G7 GERMANY 2015

G7 Elmau Progress Report

Biodiversity – A vital foundation for sustainable development

Baobab trees, scientific name Adansonia*, are recognizable from their distinctively broad trunks. Occurring naturally in the arid zones of continental Africa, Madagascar and Australia, the trees store massive amounts of water in their trunks to cope with seasonal droughts. The fruit of the Baobab is shaped like a large pod and known as "monkey bread" or "cream of tartar fruit" and is rich in vitamin C.*

Gil.K/Shutterstock

Federal Ministry
for Economic Cooperation
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G7 GERMANY 2015

d·i·e
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This report was prepared by Germany as chair of the G7 Accountability Working Group. It reflects the consensus of this group. In the preparation, the German government was supported by a team of researchers from the department Environmental Policy and Natural Resources Management of the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, and from the Science-Policy Expert Group at the Helmholtz Centre for Environmental Research (UFZ), Leipzig. However, sole responsibility for the text rests with Germany as chair of the G7 Accountability Working Group.

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We are ... committed to intensifying our efforts to slow the loss of biodiversity.

2011 Deauville Summit

Rice terraces. Banaue, Philippines. *UFZ/André Künzelmann*

FOREWORD

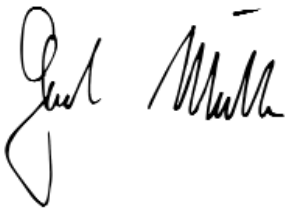
Without intact ecosystems and biodiversity, there can be no good life and no future for humankind on our planet. Ecosystems are not just living environments and spaces of recreation for us. They are also an important resource, for instance for producing food and medicinal substances. Intact ecosystems protect us from flooding, prevent erosion and foster soil formation. They regulate the Earth's climate system and its water and nutrient cycles. Often, intelligent solutions from our natural environment serve as models for materials, technologies and processes that we use on a daily basis. Not least, the jobs and livelihoods of billions of people depend on ecosystems – especially those of poor people.

But these vital resources for the survival of current and future generations can only be protected if we halt the continuing destruction of biodiversity. Ecosystems are coming under increasing pressure as a result of population growth and non-sustainable production and consumption patterns. They are becoming weaker. Without biodiversity and intact ecosystems, sustainable development and poverty reduction on a global scale will not be possible.

The G7 nations realize that the preservation of vital natural resources is essential to reach a large number of other development goals in areas such as food security, climate and health.

This is why the G7 countries made a commitment to protect biodiversity – not only within their national borders, but also internationally and together with their partners. In the present report, the G7 countries provide an account of what they have already accomplished along that road. This includes activities ranging from cross-border nature conservation to taking the economics of biodiversity benefits into account in political decision-making.

The challenge of our time is to share our planet's wealth of resources so that all people may live with dignity, and to respect the boundaries of our planet so that future generations may continue to live here and prosper.



Dr Gerd Müller
Federal Minister for Economic
Cooperation and Development

Biodiversity – A vital foundation for sustainable development

Key political messages

- The G7 acknowledges the importance of biodiversity for human well-being, sustainable development and poverty alleviation.
- The G7 has acted on its commitment through policies, finance and other means to protect species and their habitats while also addressing the multiple causes of biodiversity loss.
- The G7 is aware that significant challenges still need to be tackled in order to improve the status of biodiversity and ecosystems worldwide.

Executive summary

Biodiversity – the variety of life on Earth – underpins delivery of nature's services. Ecosystems and the goods and services they provide form the foundation on which every society and economy is built. Biodiversity enables a range of vital services, including the provision of clean water and air, food, medicinal herbs and other medical products, flood protection, crop pollination and resilience to drought as well as the provision of resources to support economic growth. The poor often depend more heavily on nature and the services it provides; consequently, the loss of these natural resources affects them more severely.

The loss of biodiversity and the ecosystem services it provides is continuing in many geographical areas at an alarming rate, although significant improvements have also been observed, as highlighted by the recent Global Biodiversity Outlook 4. With the challenge of biodiversity loss in mind, the G7 committed in 2011 to intensifying its efforts to slow the loss of biodiversity. The group explicitly set this commitment in the context of related development goals: human well-being, poverty eradication and coping with climate change and food security – all of which depend on biodiversity and natural resources for effective delivery. The G7 biodiversity commitment also forms part of a wider group of development and development-related G7 engagements that include food security, health and climate change.

This report looks at the progress that the G7 has made so far on its commitment on biodiversity and reflects the extent to which the G7 has utilized synergies between its different commitments. In addition, this report offers arguments for further improving the scope and effectiveness of relevant G7 actions and making even better use of potential synergies with related G7 commitments.

The G7 has intensified its efforts to slow the loss of biodiversity by undertaking a broad range of activities, both at home and abroad. In acknowledgement of the many driving forces behind biodiversity loss, actions – including mainstreaming across political, legislative and financial landscapes – have been taken in a number of areas. This comprehensive approach, along with a number of policies and examples set out in this report, may arguably be highlighted as good practice.

First, G7 action is visible in financial terms: G7 countries account for almost half of all bilateral biodiversity aid. Every G7 country ranks among the top 10 donors to the Global Environment Facility. Some G7 members have more than doubled their contributions to international biodiversity finance. Overall, the G7 has shown relatively stable financial support for biodiversity in developing countries – a strong signal, given the impact of the financial crisis and its aftermath. Second, the G7 has taken significant measures to directly conserve biodiversity: supporting the management of protected areas and the establishment of ecological corridors; fighting poaching, illegal logging and wildlife trafficking. Third, the G7 has attacked some crucial direct drivers of biodiversity change by helping to control invasive alien species and promoting the sustainable use of natural resources. Fourth, the G7 has also started to address the main indirect drivers of biodiversity loss, namely by changing consumer incentives, making knowledge available about the multiple values of natural capital in order to support decision-making, and developing capacity to mainstream biodiversity into development planning. They further seek to enhance the benefits from biodiversity and ecosystem services to society, including through capacity-building initiatives that aim to foster the sharing of benefits arising from the utilization of genetic resources in a fair and equitable way. Finally, the G7 took measures that not only generated progress toward its biodiversity goal but also helped in achieving additional G7 commitments on food security, health and climate change.

However, many drivers of biodiversity loss are still on the rise. There is still much work to be done. This includes expanding our collective understanding of how biodiversity relates to other development commitments and finding ways to maximize opportunities and synergies among those goals while minimizing the trade-offs. Also, the G7, together with its partners, could further investigate how it can strategically use biodiversity-related official development assistance funds to mobilize additional resources for biodiversity, as well as identify other funding sources through which biodiversity benefits can be achieved or mainstreamed. Regarding accountability, we acknowledge that the relationship between G7 actions and development outcomes is often long-term, and in many cases

not straightforward. This report also shows that G7 countries are taking action in their own countries, in addition to supporting measures in developing countries. Finally, this report highlights the interactions between different G7 commitments. This was useful since it led to the identification of good practices that serve multiple objectives.

The G7 has a shared understanding of the importance of biodiversity, which underpins the delivery of a host of vital services on which every society and economy is built. The G7 continues to act on its commitment to intensify its efforts to slow the loss of biodiversity and recognizes its role in setting examples of good practice, domestically and internationally, so that, together with global partners, it can tackle the challenge of biodiversity loss.

Woman carrying firewood. Mount Cameroon, Buea, Cameroon. *Thomas Imo/photothek.net*

1.

Biodiversity, development and the G7

Rain forest. Jaraqui, Brazil. *Thomas Trutschel/photothek.net*

1. Biodiversity, development and the G7

Key messages

- The G7 has repeatedly acknowledged the significant importance of biodiversity for sustainable development. In this document, the G7 reports on progress toward its 2011 Deauville commitment: "We are … committed to intensifying our efforts to slow the loss of biodiversity."
- The G7 recognizes the relevance of biodiversity and ecosystem services for other development goals, particularly poverty reduction, the provision of food security, human health as well as adaptation to climate change and reduction of greenhouse gas emissions.

The G7[1] has repeatedly acknowledged the significant importance of biodiversity – the variety of all forms of life on Earth (ecosystems, species and genetic diversity) – for global development (see Box 1.2). Biodiversity is the basis for human life on Earth – for our food, our health, our livelihoods and our economic development. Yet, on a global scale, biodiversity is being overexploited, ecosystems are being converted and destroyed, and various human activities are putting biodiversity at risk. The loss of biodiversity has direct implications for human well-being and sustainable development. Worldwide, it is the poor in particular who often depend directly on the natural resources and services provided by nature – for food, raw materials, medicinal herbs and clean water – and who are hit the hardest by the advancing degradation of ecosystems.

Therefore, at its 2011 Deauville Summit, the G8 reinforced its earlier 2007 Heiligendamm commitment on biodiversity and committed to "intensifying [their] efforts to slow the loss of biodiversity." Whereas the 2007 Heiligendamm Summit statement had already pointed to the importance of biodiversity for sustainable development, the 2011 Deauville statement stressed the importance of biodiversity for

Box 1.1 G8 declarations and commitments on biodiversity

2011 Deauville Summit: "As with climate change, we recognize that the current rate of loss of biological diversity is unacceptable, since biologically diverse and resilient ecosystems are critical to human wellbeing, sustainable development and poverty eradication as well as food security. ***We are therefore committed to intensifying our efforts to slow the loss of biodiversity.*** *We also recognize that ecosystems play a key role in the global carbon cycle, through carbon storage and adaptation to climate change." [Emphasis added.]*

2007 Heiligendamm Summit: "We emphasize the crucial importance of the conservation and the sustainable use of biodiversity as an indispensable basis for the provision of vital ecosystem services and the long term provision of natural resources for the global economy. We acknowledge the 'Potsdam Initiative – Biological Diversity 2010' presented at the G8 Environmental Ministerial Meeting in March 2007 and ***will increase our efforts for the protection and sustainable use of biological diversity to achieve our agreed goal of significantly reducing the rate of loss of biodiversity by 2010."*** *[Emphasis added.]*

The Deauville and Heiligendamm commitments state both an activity ("intensifying our efforts" / "increase our efforts") and a goal ("slow the loss" / "significantly reducing the rate of loss").

poverty reduction and put it into a broader development context (see Box 1.1).

This G7[2] Elmau Progress Report 2015 reports on progress made by the G7 in implementing the 2011 Deauville commitment on biodiversity.[3] It is the first detailed G7 progress report on biodiversity, despite the G7's track record in dealing with environmental issues going back many years (see Box 1.2). This single-topic progress report allows for a more in-depth and explorative analysis.

Despite the strong commitment to slowing the loss of biodiversity, the G7 is aware of the enormous challenge to reverse current trends in biodiversity loss and of the need for concerted action as well as continued contributions within its control and capacities. The Heiligendamm and Deauville commitments provide broad discretion as to the types of efforts or measures to be taken to contribute to biodiversity conservation. In order to measure progress on implementing the Heiligendamm and Deauville biodiversity commitments, four indicators were selected by the G8 Accountability Working Group; they were used in the comprehensive Lough Erne Accountability Report (LEAR), published in 2013 (see Box 1.3). The report concluded that although G8 support and concern for biodiversity had increased since 2010, in recognition of the continued global decline in biodiversity, the G8 nevertheless rated its progress on biodiversity commitments as being below expectations.

Box 1.2 Brief history of G7 engagement in environmental issues including biodiversity

The G7 has been engaging in global environmental issues since its Bonn summit in 1985.[4] From the start, the G7 has put the partnership with developing countries at the core of its agenda.[5] Over time, the G7 and the G8 have emphasized climate change in particular as an overriding challenge to the global environment. Although the G7[6] and the G8[7] had already given general guidance, the 2005 Gleneagles Summit[8] led to the first comprehensive G8 program on climate change, featuring a broad range of measures, including the fight against illegal logging.[9] The 2007 Heiligendamm Summit[10] took up this comprehensive approach, which includes a program describing measures on climate change. The first formal G8 commitment from Heiligendamm on biodiversity is part of that program.[11] Since 2007, G8 actions on biodiversity have been underpinned by processes at the ministerial level. This has included the Potsdam Initiative Biological Diversity 2010 in 2007, the Kobe Call for Action for Biodiversity in 2008 and the Carta di Siracusa on Biodiversity in 2009. In particular, the Potsdam Initiative gave rise to the initiative The Economics of Ecosystems and Biodiversity (TEEB) (see Section 4.4.3) and supported the establishment of what was later called the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES). The 2009 L'Aquila Summit strengthened G8 climate policies through a commitment on financing adaptation.[12] The 2011 Deauville Summit specifically reiterated the G8 commitment on biodiversity, putting it into a broader development context.[13]

Box 1.3 LEAR indicators for measuring progress on G7 efforts on biodiversity

- Solid commitments are made, including at the Convention on Biological Diversity, to reduce biodiversity loss by G8 members.
- Numbers of species added to the IUCN Red List Index categorized as vulnerable, endangered, critically endangered and extinct in the wild.
- Biodiversity concerns are mainstreamed throughout all aid planning and programming operations.
- Support is provided to developing countries to incorporate natural capital values within decision-making.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/205437/Lough-Erne-Accountability-Report.pdf

Varieties of potatoes for sale at the local market. Cusco, Peru. *FAO/Sandro Cespoli*

The overall objectives of this report are to show what efforts G7 countries have undertaken to implement their commitments to reduce the loss of biodiversity, explain how these measures relate to the broader development objectives underlying other G7 commitments and highlight where G7 efforts catalyzed other actors to become active. This report documents both the combined and individual efforts of the G7 to support the conservation of biodiversity internationally and domestically. In addition, efforts of the European Union (EU) – and correspondingly the contributions made to the EU by the four G7 members that are EU member states – are taken into account. Since most G7 countries are Parties to the Convention on Biological Diversity (CBD), this report draws upon their reporting on activities and funding to the Convention.[14] Self-reported data, examples and good practices from a questionnaire answered by each G7 country as well as publicly available data have been used to gather information on the LEAR indicators. The short timeframe since the Deauville commitment in 2011 makes it difficult to establish the exact causal links between measures taken and impacts on the status of biodiversity. Therefore, this report focuses on adopted approaches rather than actual impacts on biodiversity.

In order to better understand the role that G7 efforts play in addressing global biodiversity loss, Chapter 2 offers an outline illustrating that biodiversity is the basis for human well-being and development in many respects, and that the status of biodiversity and ecosystem functioning is determined by direct and indirect drivers. The chapter also presents the International Union for Conservation of Nature (IUCN) Red List Index as part of the presentation of the global status of biodiversity. Chapter 3 presents the international financial contributions by the G7 for reducing the loss of biodiversity through development cooperation in partner countries in Asia, Africa and Latin America, including individual funding priorities. It reports on the indicator "solid commitments are made, including at the Convention on Biological Diversity, to reduce biodiversity loss by G8 members." Chapter 4 showcases approaches and good practices to reduce the loss of biodiversity that the G7 promotes in developing countries as well as domestically.[15] This chapter addresses the indicators "solid commitments are made, including at the Convention on Biological Diversity, to reduce biodiversity loss by G8 members," "support is provided to developing countries to incorporate natural capital values within decision making"

and "biodiversity concerns are mainstreamed throughout all aid planning and programming operations." Chapter 5 elaborates on the interrelation between biodiversity and other G7 development commitments, focusing on interrelations between biodiversity and food security, climate change and health. This chapter offers further insights on the indicator for how "biodiversity concerns are mainstreamed throughout all aid planning and programming operations" with respect to these three development goals. Chapter 6 concludes with the key insights and findings of the report.

