



Brussels in Brief is a regular feature of the IUCN Newsletter produced by the **Institute for European Environmental Policy (IEEP)** in Brussels. It provides a platform to explain the substance of environmental policy, as well as to highlight up-coming EU agenda items relevant to Europe and beyond.

Each edition of **Brussels in Brief** considers topics that relate to the overall thematic focus of the current Newsletter issue.

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Brussels in Brief

Biodiversity and climate change

Climate change has been identified as one of the main drivers for biodiversity loss. In addition, as the current changes in climate couple with other human pressures on biodiversity, such as fragmentation, the stress on biodiversity in the future will increase. Therefore, actions are needed to help biodiversity adapt to changing climatic conditions.

On the other hand, protection of biodiversity can also contribute to the mitigation of and adaptation to climate change. For example, healthy ecosystems can help limit atmospheric greenhouse gas concentrations because forests, peat lands and other habitats store carbon. Healthy ecosystems can also protect against natural hazards aggravated by climate change, such as flooding and extreme weather events.

The European Commission is currently exploring its role in assisting EU Member States to adapt to the impacts of climate change. The considerations related to climate change and biodiversity form an integral part of this process.

This issue of Brussels in Brief summarises the current international and EU policy framework related to biodiversity and climate change. In addition, it highlights some conflicting interests between climate change policy and biodiversity conservation. Finally, the issue outlines some upcoming developments and challenges related to addressing the inter-linkages between biodiversity and climate change in the future.

- **Brief overview of the international framework**

At the global level, issues related to biodiversity and climate change are addressed within a number of environmental/biodiversity related agreements, such as the Convention on Biological Diversity (CBD), the UN Framework Convention on Climate Change (UNFCCC), the UN Convention to Combat Desertification (UNCCD), the Ramsar Convention on Wetlands, and the Convention on Migratory Species (the Bonn Convention). The climate change foci of these agreements range from addressing the impacts of changing climate on biodiversity to considering the effects of the measures meant to address mitigation and adaptation with respect to ecosystems.

Addressing links between biodiversity and climate change under CBD

Biodiversity and climate change issues are most comprehensively dealt with within the CBD, notably in its cross-cutting issue on climate change and biological diversity. A CBD Ad Hoc Technical Expert Group was established in 2001 to carry out an assessment of the linkages between biodiversity and climate change. The expert group's work was based on the best available scientific knowledge, including that provided by the Intergovernmental Panel on Climate Change (IPCC), and it resulted in a CBD thematic Technical Report published in 2003 (link below).

The expert group concluded that there were opportunities to mitigate and adapt to climate change impacts while enhancing the conservation of biodiversity. The group also identified a set of tools, including the ecosystem approach, to help decision makers assess and address the impacts of climate change. The Technical Report was endorsed by CBD Members in the seventh COP meeting in 2004 (CBD Decision VII/15). Consequently, all Members, Parties and non-Parties alike, were requested to make use of the report to promote synergies between activities on climate change and the sustainable use/conservation of biodiversity.

Enhancing mutual support between biodiversity and climate change initiatives was further discussed at the eighth CBD COP in 2006, resulting in a CBD Decision that provides guidance to the promotion of synergy among biodiversity conservation, mitigating or adapting to climate change and combating land degradation (CBD Decision VIII/30).

CBD cross-cutting issue on climate change and biological diversity: www.biodiv.org/programmes/crosscutting/climate/default.asp

Outcomes of the Ad Hoc Technical Expert Group on Biological Diversity and Climate Change - Interlinkages between biological diversity and climate change (CBD Technical Series number 10) (2003): www.biodiv.org/doc/publications/cbd-ts-10.pdf

IPCC report on climate change and biodiversity (2002): www.ipcc.ch/pub/tpbiodiv.pdf

Biodiversity in the context of UNFCCC

Under the UNFCCC, the interlinkages between biodiversity and climate change become most apparent in the context of Land Use, Land-Use Change and Forestry (LULUCF) activities of the Convention. LULUCF measures, such as afforestation and reforestation, can be applied to offset or reduce carbon emissions under Article 3.3 of the UNFCCC Kyoto Protocol. Article 3.4 further allows carbon accounting for forest management.

