

The Convention on Biological Diversity and the Climate Change Convention 10 Years After Rio: Towards a Synergy of the Two Regimes?

Frédéric Jacquemont and Alejandro Caparrós

INTRODUCTION

At the 1992 Earth Summit in Rio de Janeiro two key agreements were adopted: the United Nations Framework Convention on Climate Change (UNFCCC) for the stabilization of greenhouse gas concentrations in the atmosphere and the Convention on Biological Diversity (CBD) for the preservation of biodiversity on Earth. Ten years after these treaties were concluded, the possible entry into force of the Kyoto Protocol (the Protocol) to the UNFCCC may threaten biodiversity conservation by enhancing sinks activities. In this article, implications of the interrelationship between carbon offsets and biodiversity are analysed. The regime on sinks activities in relation to forestry under the Protocol and its Marrakesh Accords (adopted in November 2001) is presented, and the expected impacts on biodiversity from the use of sinks through forestry activities proposed under the Protocol's regime are analysed. In this article, the relationships between the Protocol and the CBD are investigated to assess possible conflicts and to suggest legal solutions for reconciling the two regimes.

In preparation for the World Summit on Sustainable Development, it is important to consider the relationships and synergies between the Protocol and the CBD. One of the aims of these instruments is to respond to global environmental threats by coordinating international action.¹ However, these agreements often have a shortsighted approach since each instrument deals with a specific environmental issue, neglecting the ecological interdependence of some environmental problems.² The ultimate objective of

the UNFCCC is to achieve the 'stabilization of greenhouse gas concentrations in the atmosphere . . . within a timeframe sufficient to allow ecosystems to adapt naturally to climate change'.³ The first goal of the CBD is the conservation of the Earth's variety of plants, animals, microorganisms and ecosystems.⁴ Both Conventions are thus concerned either directly or indirectly with the conservation of ecosystems.⁵ Several interrelationships arise due to the fact that climate change can be seen as one of the major threats to biodiversity, and that some of the actions proposed to mitigate climate change potentially imply dangers for biodiversity.

The relationships between the two Conventions require a high level of cooperation between them on inter-related issues such as forests. Forests contribute to climate change mitigation as terrestrial sinks and assist conservation efforts by acting as pools of biological diversity.⁶ Indeed, carbon is cycled between the atmosphere, oceans and terrestrial biosphere. Significant reservoirs of carbon are found in oceans, vegetation and soil.⁷ Terrestrial ecosystems, such as forests, capture significant amounts of carbon from the atmosphere through photosynthesis and retain part of this carbon in soil or vegetation. Although plants respire and organic material such as wood burns and decomposes

³ UNFCCC, Article 2.

⁴ CBD, Article 1.

⁵ UNFCCC, Article 4(1)(d): parties shall 'promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems'.

⁶ Oceans are also significant carbon and biodiversity reservoirs. However, no activities for enhancing oceans as carbon stock are foreseen yet by the UNFCCC or the Protocol.

⁷ Carbon is stored both above and below ground. Below-ground stocks are greater than above-ground stocks, particularly in non-wet areas such as grasslands, savannahs, tundra and croplands; CBD Secretariat, *Overview of the Interlinkages between Biological Diversity and Climate Change – the Climate Change Phenomenon* (CBD Secretariat, 2001), available at <<http://www.biodiv.org/programmes/cross-cutting/climate/interlinkages.asp>>.

¹ Convention on Biological Diversity (Rio de Janeiro, 5 June 1992), Preamble, para. 14; United Nations Framework Convention on Climate Change (New York, 9 May 1992), Preamble, para. 6.

² C.M. Pontecorvo, 'Interdependence between Global Environmental Regimes: The Kyoto Protocol on Climate Change and Forest Protection', 59 *Zeitschrift für ausländisches Öffentliches Recht und Völkerrecht* (1999), 705, at 748.

to release carbon dioxide into the atmosphere, overall, terrestrial ecosystems are understood as net sinks. Thus, reducing deforestation, enhancing afforestation and reforestation, and improving forest management activities may increase the capacities of terrestrial sinks to absorb carbon.

Cooperative efforts between the UNFCCC and the CBD have only recently begun.⁸ In terms of forestry, the UNFCCC and the Protocol promote the use of forests as sinks, and thus are aimed at protecting forests.⁹ These efforts appear to complement the CBD. However, the primary goal of the Protocol is to reduce greenhouse gas (GHG) emissions to 5% below 1990 levels. By taking the view of solely promoting forests as natural sinks, the Protocol may neglect the potential impact of its policies on other related forest instruments. Converting an old natural forest into a single species forest, or using unsustainable forest management practices, have potential negative effects on biological diversity.¹⁰ Thus, problems of compatibility with the goals of other international agreements related to forests,¹¹ such as the CBD, may arise from the implementation of the Protocol. Therefore, studying the provisions and incentives in the Kyoto Protocol relating to terrestrial sinks and their possible impacts on biodiversity is of importance.

This article commences with a presentation of the main rules on sinks and biodiversity concerns in the Marrakesh Accords and a brief economic analysis of the expected outcomes of these rules in terms of biodiversity. The article then reviews whether or not the CBD provides adequate protection for forests and analyses which international instrument, the Protocol or the CBD, prevails in this respect. Finally, the article

examines some possible compatibility issues and synergies between the UNFCCC and the CBD.

THE MARRAKESH ACCORDS

Sinks were one of the crunch issues that resulted in the failure to reach an agreement at the UNFCCC's Sixth Conference of the Parties (COP-6) at The Hague in November 2000. Parties were not able to decide if sinks activities should be limited in quantity, and if so, what this limit should be. At the second session of COP-6 (COP-6bis) held at Bonn in July 2001, an agreement was reached, which was similar in terms of sinks to the one rejected at COP-6 in The Hague. This agreement was included, with some slight modifications, in the Marrakesh Accords,¹² which were adopted at the UNFCCC's subsequent meeting at COP-7, in November 2001. In this section of the article, the limitations on the use of sinks activities to obtain carbon credits established in the Marrakesh Accords and the links between sinks and biodiversity included in the Accords are reviewed.

CAPS

Land use, land-use change and forestry (LULUCF) activities are actions that alter land use to reduce emissions of GHGs (sources) and remove gases from the atmosphere through carbon sequestration (sinks). In limited circumstances, the provisions of the Kyoto Protocol permit developed State parties to undertake forestry management, cropland management, and other resource-centred activities that remove and store carbon as a means to help meet their GHG emission reduction commitments. Limits on the amount of credits under the Protocol that may be generated by using LULUCF activities during the Protocol's first commitment period from 2008 to 2012 are set out¹³ in the Marrakesh Accords.¹⁴ In the Accords at paragraph 10 of the Annex to Draft Decision CMP.1 on LULUCF (the Annex), credits generated from forest management

⁸ These relations have in fact shown up in the official documents (for instance FCCC/SBSTA/2001/INF.3 and FCCC/SBSTA/2001/L.14).

⁹ Other LULUCF eligible activities are additional human-induced 'cropland management', 'grazing land management' and 'revegetation' (Marrakesh Accords, Annex, Draft Decision -/CMP.1 (LULUCF) (FCCC/CP/2001/13/Add.1), para. 6). These activities in farming include using minimum tillage, mulching, improving efficiency of fertilizer use, restoring degraded agricultural lands and rangelands, recovering methane from stored manure and improving the quality of the diet of ruminants.

