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Options for an EU vision and target for biodiversity beyond 2010

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1. INTRODUCTION

Biodiversity – the variety of ecosystems, species and genes – is the world’s natural capital. It is integral to sustainable development by providing vital goods and services, such as food, carbon sequestration, and seas and water regulation that underpin economic prosperity, social well-being and quality of life. Together with climate change, loss of biodiversity is the most critical global environmental threat and gives rise to substantial economic and welfare losses.

In 2001, the EU set itself the target to *halt biodiversity loss in the EU by 2010*. In 2002, it signed up to a global target of significantly reducing biodiversity loss worldwide by 2010. Efforts to tackle biodiversity loss were subsequently stepped up, and an EU Biodiversity Action Plan (BAP) was adopted by the Commission in 2006 to accelerate progress¹.

Despite the efforts to date, however, there are clear indications that the EU will not achieve its target².

At its March 2009 meeting on the environment, the Council called for a new EU vision and target for biodiversity, building on and contributing to the international deliberations on a global vision for biodiversity beyond 2010 as part of an updated strategic plan to be adopted by the end of 2010 to implement the United Nations Convention on Biological Diversity (CBD).

Consultations with stakeholders on development of a post-2010 biodiversity policy have been held in recent months. At EU level, the high-level stakeholder conference organised by the Commission in Athens on 26 and 27 April 2009 was a milestone. The resultant ‘Message from Athens’ underlines the need for a post-2010 target.

This Communication is a first step towards this objective. It presents options for development of a post-2010 EU vision and target. It aims to facilitate further informed debate by identifying the issues at stake and laying out the work that is needed to be able to set and realise ambitious EU goals. Based on this debate, and further work to provide the evidence necessary to underpin the choice among different levels of ambition for an EU target, the Commission will present an EU biodiversity strategy by the end of the year.

2. THE CASE FOR BIODIVERSITY PROTECTION

2.1. Biodiversity status and trends in Europe and globally

Several authoritative reports³ confirm that global biodiversity remains under severe threat, with losses occurring at 100 to 1000 times the normal rate. More than a third of species assessed are facing extinction and an estimated 60% of the Earth’s ecosystems have been degraded in the last 50 years, with consequences for the ecosystems services that depend on them. Marine biodiversity is also under pressure, and approximately 90% of the planet’s biomass lives in the ocean. Habitat destruction, fragmentation and degradation caused by land-use change, over-exploitation, unsustainable practices (e.g. overfishing), invasive species, ocean acidification, pollution and, increasingly, climate change are the strongest pressures on biodiversity. The current rate of population growth and growing per capita consumption together with insufficiently developed market structures and institutions to

¹ COM(2006) 216.

² COM(2008) 864.

³ ‘Growing within limits’, Netherlands Environmental Assessment Agency, October 2009; ‘Millennium Ecosystem Assessment’, 2005; ‘IUCN Red List’, November 2009.

allocate natural resources optimally are driving biodiversity loss, with resources being used up faster than they can be replaced.

There is mounting evidence that the status of many ecosystems is reaching or has already reached the point of no return⁴. In the same way that a 2 degree rise in global temperature above pre-industrial levels would lead to catastrophic climatic change, the loss of biodiversity beyond certain limits would have far-reaching consequences for the very functioning of the planet. These limits are still being defined, but it is already clear to the scientific community that the current rate of biodiversity loss puts the future well-being of citizens in the EU and worldwide at risk.

In Europe, conservation assessments of species and habitats show that, despite some successes, the overall situation has continued to deteriorate. The first large-scale assessment of Europe's most vulnerable habitats and species protected under the Habitats Directive showed that only 17% had a favourable conservation status, as required under the Directive. Grasslands, wetlands, estuary and coastal habitats are at greatest risk⁵. The rate of loss of marine biodiversity is also alarming. In the case of ecosystem services in the EU, there is, for instance, evidence that the carbon storage capacity of certain soils in arable land, which are heavily dependent on soil biodiversity, is decreasing⁶. Appropriate forms of land and maritime management are needed to maintain and enhance ecosystems that provide ecosystem services to society at large. Important marine and coastal ecosystem services such as those provided by salt marshlands may also be lost with the disappearance of coastal wetlands.