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1 The G7 consists of seven major high-income economies: Canada, France, Germany, Italy, Japan, the United Kingdom and the United States. The Group of 8 (G8) was composed of these seven countries plus Russia. The European Union is also represented within the G7.

2 G7 leaders suspended the G8 format on March 2, 2014, as a result of Russia's clear violation of Ukraine's sovereignty and territorial integrity: "We, the leaders of Canada, France, Germany, Italy, Japan, the United Kingdom and the United States and the President of the European Council and President of the European Commission, join together today to condemn the Russian Federation's clear violation of the sovereignty and territorial integrity of Ukraine, in contravention of Russia's obligations under the UN Charter and its 1997 basing agreement with Ukraine." (see http://www.bundesregierung.de/Content/DE/_Anlagen/G8_G20/G7-leaders_statement-2014-03-02-eng.pdf?__blob=publicationFile&v=6). At the Brussels G7 Summit in 2014, the G7 leaders reiterated: "We, the Leaders of Canada, France, Germany, Italy, Japan, the United Kingdom, the United States, the President of the European Council and the President of the European Commission, met in Brussels on 4 and 5 June 2014. This Group came together because of shared beliefs and shared responsibilities. We are profoundly committed to the values of freedom and democracy, and their universality and to fostering peace and security. We believe in open economies, open societies and open governments, including respect for human rights and the rule of law, as the basis for lasting growth and stability." (see http://www.bundesregierung.de/Content/DE/_Anlagen/G8_G20/G7-2014-06-05-abschlusseklaerung-eng.pdf?__blob=publicationFile&v=6).
However, this report has been written under the assumption that this does not lessen the level of action that the Deauville commitment requires from the G7.

3 The Heiligendamm commitment itself is technically not a subject of this report because it is no longer formally part of the G7 accountability process. However, as the G8 renewed its earlier Heiligendamm commitment on biodiversity in Deauville, not only does the Heiligendamm commitment remain an important backbone of this report, but the G7 also remains accountable for the Heiligendamm commitment.

4 The Bonn Economic Declaration, Towards Sustained Growth and Higher Employment, May 4, 1985 (Bonn), para. 4e.

5 Bonn, para. 15, sentence 2.

6 Toronto Economic Summit Economic Declaration, June 21, 1988 (Toronto), para. 33.

7 G8 Communiqué Köln, June 20, 1999 (Köln), para. 33.

8 The Gleneagles Communiqué, Climate Change, Energy and Sustainable Development, July 8, 2005 (Gleneagles).

9 Gleneagles, paras. 36–38.

10 G8 Summit 2007 Heiligendamm – Growth and Responsibility in the World Economy, June 7, 2007 (Heiligendamm).

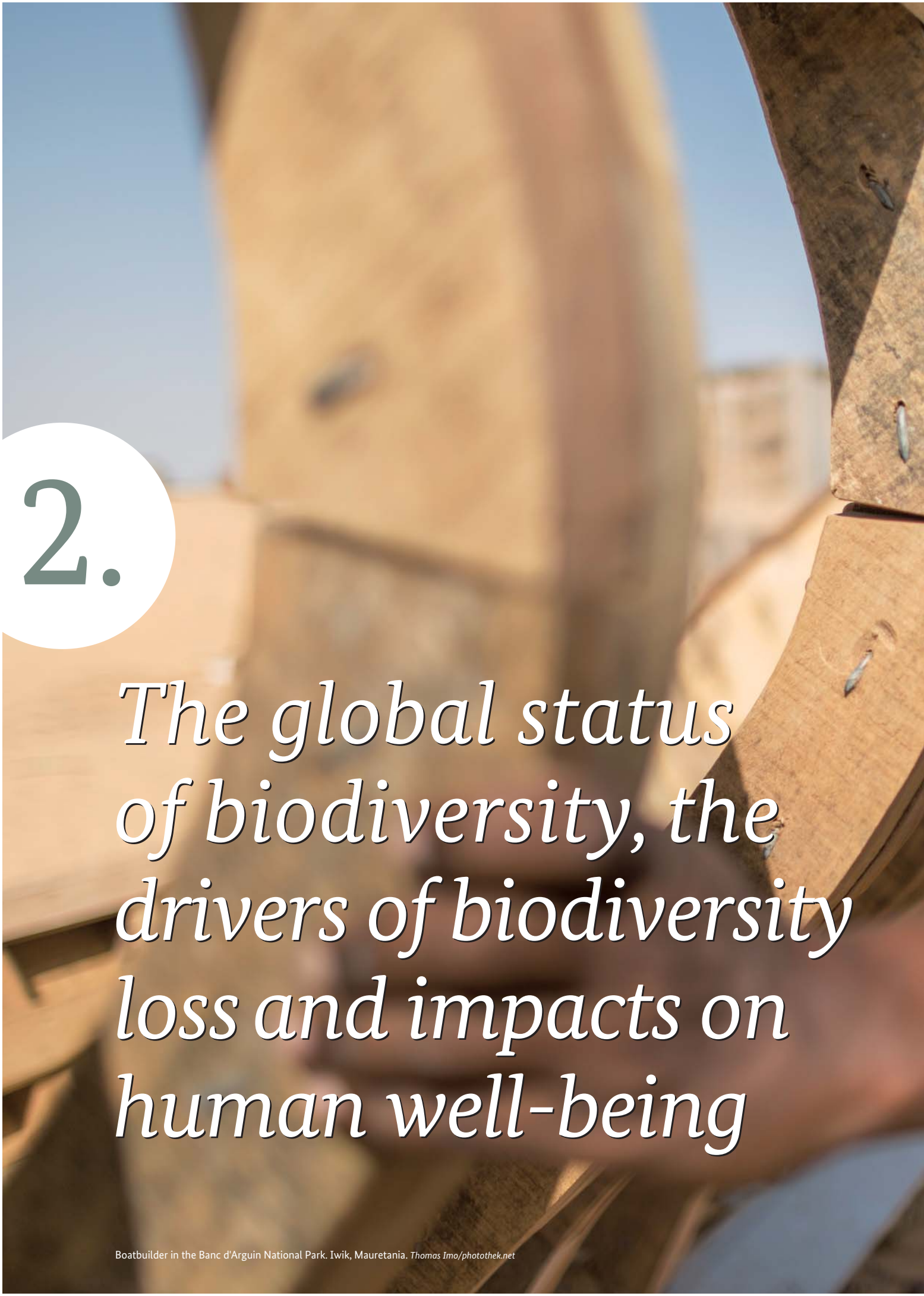
11 The G7 and G8 made summit statements on biodiversity before: Toronto, para. 33, sentence 1; Gleneagles Plan of Action – Climate Change, Clean Energy and Sustainable Development, para. 36.

12 L'Aquila G8 Communiqué – Responsible Leadership for a Sustainable Future, L'Aquila, July 10, 2009 (L'Aquila), para. 76d.

13 Deauville G8 Declaration – Renewed Commitment for Freedom and Democracy, Deauville, May 27, 2011 (Deauville), para. 54.

14 The following G7 countries are a party to the CBD: Canada, France, Germany, Italy, Japan and the United Kingdom. The following G7 countries are EU member states: France, Germany, Italy and the United Kingdom.

15 Considering also that the domestic level is consistent with the global nature of the issue. Similarly, the envisioned UN Sustainable Development Goals aim at universal goals that are equally applicable to developing and developed countries.



2.

The global status of biodiversity, the drivers of biodiversity loss and impacts on human well-being

Boatbuilder in the Banc d'Arguin National Park. Iwik, Mauretania. *Thomas Imo/photothek.net*

2. The global status of biodiversity, the drivers of biodiversity loss and impacts on human well-being

Key messages

- Biodiversity – the variety of genes, species and ecosystems – underpins renewable natural capital and the delivery of nature's services. It enables a host of vital services, including clean water, flood protection, crop pollination, air quality and resilience to drought as well as providing resources to support economic growth.
- Ecosystems and the goods and services they provide form the foundation on which every society and economy is built, which is crucial not only for securing economic growth but for supporting livelihoods, including for the poorest.
- Although it is inherently difficult to assess the global status of biodiversity, most indicators used to measure biodiversity show negative trends: Biodiversity continues to be lost at an alarming rate.
- A major reason for this continued loss is the still increasing pressure from population and economic growth, preferences regarding consumption, and decisions that enhance pressure on biodiversity through climate change, land-use change, overexploitation, introduction of alien species and pollution.
- Conserving biodiversity and its services requires activities aimed at direct protection but also measures that address the underlying drivers of biodiversity loss. Conservation is not in conflict with, but rather is the cornerstone of, careful management of a nation's natural resources.

Ecosystems and the goods and services they provide form the foundation on which every society and economy is built. Biodiversity underpins renewable natural resources and the delivery of nature's services. Although increasingly recognized as the basis for livelihoods as well as economic development, biodiversity and the services it provides to human societies continue to be depleted. The underlying drivers for biodiversity loss and ecosystem degradation are foremost associated with human use of natural resources and economic development, which can lead to overexploitation; pollution; change, conversion and destruction of ecosystems; and increasingly with changes due to climate change and introduced species. Acting on this continued loss has long been recognized as a priority in international environmental policy (e.g., SCBD 1992), including by the G7 (see Chapter 1). The report uses the framework of the Convention on Biological Diversity (CBD) to outline these complex interrelationships and to provide the basis for the presentation of the actions taken by the G7.

2.1 The importance of biodiversity for human well-being and poverty reduction

According to the CBD, biological diversity – or "biodiversity" – is the "variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: This includes genetic diversity and diversity within species, between species and of ecosystems"(SCBD 1992).[1] This broad definition makes clear that its conservation and use affect nearly every part and level of society, and any sector of decision-making and economy. For instance, genetic diversity of plants and animals in agriculture is key for sustainable and resilient food production (e.g., FAO 2010b).

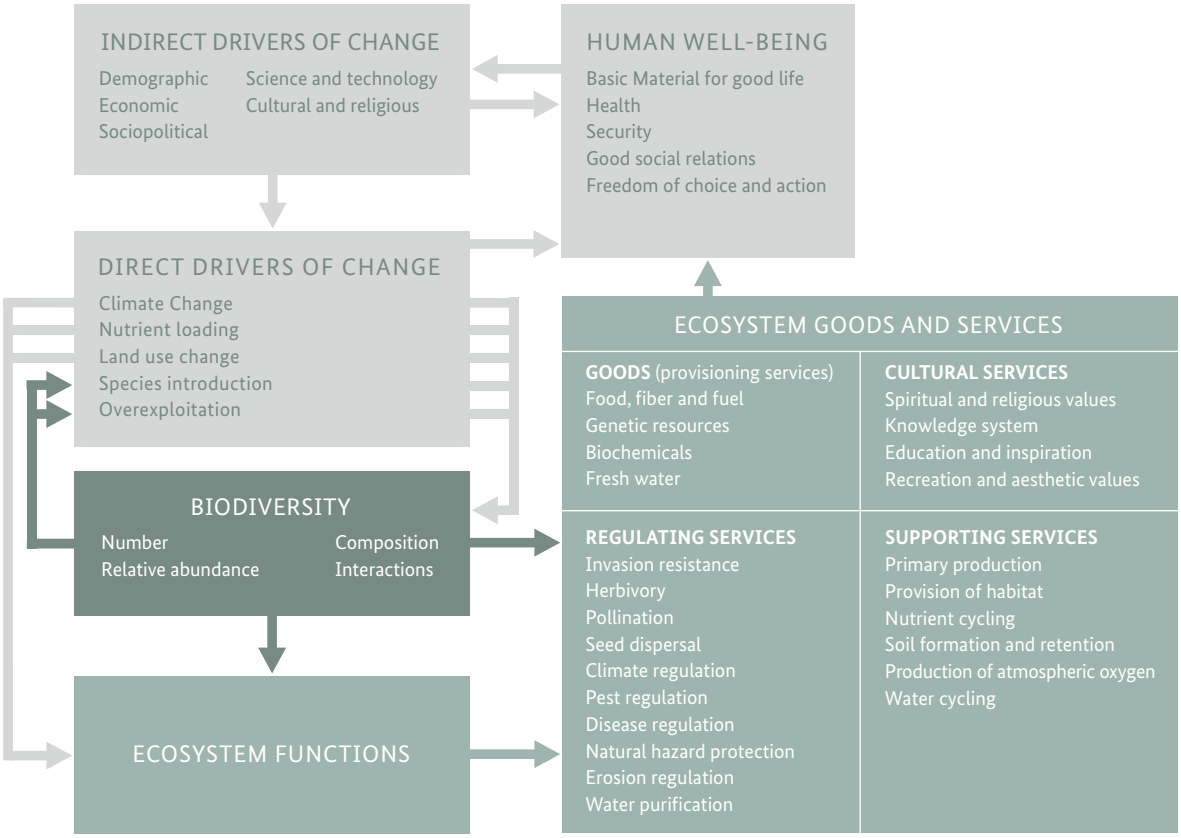
Biodiversity underpins ecosystem services. The Millennium Ecosystem Assessment distinguishes four types of ecosystem services (MA 2005). First, provisioning services in which

biodiversity and ecosystems provide society with products, for example, wood and other biomass for energy production (e.g., Kontoleon et al. 2008). Second, services "regulating" the natural environment by slowing the runoff of rainwater and providing stable flows during dry seasons. Third, many ecosystems have a cultural value, in the sense that people enjoy ecosystems, which provide meaning to life as well as scenery for traditional ceremonies and celebrations. Fourth, supporting services, referring to the underlying ecosystem interactions and processes that support biodiversity and other ecosystem services, for example through the recycling of nutrients. Ecosystem services are of direct importance to human well-being by providing the materials and safe surroundings for a healthy life in which individuals have the freedom to make their own choices (see Figure 2.1).

The Global Biodiversity Outlook reports (SCBD 2001, 2006, 2010, 2014) acknowledge how biodiversity loss impacts on ecosystem functions, making ecosystems more vulnerable to shocks and disturbances, less resilient and less capable of providing ecosystem services for human well-being (see Figure 2.1).

Biodiversity and ecosystem services are indeed crucial for most aspects of today's economy, although often not visible, as outlined by the G8+5-initiated study on The Economics of Ecosystem and Biodiversity (TEEB) (see Section 4.3).

Figure 2.1 Biodiversity, ecosystem functioning, ecosystem services and drivers of change



Source: SCBD (2006)

However, biodiversity loss has a greater impact on the poor than on wealthier people. This is due to the greater – and more direct – dependence of the poor on biodiversity and ecosystem services for their day-to-day livelihoods and immediate survival, when compared to wealthier people, who have more resources for adapting and a greater number of options for finding substitutions (Roe et al. 2011). This disparity holds across rural, urban and periurban communities. Yet, biodiversity loss is only one of many factors that contributes to – and exacerbates – poverty, especially in rural areas. Women especially are affected by the consequences of biodiversity loss, as they are mainly responsible for food security, health care and the use of natural resources such as water and wood.

