Effectively Addressing Climate Change and Biodiversity Loss

Climate change is a major threat to biodiversity. At the same time biodiversity also offers opportunities for climate change mitigation and adaptation. This is one of the main messages from the **fourth edition of the Global Biodiversity Outlook (GBO-4)**.

Increasing Resilience of Species and Ecosystems by Reducing Other Pressures

Mitigating climate change is clearly a key long-term priority and urgent action to reduce emissions is essential to limit the loss of biodiversity and related ecosystem services. However, at the same time, there is a need to address the other drivers of biodiversity loss which are more tractable over shorter time periods. Relieving these pressures, such as those associated with habitat loss, pollution, invasive alien species and unsustainable use, represent cost-effective options for making ecosystems more resilient to change. For example, ocean acidification, warmer ocean temperatures and rising sea levels can only be addressed in the medium to long term and through coordinated global action. Therefore mitigating additional stressors, such as land based sedimentation and pollution, overfishing and unsustainable coastal development, which can be carried out at local, national and regional levels can help to maintain the integrity and functioning of coral reefs in the interim. Reducing these pressures will be necessary to avoid potential tipping points, situations in which an ecosystem experiences a dramatic shift to a new state with significant changes to biodiversity and the services it underpins.

While efforts to mitigate and adapt to the effects of climate change could have large positive impacts on biodiversity, they could also have negative impacts if they are not appropriately designed. For example REDD+[1] climate change mitigation mechanisms have the potential to bring considerable benefits to biodiversity and to contribute to the attainment of sustainable development objectives. However, if carbon storage is maximized at the expense of biodiversity such approaches could potentially have undesirable impacts. For this reason a coherent and strategic approach to climate change adaptation and mitigation, one which takes into account impacts on biodiversity and opportunities for its conservation and sustainable use, needs to be taken.

[1] The acronym REDD+ is used here as a shorthand for "reducing emissions from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks in developing countries", consistent with paragraph 70 of decision 1/CP.16 of the UNFCCC, for convenience only, without any attempt to pre-empt ongoing or future negotiations under UNFCCC.

UNEP

Convention on Biological Diversity

2011-2020 United Nations Decade on Biodiversity

Pathways for Addressing Climate Change and Biodiversity Loss in Tandem Exist

Limiting climate change to two degrees Celsius warming while halting biodiversity loss, combating desertification and land degradation and meeting human development goals on nutrition, health, water and energy can be collectively accomplished if coherent and strategic action is taken as part of an integrated sustainability agenda. The GBO-4 and its supporting reports present plausible pathways for accomplishing this. These pathways do not represent a single set of actions but rather a suite of different approaches that could be used in developing a package of actions to address these challenges in a coherent way.

The different approaches identified include increasing agricultural productivity and efficiency, the conservation and restoration of degraded and fragmented habitats as well as making effective use of abandoned land, giving more attention to consumption patterns and waste reduction, and promoting approaches to bioenergy and wood production which account for their effects on biodiversity. Three broad pathways (see Figure 1), which make use of these approaches in different ways, were explored in GBO-4:

- ***Global Technology***: This pathway places an emphasis on elaborating large-scale technologically-optimal solutions, such as intensified production on relatively small areas, to increase agricultural yields, a reliance on market-based approaches and a high level of international coordination. The result is higher productivity on less land, therefore providing opportunities for the effective conservation of remaining nature areas.

- ***Decentralized Solutions:*** This pathway focuses on regional solutions such as an increased sustainable and biodiversity-friendly use of land resources and agriculture that is interwoven with natural corridors. Specifically it calls for innovative ecological solutions (ecological intensification) that combine technological advances and a reliance on ecosystem services. This pathway results in mosaic landscapes, consisting of a mixture of agricultural land interspersed with natural elements. The increased focus on harnessing ecosystem services prevents overexploitation and, therefore, land degradation.

- ***Consumption Change***: This pathway prioritizes changes in human consumption patterns, most notably by having per capita meat, dairy and egg consumption in line with dietary recommendations. It also calls for ambitious efforts to reduce waste in food consumption and production chains and to increase recycling and re-use of wood and paper. The overall effect of this pathway is a reduction in the global demand for crop production leading to a reduction in the need to convert natural areas for production purposes and a reduction in the need for other inputs such as water and fertilizers.

All three pathways require changes in society including much more efficient use of land, water, energy and materials, rethinking consumption habits and in particular major transformations of food systems. Ultimately, the combination of approaches would need to be tailored to national circumstances and conditions in order to be effective and the optimal or most effective combination would almost certainly require a mix of the different approaches.

Meeting climate change and biodiversity objectives will require the implementation of a package of actions. These actions have the potential to be mutually reinforcing if they appropriately account for the interactions between climate change, carbon sequestration and biodiversity. The Conference of the Parties to the Convention on Biological Diversity, in decision X/33, has already developed guidance on ways to conserve, sustainably use and restore biodiversity and ecosystem services while contributing to climate change mitigation and adaptation which can be used to help develop such a package of actions.