2.2. Implications of biodiversity loss

As well as having intrinsic value, biodiversity delivers 'value' through ecosystem services, for example through the provision of food and water, by offering natural protection from floods and storms, and by regulating the climate.

The environmental implications of biodiversity loss range from micro-level changes to the collapse of entire ecosystems and services, which could eventually impact our future prosperity. Although the role of biodiversity in maintaining ecosystem functioning is not fully understood, scientific evidence shows that ecosystems characterized by high species diversity are more productive, more stable and resilient, less vulnerable to external stresses and pressures and they contribute to a higher overall ecosystem functionality⁷. Since nature is both the most effective climate regulator and the largest carbon sink, biodiversity loss jeopardises climate objectives. Strong and resilient ecosystems are our life insurance against climate change, providing a 'natural fix' for mitigating and adapting to its consequences⁸.

There are also economic costs associated with biodiversity loss and ecosystem degradation that, until recently, have been largely overlooked. The annual loss of ecosystem services is estimated equivalent to €50 billion, while by 2050 the cumulated welfare losses were estimated equivalent to 7% of GDP⁹. Biodiversity is not only valuable in its own right, but also the source of ecosystem services that provide valuable inputs to the economy that are often not recognised by markets. Proper valuation of ecosystem services is therefore essential.

⁴ 'A safe operating space for humanity', *Nature*, 23 September 2009.

⁵ COM(2009) 358.

⁶ CLIMSOIL: http://ec.europa.eu/environment/soil/review_en.htm.

⁷ 'Biodiversity and ecosystem functionality', *Nature*, 12 July 2007.

⁸ 'Convenient solutions to an inconvenient truth: ecosystem-based approaches to climate change', World Bank, 2009; 'TEEB Climate Issues Update', September 2009; 'The Natural Fix? The role of ecosystems in climate mitigation', UNEP, June 2009.

⁹ COM(2009) 400.

This is also a key interim finding of an international study on 'The Economics of Ecosystems and Biodiversity' (TEEB)¹⁰.

Also, since biodiversity provides many of the same services as man-made technological solutions, often at significantly lower cost, protecting and restoring biodiversity provide some cost-effective opportunities for climate change mitigation or climate change adaptation¹¹. As natural resources are inputs to a wide range of economic activities, restoring their status and enhancing their use may raise productivity or develop new sources of growth, through eco-innovation process.

Finally, biodiversity and ecosystem services make a crucial contribution to human well-being. They secure the livelihoods of millions all round the world and are essential to reduce poverty and achieve the millennium development goals. Biodiversity is also a food resource-base. Genetic diversity, in particular, acts as a buffer against crop losses caused by pests and diseases and against climate change, thereby safeguarding food security. In the EU, decline in the viability of farming practices favourable to biodiversity led to the loss of some critical ecosystem services in rural areas and of fertile agricultural land, with land abandonment causing economic and social losses in rural communities in particular. In the marine environment the situation is similar for some fishing communities that have been severely affected by the depletion of fish stocks. These jobs are at risk if ecosystems continue to degrade. Coastal ecosystems help reduce the vulnerability of coastal communities to extreme weather events, mitigate coastal erosion, provide healthy habitats for fish stocks, and have a significant capacity to store carbon dioxide.

2.3. Achievements and shortcomings of the current policy

Biodiversity is a key environmental priority of the EU and its objectives are integrated in the EU Sustainable Development Strategy. The EU 2010 target was the prime catalyst for development of the Biodiversity Action Plan in 2006 and the increased efforts to implement fully the EU Birds and Habitats Directives which, together, form the backbone of the EU nature conservation legislation. The EU's Natura 2000 network, which covers 17% of the EU's territory and is the largest network of protected areas in the world, is a success story. The ecosystem approach is at the basis of the Water Framework Directive¹² and the Marine Strategy Framework Directive¹³, which aim at achieving good status of ecosystems, having regard to cumulative pressures. Other benefits have and will continue to come from implementation of legislation focusing on reducing certain pollutants and of other legislation that benefits biodiversity, efforts to better reflect biodiversity concerns in other policy areas, such as the common fisheries policy since the 2002 reform, and greater financial opportunities in favour of biodiversity under various EU policies, including the common agricultural policy (CAP).