2.2 Biodiversity – status and trends

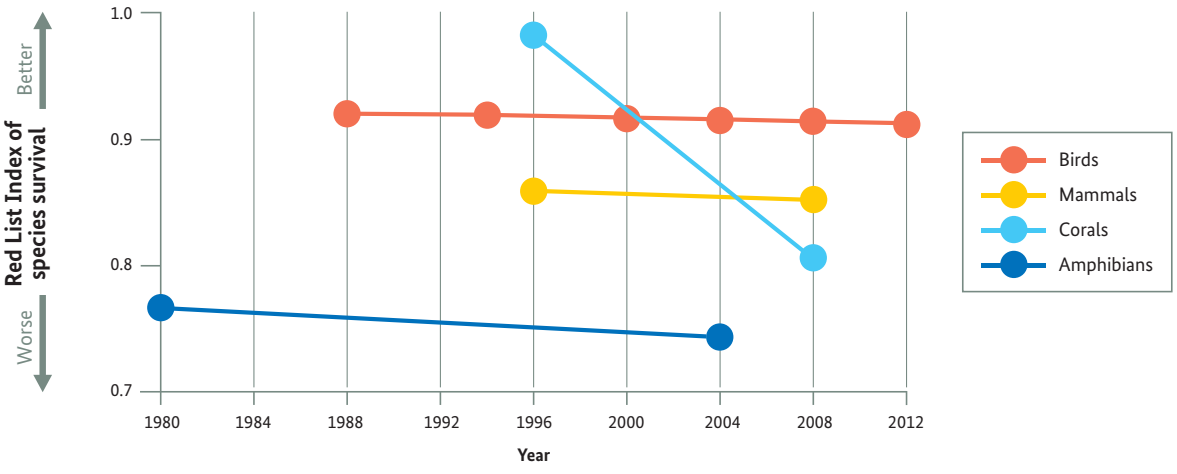
The loss of biodiversity and the ecosystem services it provides is continuing in many geographical areas at an alarming rate, although significant improvements have also been observed, as highlighted by the recent Global Biodiversity Outlook 4 (SCBD 2014) and the Living Planet Report (WWF 2014).

One index that shows a significantly negative trend is the International Union for Conservation of Nature (IUCN) Red List Index for amphibians, birds, corals and mammals.[2] As Figure 2.2 shows for the four groups assessed, the trend until 2008 is clearly negative: Whereas the number of birds and mammals endangered shows a slightly negative trend over the past decades, on a medium level of endangerment, amphibians are the most threatened species group, and corals are rapidly deteriorating in status (SCBD 2014).

Other indicators on the species level show similar trends, as do those on genetic diversity within species populations, for example the genetic diversity of terrestrial domesticated animals (SCBD 2014, Target 13), where, in spite of increasing activities to preserve diversity, the rate of loss has only decreased very slightly.

Yet, looking only at the trends of species' abundance does not provide the whole picture: The CBD adopted the

Figure 2.2 Red List Index for the world's amphibians, birds, corals and mammals



Source: IUCN and BirdLife International 2015, updating SCBD (2010)[3]

Street scene. Rawalpindi, Pakistan. *Thomas Imo/photothek.net*

Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets in 2010 to address the loss of biodiversity.[4] These 20 targets have mixed deadlines, with some for 2015 and others for 2020. Most indicators show some progress toward the targets, but this progress is insufficient to meet the targets (SCBD 2014). Out of 55 indicators used for assessing these targets – some of which are still under development – only 5 indicators appear to be on track, whereas 16 indicators do not show significant positive trends, or even negative ones. For example, areas under protection show a positive trend, but the effectiveness of these areas in safeguarding species and habitats remains mixed across the globe (SCBD 2014, Target 11). Considerable progress is being made with regard to the elaboration of National Biodiversity Strategies and Action Plans (NBSAPs) and improving the knowledge base on biodiversity and ecosystem services. In summary, improving the status of biodiversity on the ground remains a challenge, underscoring the topicality of the G7 commitment on biodiversity.

2.3 The drivers of biodiversity loss

Biodiversity loss is a process that is driven by direct and indirect forces (see Figure 2.1). Direct drivers, which primarily occur at the local and regional levels, include: i) climate change, ii) nutrient loading and pollution, iii) land-use change, iv) species introduction and v) overexploitation (MA 2005, SCBD 2006).

(i) Climate change creates a risk of the future extinction of species because it creates mismatches between the climates to which organisms are adapted and the future distribution of those climates (Mayhew et al. 2008). Furthermore, more frequent extreme weather events and changing patterns of rainfall and evaporation are likely to have major impacts on species composition and abundance.

(ii) Air, water and soil pollution from nutrients (especially nitrogen and phosphorus) and other substances (e.g.,

Copper mine within the Mopani Copper Mines. Kitwe, Zambia. *Thomas Trutschel/photothek.net*

pesticides, heavy metals) influence organisms in several ways. For example, pollutants may change reproduction and growth patterns, increase the prevalence of diseases, reduce availability of resources on which organisms depend (e.g., oxygen, light, food) or simply poison and kill organisms (UNESCO et al. 1996). In marine environments, pollution with (micro-)plastics is a growing challenge (Cole et al. 2011, Cózar et al. 2014). One widespread pressure is the large-scale loads of nitrogen and phosphorus into nearly all ecosystems across the globe (Galloway et al. 2004, Sutton et al. 2011), which alters ecosystem productivity and species composition within them.

(iii) Conversion of reasonably undisturbed terrestrial and coastal ecosystems to agricultural, urban or other systems dominated by humans (e.g., large dams, roads), also referred to as "habitat loss," is the main driver of changes in species abundance globally (Leadley et al. 2010).

(iv) The introduction of non-native, invasive species introduced from other regions of the world – for example, through international transport – can cause habitat modification, create competition with native species for resources, prey on native species and bring in pathogens and hybridization (Manchester and Bullock 2000).

(v) Overexploitation and unsustainable use of natural resources cause massive destruction of natural ecosystems. Examples include overexploitation for food (e.g., fish, nuts, plants, bush meat), for construction purposes (e.g., logging of trees), for industrial products (e.g., oils for cosmetics, animal blubber, skins), for pet trade (e.g., reptiles, fish, orchids), for fashion (e.g., fur, fibers) as well as for traditional and modern medicines (e.g., plants, roots, animal products). Selective removal of an individual species can disturb ecosystems and all other organisms within them (NHM 2012).

These five direct drivers are closely connected to so-called indirect drivers, defined as multifaceted global and national forces that have an impact on biodiversity by influencing the quantity of resources used by human societies

(SCBD 2010). Such indirect drivers include various aspects such as: i) demographic change, ii) economic activity levels (e.g., globalization and international trade), iii) sociopolitical conditions (e.g., political regimes, institutions and legal frameworks), iv) changes in science and technology, v) cultural and religious aspects (e.g., per capita consumption patterns linked to individual wealth, and beliefs) (MA 2005, SCBD 2006).

The interrelations between the indirect drivers and between indirect and direct drivers are complex and multifaceted. Changes in indirect drivers have an impact on different direct drivers. For example, increases in income often lead to changes in lifestyle and higher levels of consumption, particularly of meat. This higher demand is often met by products produced abroad and has consequently led to the expansion of cropland and cattle ranches, often at the expense of forests. Global commodity prices, agricultural subsidies (for more detailed examples, see MA 2005 and TEEB 2011) in developed nations and trade agreements affect the attractiveness of producing certain crops in a particular country and the profits for local farmers.

The Global Biodiversity Outlook 3 (SCBD 2010) acknowledges that one of the main reasons for the failure to meet the 2010 Biodiversity Target lies in the fact that, up to then, actions to halt biodiversity loss mostly focused on addressing its direct drivers. The main message from the Global Biodiversity Outlook 3 is therefore that any strategy to address biodiversity loss has to address its underlying causes (indirect drivers) in a meaningful manner (SCBD 2010).

Therefore, a thorough assessment of the G8 commitment of "intensifying [...] efforts to slow the loss of biodiversity" (G8France 2011) has to take into account how efforts tackle direct as well as indirect drivers of biodiversity loss.

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1 Current usage of the term "biodiversity" generally means genetic diversity, species diversity and community diversity. Within each, diversity can be characterized in three ways: (a) by the number of different entities, (b) by the relative abundances of the different entities and (c) by the specific identities of the different entities.

2 The IUCN Red List Index is presented instead of the Lough Erne Accountability Report indicator "number of species added to the IUCN Red List Index categorized as vulnerable, endangered, critically endangered and extinct in the wild" (see Box 1.3), because IUCN (2014) warns that this indicator needs to be interpreted with care. The total number of species added to the list also increases with monitoring efforts and the discovery of new species: "With many different reasons for species changing status on the IUCN Red List it is impossible to determine any meaningful trends in the status of biodiversity simply by looking at overall changes in numbers of threatened species between updates." However, if the analysis is broken down to different groups of species, such as mammals, amphibians and corals, and put in relation to the total number of species assessed (as is done in the IUCN Red List Index), the picture becomes more reliable.

3 More recent data is not available.

4 See http://www.cbd.int/sp/targets/

3.

G7 international biodiversity priorities and funding by country

Tadpoles. Florida, United States. *Phil's 1stPix under Creative Commons License*

3. G7 international biodiversity priorities and funding by country

Key messages

- The fact that some G7 countries have already more than doubled their international biodiversity finance – in line with the Convention on Biological Diversity (CBD)'s decisions on resource mobilization – and that the G7 as a whole provides relatively stable financial contributions for biodiversity conservation in developing countries reflect its strong commitment, even in times of a major financial crisis.
- Biodiversity has also been mainstreamed into the financing of aid activities geared toward other development objectives by G7 countries.
- The G7 countries directly accounted for almost half of all bilateral commitments for biodiversity aid in 2012.
- Considerable support is also provided to multilateral institutions, as reflected, for instance, in contributions to the Global Environment Facility (GEF).

3.1 Introduction

The following chapter presents the financial contributions for international biodiversity funding by the G7 countries, reporting on "[s]olid commitments [being] made, including at the Convention on Biological Diversity, to reduce biodiversity loss by G8 members." In addition to the figures reported by individual G7 countries, funds channeled through the European Union (EU) are an additional instrument for those G7 countries that are EU members (France, Germany, Italy and the United Kingdom (UK)) to fulfill their commitments (see Section 3.10). The reported data comprise the years 2006 to 2013 in order to account for the Deauville commitment from 2011 and the Heiligendamm commitment from 2007 (see Chapter 1). Data for 2006 serves as a point of reference and provides further context for subsequent years. At the time of publication, final data for 2014 was not available. In general, the countries either draw on data reported to the Organisation for Economic Cooperation and Development / Development Assistance Committee (OECD-DAC) on international biodiversity funding (see Box 3.1 for basic concepts) or on their data reported to the CBD (see Box 3.2). Still, the countries may differ in their reporting methodologies (see each country section for details), therefore the figures reported by the individual countries are not directly comparable.

Community conserved areas. Majari Island, Brazil. *Christiane Ehringshaus/GIZ*

Box 3.1 International biodiversity financing: Data reported as official development assistance (ODA), OECD-DAC data

Rio Markers

Donor countries, including the G7 countries, are committed to supporting developing countries to meet the targets of the Rio Conventions – on biodiversity, climate change and desertification. Since 1998 the Organisation for Economic Cooperation and Development / Development Assistance Committee (OECD-DAC) has monitored aid targeting the objectives of the Rio Conventions through its Creditor Reporting System (CRS) using the "Rio Markers": biodiversity, desertification, climate change mitigation and climate change adaptation. Every aid activity reported to the CRS should be screened and marked as either (i) targeting the Conventions as a "principal" objective or a "significant" objective, or (ii) not targeting the objective. Markers indicate donors' policy objectives in relation to each activity. Activities marked as having a principal biodiversity objective would not have been funded but for that objective (Rio Marker score = 2); activities marked "significant" have other prime objectives but have been formulated or adjusted to help meet biodiversity concerns (Rio Marker score = 1). A screened activity that was found not be targeted to biodiversity is marked as "not targeted" (Rio Marker score = 0).

The biodiversity marker allows an approximate quantification of aid flows that target biodiversity objectives. In marker data presentations, the figures for principal and significant objectives are shown separately. The numbers for biodiversity as a principal objective are considered the "lower bound."

Biodiversity-related aid is defined as activities that promote at least one of the three objectives of the Convention: the conservation of biodiversity, sustainable use of its components (ecosystems, species or genetic resources), or fair and equitable sharing of the benefits of the utilization of genetic resources.

An activity can be marked with the biodiversity Rio Marker if it contributes to:

a) protection of or enhancing ecosystems, species or genetic resources through *in situ* or *ex situ* conservation, or remedying existing environmental damage;
b) integration of biodiversity and ecosystem services concerns within recipient countries' development objectives and economic decision-making, through institution-building, capacity development, strengthening the regulatory and policy framework, or research; or
c) developing countries' efforts to meet their obligations under the Convention.

Source: OECD (2014) and Drutschinin et al. (2014)

Official development assistance

ODA is defined as those flows to countries and territories on the DAC List of ODA Recipients and to multilateral development institutions that are provided by official agencies, including state and local governments, or by their executing agencies, each transaction of which is: a) administered with the promotion of the economic development and welfare of developing countries as its main objective; and b) concessional in character and conveys a grant element of at least 25 percent (calculated at a discount rate of 10 percent).

Source: http://www.oecd.org/dac/stats/officialdevelopmentassistancedefinitionandcoverage.htm

Commitments vs. disbursements

OECD-DAC data usually reports on commitments and on disbursements. *Commitments* measure donors' intentions and permit monitoring of the targeting of resources to specific purposes and recipient countries. They fluctuate as aid policies change and reflect how donors' political commitments translate into action. They thus give an indication about future flows. *Disbursements* show actual payments in each year. They show the realization of donors' intentions and the implementation of their policies. They are required to examine the contribution of donors' actions toward development achievements.

Source: http://www.oecd.org/dac/stats/faq.htm for more detailed information, please refer to: OECD (2013)

As regards the reporting on biodiversity-related aid, the CRS includes activity-level data on both commitments and disbursements. Yet, the presentation of ODA statistics has been to date typically based on commitment data. Rio Markers are purpose-based and seek information on the donors' policy objectives or intentions and can therefore be best assessed at the design stage of projects. Rio Markers track policy objectives, rather than tracking and verifying that objectives have been met. The presentation of statistics on Rio Markers based on disbursements is a subject for debate among OECD members.
Source: OECD (2014)

Box 3.2 International biodiversity financing: Data reported to the Convention on Biological Diversity (CBD)

In 2012 and 2014, the Preliminary Reporting Framework was used for providing data on resource mobilization according to the following indicators:

a) data, in monetary units, on flows of financial resources for biodiversity from developed to developing countries;
b) data, in monetary units, on financial resources available for biodiversity;
c) information on the steps countries are taking to implement the strategy for resource mobilization; and
d) information (both qualitative and quantitative, including in monetary terms) on the role of specific initiatives, including those relating to technical cooperation, and innovative finance mechanisms.

Data provided for the 2006–2010 period was intended to be used for the calculation of a baseline, whereas data provided after 2010 was intended to be used to monitor progress.

Direct vs. indirect funding

Funding for biodiversity includes not only funding for direct actions to protect biodiversity but also funding related to actions across different sectors (e.g., agriculture, forestry, tourism) to promote biodiversity-friendly initiatives that have other primary purposes (e.g., ecosystem-based approaches to climate-change mitigation and adaptation), where a wider range of funding sources is typical. The reporting framework distinguishes between two general types of biodiversity funding: funding related to activities that are intended to directly affect biodiversity, and activities that focus on other issues but that have an indirect positive effect on biodiversity.