¹⁰ See CBD Secretariat, n. 7 above.

¹¹ Other related instruments are, for example: the Forest Principle (Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management Conservation and Sustainable Development of all Types of Forests), Vol. III, (A/CONF.151/26, Rio de Janeiro, 14 August 1992) in 31 ILM (1992), 881; Agenda 21, section II, chapter 11, 'Combating Deforestation', Vol. I, (A/CONF.151/26), *ibid.*; the United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification Particularly in Africa (CCD) (Paris, 17 June 1994); Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) (Washington, 3 March 1973); Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar, 2 February 1971).

¹² Marrakesh Accords, FCCC/CP/2001/13 and Addenda 1–4.

¹³ Caps were set in Bonn (COP-6bis) in Decision 5/CP.6 (FCCC/CP/2001/L.7) and incorporated, with some modifications, in the Marrakesh Accords (see, Marrakesh Accords, Annex, Draft Decision -/CMP.1 (LULUCF) (FCCC/CP/2001/13/Add.1) (the Annex). Nevertheless, in most cases, the formal decision remains FCCC/CP/2001/L.7 (the Bonn Agreement), since several paragraphs have been included in the Marrakesh Accords, which is not yet formally adopted (this is a draft proposal for adoption in the First Meeting of the Parties to the Kyoto Protocol). However, according to para. 12 of the Annex, the limits can be revised in the light of new country-specific data (this provision was included in Marrakesh). In para. 4 of the Annex an additional limit for carbon debits is established, not allowing them to surpass credits for the cases of afforestation and reforestation.

¹⁴ Annex, paras 10, 11 and 14.

activities¹⁵ can be accounted up to the amount of carbon debits resulting from LULUCF activities permitted under Article 3(3) of the Protocol (such as afforestation, reforestation and deforestation) to a maximum amount of 9.0 megatonnes of carbon times five¹⁶ (this enables parties to compensate deforestation debits by forest management). Additional credits for *forest management* can be accumulated under paragraph 11 of the Annex up to the maximum amount established for each country in the agreement reached at COP-6bis (the Bonn Agreement).¹⁷ These credits may be generated, either through domestic measures, or by means of investments in emission reduction measures through the Protocol's joint implementation (JI) mechanism (Article 6), which permits industrialized parties listed in Annex I of the Convention (Annex I parties) to accumulate credits by making investments to reduce emissions in other Annex I parties. Under the Protocol's clean development mechanism (CDM) (Article 12), Annex I parties may generate credits by making investments in developing State parties. Only afforestation and reforestation LULUCF activities are permitted under the rules of the CDM.¹⁸ The applicable cap for LULUCF activities in the CDM is established in paragraph 14 of the Annex and requires that the credits obtained by a party through eligible LULUCF activities under the CDM do not exceed 1% of the base year emissions of that party, times five.

All caps can be seen as absolute limits (in the case of paragraph 14, the limit is set when the emissions base year is fixed, which in most cases is 1990). Only forest management is included in the caps set out in paragraphs 10 and 11 of the Annex for domestic and JI activities, while afforestation and reforestation are only limited when undertaken as CDM projects. The other LULUCF activities¹⁹ permitted under paragraph 6 of the Annex are free of these limitations. These activities are 'crop land management', 'grazing land management' and 'revegetation' (CGR). No general cap on 'sinks' was adopted at Bonn or at Marrakesh, but specific caps on domestic forest management activities, JI projects, and on CDM afforestation and reforestation activities were concluded.

Favourable treatment of CGR and of forest management (except for the cap described above) is apparent

¹⁵ 'Credits' is used where removals are larger than emissions on a unit of land and 'debits' when the opposite is true.

¹⁶ The reason for multiplying by five is the 5-year duration of the commitment period. In the Bonn Agreement the limit was set at 8.2 megatonnes of carbon (see Annex, para. 10).

¹⁷ The maximum amount for each country was set in Appendix Z of the Bonn Agreement and appears now in the Appendix to the Annex. Under the Marrakesh Accords, the limit for Russia was raised from 17.63 to 33 MtC.

¹⁸ Annex, para. 13.

¹⁹ Parties themselves decide which of these activities are applied during the first commitment period and the selection is fixed for all the first commitment period (Annex, para. 7).

in terms of the requisites for their commencement. In the first negotiating paper presented by the President of COP-6bis (the Pronk Paper)²⁰ in Bonn (dated 11 June 2001), the definitions of CGR and of forest management require these activities to have 'started on or after 1 January 1990'. Later, in the final Pronk Paper²¹ (dated 19 June 2001), the definitions only require these activities to have 'taken place since 1 January 1990', which does not preclude the possibility that the activities can be in place prior to 1990. In the definitions²² adopted under the Marrakesh Accords, all references to the commencement of activities have been eliminated, but under paragraph 8 of the Annex, parties have to prove that these CGR and forest management activities 'have occurred since 1990' (thus, adopting similar wording to the final Pronk Paper). However, paragraph 2 of the Annex demands afforestation, reforestation and deforestation to have 'started on or after 1 January 1990', relying on the wording proposed in the first Pronk Paper.

REFERENCES TO BIODIVERSITY

Some general references to biodiversity can be found in the Marrakesh Accords. In the Accords, the parties affirm 'that the implementation of LULUCF activities *contributes* to the conservation of biodiversity and sustainable use of natural resources'.²³ The Conference of the Parties also:

request the Subsidiary Body for Scientific and Technological Advice (SBSTA) to develop definitions and modalities for including afforestation and reforestation projects under Article 12 in the first commitment period, *taking into account* the issues . . . environmental impacts on biodiversity and natural ecosystems.²⁴

The terms '*contributes*' and '*taking into account*' cannot be understood as concrete limitations, especially not the latter. As such, biodiversity conservation has not been included as a clear constraint to LULUCF activities in the Marrakesh Accords.

A reference to biodiversity also is included in the definition of forest management in the Annex.²⁵ However, including biodiversity only in the definition of forest management, and not in the definitions of other activities such as afforestation or reforestation, risks the dangerous interpretation that biodiversity conservation

²⁰ FCCC/CP/2001/2/Add.3, Annex, para. 1. The paper set out the negotiating proposals of the President of COP-6, Mr Jan Pronk of The Netherlands.

²¹ FCCC/CP/2001/2/Add.3/Rev.1, Annex, para. 1.

²² Annex, para. 1.

²³ Marrakesh Accords, Draft Decision -/CMP1 (LULUCF) (FCCC/2001/13/Add.1), para. 1(e).

²⁴ Decision 11/CP.7 (FCCC/CP/2001/13/Add.1), para. 2(e).

²⁵ Annex, para. 1(f).

is only necessary in the case of forest management. Nevertheless, Article 2 of the Protocol, which requires parties to implement policies and measures in accordance with their national circumstances, balances this assertion by referring to sustainable management practices in relation to afforestation and reforestation as a policy of protection and enhancement of sinks.²⁶ However, the interpretation of what sustainable management covers is left to the parties.