LULUCF activities are often considered as one of the options under the Kyoto Protocol Clean Development Mechanism (CDM), which allows industrialised countries with a greenhouse gas reduction commitment to invest in emission reducing projects in developing countries. CDM is not only a tool for the mitigation of emissions but is also meant to assist in sustainable development, as defined by a project's host country.

During recent years, the UNFCCC Conference of Parties and the Meeting of the Parties to the Kyoto Protocol have adopted guidelines in relation to CDM and LULUCF activities (e.g. Decisions 15/CP.10, 16/CMP.1 and 17/CMP.1). According to the guidelines, the implementation of land use, land-use change and forestry activities under the UNFCCC and its Kyoto Protocol should contribute to the conservation of biodiversity and sustainable use of natural resources. In addition, the impacts on biodiversity and natural ecosystems should be considered as an integral part of all afforestation/reforestation projects carried out under the CDM.

LULUCF within UNFCCC: http://unfccc.int/methods_and_science/lulucf/items/1084.php

CDM within UNFCCC: http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

Enhancing synergy between international conventions

The objectives of international agreements related to biodiversity and climate change are often mutually supportive. For example, it has been acknowledged that addressing the links between biodiversity and climate change plays an important role in reaching the international goals on sustainable development (e.g. Millennium Development Goals). Consequently, the importance of combining the implementation of different international environmental and biodiversity-related agreements is increasingly recognised.

The seventh meeting of the CBD COP in 2004 requested the Joint Liaison Group (JLG) of the Rio conventions (i.e. CBD, UNFCCC and UNCCD) to consider options for enhanced cooperation (CBD Decision VIII/30). These options are to be presented for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) prior to the ninth meeting of the CBD COP in 2008 in Germany.

One of the first initiatives for cooperation was an informal joint meeting of the UNFCCC and CBD SBSTTA members in Montreal in 2005. Given its informal nature, the meeting did not result in any official output. Nevertheless, the meeting has advanced a shared understanding of the interlinkages between climate change and biodiversity.

• Addressing climate change within EU biodiversity policy

Biodiversity and climate change have been integral elements of EU environmental policy since the establishment of the fifth Community Action Programme on the Environment in 1993.¹ However, addressing the interlinkages between biodiversity and climate change has become a more prominent part of EU policy with the adoption of the European Biodiversity Strategy and related Action Plans (COM(1998)42 and COM(2001)162).

EU biodiversity policy has traditionally focused on the threats posed by the changing climate on biodiversity and ecosystems, including the ways ecosystems can adapt to the impacts of climate change. More recently, attention has been given to the effects that climate change mitigation and adaptation measures, such as afforestation, reforestation and biofuel production may have on biodiversity (e.g. the “Message from Malahide 2004”²).

¹ Resolution of the Council and the Representatives of the Governments of the Member States, meeting within the Council of 1 February 1993 on a Community programme of policy and action in relation to the environment and sustainable development.

In addition, the role of biodiversity and fully-functioning ecosystems in mitigating and assisting adaptation to the impacts of climate change is increasingly acknowledged.³ For example, ecosystem services such as carbon retention, flood prevention and erosion control can play an important role in mitigating climate change and its impacts.

The current EU policy framework for biodiversity and climate change has been outlined by the recent Commission Communication “Halting the Loss of Biodiversity by 2010 – and Beyond”, which was published in May 2006 (COM(2006)216). The Communication and related EU Action Plan address the above-mentioned links between biodiversity and climate change (see also Box 1, below).

Natura 2000 – the role of a coherent ecological network

It has been acknowledged that the fragmentation of ecosystems and landscapes in Europe can significantly hinder species’ ability to adapt to climate change. Highly fragmented landscapes present significant barriers to species that are trying to track suitable habitats in changing ecological conditions.