A Revised Financial Reporting Framework was adopted in October 2014 and is expected to be used for reporting by December 31, 2015. The revised framework is intended for use by Parties to the CBD for providing baseline information and reporting on their contribution to reach the global financial targets, under Aichi Biodiversity Target 20, as adopted by the Conference of the Parties (COP) to the Convention at its 12th meeting, in accordance with Article 20.
Source: UNEP (2012, 2014a)

3.2 Overview

Some G7 countries have already more than doubled their contributions, which is in line with decisions on resource mobilization under the CBD. Overall, the G7 countries have shown relatively stable financial contributions for biodiversity in developing countries, reflecting their strong commitment to slowing the loss of biodiversity, even in turbulent times of a financial crisis and its aftermath.

Bilateral data shows a commitment to mainstreaming biodiversity into other development objectives, including poverty reduction, as reflected in the considerable amounts of indirect contributions. G7 countries are an important pillar of financing biodiversity through official development assistance (ODA): Almost 50 percent of all bilateral commitments for biodiversity aid reported in 2012 was pledged directly by the G7, excluding funding by France, Germany, Italy and the UK to EU institutions.

With its contributions to multilateral action, the G7 has also shown considerable efforts toward international biodiversity conservation. This is reflected in their contributions to the Forest Carbon Partnership Facility (FCPF) and the GEF Trust Fund: The G7 countries' share in the GEF-5 and the GEF-6 replenishments was approximately 70 percent, corresponding to more than US$ 3 billion. Correspondingly, the G7 countries all rank among the top 10 GEF donor countries. The Economics of Ecosystems and Biodiversity (TEEB) and Wealth Accounting and the Valuation of Ecosystem Services (WAVES) initiatives also document the broad involvement of many G7 countries in multilateral initiatives and partnerships (see Section 4.3.3). The GEF's Biodiversity Strategy is consistent with the CBD Strategic Plan for Biodiversity 2011–2020 and is expected to provide US$ 1.3 billion under its biodiversity focal area during the 2014–2018 period: It will leverage additional co-financing from international organizations, bilateral agencies, recipient countries, private foundations and the private sector. Lastly, Canada, France, Germany, Italy, Japan, the UK and the EU support the CBD Aichi Target 20 commitment to substantially increase biodiversity funding from all sources by 2020, as well as the relevant decisions by the Conference of the Parties (COP) to the CBD.

The G7 funding for biodiversity contributes to a range of measures and practices in developing countries (see Chapters 4 and 5). G7 funding also contributes to capacity-building, strengthening research and enhancing the available knowledge in developing countries. The G7 supports funding mechanisms for biodiversity on a continuous basis. Last, but not least, G7 countries acknowledge the importance of working in partnership with civil society and the private sector.

Worker in a fair trade tea plantation of the Wakulima Tea Company which has implemented a workplace program including company health care and education. Tukuyu, Tanzania.
Ute Grabowsky/photothek.net

3.3 Canada

3.3.1 Priorities of Canada's biodiversity funding

Environmental considerations such as biodiversity are integrated into all international development assistance programming undertaken by the government of Canada, which is focused on five priority themes: increasing food security; securing the future of children and youth; stimulating sustainable economic growth; advancing democracy; and promoting stability and security. As Canada recognizes the link between poverty and environment, most of its support for biodiversity is provided through indirect funding for initiatives implemented by partners.

Canada supports sustainable biodiversity conservation in developing countries primarily through contributions to the GEF, which operates as the financial mechanism of the CBD. Canada supports bilateral initiatives in developing countries that: raise awareness about the drivers of biodiversity; reduce poverty and biodiversity loss through promoting sustainable livelihoods to ensure equitable access to, and sustainable management of, natural resources and the environment (as illustrated in Example 4.24); and work with local partners to conserve and enhance biodiversity. Bilateral development assistance projects often focus on strengthening the capacities of local partners with regard to environmental governance, thereby resulting in an improvement in the status of biodiversity. Canada also provides support to non-governmental and multilateral organizations that play significant roles in reducing the loss of biodiversity and promoting its sustainable use.

Canada was the first developed country to ratify the CBD and has been the proud host of the Convention's Secretariat since it was established in 1996.

Restoring coastal livelihoods. Sulawesi, Indonesia.
Foreign Affairs, Trade and Development Canada

3.3.2 Financial flows

On average, the Canadian government disbursed US$ 179 million per year for international biodiversity funding in the 2006–2013 period (see Table 3.1). Canada's contributions – measured using the Rio Markers methodology – varied over these years, with a spike in 2012 due to significant levels of Canadian investment in Fast-Start Finance for Climate Change, in particular support for a trust fund with the Inter-American Development Bank, which also

Table 3.1 International biodiversity funding, Canada (disbursements, current US$ millions)[1]

	2006	2007	2008	2009	2010	2011	2012	2013
Direct	24	20	15	13	15	7	31	4
Indirect	80	110	104	179	119	187	386	136
Total	**105**	**130**	**119**	**191**	**134**	**194**	**416**	**140**

made contributions toward reductions in the loss of biodiversity. Canada will continue working to strengthen global environmental agreements, such as the CBD, and to build the capacities of its partners to implement them. Canada supports mobilizing additional resources for biodiversity from all sources, including the private sector, and through innovative financial approaches.

Box 3.3 Canada's methodology

The figures were compiled using CRS data from the OECD-DAC, as well as an analysis of Canada's funding to United Nations (UN) organizations and international financial institutions (IFIs).[a] Projects or activities reported to the OECD-DAC that, according to the Rio Markers, identified a reduction in the loss of biodiversity as a principal or significant objective were assigned as either direct or indirect funding, respectively.[b]

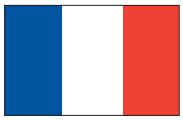
Given that Canada's reporting is mostly derived from the biodiversity Rio Marker, which applies to whole projects or activities, these figures represent the amount disbursed by a portfolio of projects identified by the marker, and serve as a summary-level indication of total disbursements by those projects, not as a direct account of funds spent specifically for reducing the loss of biodiversity.

Additional indirect funding was compiled using an analysis of Canada's institutional support to UN and IFI organizations in order to include funding to multilateral organizations that have a significant impact on reducing the loss of biodiversity, either by their purpose or through their development assistance. Organizations considered were the Global Environment Facility (GEF), the Food and Agriculture Organization (FAO), the United Nations Development Programme (UNDP), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the International Development Association (IDA). Canada's level of funding to each institution was based on an analysis of the organizations' self-reported development-related activities.

Figures are ODA disbursements, reported in current US dollars. They are on a calendar year basis, with the exception of the UN and IFI portion of "indirect" funding, which is based on the Canadian fiscal year (the period March 2012 to April 2013 was counted under calendar year 2012, for example). Figures for calendar year 2014 are not available yet, and were also excluded.

[a] *Figures were compiled using the OECD-DAC Rio Markers, and therefore do not align with Canada's methodology for reporting to the UN Convention on Biological Diversity. Those figures should not be construed as Canada's reporting on commitments made at that forum.*

[b] *Minor adjustments were made to include activities coded under the biodiversity DAC sector (41030), which has not been assigned a biodiversity Rio Marker, while avoiding double counting. As per the DAC reporting directives, activities coded to this sector should be assigned a "principal" objective score for reducing the loss of biodiversity.*



3.4 France

3.4.1 Priorities of France's biodiversity funding

France passed new legislation[2] on July 7, 2014, that set up a general framework for guidance and planning of development policy and international solidarity, incorporating in its objectives the fight against biodiversity loss. Two priority areas are identified for bilateral cooperation: Increasing the surface area and improving the management of territories with the status of "terrestrial and marine protected areas" as well as integrating the protection and restoration of biodiversity in all sectoral policies that have an impact on it.

The French government has made a particular effort to achieve the Millennium Development Goals (MDGs) and in 2013 provided EUR 226 million in ODA for biodiversity. In the same year, the French Development Agency (AFD) adopted a Cross-Cutting Biodiversity Framework for the 2013–2016 period, including the commitment to double AFD's interventions in this sector and to allocate EUR 160 million on average annually to actions dedicated to protected areas and sustainable natural resource management. Beyond their specific objectives, AFD interventions aim to sustainably contribute to poverty reduction and integration of the most vulnerable communities in economic, social, cultural and institutional development dynamics.

Whale. Madagascar. *Rémi Gouin*

Besides AFD, prioritization of biodiversity has been a defining part of the identity of the French Global Environment Facility (FFEM) for the past 20 years. FFEM finances projects that aim to bring the guiding principles of the CBD into practice. FFEM's activities are mainly concentrated in the Mediterranean and sub-Saharan Africa regions. The Small-Scale Initiatives program set up in 2006 supports African civil society groups actively involved in biodiversity protection and climate change actions. In 2013, FFEM also launched a program to strengthen young civil society organizations in North Africa (the PPI NASCO program) in the field of biodiversity.

In the field of research, the French platform "Fondation pour la Recherche et la Biodiversité" coordinates, among other things, calls for proposals and fosters partnerships and knowledge-sharing between French and international researchers on biodiversity.

3.4.2 Financial flows

French commitments to financing international biodiversity projects showed a positive trend from 2006 until 2013, amounting to almost EUR 218 million in 2013 as regards bilateral ODA (see Table 3.2). The commitments more than doubled from 2006 to 2013. The strong increase in 2013 is related to AFD's Cross-Cutting Biodiversity Framework financial commitments. The great share of indirect contributions reflects efforts by the French government to mainstream the fight against biodiversity loss into the planning of development policy and to create international solidarity for pursuing other development objectives.

Between 2006 and 2013 France committed EUR 11.9 million annually on average to the biodiversity window of the GEF (see Table 3.3). In these eight consecutive years, the French contribution to the biodiversity window amounted to EUR 95 million. The apparent decrease in 2013 does not reflect a real decrease in funding, as France plans its contribution to the GEF in multi-year commitments, so yearly figures are not relevant here.

Table 3.2 International biodiversity funding (bilateral ODA), France (commitments, EUR millions)[3]

	2006	2007	2008	2009	2010	2011	2012	2013
Direct	50	6	43	6	9	23	84	12
Indirect	44	34	82	82	118	76	74	206
Total	**94**	**40**	**125**	**88**	**127**	**99**	**157**	**218**

Table 3.3 French contribution to the GEF biodiversity window (commitments, EUR millions)

	2006	2007	2008	2009	2010	2011	2012	2013
Direct	**12**	**11**	**11**	**10**	**10**	**16**	**16**	**9**

Box 3.4 France's methodology

France adopted a methodology – embedded in the Cross-Cutting Biodiversity Framework of the French Development Agency (AFD) (see Section 3.4.1) – to fulfill its international commitments adopted at the 11th Conference of the Parties to the Convention on Biological Diversity in 2012. The above figures for direct and indirect commitments reflect the respective share, from 100 percent to 5 percent, with which funds are attributed to biodiversity funding. Further details are provided in the following table.

Table 3.4 Attribution of activities and funds to direct and indirect commitments

Type of activity	Description of activity	Retained funding
Direct	Protected areas (marine or terrestrial) Support to environmental non-governmental organizations (NGOs) Biodiversity trust funds	100%
Indirect	Sustainable management of forests Sustainable management of fisheries REDD+ (Reducing Emissions from Deforestation and Forest Degradation) projects Ecosystem restoration	80%
Indirect	Agro-ecology Pastoralism – *transhumance*[a] Beekeeping Sustainable management of fisheries Local management of biological resources Organic fair trade sectors Wastewater treatment, Integrated Water Resources Management	30%
Indirect	Urban development with biodiversity element Sustainable waste treatment – Waste impact reduction Environmental facility (climate excluded)	5%
Direct	Technical assistance staff dedicated to biodiversity	100%
Indirect	Communication activity with biodiversity aspects	50%
Direct	Production of knowledge (study focusing on biodiversity)	100%

[a] *Seasonal movement of people with their livestock between fixed summer and winter pastures; http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=809D8BE7B25B6E089A6077A48468C21A.tpdjo04v_3?cidTexte=JORFTEXT000029210384&categorieLien=id*

3.5 Germany

3.5.1 Priorities of Germany's biodiversity funding

Since the conservation of biodiversity is key to achieving sustainable development and reducing poverty, it is considered both a priority area as well as a cross-cutting issue in German development cooperation. The German government regards the CBD as being the primary framework for its efforts to conserve natural resources at the national and international levels, and it is dedicated to the implementation of the CBD Strategic Plan 2011–2020 and its Aichi Targets. Germany therefore supports and implements a range of initiatives to: facilitate biodiversity conservation in- and outside terrestrial and marine protected areas; promote sustainable use; integrate biodiversity into political, economic and social decision-making (mainstreaming); and reduce the drivers of biodiversity loss. The German government regards it as being vital that the services and benefits derived from biodiversity are shared equitably and also support the implementation of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity and the International Treaty on Plant Genetic Resources for Food and Agriculture.

The commitment of the German government to biodiversity is clearly demonstrated by Chancellor Angela Merkel's pledge at the ninth meeting of the Conference of the Parties to the CBD in Bonn in 2008. The Chancellor announced to allocate an additional EUR 500 million to the global conservation of forests and other ecosystems between 2009 and 2012, and further to provide EUR 500 million annually from 2013 onwards. The German government has so far fulfilled these commitments.

Currently, Germany is cooperating with more than 50 countries bilaterally as well as with a number of regional organizations. The largest share of the bilateral funding – more than 80 percent – is provided by the Federal Ministry for Economic Cooperation and Development (BMZ). Since 2008, these funds have been supplemented by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) through its International Climate Initiative as a new instrument for biodiversity and climate financing, and by the Federal Ministry for Food and Agriculture (BMEL) supporting biodiversity for food and agriculture.

Sorghum varieties. East Africa. *Bioversity International/J.van de Gevel*

In addition, German funding for biodiversity features strong contributions to multilateral institutions. Germany contributes an average of 11–13 percent to the GEF's overall budget, making it the third-largest donor. In total, Germany has committed more than EUR 1.76 billion to the GEF Trust Fund since its inception in 1991, of which roughly one-third is dedicated to biodiversity issues. Germany is also hosting the secretariats of several biodiversity-related multilateral agreements, such as the Convention on the Conservation of Migratory Species of Wild Animals, the Global Crop Diversity Trust, and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

Forest ecosystems and ecosystem services for climate change mitigation and adaptation are one special focus of the German international biodiversity engagement. This translates, for example, into substantial support in the field of Reducing Emissions from Deforestation and Forest Degradation (REDD+), with more than half a billion euros being allocated since 2008, as well as funding allocated to multilateral REDD+ programs. Sustainable financing of protected areas is another particular focus. As of 2014, Germany has provided almost EUR 178 million to capitalize 13 biodiversity trust funds in Latin America, Africa and the Caucasus. Germany also has a long track record in supporting partner countries in the setting up and the sustainable management of protected areas. A total area bigger than France and Germany together is supported

in 40 partner countries with an ongoing funding volume of more than EUR 500 million. The fight against poaching and illegal trade in wildlife products along the whole illegal trade chain complements Germany's efforts in this regard.

Germany is committed to transparency and provides information about its activities, in line with the International Aid Transparency Initiative Standard,[4] and publishes detailed information about its international biodiversity engagement biannually.[5]

3.5.2 Financial flows

Since 2006 the annual amount of direct contributions – comprising bilateral commitments and disbursements to multilateral institutions (namely the GEF biodiversity window and the FCPF) – had increased almost eightfold to EUR 552 million by 2013 (see Table 3.5).