Prior to COP-6, the Executive Secretary of the CBD submitted to the UNFCCC a note (the Note) outlining several issues concerning the impacts of climate change mitigation measures on biodiversity.²⁷ One of the main threats to biodiversity described in the Note is the conversion of natural forests to plantations. In theory, this threat is covered in the Annex by the rules governing afforestation and reforestation. Under these rules, afforestation²⁸ can only take place in areas that have not been forested for 50 years, and reforestation²⁹ is limited to lands that were not forests on 31 December 1989. Nevertheless, the conversion of land to forests could also be done as *forest management*. This possibility has not been explicitly ruled out by the definition of 'forest management' in the Marrakesh Accords (nevertheless, as stated above, the definition of forest management includes a direct reference to biodiversity, so that aggressive strategies should be prohibited). Specific definitions of afforestation and deforestation projects under the CDM shall be elaborated by SBSTA and should take into account the issue of socio-economic and environmental impacts, such as impacts on biodiversity and natural ecosystems.³⁰ These definitions will be forwarded to COP-9 for consideration.

The Marrakesh Accords require Annex I parties to report on their legislative and administrative procedures for ensuring that LULUCF activities under Article 3(3) and 3(4) of the Protocol contribute to the conservation of biodiversity and to the sustainable use of natural resources.³¹ However, the scope of paragraph 26 is limited since parties only need to list their national laws and are not required to provide information on tangible results for the conservation of biodiversity in LULUCF projects. Furthermore, during the first commitment period, the reporting for sinks inventories will not be an eligibility criterion for the use of the flexible mechanisms. Therefore, with no

means to govern the accuracy of reporting on LULUCF activities, the reliability of reporting requirements on sinks activities, as set out in Article 7 of the Protocol, is questionable. As a result, biodiversity concerns in the Marrakesh Accords do not constitute a strong barrier to counterbalance the economic incentives established under the Protocol.

EXPECTED OUTCOMES OF THE ECONOMIC INCENTIVES FOR FORESTS TO BE ESTABLISHED AFTER MARRAKESH

Putting economic values on the carbon sequestered by forests will affect the management of existing forests and greatly determine the types of forests that will be established in the future. If the Protocol comes into force, credits will be earned, among other alternatives, for afforestation and reforestation and for management practices that increase carbon sequestered by existing forests. Therefore, parties will likely establish incentive schemes to increase the amount of carbon units issued by means of these activities.³² The expected outcomes of these incentives are significant as forest management, afforestation and reforestation projects are expected to account for the lion's share of LULUCF activities. The influences of carbon sequestration incentives on CGR and their impacts on biodiversity will be less significant. To analyse their effects requires a review of the distinct frameworks of agrarian and agro-forestry systems, which goes beyond the scope of this article. Therefore, they will not be discussed.

FOREST MANAGEMENT

For the purposes of this subsection on forest management, a situation is assumed in which a forest exists where species types are not going to be changed³³ and which is under no real risk of complete disappearance. These are realistic assumptions in contexts where forests are protected by effective laws (such as in most Western European countries). In this scenario, a main

²⁶ Protocol, Article 2(1)(a)(iii).

²⁷ Executive Secretariat to the CBD, *Climate Change and Biological Diversity: Cooperation between the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change* (UNEP/CBD/SBSTTA/6/11) (CBD, 2000), available at <<http://www.biodiv.org>>.

²⁸ Annex, para. 1(b).

²⁹ *Ibid.*, para. 1(c).

³⁰ Marrakesh Accords, n. 24 above.

³¹ *Ibid.*, Annex, Draft Decision -/CMP.1, Article 7 (FCCC/CP/2001/13/Add.3), para. 26.

³² In one study, the decision process is formalized to highlight the expected outcomes of the new incentives (see A. Caparrós and F. Jacquemont, 'Conflicts between Biodiversity and Carbon Offset Programmes: Economic and Legal Implications', presented at the *ISEE 2002 Tunisia Conference* (Sousse, 6–9 March 2002)). However, similar results also can be achieved with a more qualitative analysis.

³³ If the forest type is changed (for instance changing the species) the analysis is closer to the situation described in the next subsection. An alternative forest management strategy to increase sequestration is to use fertilization products, but this practice can have negative impacts on biodiversity.

decision of the forest manager is to decide the age at which trees will be harvested, that is, the rotation. Under the Kyoto framework, this form of forest management alternative can be incorporated through Article 3(4) of the Protocol.

To encourage private managers to take into account carbon sequestration issues, economists such as Englin and Callaway, and others,³⁴ have proposed the placement of a value on each tonne of carbon sequestered. A set price is paid by the State³⁵ to the forest owner for each tonne of carbon that is sequestered. The owner then pays back to the State the money that he or she received for sequestering the carbon when the trees are cut and the carbon is released again into the atmosphere. The question that arises is whether this approach using carbon sequestration incentives is adequate for analysing the expected outcomes of the Marrakesh Accords. For LULUCF activities under Article 3(4) of the Protocol, carbon sequestered in a given year is added to total emissions allowances (assigned amount) for the party and any released carbon is added to the party's total emissions.³⁶ Therefore, the incentive scheme of placing values on carbon sequestration and releases for private managers seems appropriate in order to maximize a party's ability to meet its emission reduction target.³⁷

In making long-term forestry management decisions, discount rates are used to factor in the value of trees at a future period in time. Discounting is based on the idea that a given amount of money is worth more if obtained now than if the same amount would be obtained in the future. The rationale behind discounting is that the productivity of capital means that money discounted today will grow through investment to a greater amount in the future (this is the main argument used for discounting while evaluating investments). The concept also is based on the idea that given economic growth, future generations will be richer and will receive less value out of each dollar spent in today's money. Finally, pure time preference, that is, impatience, can also contribute to explain discounting. As such, it is reasonable to discount the future value of trees when making long-term forestry management decisions. Discounting reduces the increased

value of future money to what it is worth today. With high discount rates (which private managers usually use), revenues or costs in the distant future have a relatively low value. Hence, the manager decides when to cut by focusing mainly on the value of the present generation of trees, so that the influence of future rotations on its decision is reduced. Focusing exclusively on commercial reasons (mainly timber), the manager will cut the trees when the interest forgone by waiting one additional year (because the manager does not invest the value of the timber in an alternative asset) equalizes the increase in commercial value of the trees during the same year (due to natural tree growth). Assuming high discount rates, this will occur in a relatively short timeframe (short rotations), since natural tree growth rates decrease and are relatively equal to interest rates in the market.

If a carbon sequestration incentive scheme (such as the scheme proposed by Englin and Callaway) is established, the manager's decision will also be influenced by the additional costs associated with timber felling (due to carbon liberation) and by the financial effects of future carbon sequestration. Focusing exclusively on the additional costs and benefits created by the incentive scheme, we can expect³⁸ that the benefits of waiting one additional year (the additional sequestration in the year and the benefit of postponing the costs associated with carbon liberation) will, even for advanced ages, be higher than the net benefits of cutting (the value of the carbon sequestered by future generations of trees after replacing the existing generation minus the costs associated with carbon liberation). Therefore, the tendency will be to prolong the rotation (and cut trees at a later age) if carbon is incorporated in the managerial decision.³⁹ Already, empirical investigations have in fact confirmed these expectations for high discount rates in several studies.⁴⁰

Although some exceptions can be found,⁴¹ longer rotation periods are positive for biodiversity, since they restore the forest to its natural situation and because they maintain old trees which are fundamental to the lifecycles of many species of both flora and fauna. If

³⁴ J. Englin and J.M. Callaway, 'Global Climate Change and Optimal Forest Management', 7:3 *Natural Resource Modelling* (1993), 191–202. See also G.C. Van Kooten, C.S. Binkley and G. Delcourt, 'Effects of Carbon Taxes and Subsidies on Optimal Forest Rotation Age and Supply of Carbon Services', 77 *American Journal of Agricultural Economics* (1995), 365–374.