The Habitats and Birds Directives (92/43/EEC and 79/409/EEC) set out the legal basis for the Natura 2000 network. The Directives include provisions for the identification and designation of individual sites. In addition, they contain specific provisions to promote overall coherence of the Natura 2000 network, expressed as connectivity between Natura sites (Art. 10 of the Habitats Directive and Art. 3 of the Birds Directive).

In the light of climate change, one of the most pressing issues for the management of the Natura 2000 network is the promotion of connectivity and coherence of the wider EU land and seascape. This need has also been acknowledged by the recently adopted EU Biodiversity Communication and Action Plan, which places priority on enhancing the coherence, connectivity and resilience of protected areas in Europe, comprising Natura 2000 as well as non-Natura 2000 areas (Action A1.2.3).

² Stakeholder Conference “Biodiversity and the EU - Sustaining Life, Sustaining Livelihoods” (Malahide, Ireland, 2004): http://ec.europa.eu/environment/nature/biodiversity/develop_biodiversity_policy/malahide_conference/pdf/conference_report.pdf

³ Commission Communication on “Halting the Loss of Biodiversity by 2010 – and Beyond” - Impact Assessment (COM(2006) 216 Annex).

Box 1. Summary of the targets for biodiversity and climate change in the EU Action Plan to 2010 and Beyond

Policy Area 2: The EU and global biodiversity

TARGET: International governance for biodiversity more effective in delivering positive biodiversity outcomes by 2010, e.g. enhancing integration of biodiversity into global processes related to climate change.

**Policy Area 3: Biodiversity and climate change
Objective 9. To support biodiversity adaptation to climate change**

TARGET: 8 per cent reduction in greenhouse gas emissions achieved by 2010.

TARGET: Global annual mean surface temperature increase limited to max 2°C above pre-industrial levels.

TARGET: Climate change adaptation or mitigation measures from 2006 onwards delivering biodiversity benefits, and any negative impacts on biodiversity prevented or minimised.

TARGET: Resilience of EU biodiversity to climate change substantially strengthened by 2010.

Supporting Measure 3: Building partnerships for biodiversity

TARGET: Key stakeholder groups actively engaged in conservation of biodiversity in each Member State, e.g. establish a Biodiversity and Climate Change Adaptation Task Force at EU level.

For more information, including detailed actions, see the EU Action Plan to 2010 and Beyond (COM(2006)261): http://ec.europa.eu/environment/nature/biodiversity/current_biodiversity_policy/biodiversity_com_2006/index_en.htm

• EU climate change policy and the role of biodiversity

The need to establish an EU policy for climate change was initially identified by the European Parliament in its Resolution in 1986 (OJ C255 13.10.86) and the first Commission Communication on the subject, called “the Greenhouse Effect and the Community”, was adopted two years later in 1988 (COM(88)656). Since the establishment of the UNFCCC (1992) and the adoption of the Kyoto Protocol (1997), the development of EU climate change policy has gathered speed, resulting in a number of associated initiatives at the Community level.

Current EU climate change policy can be seen as a combination of several Community legislative instruments and policy papers. In general, these include both overarching policy papers outlining the Community’s strategy and response to climate change, and specific initiatives addressing sectoral issues such as, for example, emission reduction and renewable energies. The key Community initiatives on climate change include, amongst other things, the Community Strategy to limit carbon dioxide emissions and to improve energy efficiency (1992), the Commission’s working paper on further options for Community’s Climate Change Strategy (1995) and the Communication on the possibilities for the post-Kyoto era adopted in 2005.⁴

In addition, the European Climate Change Programme (ECCPI and ECCPII) forms an integral part of the EU climate change policy. The ECCP is a Commission initiative, involving stakeholders from industry, Member State governments, non-governmental organisations (NGOs) and independent experts, aiming to develop measures and policy proposals to address climate change. The first ECCP was established in 2000 and was followed by the second ECCP in 2005.⁵

As regards biodiversity, the impacts of climate change on ecosystems and species, and the subsequent effects on human wellbeing, have been an important element in raising concerns over climate change in the EU. Yet, the actual linkages between biodiversity and climate change have gained only little attention within the policies themselves. During recent years, however, issues related to adaptation to climate change have become increasingly addressed. Consequently, biodiversity is obtaining a more prominent position in the discussions on EU climate change policy.