Table 3.5 International biodiversity funding, direct contributions, Germany (EUR millions)

	2006	2007	2008	2009	2010	2011	2012	2013
Bilateral commitments	65	115	209	237	263	477	508	510
Multilateral disbursements	10	10	10	13	37	22	25	42
Total	**75**	**125**	**219**	**250**	**300**	**499**	**533**	**552**

The table only reports on direct contributions to biodiversity in the sense of projects with the principal objective of supporting the implementation of the CBD (see also Box 3.5).

Box 3.5 Germany's methodology

The Federal Ministry for Economic Cooperation and Development (BMZ) follows the established CRS codes of the OECD-DAC and the Rio Markers for assessing and qualifying its commitments to biodiversity. Only those projects with the main focus on – and the principal objective of – supporting the implementation of the CBD are assigned biodiversity Rio Marker 2. These are included as a 100 percent contribution to the German ODA commitment for biodiversity when calculating Germany's international biodiversity funding. Until 2011, only projects with a biodiversity Rio Marker 2 were taken into account when assessing the amount of German funding toward biodiversity.

To further mainstream and integrate biodiversity conservation into other sectors and focal areas of development cooperation according to the CBD Strategic Plan (2011–2020), since 2012, biodiversity "sectoral components" have been integrated into BMZ projects and programs with other principal objectives such as sustainable water and land management, food security, energy and governance. These "sectoral components" are elements that contribute to at least one of the three objectives of the CBD and are captured in the project's planning documents by at least one indicator. Such projects or programs are assigned the biodiversity Rio Marker 1. In financial reporting, for biodiversity purposes, only the volume of the specific biodiversity "sectoral component" is counted as a direct contribution toward biodiversity conservation. Other project components and their funding volumes are not reported. Thus, Germany only reports on direct contributions, and the percentage of a specific biodiversity sectoral component may vary from project to project.

http://www.bmz.eu/en/publications/topics/environment/Biodiversity.pdf

3.6 Italy

3.6.1 Priorities of Italy's biodiversity funding

Italy's strategy on biodiversity is being pursued, in particular, at the policy level through its support for biodiversity-related Multilateral Environmental Agreements – especially the CBD (see also Italy 2014) and the Convention on Migratory Species – as well as through the implementation of its strategic framework, with a special focus on protected areas and migratory species. Over the years, Italy has also been committed in particular to mainstreaming environmental issues into its development cooperation initiatives using a comprehensive approach. Hence, biodiversity concerns have been integrated into cooperation initiatives that address all other environment-related themes, such as climate change, sustainable infrastructure, agriculture, food and nutritional security, and economic development, in order to pursue a unified development approach.

In 2011, as the overarching goal of its development cooperation action, Italy approved environmental guidelines that focus on sustainable development. These guidelines were designed as a tool to identify, approve, monitor and evaluate all Italian environmental initiatives as well as to strengthen the mainstreaming of environmental issues in all other initiatives. Particular attention is given to initiatives that consider the environment as an economic opportunity, where a green economy is also promoted. Italy contributes to the protection of biological diversity through specific initiatives that focus on: the protection of endangered species and the sustainable management of natural resources in biodiversity hotspots and ecosystems; the eradication and control of invasive alien species; the promotion of transboundary initiatives to enhance dialogue and collaboration in areas experiencing high levels of political tension; as well as the support of global mechanisms for the sustainable development of fragile ecosystems, such as the Global Island Partnership and the Mountains Partnership.

Sustainable use and conservation of genetic material for agro-biodiversity. Italy.
Italian Development Cooperation

Since 1974, Italy has also been hosting and supporting Biodiversity International, a global research-for-development organization established as the International Board for Plant Genetic Resources. Its mission is to coordinate an international plant genetic resources program, including emergency collection missions, and to build and expand national, regional and international gene banks.

3.6.2 Financial flows

The bilateral commitments made by Italy peaked in 2007 at approximately EUR 85 million, with the second-largest bilateral contribution coming in 2011 at EUR 66 million (see Table 3.6). This level was almost reached again in 2013. The Italian bilateral contributions are largely driven by the great share of commitments classified as indirect / significant. On average, the Italian government committed almost EUR 50 million per year in the period from 2006 to 2013. In this respect, it is worth mentioning the important role that Italian contributions played for the GEF.

These numbers reflect the fact that biodiversity is one of the many priorities of Italian Development Cooperation. Peaks in 2007 and 2011 reflect large soft-loan commitments, whereas the low level of funding in 2010 reflects a reduction in bilateral ODA as well as in the total number and size of commitments classified as "biodiversity significant."

Table 3.6 International biodiversity funding (bilateral), Italy (commitments, EUR millions)[6]

	2006	2007	2008	2009	2010	2011	2012	2013
Direct	1	11	15	5	2	40	13	8
Indirect	19	74	40	47	11	26	35	50
Total	**20**	**85**	**55**	**52**	**12**	**66**	**48**	**58**

The multilateral commitments made by Italy also peaked in 2007 at approximately EUR 33 million (see Table 3.7). Similarly to bilateral commitments, multilateral commitments are largely driven by indirect contributions. On average, Italy committed approximately EUR 19 million annually between 2006 and 2013.

These figures reflect the fact that, generally, the bilateral channel was preferred to the multilateral one. The peak in 2007 reflects an increase in ODA funding.

Italy is also advancing the transparency of its funding for global development cooperation initiatives by publishing this data in the Open Aid Italia website.[8]

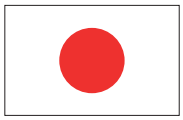
Table 3.7 International biodiversity funding (multilateral), Italy (commitments, EUR millions)[7]

	2006	2007	2008	2009	2010	2011	2012	2013
Direct	14	5	3	4	3	7	7	4
Indirect	10	28	20	9	10	11	7	8
Total	**24**	**33**	**23**	**13**	**14**	**18**	**14**	**12**

Box 3.6 Italy's methodology

For the 2006–2013 period, data on bilateral commitments was extracted from the CRS database and CBD reporting, whereas data on multilateral commitments was extracted from the DAC tables and CBD reporting. Activities reported to the OECD-DAC as pursuing biodiversity as a principal or significant objective were assigned either a direct or indirect type of funding. Both direct and indirect bilateral figures represent 100 percent of the funds committed. The same percentage was used for both because the Rio Marker score is not associated with a fixed percentage rate, and there is no commonly agreed methodology for calculation among G7 members.

For multilateral figures, a share of 100 percent was applied to those organizations with a specific mandate on biodiversity (Biodiversity International). The following rates were applied to the following organizations, which address biodiversity as a component of their program activities: UNDESA, IFAD, CIHEAM/IAM, UNDP and WFP: 10 percent; ITTO, FAO and CGIAR: 25 percent; IUCN and UNEP: 50 percent.[9]



3.7 Japan

3.7.1 Priorities of Japan's biodiversity funding

Japan has participated in international cooperation efforts in the field of biodiversity and supported developing countries through international financial mechanisms. The Japanese government will continue to take action on biodiversity conservation while applying a global perspective. More specifically, it will assist developing countries with their capacity development efforts toward the achievement of the Aichi Biodiversity Targets, promote sustainable conservation of human-influenced natural environments through the Satoyama Initiative and participate in international cooperation centered on the Asia-Pacific region, which has a close connection with Japan. In order to promote efforts based on the CBD, including the achievement of the Aichi Biodiversity Targets at the global level, it is strongly believed that global efforts are needed to provide funds, transfer technology and conduct capacity development for developing countries. Therefore, Japan established the Japan Biodiversity Fund, consisting of JP¥ 5 billion (US$ 59 million) in contributions from the government of Japan. The aim is to support developing countries to develop capacity in implementing the CBD Strategic Plan 2011–2020 and the Aichi Biodiversity Targets, along with the revision of their National Biodiversity Strategies and Action Plans (NBSAPs) in accordance with the CBD Strategic Plan, and to strengthen their capacity to implement the Convention. In order to achieve these goals, the CBD Secretariat is conducting various activities under the Japan Biodiversity Fund, including regional and sub-regional workshops, such as NBSAP capacity-building workshops, public awareness campaigns and capacity-building activities.

Monitoring survey of the Programme for Bornean Biodiversity and Ecosystems Conservation. Crocker Range Park, Japan. *Japan International Cooperation Agency*

The Japan International Cooperation Agency (JICA) conducts various activities to support the conservation of biodiversity in developing countries.[10] For example, JICA provides technical cooperation aimed at improving techniques for the recovery of ecosystems, and supports the development of the research capabilities of administrative officials and researchers. JICA also provides assistance to increase awareness among local citizens through environmental education, and to develop and disseminate agricultural techniques with the objectives of raising productivity levels and conserving the environment. Other initiatives aim to enhance and improve policies, systems and the organizational structures necessary for the appropriate management of nature reserves and national parks.

The significance of biodiversity was also underscored by the Japanese government at COP10 in October 2010, when it hosted the conference in Nagoya. As a governmental organization implementing Japan's official assistance, JICA will continue to disseminate the knowledge gained through its years of international cooperation activities and further promote biodiversity conservation in cooperation with other countries. In addition to providing assistance, it is vital that developing countries are given the tools to be able to conserve the environment under their own direction. JICA teamed up with players from various sectors (local government, ministries, local citizens, non-governmental organizations (NGOs), companies, etc.) to create a system to promote conservation activities. An example of one such partnership can be found in Ethiopia – a country that suffers from serious forest degradation – where JICA collaborates with private companies to assist the country in acquiring certification from an environmental NGO so that its wild coffee can be exported at a premium price. This activity has helped farmers to increase their incomes while retaining their forest resources.

Rice growing. Sado, Japan. *Sado City*

For other funding activities, it was announced during COP10 that a total of US$ 2 billion would be provided over three years starting in 2010 to support biodiversity conservation – part of Japan's "Life in Harmony Initiative" to assist developing countries with the conservation of biodiversity.

Through its contributions, Japan has also participated in supporting multilateral actions, such as the GEF and the Critical Ecosystem Partnership Fund. Especially for the GEF, Japan has been one of the largest donors and played a leading role in the success of the GEF-6 replenishment. For the CGIAR, Japan has contributed specifically to the management of international gene banks.

3.7.2 Financial flows

As for the average amount of bilateral development assistance for biodiversity, Japan ranked at the top among OECD countries between 2006 and 2011, since nature conservation was set as a priority field in the medium-term policy for ODA.

Japanese contributions to international biodiversity funding peaked in the 2007 at more than US$ 1.7 billion and in 2011 reached almost US$ 1.4 billion (see Table 3.8). On average, the Japanese government committed US$ 1.01 billion annually to biodiversity conservation. The Japanese contributions have largely been driven by the great share of commitments classified as direct / principal.

Table 3.8 International biodiversity funding, Japan (commitments, US$ millions)[11]

	2006	2007	2008	2009	2010	2011	2012	2013
Direct	1154	1762	695	995	823	1368	332	38
Indirect	24	16	182	140	260	108	118	70
Total	**1177**	**1778**	**877**	**1135**	**1083**	**1476**	**450**	**108**

Box 3.7 Japan's methodology

The table was compiled using CRS data from the OECD-DAC on commitments including the Rio Marker biodiversity. Activities marked as principal or significant were assigned as being either direct or indirect funding, respectively.

3.8 United Kingdom

3.8.1 Priorities of the United Kingdom's biodiversity funding

The UK recognizes the importance of mainstreaming biodiversity funding. The information provided below gives additional detail on the diverse range of work that the UK is involved in to tackle a range of biodiversity issues. The Department for International Development (DFID) prioritizes funding of biodiversity that focuses on the relationship between biodiversity and poverty alleviation for the development of sustainable livelihoods. Funding is directed toward research to develop the understanding of this relationship and sustainable resource use, and toward specific projects related to poverty alleviation and livelihoods through maintaining the benefits provided by the environment and ensuring that renewable natural resources – including issues related to governance, in particular forests – are used sustainably.

The International Climate Fund commits GB£ 3.87 billion of ODA to deliver poverty eradication, reduce carbon emissions and reduce deforestation (and therefore protect biodiversity). So far, more than GB£ 409 million in funds from the International Climate Fund has been disbursed to forestry projects, with GB£ 242 million-worth of projects in the pipeline, including for multilateral initiatives such as the Forest Investment Program, the FCPF, the Bio-Carbon Fund and the Congo Basin Forest Fund.

The Darwin Initiative funds projects that help countries which are rich in biodiversity but poor in financial resources to meet their objectives under one or more of the following biodiversity conventions: the CBD, the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), the Nagoya Protocol or the International Treaty on Plant Genetic Resources for Food and Agriculture. Projects typically try to address threats to biodiversity, such as overexploitation, invasive species, habitat degradation and loss, climate change mitigation and adaptation, and

Elephant herd with baby. Chobe National Park, Botswana. *Jeremy Eppel*

pollution. The initiative is now jointly funded by the UK Department for Environment, Food and Rural Affairs (Defra) as well as DFID, with DFID projects having a strong poverty alleviation and livelihood focus. Since 1992, the UK government has awarded 929 Darwin projects in 158 countries.[12]

The Ecosystem Services for Poverty Alleviation (ESPA) program aims to deliver high-quality, cutting-edge research that will improve understanding of the way ecosystems function, the services they provide and their relationship with the political economy and sustainable growth. The program's research will provide the evidence and tools to enable decision-makers to manage ecosystems sustainably and in a way that contributes to poverty alleviation. GB£ 30 million has been committed until fiscal year 2017/2018.[13]

The UK is involved in financing several international activities, such as the World Bank's WAVES initiative and the United Nations (UN) Poverty Environment Initiative. Starting in 2011/2012, the UK began providing GB£ 1.9 million (US$ 3 million) for a period of four years and is considering options for future engagement in the WAVES initiative.[14] This has contributed to a US$ 15 million World Bank Multi-Donor Trust Fund, supported by the UK, Norway, the European Commission, Japan and the Netherlands. The UK will provide GB£ 4 million (approximately US$ 6 million) over four years from 2013/2014 to 2016/2017 to the UN Poverty Environment Initiative.[15] The UK's contribution represents

Rhino. Madikwe Game Reserve, South Africa. *Jeremy Eppel*

a burden share of approximately 10 percent based on a US$ 60 million budget. Other donors are UNDP and UNEP, the European Commission, Germany, Norway, Spain and Sweden.

3.8.2 Financial flows

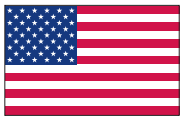
UK ODA distributions for biodiversity peaked in 2011 at more than GB£ 109 million. On average, the UK disbursed GB£ 55.6 million annually to international biodiversity funding (see Table 3.9). Inter-annual variability in biodiversity disbursements is due to a number of different factors, including program funding cycles and agreed methodological changes. Care should therefore be taken in drawing inferences from any inter-annual trends. Year 2011, for instance, reflects a significant contribution to the Forest Investment Program.

Table 3.9 International biodiversity funding, United Kingdom (GB£ millions)

	2006	2007	2008	2009	2010	2011	2012	2013
Total	**32**	**36**	**28**	**49**	**79**	**109**	**56**	**56**

Box 3.8 United Kingdom's methodology

The methodology is based on calculations of the United Kingdom's gross disbursements recorded against the OECD-DAC sector codes for (i) Biodiversity (43010) and Forestry Total (312) in the CRS and (ii) a 33 percent share of the UK contributions to the GEF. Sterling equivalent ODA figures have been calculated using the OECD's official Sterling-USD exchange rates for each calendar year.