Efforts have also been made to reduce the impact of production and consumption patterns on biodiversity both within and outside the EU. For example, the Sustainable Consumption and Production Action Plan aims at harnessing internal market forces, whereas the Forest Law Enforcement Governance and Trade Action Plan (FLEGT) and the proposed regulation laying

¹⁰ 'TEEB Interim Report', May 2008; 'TEEB for Policy-Makers', November 2009: <http://www.teebweb.org>.

¹¹ For instance, investments from restoring tropical forests show very high returns: typical costs stand around 3 500 \$/ha, whereas conservative estimates of annual benefits from public goods and services of these ecosystems, from carbon capture to flood and erosion control, fall in the range of 7 000 \$/ha.

¹² Directive 2000/60/EC.

¹³ Directive 2008/56/EC.

down the obligations of operators who place timber and timber products on the market seek to put a stop to the erosion of natural capital stock.

Yet, despite these achievements, several factors have prevented the EU from achieving its 2010 target and need to be addressed in the biodiversity policy for the period beyond 2010.

First, there are still **implementation gaps** in establishment of the Natura 2000 network, which is not set to be complete on land until 2010 and at sea until 2012. Targeted measures under the EU nature conservation legislation have proved capable of reversing the decline in threatened species and habitats, but there have been delays and problems with implementation, including insufficient resources allocated to this effort.

Second, major **policy gaps** remain to be addressed. In particular, the policies on soils and invasive species require further development, as they are crucial to addressing biodiversity loss. So far, at EU level, related requirements of cross-compliance have been established under the common agricultural policy. Nor does the current policy sufficiently address ecosystem services. These will not be sustained by biodiversity conservation measures alone: high levels of species and habitat conservation are just one, key, component, but many services are provided outside protected areas. As a step towards filling this gap, the Commission will complete a first set of biophysical maps of ecosystem services and the European Environment Agency (EEA) will finalise its ongoing work on auditing and measuring ecosystem services by the end of 2010.

Moreover, while EU regulations contribute to ensuring that the environmental impacts of infrastructure development and spatial planning at EU level are minimised, further benefits could be reaped from better coordination, in accordance with the subsidiarity principle, with the development of and investment in 'green infrastructure'¹⁴ in the 83% of EU territory falling outside the Natura 2000 network. Such an approach would call for the restoration of ecosystems insofar as possible to strengthen their resilience and sustain key services they provide, while also achieving conservation objectives and enabling Member States to adapt to climate change. The Commission is promoting and supporting exchanges of best practice as a basis for an EU strategy on green infrastructure to be developed after 2010.

Third, although a great deal of information has been gathered since the 2010 target was adopted, significant **knowledge and data gaps** remain at all levels – Member State, EU and global. Data gathering, analysis and validation have not followed a comprehensive approach due to the complexity of biodiversity, which cannot be reduced to a single variable but requires development of a set of inter-related indicators. In addition, reporting by Member States under the Birds and Habitats Directives has been uneven, as have biodiversity monitoring efforts.

Work is now gathering pace to develop a baseline and related indicators within the EU and at global level. A set of European indicators are being developed which, together with the data gathered for implementation of the Habitats Directive, which are likely to be the most advanced in the world. In June 2010, the EEA will finalise the first EU biodiversity baseline, launch a Biodiversity Information System for Europe (BISE) and produce a strategic plan to fill the gaps, in particular indicators for ecosystems and ecosystem services. In the marine environment, many ecosystems and habitats are poorly understood, species un-described, and knowledge of marine genetic resources is in its infancy. The Marine Strategy Framework

¹⁴ 'Green infrastructure' is an interconnected network of natural areas, including agricultural land, greenways, wetlands, parks, forest reserves, native plant communities and marine areas that naturally regulate storm flows, temperatures, flood risk and water, air and ecosystem quality.