³⁵ The payment by another institution would not change the analysis.

³⁶ Annex, para. 17.

³⁷ However, the cap on forest management implies that incentives are only necessary if the cap is not surpassed without additional measures. If no incentive measures are established no negative impacts for biodiversity will occur by definition (since we only consider distortions not present in the current situation).

³⁸ This is especially true with high discount rates, as private forest managers usually apply.

³⁹ This incentive to increase the rotation age will be even clearer if harvest wood products (carbon stored in wood products after harvesting) are finally not accounted, since this implies that felling is associated with total liberation (so that the discounted cost associated with felling is larger).

⁴⁰ J. Englin and J.M. Callaway, n. 34 above. G.C. Van Kooten, C.S. Binkley and G. Delcourt, n. 34 above. P. Campos and A. Caparrós, 'Análisis económico de la fijación de carbono por el pino silvestre', in F. Hernández (ed.), *El Calentamiento Global en España: un análisis de sus efectos económicos y ambientales* (CSIC, 1999), 141–162.

⁴¹ J. Englin and J.M. Callaway, 'Environmental Impacts of Sequestering Carbon through Forestation', 31 *Climate Change* (1995), 67–78.

the forest manager internalizes biodiversity considerations, the rotation period will be longer than the one chosen based on carbon sequestration and commercial considerations alone. The problem is that a regime to internalize biodiversity considerations by the forest manager is almost impossible to bring into practice (mainly due to the difficulty, or even impossibility, of estimating a price for biodiversity services). Nevertheless, since longer rotations are positive for biodiversity, and since the effect of carbon internalization in forestry management decision making will likely lead to longer rotations, providing incentives to forestry managers to take into account carbon sequestration should have positive effects for climate change and positive impacts on biodiversity (or at least no major negative impacts). However, as discussed in the next subsection, this is only true as long as the type of tree species is indigenous to the area.⁴²

AFFORESTATION AND REFORESTATION

Converting degraded or agricultural land into indigenous species forests might increase biodiversity.⁴³ However, under afforestation and reforestation projects, biodiversity will likely decrease if these activities establish plantations of rapidly growing alien species.⁴⁴ These plantations are commonly monocultures, which reduce plant biodiversity almost by definition (tree varieties are lower with monocultures and the use of certain species may render it difficult for the growth of other plants). Animal biodiversity is also generally reduced in monocultures compared to biologically diverse forests, since animals need several tree species to find food during the different seasons. If the pre-existing land use has high biodiversity values, as for example in the cases of South African grassland ecosystems⁴⁵ or Equatorial *páramos*,⁴⁶ the conversion to plantations also may reduce biodiversity.

A forest manager faces a decision with three options when deciding what type of forest to plant for afforestation and reforestation activities on agricultural or

abandoned lands. The three options that are available are the following: (i) not to plant, (ii) plant with a type of forest that has high growth rates and high yields (usually associated with low biodiversity values) (Forest Type 1), or (iii) plant with a type of forest that has high biodiversity values, which is usually associated with low yields (Forest Type 2). Without incentives to act otherwise, a manager will choose among these options taking into account only commercial values. The manager will select an optimal – from his or her point of view – combination of these three alternatives. Using carbon sequestration incentives (as discussed in the previous subsection) and high discount rates, the larger growth yields of Forest Type 1 associated with the first generation, or even with the first years of the first generation, will overcompensate the potentially higher total sequestration capacity of Forest Type 2 when it matures. Therefore, financial incentives for carbon sequestration will encourage managers to plant Forest Type 1. If separate incentives for biodiversity were established, the effect would be the opposite (favouring Forest Type 2, or non-reforestation, where appropriate). The outcome of incorporating both carbon sequestration and biodiversity incentives would depend on the relative value given to them. However, as outlined above in relation to carbon sequestration incentives, it is difficult to implement in practice a system to internalize biodiversity in markets. Therefore, other legal instruments are necessary to preserve biodiversity.

Figure 1 shows the implications of the situations described above. The figure illustrates the choice between Forest Types 1 and 2 in the simplest case: assuming no agricultural value (neither commercial nor environmental), setting the timber valuation function equal for both species or type of forests (linear), and focusing only on the steady-state solution. Using these assumptions and ignoring for the moment carbon and biodiversity, half of the land available (L) would be reforested with Forest Type 1 and half with Type 2: $Q_{01}=Q_{02}=1/2L$ (where Q_{ij} stands for quantity of land reforested with Forest Type j under alternative i ; and e_0 represents the equilibrium considering only timber). The inclusion of carbon sequestration (supposed to be higher with Forest Type 1 than with Type 2) yields a new equilibrium (e_1) with Q_{11} of Type 1 and Q_{12} of Type 2 (dotted line). Finally, the intersection between the broken lines gives the equilibrium point e_2 (with Q_{21} of Type 1 and Q_{22} of Type 2) when timber, carbon sequestration and biodiversity are taken into account (biodiversity values are assumed to be negative for Type 1 and positive for Type 2).

The goal should be to reach the socially optimal point. The socially optimal point is where the 'allocation of a society's resources, pattern of production, and distribution of output' is at the highest or most effective level for that society based on pre-set

⁴² Fertilization practices can also have negative impacts on biodiversity.

⁴³ Intergovernmental Panel on Climate Change (IPCC), *IPCC Special Report: Land Use, Land Use Change and Forestry* (WMO-UNEP, 2000), at 177.

⁴⁴ The effect of plantations on biodiversity, and in particular of alien species plantations, are described in: Friends of the Earth International, World Rainforest Movement, FERN, and Future in Our Hands, *Tree Trouble: A Compilation of Testimonies on the Negative Impact of Large-scale Tree Plantations Prepared for the Sixth Conference of the Parties to the Framework Convention on Climate Change* (FOEI, 2000), available at <<http://www.foei.org>>.

⁴⁵ See IPCC, n. 43 above, at 238.

⁴⁶ R. Buitrón, 'Tree Plantations as Carbon Sinks: the case of Ecuador', in Friends of the Earth International, World Rainforest Movement, FERN, and Future in Our Hands, n. 44 above.

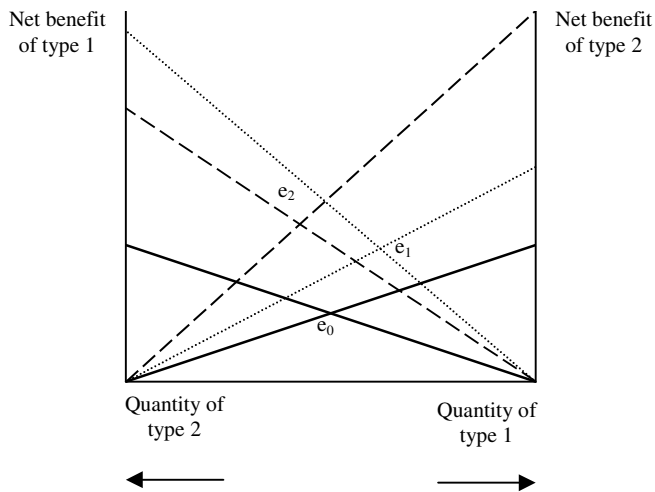


FIGURE 1 THE CHOICE BETWEEN FOREST TYPES 1 AND 2 IN THE SIMPLEST CASE

Solid line: timber net benefit. Dotted line: timber-carbon sequestration net benefit. Dashed line: social net benefit function (timber-carbon ancillary).

objectives.⁴⁷ Since the socially optimal situation is e_2 (Q_{21} , Q_{22}), the inclusion of carbon sequestration in the objective function of the manager, without taking into account biodiversity, implies a greater deviation from the social optimum than the baseline situation (i.e. $Q_{11} > Q_{01} > Q_{21}$ and $Q_{12} < Q_{02} < Q_{22}$). That is, contrary to the situation analysed in the previous subsection, in this case the internalization of carbon values without accounting for biodiversity will probably have adverse ecological effects and yield solutions which diverge even more from the social optimum than the baseline situation.

