renders the "sectorial" approach to these problems adopted by the single conventional régime inadequate to effectively deal with the interconnections and potential conflicts among their goals.

Moreover, the adoption of a "harmonising approach" may significantly contribute to promoting a "holistic" (globally comprehensive) forest policy at the international level as drawn up by the 1992 Forest Principles.

The coordination of the existing "congestion of treaties"[171] and processes concerning forests through a harmonised interpretation by Parties of their provisions, a coordination of the forest-related initiatives adopted by them under existing instruments and an enhanced collaboration at the institutional level between global treaties, is of utmost importance at the moment to fulfil such a global forest policy, as the adoption of a global forest convention on the protection and sustainable development of all types of forests seems to be a goal hardly achievable in the short term.

[171] The expression is used by Brown Weiss (note 1), at 697, to refer in general to the present situation of proliferation of international environmental treaties.