Directive will lead to a better assessment and monitoring of changes in coastal and marine ecosystems, including those resulting from climate change and impacts on biodiversity, and should benefit from efforts such as the European Marine Observation and Data Network (EMODNET) and Maritime Spatial Planning.

At global level, the EU is supporting efforts to establish an Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) to replicate the success of the InterGovernmental Panel on Climate Change (IPCC). It should build strong consensus by validating the existing scientific evidence and contribute to mainstreaming and integrating biodiversity and ecosystem services into policy making processes to ensure long-term human wellbeing. A decision on whether or not to establish IPBES is expected in spring 2010.

Fourth, **integration** of biodiversity concerns into other policies must be improved. The evolution of biodiversity is a good indicator of the environmental friendliness of human activity and society. Action to address problems in other policy areas has sometimes proved incompatible with biodiversity objectives and even had perverse effects. The benefits that resilient ecosystems provide are often overlooked. More needs to be done to engage other sectors systematically in formulating responses to the biodiversity challenge, underpinned by clear indicators to measure progress. Policies for biodiversity and other policies must be coherent and mutually reinforce each other.

Addressing the problems identified in the Green Paper on reform of the common fisheries policy is a priority in order to deliver an ecologically sustainable policy in 2012 based on scientific advice and effectively tackling overcapacity, and to better contribute to biodiversity targets. Strengthening rural development policy with a view to developing ecosystem services by preserving and enhancing farming and forestry with a high nature value in the context of the CAP is essential. It will also be important to optimise use of the Structural Funds, enhancing complementarities and synergies between various strands of Community and other co-financing mechanisms to promote biodiversity objectives across all regions in the EU.

Further integration is a priority in external policy and in other policies closely interlinked with biodiversity. In addition to stepping up efforts to reduce the negative impact of these policies on biodiversity in the EU and globally¹⁵, more awareness is needed about the implications of biodiversity loss for the long-term sustainability of activities resulting from these policies, as well as the economic benefits they can harness from healthy ecosystems. This heightened awareness is also of crucial importance for developing countries that are directly affected by the effects of biodiversity loss.

Fifth, **funding** needs for biodiversity in the EU must be properly assessed, also taking into account the welfare benefits that ecosystems deliver. With regard to Natura 2000 sites, the Commission is carrying out an assessment of financing needs for the management of such sites based on input from Member States to obtain an accurate picture of the magnitude and distribution of needs. Early estimates show that only 20% of the total financing needs for managing protected areas in Europe are being met. In this regard, Member States could more systematically take advantage of the possibilities offered under rural development funding for agri-environment measures, including Member States with widespread areas of biodiversity-rich 'high nature value' farmland.

Finally, the issue of **equity** should be considered within the EU and at the global level. Given that biodiversity is not evenly spread and that trends differ from one region to another, the

¹⁵ The EU's ecological footprint is 4.7 global hectares per person, or double the EU's biological capacity, according to the EU footprint indicator.

burden of tackling the challenge is also spread unequally. This calls for a diversified policy toolbox combining regulation with market-based instruments. In addition to the important 'polluter pays' and 'full cost-recovery' principles already enshrined in environmental legislation, equity would suggest the enhanced application of payments for ecosystem services to reward those whose land provides these services from those who benefit.

At global level, the EU is committed to securing a successful outcome in 2010 from ongoing negotiations under the UN CBD on access to genetic resources and the fair and equitable sharing of benefits derived from their use. It is also committed to making a success of negotiations on reducing emissions from deforestation and forest degradation and including conservation as an essential first step towards a broader approach to valuating and rewarding ecosystem services. The promise of permaculture as an effective protector and restorer of biodiversity should be explored and enhanced. The EU also needs fully to assess the impact of its consumption patterns on biodiversity beyond its borders.