An analogous reasoning would show that the carbon sequestration incentives would favour Forest Type 1 in relation to agricultural land, regardless of the optimal solution for society if all environmental values were taken into account (this situation might be even worse from a societal point of view than the original outcome of present market powers).

To sum up, even without integrating biodiversity in the objective functions of private managers, the damage to biodiversity induced by carbon sequestration incentives for *forest management* does not seem to be high (as long as species are not changed – otherwise the outcome is similar to the one obtained for afforestation and reforestation). On the other hand, the incorporation of carbon sequestration incentives in private decision making on *afforestation and reforestation*, without accounting for biodiversity, likely will lead to a sub-optimal over-planting of fast growing

exotic species. In some cases, this can cause a worse situation than the one that would occur if only timber values were considered.

CONVENTION ON BIOLOGICAL DIVERSITY: GOOD PROTECTION?

As seen above, the choices in some forest practices with the view to enhance carbon sinks may have an adverse impact on biodiversity. Such a result may conflict with the aims of the CBD or other international instruments related to forests. The question that arises is which instrument should prevail when two overlapping instruments differ with regard to their objectives or the actions to be undertaken. In this context there are two overriding issues: first, whether the CBD or the Protocol takes precedence in situations of conflict; and second, whether international legal rules governing these instruments (as codified in the Vienna Convention on the Law of Treaties 1969 (the 1969 Vienna Convention)) indicate how conflict situations may be resolved.

REQUIREMENTS AND ASSESSMENT OF THE CBD

The CBD is aimed at the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the utilization of genetic resources.⁴⁸ The Convention⁴⁹ applies to all processes and activities which have or are likely to have significant impacts on the conservation and sustainable use of biological diversity undertaken within each party's jurisdiction or control, and also beyond their national jurisdictions (in relation to forests it applies only within a party's jurisdiction).⁵⁰ The CBD calls upon parties to adopt national policies consistent with the conservation and sustainable use of biological diversity.⁵¹ It requires parties to: (i) regulate or manage biological resources relevant to the conservation of biological diversity; (ii) promote the protection of ecosystems by establishing systems of protected areas; (iii) rehabilitate and restore degraded ecosystems; and (iv) prevent or eradicate alien species that threaten ecosystems.⁵²

⁴⁸ CBD, Article 1.

⁴⁹ On the Convention on Biological Diversity, see R. Wolfrum, 'The Convention on Biological Diversity: Using State Jurisdiction as a Means of Ensuring Compliance', in R. Wolfrum (ed.), *Enforcing Environmental Standards: Economic Mechanisms as Viable Means?* (Springer, 1996), 373, at 411.

⁵⁰ CBD, Article 4.

⁵¹ *Ibid.*, Article 6.

⁵² *Ibid.*, Article 8(c), (d), (f) and (h).

⁴⁷ D.W. Pearce, *The MIT Dictionary of Modern Economics*, 4th edn, (MIT Press, 1992).

In addition, the CBD requires parties to identify and monitor processes and activities likely to have significant adverse impacts on biodiversity, and to regulate such activities whose significant impacts have been ascertained by the party in question.⁵³ In order to accomplish these tasks, each party, 'as far as possible and as appropriate shall' introduce national procedures requiring environmental impact assessments (EIAs) for activities that may cause significant adverse impacts with a view to avoiding or minimizing those impacts.⁵⁴ The CBD also requires that the traditional knowledge of indigenous peoples relevant to the conservation and sustainable use of biodiversity should be respected and maintained through national legislation.⁵⁵ Concerning forests, COP-3 to the CBD recognized forests as playing crucial roles in maintaining global biological diversity, such as combating desertification, enhancing habitats, and promoting indigenous species for the re-establishment of native forests.⁵⁶ Thus, a role may exist for LULUCF forestry projects that follow the CBD's requirements to contribute to the restoration of degraded ecosystems.⁵⁷

The wording used in Articles 5 and 6 of the CBD to attain the CBD's objectives is weak.⁵⁸ It results from the attempt of the CBD's drafters to link two opposing principles: that States have sovereign rights to exploit their natural resources; and that States must not cause damage to the environment resulting in a loss of biodiversity.⁵⁹ The concept of sustainable development could reconcile these two competing principles by moderating one with the other. The idea that development should meet 'the needs of the present without compromising the ability of future generations to meet their own needs'⁶⁰ provides a middle position at which sovereign rights and the protection of biodiversity can

both be accommodated. However, the notion of sustainable development is not a concept of customary international law from which legal rules governing State behaviour can be derived.⁶¹ Such a consequence is due to the fact that the notion of sustainable development lacks reliable criteria on how States should balance their development with the protection of their environment. International agreements and declarations, which endorse the sustainable development concept, remain elusive in defining it,⁶² resulting in the evolution of sustainable development simply as a malleable political objective that States aim to achieve.⁶³ The legal definition of 'sustainable use' in the CBD (which is derived from the principle of sustainable development) is also abstract and fails to provide binding standards of behaviour⁶⁴ (especially if interpreted in conjunction with the weak wording of the CBD provisions). Article 2 of the CBD states that:

sustainable use means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

The definition declares how parties *should* act rather than how they *must* act in terms of the sustainable use of their respective biological resources. Therefore, the CBD fails to provide strong binding rules and its implementation only relies on the good faith of its parties (as long as they have sovereign rights over their own biological resources). Thus, States retain significant freedom of action to take measures dealing with economic and social aspects of forests, under the condition that the results shall be the conservation or the sustainable use of those resources. Finally, the CBD lacks real financial incentives, by which developing countries can balance the economic benefits resulting from timber exploitation and carbon sequestration maximization strategies.⁶⁵

⁵³ *Ibid.*, Article 7(c).

⁵⁴ *Ibid.*, Article 14(1)(a).

⁵⁵ *Ibid.*, Article 8(j).

⁵⁶ UNEP/CBD/COP/3/16.

⁵⁷ P. Cullet and A. Kameri-Mbote, 'Joint Implementation and Forestry Projects: Conceptual and Operational Fallacies', 74 *International Affairs* (1998), 393, at 408.

⁵⁸ 'Each contracting party shall, as far as possible and as appropriate' and 'Each contracting party shall in accordance with its particular conditions and capabilities' is used respectively in Articles 5 and 6 of the CBD; see T. Swanson, 'Why is there a Biodiversity Convention? The International Interest in Centralized Development Planning', 75 *International Affairs* (1999), 307, at 331.