3.9 United States

3.9.1 Priorities of the United States' biodiversity funding

The United States (US) is committed to biodiversity conservation. Numerous US government agencies work collaboratively to integrate biodiversity in policies, strategies and plans, and to raise public awareness and promote best practices, both domestically and internationally. Additionally, the US supports multilateral organizations such as the GEF. Bilaterally, the United States Agency for International Development (USAID) controls the largest component of US biodiversity assistance. In 2014, building on decades of work supporting biodiversity conservation, USAID adopted its first Biodiversity Policy, which articulates the agency's commitment to strategically conserve the world's most important biodiversity and increase integration with other sectors for improved development and conservation outcomes. The policy recognizes that biodiversity loss can be driven by unsustainable development, that biodiversity conservation itself can be a critical tool for achieving sustainable development, and that there may be trade-offs between biodiversity conservation and other development goals that must be understood and managed transparently, based on evidence.[16] In 2013, USAID invested US$ 180 million toward biodiversity conservation in more than 50 countries.

USAID supports programs to combat illegal wildlife trafficking through the ASEAN (Association of Southeast Asian Nations) Wildlife Enforcement Network and Asia's Regional Response to Endangered Species Trafficking, with the US Fish and Wildlife Service and Department of Justice (DOJ) participating in law enforcement capacity-building to combat wildlife trafficking. The US government is also supporting the development of wildlife enforcement networks in Central America, Central Africa and elsewhere, and participates in the Wildlife Crime Working Group and Project Leaf (Law Enforcement Assistance for Forests) of the International Criminal Police Organization. In the last three years, USAID has provided about US$ 76 million for combating wildlife trafficking, and since 2007 it has allocated around US$ 125 million to address this threat. Most of this investment supports community engagement and law enforcement monitoring for anti-poaching in Africa, strengthens capacity and international coordination required to detect and stop wildlife crime in Asia, and reduces the demand for wildlife products that ultimately drives illicit trade.

White rhino monitoring. Nakuru National Park, Kenya. *Karl Stromayer/USFWS*

Jaguar searching for food. Colombia. *Panthera Foundation*

3.9.2 Financial flows

US contributions to biodiversity funding were at least US$ 180 million between 2007 and 2013 (see Table 3.10), as regards USAID-funded programs only (see Box 3.9). The disbursements peaked in 2010 at more than US$ 210 million. Projects funded by other agencies may increase biodiversity ODA to about US$ 300 million annually. For 2007, the more detailed numbers show that multiple US agencies disbursed US$ 318 million, including USAID-only disbursements of US$ 184 million.

Waterfall. Philippines. *André Künzelmann/UFZ*

Table 3.10 International biodiversity funding, United States (disbursements, US$ millions)

	2007	2008	2009	2010	2011	2012	2013
Direct (USAID only)	184	202	205	213	188	184	180
Direct (multiple agencies)	318	NA	NA	NA	NA	NA	NA

Box 3.9 US methodology

All figures listed for 2008–2013 are for programs funded only by the United States Agency for International Development (USAID), as information from other agencies does not readily list biodiversity funding separately. The USAID numbers can be traced back to programs and public reporting. Refer to http://www.usaid.gov/biodiversity/impact/annual-reports for additional details on USAID biodiversity funding. Biodiversity ODA funding by other agencies may increase the total amount to about US$ 300 million annually. The OECD-DAC sector code for biodiversity (43010) in the CRS can only serve as a first approximation of contributions by the United States (US) to biodiversity because many activities are reported within a wider range of other categories, and therefore not used.

USAID Direct (now called Focused) Biodiversity funds have control levels for biodiversity and meet the four criteria of the biodiversity definition:

1. The program must have an explicit biodiversity objective; it is not enough to have biodiversity conservation result as a positive externality from another program;
2. Activities must be identified based on an analysis of drivers and threats to biodiversity and a corresponding theory of change;
3. Site-based programs must have the intent to positively impact biodiversity in biologically significant areas; and,
4. The program must monitor indicators associated with a stated theory of change for biodiversity conservation results.

3.10 European Union

3.10.1 Priorities of the EU's biodiversity funding

In response to the CBD Strategic Plan 2011–2020 and its Aichi Targets, the EU[17] has developed its own EU Biodiversity Strategy (EUBS) to 2020, in which the 6th target in particular gives the EU a prominent role in averting global biodiversity loss. This encompasses efforts to: enhance the mobilization of financial resources for global biodiversity conservation; address indirect drivers of biodiversity loss, such as unsustainable consumption patterns, free trade agreements and harmful subsidies; make its development cooperation "biodiversity-proof"; and install an adequate legal framework for access to genetic resources and the fair and equitable sharing of benefit arising from their utilization.

Besides its environment and development cooperation policies and actions on biodiversity, the EU also invests significant resources into research and technological developments on biodiversity – through its Horizon 2020 Work Programme in relation to climate change[18] – and on food security; sustainable agriculture, forestry, marine areas and inland water; and bioeconomy.[19]

Honeybee on a mullein blossom. *André Künzelmann/UFZ*

People travel far distances to fetch water. Kenya. *J. Bett (Darwin Initiative)*

Finally, private businesses are being closely associated with the EUBS to 2020, not only in terms of being a potential source of funding for biodiversity, but also in terms of their contributions to EU biodiversity objectives. An EU Business and Biodiversity Platform was set up in 2008 to monitor the private-sector's engagement in the EUBS. Phase 2 of this platform was established in 2014. This forum gives companies the opportunity to showcase and develop their work on biodiversity. About 200 organizations are involved, including multinational companies, small and medium-sized enterprises and NGOs from more than 10 member states. Many of the companies are actively working with the Commission to deliver on the platform's three workstreams on: natural capital accounting, innovation for biodiversity and business, and access to finance and innovative finance mechanisms.[20] Although the focus has so far been within the EU, it is now being enlarged to the international dimension as well as looking at the involvement of the EU's private sector to address global biodiversity objectives.

In addition, the Commission and the European Investment Bank have established the Natural Capital Financing Facility (NCFF), a new financial instrument that provides loans and investments to support projects in EU member states that demonstrate that the preservation of natural capital can generate revenues or save costs, while delivering on biodiversity and climate adaptation objectives. Currently

there are clear barriers to the uptake of many natural capital projects, including lack of experience, long investment and project payback periods, and uncertainties about target markets, revenue streams and profit margins. The NCFF is a pilot program to establish a pipeline of replicable, bankable projects that will serve as a "proof of concept" and demonstrate the attractiveness of such projects to potential investors. Eligible projects will address payments for ecosystem services, green infrastructure, biodiversity offsets, and investments for innovative pro-biodiversity and adaptation businesses. The final recipients for NCFF are public or private entities, including public authorities, land owners and businesses.

3.10.2 Financial flows

The contributions by the EU followed a positive trend between the years 2006 and 2013 (see Table 3.11). They more than doubled, from EUR 132 million in 2006 to EUR 319 million in 2013. During this period, the EU committed EUR 210 million annually on average. Indirect commitments represented by and large the greatest share of the EU's contributions.

Table 3.11 International biodiversity funding, EU (commitments, EUR millions)

	2006	2007	2008	2009	2010	2011	2012	2013
Direct	56	76	83	59	95	19	217	82
Indirect	76	53	47	141	151	107	180	237
Total	**132**	**129**	**130**	**200**	**246**	**126**	**397**	**319**

Box 3.10 EU's methodology

The data is taken from the Data WareHouse system of EuropeAid. Every single commitment is tagged with the Rio Marker biodiversity according to the OECD-DAC methodology and guidance. The amounts for funding are calculated using the following scheme: 100 percent, 40 percent, or 0 percent of the total project / program cost is accounted for activities marked as principal, significant or not-targeted, respectively.

Biodiversity-relevant actions were searched for across all financial commitments for the implementation of development cooperation policies of the EU, covering the following financing instruments: European Development Fund; Development Cooperation Instrument; European Neighborhood Instrument; European Democracy and Human Rights Instrument; Instrument for Stability. The confidence level is moderate, allowing for a small margin of error relating to occasionally over- or underestimating the degree of relevance to biodiversity (whether principal, significant or not-targeted).

The figures do not double-count individual contributions made by those G7 countries that are EU member countries (France, Germany, Italy and the United Kingdom) because the figures reflect only the funds provided for biodiversity from the EU financial instruments managed by EU development cooperation. The European Development Fund is not included in the EU budget, but it is managed in the portfolio for International Cooperation and Development (DEVCO), and is thus accounted for as an EU contribution.

Villager seen through eucalyptus trees. Lower Kagera River Basin, Rwanda. *FAO/Giulio Napolitano*

1 Any differences in sums are due to rounding.
2 Law reference 2014-773 ; text available at: http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=809D8BE7B25B6E089A6077A48468C21A.tpdjo04v_3?cidTexte=JORFTEXT000029210384&categorieLien=id
3 Any differences in summing up the numbers are due to rounding.
4 See http://www.bmz.de/en/what_we_do/approaches/transparency-for-greater-effectiveness/publication-in-accordance-with-the-IATI-standard/index.html
5 See http://www.bmz.eu/en/publications/topics/environment/Biodiversity.pdf
6 Any differences in summing up the numbers are due to rounding.
7 Any differences in summing up the numbers are due to rounding.
8 See http://www.openaid.esteri.it
9 United Nations Department of Economic and Social Affairs (UNDESA); International Fund for Agricultural Development (IFAD); International Centre for Advanced Mediterranean Agronomic Studies / Mediterranean Agronomic Institute of Bari (CIHEAM/IAM); World Food Programme (WFP); International Tropical Timber Organization (ITTO); CGIAR – formerly known as the Consultative Group on International Agricultural Research; International Union for Conservation of Nature (IUCN) and United Nations Environment Programme (UNEP).
10 See http://www.jica.go.jp/english/our_work/thematic_issues/environment/activity.html
11 Any differences in summing up the numbers are due to rounding.
12 See http://www.darwininitiative.org.uk/project/
13 See http://devtracker.dfid.gov.uk/projects/GB-1-112082/
14 See http://devtracker.dfid.gov.uk/projects/GB-1-202993/
15 See http://devtracker.dfid.gov.uk/projects/GB-1-203565/
16 For more information on the policy and its impact on allocating USAID's financial and technical resources, see http://www.usaid.gov/biodiversity/policy
17 In the context of this report, "European Union" should be understood in the meaning of "EU institutions," that is, essentially the European Commission and the European Investment Bank, which implement EU policies and manage EU-specific financial instruments.
18 See http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-climate_en.pdf
19 See http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-food_en.pdf
20 See http://ec.europa.eu/environment/biodiversity/business/

4.

G7 approaches and good practices to reduce the loss of biodiversity

Women run seedbank. Nepal. *Bioversity International/B. Sthapit*


कोदो- झालरी
कोदो- मुन्नी

4. G7 approaches and good practices to reduce the loss of biodiversity

Key messages

- G7 countries undertake a broad range of efforts, both at home and abroad, to safeguard biodiversity, for example by supporting the establishment and management of protected areas while improving the livelihoods of communities, and by combating poaching and the trade of illegal timber, wildlife and its products.
- Efforts undertaken by G7 countries to tackle direct drivers of biodiversity loss, such as habitat loss and invasive alien species, are aimed, among other things, at sustainable forest management and reforestation, and the development of several national or regional invasive alien species strategies.
- To tackle the economic, cultural and sociopolitical causes underlying biodiversity loss (indirect drivers), the G7 has begun to calculate the economic value of ecosystem services, started campaigns to alter consumption patterns and reduce food waste, and has taken initial steps to identify and reform subsidies that are harmful to biodiversity.
- G7 efforts seek to enhance the benefits of biodiversity and ecosystem services to society by supporting sustainable agriculture, forestry and fisheries, and by using incentives for conservation.

This chapter presents the approaches and good practices taken by the G7 countries to reduce biodiversity loss, both domestically and in development cooperation. The presentation of examples for specific G7 countries does not mean that other G7 countries are not active in the same field.

4.1 Directly improving the state of biodiversity

To directly improve the situation of biodiversity, the common approach has been to protect species in their habitats and ecosystems. G7 efforts in this field cover a wide range of activities at the domestic and international levels. Activities include the creation and sustainable management of protected areas, the protection of species and their genetic diversity, as well as policy frameworks to prevent illegal logging, poaching and illegal trade in wildlife.

4.1.1 Supporting protected areas

The establishment of protected areas has been the most common strategy among the G7 to safeguard biodiversity. Since the 1960s considerable progress has been made, and today 15 percent of terrestrial ecosystems are protected, at least on paper (UNEP and WCMC 2014); in contrast, only 2.8 percent of the global ocean area is protected (idem).

Protected areas are of special importance, as these areas allow for the protection of endangered plant or animal species in their natural habitats as well as support the livelihoods of communities. Good practices by G7 countries relate, for instance, to the site network of the Ramsar Convention for protecting wetlands, the Natura 2000 network in Europe, and other bilateral and multilateral agreements for creating new and supporting established protected areas. At home, for example, Canadian protected areas grew more than 87,000 km^2 between 2009 and 2013, Japan designated protected areas in 20.3 percent of its land areas and the

United States (US) recently established the Pacific Remote Islands Marine National Monument, resulting in a protected area that covers more than 1 million km². France implemented a strategy in 2014 that will result in the creation of terrestrial protected areas as well as marine protected areas that cover 20 percent of its land areas and 16 percent of its marine areas.

Abroad, Germany is very active, supporting the establishment and management of protected areas of an estimated 929,000 km² in 40 countries worldwide (see Example 4.1). Japan is working on capacity-building of park officers and communities in and around national parks (see Example 4.2).

Example 4.1 Strengthening cross-border conservation (Germany)

As ecosystems are not confined within administrative boundaries, cross-border cooperation is essential for their effective protection. In southern Africa one of the world's largest transboundary protected area complexes has been established under the name of KAZA (Kavango-Zambezi Transfrontier Conservation Area). The area combines 36 separate sites in 5 countries, covers an area the size of Sweden and is home to 44 percent of Africa's elephants. This African initiative aims at protecting biodiversity while at the same time generating income for local communities and securing peace and stability in the region. German support facilitates cooperation between the involved countries to manage the area jointly, to develop sustainable tourism, to improve anti-poaching measures, to share lessons learned and to foster cross-border initiatives at the local level. Addressing conservation challenges across borders is an important strategy also for the protection of marine biodiversity. In the Pacific, Indonesia, Malaysia and the Philippines have agreed on a trilateral action plan for the Sulu Sulawesi Marine Ecoregion. Germany supports their efforts to promote sustainable fisheries, to improve the livelihoods of coastal communities and to create networks of marine protected areas. In the Caribbean, small island states are pooling resources for marine protected area networks through conservation trust funds established with German financial cooperation. *Source: BMZ and BMUB (2014)*

Example 4.2 Strategy for Strengthening Biodiversity Conservation through Appropriate National Park Management and Human Resources Development Project (Japan)

National Parks in Indonesia are not always functionally managed. Moreover, the drastic designation of areas covered in national parks creates conflicts between the management of national parks and local communities. This is due to lack of coordination with those who use the natural resources, mainly the local communities. The increasing disruptions from the usage of natural resources by these local communities and newly immigrated groups threaten the flora and fauna in the parks. These conflicts are created not only by the users' lack of awareness or poverty, but also the lack of awareness and knowledge on the management side. Under these circumstances, the Indonesian government requested a technical cooperation project on the development of a comprehensive system for capacity development of human resources conducted by the Centre for Forestry Education and Training. This project aims at enhancing collaborative management in the national parks in Indonesia by creating capacity for park officers and other stakeholders in planning and management.
http://www2.jica.go.jp/en/evaluation/pdf/2012_0600341_4.pdf

4.1.2 Protecting species and genetic diversity

G7 countries also undertake efforts to protect species and genetic diversity within, for example, the landscapes used for agricultural production and in fragmented landscapes (see Example 4.3) and in gene banks (see also Example 5.6). Pollinators, such as insects, birds and bats, contribute significantly to crops produced worldwide (Williams 1994, Roubik 1995, Klein et al. 2007). Many of them are threatened through increased use of pesticides and fundamental changes in their habitats. For example, there are many domestic campaigns by the G7 to protect pollinators or charismatic species in Europe, North America and Japan. International efforts focus on biodiversity hotspots in partner countries and include landscape conservation and restoration programs (see Example 4.4), capacity-building programs (see Example 4.5) and the enactment of policy frameworks for the protection of migratory species.