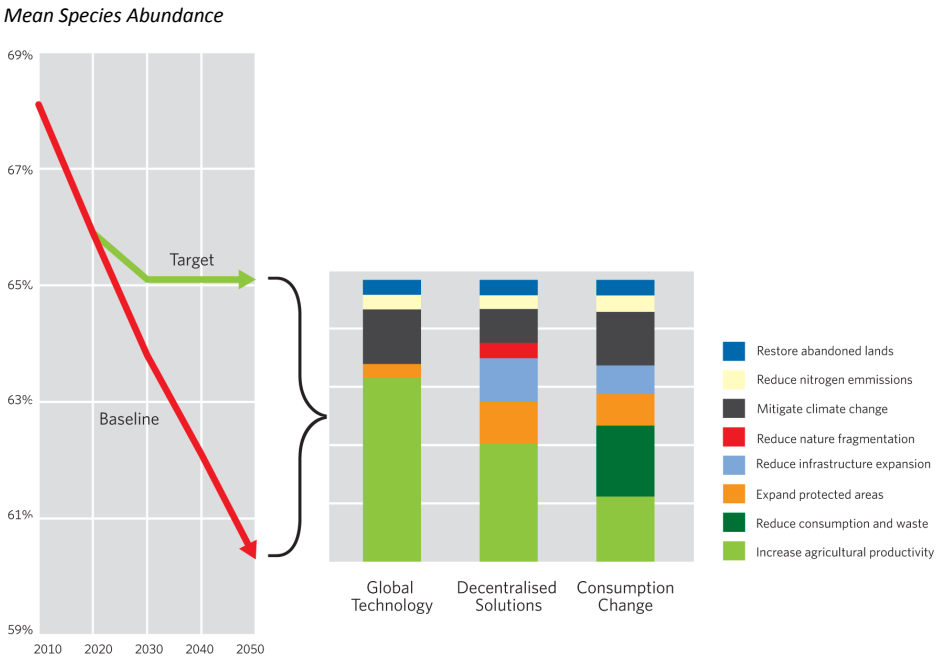

Figure 1 *- The red line illustrates the projected decline in mean species abundance, an indicator of the condition of biodiversity, between now and 2050 under a business as usual scenario. The green line illustrates the objective of slowing and eventually halting this decline. The gap between the business as usual baseline and the target can be addressed in several ways. The colored bars illustrate the different mixes of approaches explored as part of each pathway. In addition to halting the loss of biodiversity these pathways also put us on a path to achieve a much broader set of sustainability objectives in the longer term, including the alleviation of poverty, feeding the world, supplying clean water and energy and limiting the global temperature increase to two degrees Celsius.*

Coherent and Strategic Action is Needed

Delivering an effective response package will require that policies, at different levels and across government ministries, are coherent and mutually reinforcing. There is evidence that a suite of complementary policies including a combination of incentives, disincentives and enforcement can be particularly effective. For example the rapid decline in deforestation in the Brazilian Amazon, which has had positive effects on both biodiversity and climate change mitigation, was brought about through a mix of actions carried out by different levels of government including, among other things, an effective policy framework, economic incentives aligned with this framework**,** monitoring, enforcement, the expansion of protected areas and increased public participation.

Climate change and biodiversity objectives which are not well aligned will at best be inefficient and at worst counterproductive in moving the world community towards meeting global development priorities including poverty, hunger, health and a sustainable supply of clean energy, food and water. The need for the implementation of a coherent and strategic set of actions to bring the world in harmony with nature is recognized in the Strategic Plan for Biodiversity 2011-2020. The Strategic Plan, which was adopted by the Conference of the Parties to the Convention on Biological Diversity in 2010, is a ten-year framework for action by all countries and stakeholders to save biodiversity and enhance its benefits for people. It is comprised of a shared vision, a mission, strategic goals and 20 ambitious yet achievable targets known as the Aichi Biodiversity Targets.

The fourth edition of the Global Biodiversity Outlook provided a mid-term assessment of progress towards the implementation of the Strategic Plan for Biodiversity. Its overall conclusion is that progress is being made towards the implementation of the Strategic Plan and to the attainment of the majority of the Aichi Biodiversity Targets. However, in most cases this progress will not be sufficient to achieve the targets set for 2020, and additional action is required to keep the Strategic Plan on course.

This conclusion is a reminder that continuing with ‘business as usual’ in our present patterns of behavior, consumption, production and economic incentives will not allow us to realize the vision of a world with ecosystems capable of meeting human needs into the future. However if governments seize this opportunity and unite once again around a common agenda this vision is still within our reach.

Learn More

- Global Biodiversity Outlook 4 and its related reports - www.cbd.int/gbo4
- Strategic Plan for Biodiversity 2011-2020 - www.cbd.int/sp
- Decision X/33 on Climate Change and Biodiversity - www.cbd.int/decision/cop/default.shtml?id=12299
- The Convention on Biological Diversity’s Climate Change Programme - www.cbd.int/climate

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