⁵⁹ This is clearly stated in the Preamble of the CBD: 'Affirming that States have sovereign rights over their own biological resources . . . also that States are responsible for conserving their biological resources'. In addition, CBD, Article 3 expressively recalls that: 'States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction'. It reflects literally Principle 2 of the Rio Declaration on Environment and Development 1992 (UN Doc. A/CONF.151/26/Rev.1), Vol. 1 and Principle 21 of the 1972 Stockholm Declaration (UN Doc. A/CONF/48/14/Rev.1).

⁶⁰ Brundtland Commission, *Our Common Future* (WCED, 1987).

⁶¹ U. Beyerlin, 'The Concept of Sustainable Development', in R. Wolfrum (ed.), n. 49 above, at 121.

⁶² United Nations Environment Programme Governing Council Decision 15/2 of May 1989 added that sustainable development requires 'the maintenance, rational use and enhancement of the natural resource base that underpins ecological resilience and economic growth . . . and implies progress towards international equity' (Annex II, GAOR, 44th Session Suppl. No.25 (A/44/25)). See also, for example, UNFCCC, Articles 2 and 3; the 1992 Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki, 9 April 1992), Article 15; General Agreement on Tariffs and Trade: Multilateral Trade Negotiations Final Act Embodying the Results of the Uruguay Round of Trade Negotiations (Marrakesh, 15 April 1994), Preamble. In terms of non-legally binding instruments, see Forest Principle, n. 11 above.

⁶³ P. Sands, 'International Court and the Application of the Concept of Sustainable Development', 3 *Max Planck Yearbook of United Nations Law* (1999), 389, at 405.

⁶⁴ CBD, Article 2.

⁶⁵ R. Wolfrum, n. 49 above; see also P.H. Sand, 'The Potential Impact of the Global Facility of the World, Bank', in *ibid.*, 479, at 499; and M. Bothe, 'The Evaluation of Enforcement Mechanisms in International Environmental Law', in R. Wolfrum, *ibid.*, 13, at 38.

However, the CBD does recognize biodiversity loss as a global environmental problem and promotes the conservation of biodiversity as a common concern of humankind.⁶⁶ In addition, the CBD has established a quasi-universal regime, encompassing an ecosystem approach, which takes into account the biological and ecological interactions between species of an ecosystem.⁶⁷ The ecosystem approach is aimed at protecting the complex relations among living and non-living components of ecosystems by limiting negative impacts from human exploitation of one component from impacting on other components in an ecosystem. In this regard, the CBD obliges parties to adopt and apply rules for the sustainable use of resources. As seen above, it lays down a procedural approach directed at minimizing the negative impacts of human activities on biodiversity.⁶⁸

THE INADEQUACY OF THE INTERNATIONAL LAW OF TREATIES TO DEAL WITH COMPATIBILITY PROBLEMS AMONG INTERNATIONAL INSTRUMENTS

As discussed above, the Protocol and the CBD are concerned with forests; however, their provisions may both conflict and supplement one other. How these instruments interact is therefore of critical importance in determining their effects. As there is no hierarchical structure of international law and because treaties are equally binding,⁶⁹ if the Protocol enters into force, it and the CBD will be on equal standing.⁷⁰ Determinations of the compatibility of these instruments therefore rests in the rules of international law.

The 1969 Vienna Convention applies to written agreements that are governed by international law and concluded between States.⁷¹ In cases of conflicts between two international agreements, reliance is placed on Article 30 of the 1969 Vienna Convention. However,

⁶⁶ CBD, Preamble, para. 3.

⁶⁷ *Ibid.*, Article 2.

⁶⁸ In March 2002, the CBD had 183 parties (see the website available at <<http://www.biodiv.org>>). Concerning the ecosystem approach endorsed by the CBD, see CBD, Decision V/6 (UNEP/CBD/5/23).

⁶⁹ With the exception of a treaty endorsing rules of *jus cogens* with an *erga omnes* effect, or conflicting with such a norm; see D. Nguyen *et al.*, *Droit International Public* (LGDJ, 1987). Articles 53 and 64 of the 1969 Vienna Convention established a hierarchy of norms by providing that in case of conflict between a treaty and a norm of *jus cogens*, the treaty is void. Neither the CBD, nor the Protocol contains such a norm. Another exception is Article 103 of the United Nations Charter, which establishes a hierarchical structure with regard to the Charter of the United Nations only.

⁷⁰ The Protocol is not yet into force.

⁷¹ Convention on the Law of Treaties (1969 Vienna Convention) (Vienna, 23 May 1969), Articles 1 and 2(1).

with regard to conflicts between the Protocol and the CBD, the 1969 Vienna Convention is inapplicable because the 1969 Vienna Convention only applies to successive treaties on the same subject matter.⁷² The CBD and the Protocol do not govern the same environmental subject matter, they merely overlap on one issue, while their primary aims are different. This feature excludes the application of the *lex specialis* principle, which states that where two treaties govern the same subject matter, the one that adds some specification in comparison to the other prevails to the extent that its provisions do not conflict with the aim of the general instrument (a perfect example is the Protocol to the UNFCCC, which lays down more specific rules to reduce GHG emissions than the UNFCCC). Finally, the applicability of the *lex posterior* principle, as set out in Article 30(3) of the 1969 Vienna Convention, depends on the status of the States as parties or non-parties to the conflicting agreements. It provides that when all parties to an earlier agreement are parties also to a later agreement, the earlier is applicable so far as it is consistent with the later agreement. Thus, these rules do not help to define the relationship between two overlapping instruments on one issue.

A solution could be found in special treaty clauses, which purport to prevent or solve conflicts between agreements. Article 2(1)(a) of the Protocol expresses the willingness of the parties to consider the obligations arising from other international environmental instruments.⁷³ However, the Protocol lacks a specific compatibility clause, which would prevent conflicts of obligations by establishing the precedence of those instruments adopted before it.⁷⁴ In addressing the use of sinks, Article 2(1) of the Protocol states that parties should 'take into account' commitments arising from other relevant environmental agreements; however, it does not specify which agreements or obligations should be 'taken into account'.⁷⁵ In short, Article 2(1)

⁷² The Convention entered into force on 27 January 1980 and is considered as representing international customary law in its scope (see R. Wolfrum and N. Matz, 'The Interplay of the United Nations Convention on the Law of the Sea and the Convention on Biological Diversity', 4 *Max Planck Yearbook United Nations Law* (2000), 445, at 472; and Nguyen, n. 69 above, at 309).

⁷³ Protocol, Article 2(1)(a)(ii) states: 'Each party included in Annex I [shall implement the] . . . protection and enhancement of sinks and reservoirs . . . taking into account its commitments under relevant international environmental agreements . . .'.

⁷⁴ R. Wolfrum and N. Matz, n. 72 above, at 480.