4.1.3 Combating illegal logging and associated trade

Research into the extent of illegal logging estimates that illegal logging accounts for 50–90 percent of the volume of all timber production in key producer tropical countries and 15–30 percent globally, and that the economic value of global illegal logging ranges between US$ 30 and 100 billion, or 10–30 percent of global wood trade (Nellemann and

Example 4.3 Lowland gorilla conservation in the Kahuzi-Biéga National Park in DR Congo – Long-term support in the face of conflict is bearing fruit (Germany)

The Kahuzi-Biéga National Park is located in the mountainous region of eastern Democratic Republic of Congo. It was established in 1970 primarily to conserve the eastern lowland gorilla. Today the park is considered the most important site for this species. However, a decade of war and political unrest has contributed to the decline of the gorilla and other species in the park. Germany has been cooperating with the administration of the National Park since 1984, and cooperation continued during the crisis and the war. Over the past six years, emphasis has been on environmental education and further training of personnel and eco-guards as well as advice to improve the general management of the park according to new and international standards. In 2007, the number of gorillas started to rise after a decade of decline. Despite this significant success, involvement of the local population, mediation in conflicts with rebels in the region and reforms in conservation approaches remain big challenges for the park. *Source: BMZ and BMUB (2014)*

Example 4.4 Protecting jaguars by establishing ecological corridors (US)

The Conservation Landscapes Program of the United States Agency for International Development (USAID) partnered with the Panthera Foundation to create what turned into an 18-km natural pathway to protect jaguars crossing through the Andes Mountains to reach the hot plains of Tame, Arauca in Colombia. The program was also designed to help small cattle ranchers establish better land management and cattle development practices in protected area buffer zones (e.g., division of pastures, establishment of a "protein bank" for cattle fodder and access to solar energy systems). By organizing the way farmers raised their cattle and moving the location of their activities to avoid invasion of the jaguar corridor, the project was able to promote the conservation of the jaguar. *Source: Cavelier et al. (2013)*

Orphan station of mountain gorillas. Virunga National Park, Democratic Republic of the Congo. *Thomas Imo/photothek.net*

INTERPOL 2012). Besides negative impacts on biodiversity, illegal logging threatens the livelihoods of around one billion forest-dependent people by undermining the rule of law, and creating and fueling armed conflict and corruption (Lawson and MacFaul 2010).

Given that G7 countries are among the largest consumers of timber products in the world (e.g., EU-FLEGT-Facility 2010), the G7 has acknowledged that the terms of trade it sets out with producing and other processing countries are crucial in solving problems with illegal logging. G7 members from European Union (EU) countries address this through the EU, particularly through the EU Timber Regulation (No 995/2010) and the implementation of the Forest Law Enforcement, Governance and Trade (FLEGT) action plan (see Example 4.6). Also Japan and the US have policy frameworks in place to combat illegal logging: Japan established the "Guideline for Verification on Legality and Sustainability of Wood and Wood Products" as voluntary policy, whereas the US amended the 100-year-old Lacey Act in 2008 to prohibit import and interstate trade within the US of illegally-sourced wood and wood products.

Example 4.5 Sustainable use and conservation of genetic resources for agro-biodiversity (Italy)

In 2014, Italy launched the funding of a soft-loan program entitled "Promoting process for improving the conservation models and the strategies for enhancing socioeconomic value of phytogenetic resources of agro-biodiversity." With this initiative, Italian Development Cooperation supports the Bolivian National System for conservation of genetic resources of agro-biodiversity through joint collaboration with the Ministry for Rural and Agricultural Development, aiming in particular at strengthening the National Institute for Forest and Agro-zootechnical Innovation (NIFAI). Technical assistance is provided to the institute to improve its services related to the sustainable use and conservation of genetic resources for agro-biodiversity as well as to enhance its socioeconomic impact.

In particular, the main activities supported are: i) agro-biodiversity inventory – the primary activity to estimate the regional agro-biodiversity and the microcenter's definitions, for example with the collection of peanuts (*Arachis hypogaea*), pineapples (*Ananas comosus*), cacao (*Theobroma cacao*), cherimoya (*Annona cherimolia*), cashews (*Anacardium occidentale*) and cassava (*Manihot esculenta*); collection of germoplasm samples from expeditions and prospections *in situ* in order to include additional species of plants of economic value to germoplasm collections; additional work is done to characterize these resources and their agricultural characteristics, including those that are relevant for climate change; ii) studies of the dynamics conservation *in situ* (link between man-plant-environment) associated with the cultural and social aspects and genetic resources, in particular women's role in the conservation of genetic resources; iii) strengthening of three germoplasm banks in the tropical region. In addition, the program supports the institutionalized development of a communication system to strengthen knowledge-building across different administrative institutions in rural areas.

Example 4.6 Enforcing forest law and combating illegal timber trade (EU: France, Germany, Italy, UK)

G7 countries that are also EU members have supported the development of the Forest Law Enforcement, Governance and Trade action plan (FLEGT). FLEGT primarily aims at combating illegal logging and illegal timber trade and installing a sound governance system of natural resources as a fundamental basis for sustainable forest management and to combat deforestation. Two key elements of the FLEGT action plan are: the European Union (EU) Timber Regulation, which, since 2013, prohibits trade of illegally harvested timber and products derived from such timber on EU markets and requires EU operators to exercise "due diligence" (only in absence of FLEGT licenses); and its voluntary FLEGT scheme to ensure that only legally harvested timber is imported into the EU from countries agreeing to take part in this scheme. The internal EU legal framework allows for the control of the entry of timber to the EU from countries entering into bilateral FLEGT Voluntary Partnership Agreements (VPAs) with the EU. Once agreed, the VPAs will include commitments and action from both parties to halt trade in illegal timber, notably with a license scheme to verify the legality of timber exported to the EU. The agreements also promote better enforcement of forest law and promote an inclusive approach involving civil society and the private sector. On the demand side, the FLEGT action plan furthermore promotes the adoption of public procurement policies of EU member states, purchasing policies of the private sector and policies of the investment sector to increase consumer demand for verified, legally produced timber (EFI 2010). Six VPAs have already been concluded with Cameroon, Central African Republic, Ghana, Indonesia, Liberia and Republic of Congo. Negotiations are ongoing with nine more countries.

http://ec.europa.eu/environment/forests/flegt.htm

4.1.4 Anti-poaching and combating illegal wildlife trade

Illegal wildlife trade is the result of a demand for, among other things, exotic pets and traditional East Asian medicines; items are used as status symbols, corporate gifts and for investment purposes (Gao and Clark 2014, UNEP 2014b). In 2014, more than 1,200 rhinos were poached in southern Africa, and close to 30,000 elephants were killed, particularly in Eastern and Central Africa. With an estimated volume of between US$ 8 and 10 billion per year (excluding fisheries and timber), the illegal wildlife trade is considered the fourth most lucrative global crime after the trafficking of drugs, humans and arms, and is still rising at an alarming rate (Lawson and Vines 2014). This is a conservation issue that also increasingly threatens the livelihoods, development options and security of the populations in areas affected by poaching, particularly in Africa. These developments are fueled by an increasing global demand for wildlife products, particularly in Asia but also in G7 countries (Nellemann et al. 2014). The non-governmental organization (NGO) TRAFFIC (2014) reports that the G7 countries, among others, are important destinations and transit points in the global wildlife trade. G8 leaders during the Lough Erne Summit in 2013 recognized the need to tackle wildlife trafficking, noting its links to transnational organized crime and corruption. Poaching and the illegal trade in wildlife products are therefore the subject of special attention by the Roma-Lyon Group. This group is the main G7 forum for cooperation on combating terrorism and organized crime. It gathers experts from different sectors, such as justice, law enforcement and foreign affairs, and serves as a platform to promote police and judicial cooperation as well as to share information and good practices.

Moreover, G7 countries also address the issue of illegal trade in wildlife and wildlife products individually in their international cooperation commitments and by incorporating specific requirements into their trade legislation (see Examples 4.7, 4.8, 4.9 and 5.8).

Example 4.7 Preventing wildlife trafficking (EU: France, Germany, Italy, UK)

The EU has included provisions aiming to strengthen the effective implementation of multilateral environmental agreements, as well as provisions relating to trade in areas such as forestry and fisheries in all recent free trade agreements with third countries (e.g., Central America, Colombia/Peru, Singapore). In addition, the EU provides additional trade preferences through its Generalised Scheme of Preferences special arrangement to vulnerable developing countries that ratify and implement international conventions on sustainable development and good governance, including the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). In February 2014, the European Commission adopted a Communication – the EU approach against wildlife trafficking – which takes stock of EU involvement in global efforts to combat the alarming rate of poaching and illegal trade in wildlife. It launched a stakeholder consultation and set out the areas in which the EU and its international partners should enhance their efforts. *Source: EU (2014)*

Example 4.8 Combating wildlife trafficking (US)

In 2014, the United States (US) announced a National Strategy for Combating Wildlife Trafficking. The strategy will strengthen US leadership in addressing the serious and urgent conservation and global security threat posed by illegal trade in wildlife. The strategy establishes guiding principles for US efforts to stem illegal trade in wildlife and sets forth three strategic priorities: strengthening domestic and global enforcement; reducing demand for illegally traded wildlife at home and abroad; and expanding international cooperation and commitments, including through the development of effective partnerships with governments, local communities, non-governmental organizations (NGOs), private industry and others to combat illegal wildlife poaching and trade. Under the strategy, the US additionally announced a ban on domestic commercial trade of elephant ivory, prohibiting the import, export or resale within the United States of elephant ivory, except in a very limited number of circumstances. In February 2015, the United States released the Implementation Plan for the National Strategy, which lays out the next steps that the US will take to achieve the strategy's objectives and address the global wildlife trafficking crisis.

Example 4.9 Tackling illegal wildlife trade (UK)

In February 2014, the United Kingdom (UK) hosted a high-level international conference on tackling the illegal wildlife trade for leaders from more than 40 nations. The conference delivered an ambitious political declaration – the London Conference Declaration – containing 25 commitments to action on enforcement and criminal justice, reducing demand for illegal wildlife products and supporting sustainable livelihoods. All the G7 countries are signatories to the London Conference Declaration. The 25 commitments include: i) governments committing for the first time to renounce the use of any products from species threatened with extinction, ii) governments supporting CITES commercial prohibition on international trade in elephant ivory until the survival of elephants in the wild is no longer threatened by poaching, and iii) governments committed to treating poaching and trafficking as a serious organized crime in the same category as drugs, arms and people trafficking. The UK actively supported the government of Botswana in hosting a further conference to review progress in March 2015, in Kasane.

4.2 Addressing the direct drivers of biodiversity loss

G7 countries are working toward reducing the direct drivers of biodiversity loss, namely those that explicitly cause changes in ecosystems and their functions. Among other things, G7 efforts seek to control the introduction of alien species and reduce pollution, habitat fragmentation and overexploitation of natural resources.

4.2.1 Addressing pollution and nutrient loading

Pollution from nutrients (nitrogen and phosphorous) and other sources is a continuing and growing threat to biodiversity in terrestrial, inland water and coastal ecosystems. Common causes of pollution are agricultural production runoff and industrial production dumping.

Common approaches by G7 countries to tackle the considerable challenge of reducing nutrient flows into ecosystems include the development of adequate environmental policies and legislation (see Example 4.10); protecting key ecosystems, such as inland water systems, from nutrient loading; reducing the sources of pollution through technical assistance; and creating incentives for technical solutions (see Example 4.11). Many countries have passed regulations to address this issue.

Beach cleaning. Myanmar. *Jeremy Holden (Darwin Initiative)*

Example 4.10 Addressing pollution in Lebanon (Italy)

Italy provides technical assistance to the Lebanese Ministry of Environment (MoE) to manage industrial pollution. On December 17, 2013, the government of Italy, through the Ministry of Foreign Affairs, approved the allocation of a grant to implement the Technical Assistance under the Lebanon Environmental Pollution Abatement Project (LEPAP).

The project is a joint initiative between the Ministry of Environment, Banque du Liban, the World Bank and Italian Development Cooperation and consists of two components: the investment component funded by the World Bank for financing the abatement of industrial pollution in targeted industrial enterprises; and the abovementioned technical assistance component funded by Italian Development Cooperation. The objective of the Italian component is to contribute toward strengthening the capacity of the Ministry of Environment staff in the management of industrial pollution, and in monitoring and enforcing the newly introduced Environmental Compliance decree, with the participation and the involvement of the private industrial sector and the banking sector. Also, the project will support and build the capacity of the staff of the Ministry of Environment. A Project Management Unit has been established at the Ministry of Environment to provide administrative management and technical support for the implementation of the abatement project, including the development and operationalization of an effective monitoring and evaluation system. Furthermore, the unit ensures the sustainability of the investment component, which offers concessional loans – at near zero interest rate – to industries for mitigation projects related to solid waste, air pollution, energy recovery and medical and/or hazardous waste. The project has been able to unify all relevant stakeholders in the steering committee of the project and is currently supporting four industrial enterprises to finalize their technical and financial files to be submitted for loan approval.

Example 4.11 Restoring the Great Lakes (Canada, US)


Canada is working to protect its lakes and rivers, which account for 7 percent of the world's renewable freshwater. Significant investments have been made to protect and restore key water bodies, including the Great Lakes, Lake Winnipeg and Lake Simcoe, and progress is being made to reduce nutrient loads to these areas. Three Canadian Areas of Concern in the Great Lakes have been fully restored (Collingwood Harbour, Severn Sound and Wheatley Harbour) and two more areas are in recovery (Spanish Harbour and Jackfish Bay). In addition, the government of Canada has put in place Wastewater Systems Effluent Regulations to phase out the release of untreated and undertreated sewage into waterways, thereby addressing the largest point: the source of pollution.