3. OPTIONS FOR A POST-2010 EU VISION AND TARGET FOR BIODIVERSITY

3.1. Towards a vision for 2050

There is broad consensus among stakeholders on what should be the main features of the new EU long-term vision for biodiversity. The vision should include a clear time-frame (up to 2050), reflect the urgency of the biodiversity crisis and the intrinsic and tangible values of biodiversity and the importance of the services it provides. It should be understandable and acceptable to the public, and should apply to the EU and global levels.

On this basis, the following elements could be used in preparing for an EU vision for 2050 in order to underpin the headline target to be set and help turn the vision into reality:

Biodiversity and ecosystem services – the world's natural capital – are preserved, valued and, insofar as possible, restored for their intrinsic value and so that they can continue to support economic prosperity and human well-being as well as avert catastrophic changes linked to biodiversity loss.

Discussions are underway at global level on a target for 2020. Against this background, the Commission considers that the EU should have a target and the options set out below take 2020 as a non-adjustable variable to ensure the relevance of the EU target in the international negotiations. Ten years is also the minimum needed to design, implement and assess action in the field of biodiversity, where responses are often slow and highly variable, and to make measurable and realistic progress. Moreover, other policies with strong links to biodiversity policy are also working with 2020 as their time-frame.

The 2020 headline target should be effective at securing progress towards turning the vision into reality; it should be measurable, achievable and cost-effective and should contribute to meeting the EU's international commitments on biodiversity.

Some of these criteria are inversely correlated. For instance, a low target might be more likely to be achieved, but is less likely to avoid reaching biodiversity 'tipping points'. These factors need to be weighed against each other to assess the overall suitability of the options proposed and decide the best target.

3.2. Levels of ambition

Four levels of ambition for a 2020 headline target are presented below in increasing order.

Option 1. Significantly reduce the rate of loss of biodiversity and ecosystem services in the EU by 2020

Option 2. Halt the loss of biodiversity and ecosystem services in the EU by 2020

Option 3. Halt the loss of biodiversity and ecosystem services in the EU by 2020 and restore them insofar as possible

Option 4. Halt the loss of biodiversity and ecosystem services in the EU by 2020 and restore them insofar as possible, and step up the EU's contribution to averting global biodiversity loss

The four levels of ambition will bring different benefits and costs and will require the development of more or less stringent policy actions and instruments. They build upon a common **policy baseline** that includes existing EU nature conservation and other biodiversity-related legislation plus legislation in other relevant policy areas, in particular climate and energy, the existing CAP and the reform of the CFP. It should be a priority to seize all opportunities to make progress towards biodiversity policy goals while at the same time delivering cost-effective climate change mitigation and adaptation. Since addressing certain pressures impacting biodiversity in the EU also requires international cooperation, also it will be important to deliver on existing international commitments, in particular under multilateral environmental agreements such as the Convention on Migratory Species (CMS), the Ramsar Convention on Wetlands and the African-Eurasian Migratory Waterbirds Agreement, and make further progress on the establishment of marine protected areas at international level.

All four options require establishment of a **scientific baseline** on the state of biodiversity and ecosystem services in Europe. This is essential in order to be able to measure progress. The baseline will not consist of a single number, but will be based on the current status of the main attributes of biodiversity: conservation of species and habitats, ecosystems and the most critical ecosystem services. Similarly, 'halting the loss' of biodiversity is not interpreted in absolute terms, but means keeping key attributes above the baseline. There is already knowledge available for setting a clear and reliable baseline, but further work is needed to translate this knowledge into specific, measureable and policy responsive indicators.

Research also needs to be stepped up to fill key knowledge gaps. These relate to the economics of biodiversity and ecosystem services, development and fine-tuning of indicators to allow measurability and defining how much pressure biodiversity can withstand before its loss becomes irreversible – with potentially catastrophic consequences. If established in 2010, an Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) would contribute greatly to these efforts, but action at EU level is also necessary. Ongoing work on all these issues needs to be intensified and completed.

Finally, although conservation must remain a key pillar of EU biodiversity policy, any new target must factor in the role of ecosystems and ecosystem services. The importance of ecosystem services is already recognised in the current policy and is for instance an important element of the Marine Strategy Framework Directive, as a part of the EU Integrated Maritime Policy¹⁶, but this has not yet sufficiently been turned into specific measures. It is important to identify and assess key ecosystem services and to factor them in to the future target. The level of ambition required by the target set will determine the degree to which they will be factored in, ranging from maintenance to full restoration.