⁷⁵ Regarding the clause on relevant international agreements, the European Union proposal made reference to the link between the UNFCCC, the CBD and the UN Conference on Environment and Development Forest Principles on the matter of sinks and forestry policy. However, the issue was not raised in any subsequent text. See J. Depledge, 'Tracing the Origins of the Kyoto Protocol: An Article-by-Article Textual History', Technical Paper (FCCC/TP/2000, UNFCCC Secretariat, 2000), at 30. Neither the UNFCCC nor the Protocol contains such a clause.

is too generic to be considered as a compatibility clause under Article 30(2) of the 1969 Vienna Convention, which applies when an agreement 'specifies that it is subject to, or that is not to be considered as incompatible with' another agreement. Article 2(1) of the Protocol is more or less a reminder for the parties to implement sinks policies in a manner consistent with relevant international environmental agreements to promote sustainable development.⁷⁶ In contrast, the CBD contains a clause (Article 22) which allows for the precedence of rights and obligations that bind the contracting parties at the time of ratification.⁷⁷ This precedence has a limit: the exercise of those rights under previous agreements shall not threaten or cause serious damage to biodiversity. However, this exemption only applies to obligations and rights of parties that existed before the CBD was ratified (the Protocol is not yet in force). Further, this exemption is strictly limited to the extent that the exercise of these obligations and rights will not threaten or cause serious damage to biological diversity, which leaves a wide margin of interpretation by the parties to the CBD, and which could lead to the *de facto* precedence of the CBD in relation to other agreements.⁷⁸ In principle, parties to the CBD that ratify the Protocol will have to apply their national policies with the view to implementing the Protocol consistently with the CBD.⁷⁹ As such, a conflict between the Protocol and the CBD would appear if the Protocol imposes any obligations that violate the rules of the CBD. In this case, the rules of international law are inadequate to resolve this conflict.

HARMONIZATION AT THE NATIONAL LEVEL

Based on the *pacta sunt servanda* principle of international law,⁸⁰ parties to an international agreement are required to fulfil their commitments ensuing from it in good faith without violating existing obligations from previous international instruments. Starting from this principle, C.M. Pontecorvo and others⁸¹ argue that State parties to environmental agreements of global relevance, in implementing potentially conflicting international obligations, are under the duty to

adopt a 'harmonizing approach'. This approach consists of taking into account pre-existing commitments. The CBD and the Protocol are 'common interest treaties'. The common interests are that they deal with global environmental problems, establish general regimes, principles and standards, and prohibit parties from making reservations to their provisions,⁸² which indirectly highlights the importance given to the principles embodied in these instruments. This implies that parties to these instruments are under the 'moral obligation', in consideration of the common interest of the international community in the effective preservation of the global environment, to reconcile the provisions of these treaties in the light of a 'common interest clause'.⁸³ The harmonizing approach should encompass non-legally binding instruments relative to forests, such as the Forest Principle,⁸⁴ which express general practice recognized by States as rules of international law (*opinio juris*). The harmonization approach seems to be endorsed by the Protocol, which contains a 'common interest clause' in Article 2(1) requiring each party to 'take into account its commitment under relevant international environmental agreements'. However, the fact that countries have avoided the negotiation of a binding regime for forests and delayed the adoption of a forestry protocol under the CBD highlights the fact that States are not prepared to undergo stringent standards for the sustainable use of forestry.⁸⁵ Rather, States have preferred to maintain their own criteria for forestry and for sustainable development. The Marrakesh Accords reflect this idea by leaving the host party to determine whether JI and CDM projects (including forestry projects) contribute to its sustainable development. Attempts to introduce international criteria for sustainable projects have been rejected, as developing countries have been very sensitive to ceding their powers to define domestic sustainable development objectives.⁸⁶ This tendency to avoid international criteria is exemplified by the discretion that is inherent to the

⁷⁶ Protocol, Article 2(1) states that each Annex I party 'in achieving its quantified emission limitation, . . . in order to promote sustainable development: shall implement and/or further elaborate policies and measures in accordance with its national circumstances'.

⁷⁷ CBD, Article 22(1).

⁷⁸ R. Wolfrum and N. Matz, n. 72 above, at 475.

⁷⁹ This is consistent with the fact that the CBD encourages State parties to promote national policies with the view to enhancing the protection and sustainable use of biodiversity, and the fact that Protocol, Article 2(1)(a)(ii) requires that national policies for enhancing sinks take into account relevant international instruments. States are left to reconcile the policy objectives.

⁸⁰ 1969 Vienna Convention, Article 26.

⁸¹ See C.M. Pontecorvo, n. 2 above, at 470.

⁸² CBD, Article 34; UNFCCC, Article 24.

⁸³ Moreover, the interpretation by States of sinks-related provisions should encompass non-legally binding instruments relevant to forests, such as the Forest Principle, as they express *opinio juris* (Agenda 21, chapter XI, 'IPF Recommendations').

⁸⁴ See Forest Principle, n. 11 above. Forest principles refer to a whole range of resources and services provided by forest ecosystems and call for their sustainable management.

⁸⁵ See R. Tarasofsky, 'The Global Regime for the Conservation and Sustainable Use of Forests: An Assessment of the Progress to Date', 56:II *Zeitschrift für Ausländisches Öffentliches Recht und Völkerrecht* (1996), 668, at 684; see also G. Henne and S. Fakir, 'The Regime of the Convention of the Biological Diversity on the Road to Nairobi', 3 *Max Planck Yearbook of United Nations Law* (1999), 315, at 361.

⁸⁶ The EU proposal to list eligible activities that are sustainable under CDM projects was strongly rejected by the G77 and China and the Umbrella Group during COP-6 at The Hague in November 2000. See M. Fernandez, 'The Negotiation of the Clean Development Mechanisms at COP-6: Precautionary versus Cost-Effective Policies', *ELNI Newsletter* (2000), 2, at 11.

operation of the Protocol's flexible mechanisms. During the process of validation of JI and CDM projects, an EIA (as recommended in the CBD) is only undertaken when a project participant or the host country considers the impact of these projects as being 'significant'.⁸⁷ Even if EIAs are deemed as necessary, they are to be conducted in accordance with the procedures required by the host party. This means that the interpretation of the significance of the impact depends on the views of the parties concerned with the project. As well, in cases where the host party has not legislated an EIA procedure, no EIA will be undertaken.⁸⁸ EIA (or other criteria for sustainable projects) is not therefore a requirement for the processes of validation and registration of project activities under the Protocol.⁸⁹ Without binding sustainable development related requirements, no real incentives for the preservation of biodiversity exist under the Protocol's flexible mechanisms. The implementation of rules for the sustainable use of forest projects to protect biodiversity relies simply on the good faith of the parties.

A SYNERGY THROUGH AN INTER-INSTITUTIONAL COOPERATION

Article 5 of the CBD invites parties to cooperate where appropriate through competent international organizations on matters of mutual interest for the conservation and sustainable use of biodiversity. A synergy between conventions is necessary to ensure a coherent and integrated approach to global environmental problems.⁹⁰ Cooperation at the institutional level should enhance the implementation of coordinated measures on common areas of action such as forestry. This approach was endorsed by the Secretariat of the CBD, when issuing the Note to the UNFCCC at COP-6, where the Secretariat of the CBD distinguished two groups of collaboration activities.⁹¹ One group is concerned with the analysis of the impacts of climate change on biological diversity and possible response measures. The other group explores the possibility of using the Protocol's incentive measures as vehicles to integrate

biodiversity concerns into the policies and measures under the Kyoto regime. As discussed above, further work on these issues is being conducted by the SBSTA for recommendation to UNFCCC COP-9.⁹²