Adaptation is one of the focus areas of the ECCP II. A special working group on impacts and adaptation has

⁴ COM(92)246, SEC(95)228, COM(2005)35 respectively.

⁵ European Climate Change Programme: <http://ec.europa.eu/environment/climat/eccp.htm>

been set up with a view to improve Europe's resilience to climate change impacts and encourage the integration of adaptation into EU climate change policy. The process of this working group consists of a series of ten sectoral expert meetings looking at adaptation issues for different sectors, including biodiversity. The outcomes from the expert meetings will feed into a Commission Green Paper on the EU's role in climate change adaptation. The Green Paper is envisaged to be launched during a conference on adaptation to climate change, organised by the Commission in February 2007. The outcome of the experts' meeting on biodiversity in May 2006 is summarised in Box 2.

Links between biodiversity and reducing the EU's CO₂ emissions

Under the Kyoto Protocol, the EU has committed itself to reducing its greenhouse gases emissions by 8 per cent below 1990 levels during the first commitment period of the Protocol in 2008–2012. This target is shared between the 15 countries that were EU Member States at the time of the EU's ratification of the Protocol in 2002.⁶ In addition, the 10 Member States that joined the Union in 2004⁷ have taken on individual reduction targets of 6 or 8 per cent.

The Protocol gives its Parties, including the EU Member States, a possibility to use carbon sinks as a means to offset their CO₂ emissions (Articles 3.3 and 3.4 of the Protocol). In the context of the Protocol, carbon sinks refer to natural (e.g. oceans and forests) or artificial systems that remove or are used to remove CO₂ from the atmosphere.

The Kyoto Protocol allows the use of carbon sinks both at national level and in the context of the Protocol's Clean Development Mechanism. At the national level, the EU Member States are entitled to decide whether they wish to use carbon sinks in reaching their national emission reduction targets. On the other hand, the application of carbon sinks under the CDM arrangements falls outside the current scope of the EU emission trading scheme, i.e. European companies cannot use credits from CDM carbon sink projects to reach their emission targets.⁸ The CDM reforestation and afforestation projects remain, however, relevant also in the EU context as, contrary to private enterprises, they give the Member States the opportunity to engage in CDM credit purchase programmes. These programmes

act as a general framework to support mitigation of and adaptation to climate change in developing countries.

Box 2. Summary of the recommendations made by the ECCP II expert group on biodiversity

General

- Climate change considerations should be integrated into the Community and Member States' biodiversity policies.
- Consideration of climate change and biodiversity issues should be integrated into other sectoral policies.
- Biodiversity concerns should be integrated into mitigation and adaptation policies and measures of other sectors.

Protected areas and landscape-scale management

- To address climate change, biodiversity policies should encompass both protected areas and the wider countryside.
- Landscape-scale connectivity and permeability should be improved.

Coordination

- International coordination should be focused on as species disperse and their distribution becomes trans-boundary.
- Adapting to climate change could be addressed a) as a part of the existing policies for biodiversity conservation, b) as a separate overarching policy on top of the existing policies, or c) via an integrated landscape approach.
- The reform of the Common Agricultural Policy (CAP) could be a mechanism to improve the ecological coherence and connectivity of European landscapes.

Research

- Research themes important in addressing adaptation to climate change include, *inter alia*, *in situ* monitoring, field experiments, adaptation strategies, interactions and possibilities for synergy with other sectors.
- The link between scientific evidence and conservation practice should be improved.

Outcomes of the ECCP II experts group meeting on biodiversity (May 2006): http://forum.europa.eu.int/Public/irc/env/eccp_2/library?l=/impacts_adaptation/biodiversity/biodiversity_finalminute/_EN_1.0_&a=d

⁶ Council Decision 2002/358/EC of 25 April 2002.