¹⁶ COM(2009)540 final, 15.10.2009.

(Option 1) Significantly reduce the rate of loss of biodiversity and ecosystem services in the EU by 2020

This option would imply political acceptance that halting biodiversity loss in the EU is unattainable for the foreseeable future, and, therefore, setting a less ambitious target of 'significantly reducing' the rate of biodiversity loss by 2020. The aim would be to slow, rather than stop, biodiversity loss. The implication is that biodiversity would not necessarily be kept above the baseline. The extended time-frame would allow more time for action already implemented or being implemented to take effect, making it easier to demonstrate success. New knowledge and developments that have emerged since the 2010 target was set could be factored in to measures taken to achieve the target.

(Option 2) Halt the loss of biodiversity and ecosystem services in the EU by 2020

This option would entail keeping the current target, but postponing achievement to a later date. Like option 1, this would allow more time for actions already implemented or being implemented to take effect and for new knowledge and developments to be factored in. The aim would be the same as that of the 2010 target: to halt the loss of biodiversity, but also of ecosystem services in the EU. Achievement of the target would lead to recovery of certain ecosystems and of the services they support.

(Option 3) Halt the loss of biodiversity and ecosystem services in the EU by 2020 and restore them insofar as possible

This option would involve maintaining the existing biodiversity target and extending the deadline to 2020, while broadening its scope to encompass the need to ensure that key ecosystem services provided by biodiversity in the EU are sufficiently delivered and requiring restoration of ecosystems where they are failing to provide the services needed. Production of a first list and mapping of ecosystem services of EU importance by the end of 2010 will also help to define the scope of the maintenance and restoration efforts needed to achieve the objective.

Restoration objectives could be set based on the requirement to attain favourable conservation status for species and habitats as defined in the Habitats Directive. The current status of species and habitats as assessed by recent reporting under the Habitats Directive could serve as a benchmark.

This option recognises the scientific imperative of halting further biodiversity loss and factors in the significance of ecosystems of strategic importance to the EU.

(Option 4) Halt the loss of biodiversity and ecosystem services in the EU by 2020 and restore them insofar as possible, and step up the EU's contribution to averting global biodiversity loss

This option goes further than option 3: it recognises that it is in the EU's interest to take action to address biodiversity loss not only within the EU, but also beyond its borders. Recognising that most of the world's biodiversity is found outside the EU, tackling biodiversity loss within the EU alone will not be sufficient to avert severe consequences of continued loss on a global scale. This option calls for stepping up EU action to address the global biodiversity crisis.

This may entail measures aimed at further reducing the impact of EU consumption patterns on biodiversity elsewhere in the world and enhancing efforts to protect biodiversity in other countries, including through specific instruments.

4. NEXT STEPS

The setting of a post-2010 vision and target is not an end in itself. It marks the beginning of a process to put a new EU biodiversity strategy in place by the time the current target runs out.

There is no easy way to tackle biodiversity loss effectively. An evidence-based, integrated approach is needed that focuses on addressing the main pressures exerted on biodiversity and ecosystem services by specific sectors – land-use change, over-exploitation, invasive species, pollution and climate change. Sub-targets will need to be devised for each kind of pressure, sector or ecosystem, combined with cost-effective action at the appropriate level of intervention to deliver the desired results.

One thing is already clear: equitable policy solutions tailored to each specific situation will need to be considered. In other words, action and implementation will be needed at multiple levels: international, EU, national and sub-national. The approach taken in the EU BAP to share responsibility for implementation between all sectors and establish partnerships with Member States remains fully relevant. This will require an effective governance framework involving all actors concerned at different levels.

The Commission will continue its work in the course of 2010, including through further stakeholder consultations, to establish the evidence base necessary to further define the new EU policy framework. This will also contribute to the EU's strategy and objectives for negotiating the future international biodiversity framework.