Indeed, the Protocol offers incentives to protect biodiversity by giving to Annex I parties the opportunities to use sinks activities to gain credits. It sets detailed rules for implementation and lays down consistent enforcement rules and procedures. The CBD's Subsidiary Body on Scientific, Technical and Technology Advice (SBSTTA) will need to develop criteria for the conservation and sustainable use of biological diversity to be used in the design of activities, or to be applied in monitoring and evaluating their implementation. The SBSTTA also will need to establish a list of negative activities to determine which activities should be subject to an EIA. Such work should be undertaken in collaboration with the relevant bodies of the UNFCCC.⁹³ At Bonn in July 2001, the SBSTA endorsed the formation of a joint liaison group between the CBD and UNFCCC secretariats, and called for the secretariat of the UN Convention to Combat Desertification to join this group in order to enhance cooperation.⁹⁴ The Ministerial Declaration issued at the end of UNFCCC COP-7 at Marrakesh welcomed such cooperation; thus, encouraging parties to explore synergies between the two conventions in order to achieve sustainable development.⁹⁵

The Marrakesh Accords seem favourable towards the integration of the climate regime's policies and measures with those of the CBD. The Accords state that the implementation of LULUCF activities contributes to the conservation of biodiversity and the sustainable use of natural resources.⁹⁶ The Marrakesh Accords also call upon the SBSTA to elaborate on the definitions and the modalities for afforestation and reforestation projects under the CDM 'taking into account ... the issues of non-permanence ... environmental impacts, including impacts on biodiversity and natural ecosystems'.⁹⁷ In addition, the SBSTA is required to investigate the application of biome-specific forest definitions for future commitment periods.⁹⁸ Here, the elaboration of the definition and modalities for sinks projects under the CDM seems to adopt the concerns for biodiversity protection.⁹⁹

⁸⁷ Marrakesh Accords, Annex, Draft Decision -/CMP1, Article 6 (FCCC/CP/2001/13/Add.2), para. 33(d); Annex, Draft Decision -/CMP1, Article 12 (FCCC/CP/2001/13/Add.2), para. 37(c).

⁸⁸ Ibid.

⁸⁹ As seen above, the requirement to report national legislation or administrative procedures that aim to protect biodiversity and sustainable use of national resources is not an eligibility requirement for participation in the Kyoto flexible mechanisms.

⁹⁰ Commission on Sustainable Development, Fifth Session (CDS-5) (UN Doc. A/S-19/14 E/1997/60) (New York, 8–25 April 1997), at para. 109. The Nineteenth Special Session of the UN General Assembly recommended that the COPs of the UNCED Conventions cooperate in exploring ways for collaboration in order to have effective implementation of these conventions. See *Programme for Further Implementation of Agenda 21* (UN Doc. A/RES/S-19/2, 19 September 1997).

⁹¹ Annex 1 (UNEP/CBD/SBSTTA/6/11), para. 3(a) and (b).

⁹² See Marrakesh Accords, n. 24 above.

⁹³ See Annex 1, n. 91 above, paras 26(a), (b) and 27.

⁹⁴ Annex (FCCC/SBSTA/2001/INF.3), para. 9.

⁹⁵ Marrakesh Accords, Decision 1/CP.7, Marrakesh Ministerial Declaration (FCCC/CP/2001/13/Add.1), para. 3.

⁹⁶ Ibid., Draft Decision -/CMP1 (LULUCF) (FCCC/CP/2001/13/Add.1), para. 1(e).

⁹⁷ Ibid., Decision 17/CP.7, Article 12 (FCCC/CP/2001/13/Add.2), para. 10(b).

⁹⁸ See n. 24 above, para. 2(b).

⁹⁹ These definitions will be forwarded to COP-9. The definitions should introduce some disincentives relative to forest-related activities that have a significant impact in terms of GHG emissions such as forest burning, conversion of natural forests into secondary forests, and primary forests harvesting.

However, these concerns for activities under Article 3(3) and 3(4) and under JI projects are vague (the wording used is 'contribute'), leading to further questions. How will these activities contribute to biodiversity? Which standards of sustainable use will be used for these activities in order to ascertain their contribution to biodiversity protection? Further, reporting requirements on biodiversity protection in the Accords is inefficient since it has been decided that the sinks inventories reporting requirement under Article 7 of the Protocol is not an eligibility condition for the use of flexible mechanisms during the first commitment period.¹⁰⁰ In short, the Marrakesh Accords postpone biodiversity concerns about sinks projects to a later date and avoid the issues at stake.

A real synergy between the conventions could be reached if the sustainable approach provided by the CBD was sanctioned and promoted by the Protocol. This approach should require certification that sinks activities are not only assessed for their capacities to remove GHG emissions, but also for their contributions to biodiversity conservation and other environmental needs.

CONCLUSION

Putting an economic value on carbon sequestration by means of *forest management* is not expected to have a great negative influence on biodiversity (as long as species are not changed since otherwise the outcome is similar to the one obtained for afforestation and reforestation). On the other hand, creating economic incentives for carbon sequestration through *afforestation* and *reforestation* is expected to yield sub-optimal over-planting of fast growing alien species and to have negative impacts on biodiversity. This article has investigated the possibility of avoiding this threat using rules adopted in the Marrakesh Accords and in the CBD.

The limits to LULUCF activities set out in the Marrakesh Accords consist mainly of overall caps in terms of quantity of carbon. References to biodiversity in the Marrakesh Accords are general guidelines and cannot be seen as effective limitations or protectors of biodiversity. Therefore, the question is whether the CBD can cover this gap in the Marrakesh Accords.

The CBD lacks economic incentives to ensure that forest activities follow the Convention's ecosystem approach strategy. Whereas the Protocol contains economic incentives, it does not advocate the use of an ecosystem approach, which could be used to protect biodiversity needs. The CBD does not provide stringent

rules that allow parties to see the conservation of biodiversity as a management constraint. However, the CBD does provide relevant guidelines for the sustainable use of forests. For this reason alone, the provisions of the CBD should be further considered when elaborating rules under the Protocol. In particular, attention should be paid to limitations on the use of alien plant and tree species to avoid conflicts between the conventions and to ensure that no incentive measures under the Protocol will result in violations of the CBD. This is especially important because international rules governing treaties are not drafted to prevent or respond to such conflicts. The result is that if problems are to be addressed, the parties to both the CBD and the Protocol must adopt a harmonization approach to their regimes. However, the implementation of this harmonization approach depends on the good will of States. As a result, discrepancies among States on the application of these rules may arise. To address this situation, the adoption of international standards of sustainable use for forestry may be the answer.

An integrated approach, using the synergy of both regimes at an institutional level, offers an opportunity to apply harmonized and coordinated biodiversity concerns together with GHG mitigation. If sinks are to play a key role in climate policy, at least in the early stages, rules and incentives must be established under the Kyoto Protocol with the view to enhancing a harmonized ecosystem approach.

Frédéric Jacquemont is an international lawyer who has studied international law at Panthéon-Sorbonne (Paris I) and studied at Sydney University (Australia) where he obtained an LL.M. in Environmental Law. He currently practises law at the Enforcing European Policy (EEP) Network, where he has worked on climate change compliance issues, European Union competence in relation to the UNFCCC Protocol, and LULUCF activities. He is also a researcher at the Environmental Law Research Centre. He is based in Frankfurt.

Alejandro Caparrós has a background in economics (Ph.D.) and in law (LL.M.). He has worked on environmental economics for the last 5 years, focusing on environmental valuation, forest economics, green national accounting and climate change. He is currently working at CIRED (CNRS-EHESS) for the EEP Network. Previously he worked at the University Complutense and at the Consejo Superior de Investigaciones Científicas in Madrid.

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¹⁰⁰ Marrakesh Accords, n. 31 above, paras 26 and 28.