⁷ With the exception of Cyprus and Malta that do not have emission reduction obligations under the UNFCCC (i.e. not included in UNFCCC Annex 1).

⁸ The EU Emissions Trading Directive (2003/87/EC) and its amending Directive (2004/101/EC) (i.e. the "Linking Directive").

In principle, the application of natural carbon sinks within the Kyoto Protocol can function as an incentive to maintain and/or increase the carbon sequestration by ecosystems, in particular through afforestation and reforestation. The biodiversity-related benefits will, however, depend greatly on the extent of the application of carbon sinks and the approach adopted at national level. In general, carbon sinks have not yet been widely used as a part of the national emission reduction schemes.

Biodiversity vs. biomass – conflicting interests

The development of renewable energy sources is a central element of EU climate change policy. The production of energy from biomass plays an important role in the EU's strategy on renewable energies as set out in the Renewable Electricity Directive (2001/77EC). Biomass electricity is one means of reaching the Community target of 12% of energy consumption from renewables. According to the 2003 Directive on Liquid Biofuels (2003/30/EC), biofuels should make a 5.75% contribution to the total renewable energy consumption. Biomass will also play a role in the upcoming Directive on heat from renewable energy sources.

The use of biomass for energy production has been strongly supported by different stakeholders, including the European Commission. The European agricultural and forestry sectors have become increasingly enthusiastic about the potential revenues created by biomass production. In order to further enhance the uptake of biomass energy within the Community, the Commission published an EU Biomass Action Plan in 2005 (COM(2005)628). The Action Plan states that if the EU made full use of its potential, it would be able to more than double its biomass use by 2010.

Supporting the production and use of biomass can, however, have negative effects on environment and biodiversity, both within and outside the EU, if poor standards are applied. Favouring intensive monocultures of biofuel crops can significantly reduce the species and habitat diversity within agricultural and/or forest ecosystems, for example by bringing previously uncultivated or marginal agricultural land into intensive use. Converting land for biofuel crops production can alter the structure and functioning of ecosystems resulting in changes in the provisioning of ecosystem services. Furthermore, the cultivation of non-native biofuel crops (e.g. Elephant grass) can increase problems caused by invasive alien species.

Despite the potential negative impacts, the links between biomass production and biodiversity have not been comprehensively addressed in the context of the current EU renewable energy policy framework. For example, the relevant EU documents provide no reference to the possible risks of using invasive alien species in biofuel production.

• The biodiversity/climate change interface within other EU policy sectors

Policies in various other sectors are also relevant in the context of biodiversity and climate change. The EU's agricultural policy and Community initiatives on forestry recognise the important role of forest ecosystems in the mitigation of and adaptation to the effects of climate change.⁹ In addition, the production of renewable energies, including biomass, is supported by several EU policy sectors, for example by the regional and rural development policies that also relate to agriculture and forestry.¹⁰

As regards EU development policy, the EU has made a commitment to assist third countries in combating climate change.¹¹ In particular, adaptation to the negative effects of climate change is central in the Community's support to the least developed countries and small island developing states. Assistance is also given to the development of sustainable energy resources, including biomass, in third countries.¹² Even though the links between biodiversity and climate change in principle fall under the general objectives of the EU policy, i.e. supporting global sustainable development and the achievement of the Millennium Development Goals, EU development policy does not specifically address these links.

In addition, it has been estimated that a significant portion of the EU's future biomass energy demand, biofuels in particular, will be fulfilled by imports from third countries. Therefore, a number of EU initiatives (e.g. the EU Biomass Action Plan) support the production of biofuels in third countries. If not managed wisely, however, as within the EU, the production of biofuel crops in third countries can have a negative effect on biodiversity and ecosystems.

⁹ European Agricultural Fund for Rural Development (EAFRD) (Regulation (EC) No 1698/2005), the EU Forest Action Plan (COM(2006)302).

¹⁰ Regional Development Fund (ERDF) (Regulation (EC) No 1783/1999 and) and the Cohesion Fund (Regulation (EC) No 1084/2006).

¹¹ European Union Development Policy - "The European Consensus" (OJ 2006/C 46/01).

¹² E.g. The EU Strategy for Africa (COM(2005)489).

For example, a number of scientists and NGOs have expressed concerns over the conversion of natural and semi-natural rainforests into biofuel monocultures. These possible negative effects have not yet been adequately addressed in the context of the relevant EU policies and initiatives.

• **Future developments and challenges**

Supporting adaptation to climate change

The European Commission currently explores the scope for a policy strategy on adaptation to the impacts of climate change. The efforts of ECCP II working group on impacts and adaptation, and the upcoming Commission Green Paper on the EU's role in climate change adaptation form a part of this Commission initiative.

The ECCP II biodiversity expert group agreed that an assessment of impacts on biodiversity from climate change adaptation and mitigation measures should take a prominent role in the elaboration of the Commission Green Paper as well as in the ECCP II process as a whole. The group stressed that the activities regarding climate change and biodiversity, set out in the EU Biodiversity Communication, should be pursued.

In principle, adaptation of biodiversity to climate change could be addressed either as a part of the existing Community policies for biodiversity conservation or as a separate, overarching policy. Since the current Community biodiversity policies mainly seek to conserve species and habitats, the issues related to adaptation of biodiversity to climate change might be best dealt with through an integrated approach to landscape planning and management.

These options have also been identified by the ECCP II biodiversity experts. However, no particular recommendations have yet been provided regarding the relevance and possible application of these policy options in the future (e.g. Community vs. national level application).

Enhancing the connectivity of European landscapes

It is widely acknowledged that even though protected areas, including Natura 2000 sites, are likely to remain important reservoirs of biodiversity in spite of fluctuations in species composition brought about by climate change, they are unlikely to accommodate all climate

change impacts on biodiversity. Therefore, enhancing the ecological coherence and connectivity within landscapes and between protected areas is of primary importance.

To improve the general connectivity of landscapes, state-of-the-art science recommends enhancing both the structural and functional aspects of connectivity. Increasing the structural connectivity could entail further development of ecological corridors, whereas the functional connectivity would mainly consist of the overall improvement of landscapes' permeability to species such as by increasing habitat diversity. It must be noted, however, that enhancing the movement of species within landscapes might also support the invasion of alien species within the EU, in particular given changing climate conditions.

In order to address the issues related to connectivity, EU biodiversity policy must encompass the aspects related to protected areas as well as to the wider countryside. Improving the implementation of the Habitats and Birds Directives' provisions on coherence and connectivity could contribute to increasing the connectivity within the Natura 2000 network. In addition, the EU agricultural and rural policies, including the future reform of the Common Agricultural Policy (CAP), provide important opportunities for enhancing biodiversity on a landscape scale.

Increasing policy coherence and synergies

Issues related to land use planning in the EU fall under Member State competence. Therefore, advancing the integration of connectivity-related aspects into spatial planning can mainly take place through related national policies. Enhancing cooperation and clarifying the roles between the Community and the Member States is of crucial importance in securing adaptation of biodiversity to climate change in the EU. The Community could take a more proactive role in supporting the Member States in addressing these aspects in the future, for example by taking up opportunities provided by sectors of Community competence, such as the agriculture and rural development policies.

Improving the coherence and synergies between different EU policy sectors as well as international agreements plays an important role in improving the adaptation of ecosystems and species to climate change and in assuring that the measures aimed at climate change mitigation do not result in negative effects on biodiversity.

For example, even though the application of carbon sinks might potentially support the maintenance or increase of biological diversity, the biodiversity value of biomass-rich monocultures is low and planting of such could decrease the natural biodiversity in an area.

The impacts of climate change on biodiversity (including mitigation/adaptation measures) should be systematically integrated into other EU policies, such as climate change policy, the Common Agricultural Policy, policies related to the promotion of renewable energies, including development policies, and regulations concerning invasive species. In addition, consideration of the role of natural ecosystems in assisting human societies to adapt to climate change should be addressed as a fundamental part of all relevant policy sectors.