Moreover, Canada and the US are working together to manage pollution, including eutrophication (nutrient loading) of shared water bodies, including the Great Lakes. At present, phosphorus levels remain an issue in the open waters of three of the four Canadian Great Lakes. Phosphorus levels in the middle of Lake Superior and in the eastern basin of Lake Erie currently meet water-quality objectives. Phosphorus levels in Lakes Huron and Ontario are below water-quality objectives, and above objectives in the western and central basins of Lake Erie. *Source: Canada (2014)*

Example 4.12 Alternative practices to fire in Amazonia (Italy)

"Amazonia without Fire" is an initiative addressing the direct drivers of biodiversity loss in Bolivia. Italy, through its development cooperation, is funding this triangular cooperation program jointly with Bolivia, through the Ministry for Environment and Water, and Brazil, through its Brazil Cooperation Agency. The program is aimed at reducing the incidence of burnings in Bolivian Amazonia and promotes the use of alternative agricultural practices. This initiative integrates both emergency and local development actions, such as training and awareness-raising campaigns addressed to Bolivian rural communities, and activities oriented to strengthening local components related to fire prevention and fire response in forest areas. By spreading sustainable agricultural practices and avoiding land degradation, the program also has a positive impact on biodiversity.

The health of the local population is improved by reducing the number of lung illnesses related to smoke inhalation due to burning practices; and regional cooperation in the Amazon basin is enhanced through the involvement of Bolivia and Brazil and the future participation of Ecuador.

4.2.2 Addressing habitat fragmentation

Land-use change and the resulting degradation of ecosystems cause habitat fragmentation and loss. In decreasing order – and with some regional differences – commercial agriculture, subsistence / local agriculture, infrastructure, mining and urban expansion are the activities driving deforestation worldwide (Kissinger et al. 2012). According to the Global Forest Resources Assessment for 2010, prepared by the Food and Agriculture Organization (FAO), during the period between 2000 and 2010 an average of 13 million hectares of forest per year were converted to other uses, largely agriculture, or lost through natural causes. The net loss of forest area (after allowing for afforestation) was estimated at 5.2 million hectares per year (FAO 2010a).

G7 activities to address habitat fragmentation and habitat loss focus on promoting sustainable agriculture (see

Example 4.13 Reforestation in Tunisia (Japan)

Integrated Reforestation Project Phase II, conducted by Japan International Cooperation Agency (JICA), aims to promote forest restoration and sustainable forest management in five governorates of Tunisia (Beja, Jendouba, Kef, Siliana and Zaghouan) by undertaking comprehensive forest conservation activities such as reforestation, measures to prevent and combat fire disasters, and improvements in the living conditions of local residents, thereby contributing to the improvement of the natural environment of these areas.
http://www.jica.go.jp/english/our_work/evaluation/oda_loan/economic_cooperation/c8h0vm000001rdjt-att/tunisia02.pdf

Example 4.12), as well as supporting reforestation programs (see Example 4.13).

4.2.3 Addressing invasive alien species

The introduction of alien species that become invasive and displace native species is usually the result of trade and transport activities. In some cases, species introduced intentionally can become invasive, such as common and exotic pets that are released into the environment, alien species used as a biological control measure that later on become pests, and the introduction of non-native plants for ornamental use, agriculture and forestry. Unintentional introductions may include the release of non-native marine species in the ballast water of cargo ships or forest pests hidden in wooden packaging materials (SCBD 2009b). Increasingly, national policies and decision-support tools, such as risk analysis, are able to identify and address the risks associated with specific invasive species and the pathways for their movements.

Many efforts by most G7 countries are closely aligned to the Convention on Biological Diversity (CBD) Strategic Plan and its Aichi Targets on this matter, focusing mostly on developing and funding national / regional invasive alien species strategies and action plans (see Example 4.14) as well as international collaboration to address the threats to biodiversity from invasive alien species (see Example 4.15).

Example 4.14 EU regulation on invasive alien species (EU: France, Germany, Italy, UK)

As regards invasive alien species (Target 5 of the EU Biodiversity Strategy to 2020), the EU has recently adopted a regulation that entered into force on January 1, 2015. The new regulation seeks to address the problem of invasive alien species in a comprehensive manner so as to protect native biodiversity and ecosystem services, as well as to minimize and mitigate the impacts on human health as well as economic impacts that these species can have. The regulation foresees the following types of interventions: prevention, early warning and rapid response, and management. Using risk assessments and scientific evidence, a list of invasive alien species of concern to the EU will be drawn up and managed jointly with the member states. Proposals for the first list will be presented by January 2, 2016. Once adopted, the list will be updated regularly as appropriate with the addition or removal of species. The regulation on invasive alien species includes specific provisions for the outermost regions of the EU in order to cater for their specific situations, in particular the value of their biodiversity and its sensitivity to biological invasions.
http://ec.europa.eu/environment/nature/invasivealien/index_en.htm

Example 4.15 Managing invasive alien species by using them (US)

Water hyacinth is an invasive aquatic plant that has been identified by the International Union for Conservation of Nature (IUCN) as one of the top 10 most destructive invasive plants in the world. Water hyacinth is common in rivers, wetlands and lakes in the Limpopo River Basin along the borders of South Africa and Botswana. This poses significant threats to biodiversity, fisheries, hydropower generation and recreation in the basin. In Botswana, communities have resorted to removing the water hyacinth manually in order to gain access to the water for their livelihoods and household use. In August 2014, the United States Agency for International Development (USAID) project Resilience in the Limpopo River Basin Program (RESILIM), in partnership with the Botswana Department of Water Affairs, successfully tested the concept of using this highly invasive alien species as a source of biomass for replacing charcoal production. This could result in: deforestation reduction by providing an alternative to wood charcoal, improved flow in the basin, community control of the highly invasive species and diversification of livelihoods. The next phase will focus on social economic feasibility studies. This concept is attracting much interest across the sub-region. *Source: USAID (2014b)*

In Canada, for example, estimates are that invasive alien species are a reason for 17 percent of species (102 of 591 species) being designated "at risk" by the Committee on the Status of Endangered Wildlife (Maurice-Blouin 2010). In the US, 400 of the 958 species listed as threatened or endangered under the Endangered Species Act are considered to be at risk primarily because of competition with, or predation by, non-indigenous species (Pimentel et al. 2005).

4.2.4 Addressing overexploitation

Overexploitation is an important driver of species loss, particularly with regard to, but not limited to, the case of fish in oceans (SCBD 2010, 2014). According to FAO (2014), in 2011, 29 percent of marine fish stocks were estimated "as fished at a biologically unsustainable level and, therefore, overfished." According to estimates of the World Bank and FAO (2009), every year the world is losing US$ 50 billion of potential fish harvests because fish stocks are not allowed to recover sufficiently. However, work is underway to tackle this problem. For example, the EU's reformed Common Fisheries Policy contains commitments to end the wasteful practice of discarding, and to manage stocks at sustainable levels by 2015 where possible, and by 2020 in all cases. There has been good progress toward ending overfishing. In 2014, 27 stocks in the north-east Atlantic, the North Sea and the Baltic were managed at maximum sustainable yields, up from just five in 2009, and yields have increased even further this year.

Dealing with the challenge of reducing overexploitation, G7 countries have engaged in efforts that include improving scientific knowledge on natural resources stocks, controlling natural resource extraction, improving governance of natural resources and developing management capacities for intensive natural-resource-based sectors (e.g., forestry and fisheries) (see Example 4.16). As one major example, the EU recently reformed its Common Fisheries Policy to reduce overfishing and to strongly reduce the amount of discards.

4.3 Addressing the indirect drivers of biodiversity

Drivers such as habitat fragmentation and overexploitation of certain species and ecosystems occur due to demographic, economic, cultural and political factors, such as increasing demand for products or services (e.g., food products, housing development or infrastructure). The indirect nature of these drivers makes them more difficult to address, as in many cases they are related to the need to change consumer behavior and other interrelated factors.

Example 4.16 National Aquaculture Strategic Action Plan Initiative (Canada)

The National Aquaculture Strategic Action Plan Initiative provides a comprehensive strategic vision for the sector, identifying actions for federal, provincial and territorial governments and industry from 2011 to 2015. Canada is also taking steps to ensure long-term sustainability of nationally managed fisheries by developing and implementing comprehensive fishery management plans supported by new policies and tools, including those developed under the Sustainable Fisheries Framework, the best available science advice, and compliance and enforcement activities. Of the 155 major fish stocks assessed in 2012, 75 stocks (48 percent) were classified as "healthy" and 15 stocks (10 percent) were classified as "critical"; this represents an improvement since 2011. *Source: Canada (2014)*

4.3.1 Raising consumer awareness

The G7 supports measures to increase the awareness of consumers about the potential impacts of their consumption patterns on biodiversity loss. Land conversion is an important driver of ecosystem loss and is driven in particular by increasing global demand for palm oil, soy, beef, timber, pulp and paper. The increased demand results from population growth as well as higher levels of income, which lead to changes in consumption patterns, especially of meat. Palm oil and sugar cane are increasingly being used as biofuels.

G7 governments encourage companies to produce sustainably and provide sustainability information on their products to help consumers make conscious choices. For example, since December 2014 it is compulsory in the EU for manufacturers to specifically indicate whether their products contain palm oil, whereas until then labels usually indicated "vegetable oil." In response to demands from civil society, many producers, consumer goods manufacturers and governments are committing to "zero (net) deforestation." Part of this is to source products that have a credible sustainability certification (see Examples 4.17 and 4.18).

4.3.2 Mainstreaming of biodiversity in development planning

The mainstreaming of biodiversity can be defined as the integration of biodiversity concerns into other public and private sectors and development goals through a variety of approaches and mechanisms so as to achieve sustainable biodiversity and development outcomes (Roe and Mapendembe 2013). It can take place at different levels: at the international level, for example in international trade regulations; at the national level, for example through National Biodiversity Strategies and Action Plans (NBSAPs) (see Example 4.19); at the regional level within integrated river basin management; and at the lower level by addressing biodiversity in agricultural landscapes. Effective mainstreaming requires prioritization at the strategic level and an understanding of the impacts of activities on biodiversity. Policies can subsequently promote synergies, demand impact minimization or compensation, and prohibit activities that harm ecosystems or threatened species.

Certified rice. Sado, Japan. *Sado City*

Example 4.17 Certified rice production in Sado (Japan)

Community development for the purpose of living in harmony with the Japanese crested ibis (Nipponia Nippon, referred to as the Toki in Japanese) on Sado Island in Niigata can be considered as an effort that is in accordance with the idea of a society in harmony with nature. "Certified rice for the development of villages coexisting with the Japanese crested ibis" is sold at a price of about JP¥ 3,000 – 3,500 / 5 kg (ref. JP¥ 1,580 / 5 kg for conventional cultivated rice) in supermarkets and rice stores in the Tokyo metropolitan area. The higher the retail price, the greater the profits returned to farmers, who contribute toward the improvement of habitats using farming methods that nurture wild fauna. This means that these consumers also support the reestablishment of a wild population of the Japanese crested ibis by purchasing the "Certified rice for the development of villages coexisting with the Japanese crested ibis." At the time of purchase, 1 yen per kilogram is also donated to the Japanese crested ibis Environmental Improvement Foundation, which supports the improvement of the habitat for this bird.

Moreover, Sado City provides a subsidy of up to JP¥ 109,000 per hectare to farmers working on the certified rice, through which the whole community supports the certification system. In this way, the return of the Japanese crested ibis to the wild is supported not only by people actually working on improving the habitat environment, but also by consumers who want to support such people; the whole Sado Island community aims to revitalize the area using the Japanese crested ibis as a symbol. The connections that have been developed between the farmers, consumers and community residents are precisely in accordance with the idea of a society in harmony with nature. *Source: Japan (2014)*

Example 4.18 UK commitments to source 100 percent credibly certified palm oil (UK)

Unsustainable palm oil production is often linked to deforestation and peatland drainage, mainly in Indonesia and Malaysia. In October 2012, the Department for Environment, Food and Rural Affairs (Defra) published the UK statement on sustainable palm oil in collaboration with trade associations from key sectors using palm oil. Signatories of the statement are committed to working toward achieving 100 percent sourcing of credibly certified sustainable palm oil by the end of 2015. The department amended the Government Buying Standard for food and catering in October 2012 to include a new requirement for the central government to source sustainable palm oil, palm kernel oil and derivatives by the end of 2015.

The G7 acknowledges the importance of mainstreaming, reflected in the indicator "biodiversity concerns are mainstreamed throughout all aid planning and programming operations" (see Box 1.3), and is working to integrate biodiversity concerns into planning processes at the national level as well as in its international cooperation with partner countries.

Germany, for instance, strategically integrates biodiversity into different sectors of development cooperation and thereby supports the nexus between services provided by healthy ecosystems and securing food or access to water. In order to do so, environmental and climate assessments are applied to all new projects and "biodiversity sectoral components" are introduced.

Example 4.19 National Biodiversity Strategies and Action Plans (Canada, EU, France, Germany, Italy, Japan, UK)



National Biodiversity Strategies and Action Plans (NBSAPs) are the principal instruments for implementing the Convention on Biological Diversity (CBD) at the national level. The parties to the CBD aim for national biodiversity strategies, which are shared and supported by all sectors whose activities can have positive and negative impacts on biodiversity. G7 countries with NBSAPs, as of February 2015, include: Canada, France, Germany, Italy, Japan and the UK, as well as the EU.



G7 countries support their partner countries in the preparation and implementation of NBSAPs. Japan, for example, has been supporting the capacity-building activities of government officials in developing countries regarding development and revision of NBSAPs through the Japan Biodiversity Fund, which was established under the Secretariat of the Convention on Biological Diversity through the contribution from Japan; 21 regional capacity-building workshops and 1 global workshop have been held for the purpose, with attendance of more than 750 people from some 160 countries.

Moreover, Germany is providing support to partner countries and regional organizations to develop and update their NBSAPs and strengthen the technical and institutional capacities needed to implement them at the national and local levels. The cooperation with Georgia and Namibia to revise their NBSAPs showcases this support. Along with the EU, Switzerland, Flanders and Norway, Germany also contributes to the United Nations Development Programme (UNDP)'s Biodiversity Finance Initiative (BIOFIN). BIOFIN supports partner countries in developing comprehensive national resource mobilization strategies that help to strengthen the implementation of their NBSAPs (BMZ and BMUB 2014).

4.3.3 Including natural capital values in decision-making

Incorporating biodiversity and/or natural capital values into decision-making – which is another indicator to measure efforts to reduce biodiversity loss (see Box 1.3) – can be considered part of mainstreaming. A first step is to account for these values. The reports on The Economics of Ecosystems and Biodiversity (TEEB) (TEEB 2010a, 2010b), carried out internationally and based on a commitment by the G8 in 2007, have showcased, firstly, the extent to which human society is dependent on Earth's natural capital, and, secondly, that this value is very often invisible in today's economic decisions and needs to be better taken into account in the future in order to achieve a path to sustainable development. Relevant actors include international and national policymakers (TEEB 2009), the local and regional decision-makers (TEEB 2010b) and the business sector (TEEB 2010c). Recognizing the value of biodiversity on all these levels, demonstrating its value in economic terms and capturing it via matching policy tools, such as targeted investments and incentives such as payments for ecosystem services, are important elements for reaching the target of reducing the loss of biodiversity. TEEB as a global initiative shows how G7 activities can inspire other countries to apply similar approaches (see Example 4.20).

As regards incorporating natural capital values into national accounts, some G7 members support the System of Environmental-Economic Accounting (SEEA), a framework that contains the internationally agreed upon standard concepts, definitions, classifications, accounting rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy. Wealth Accounting and the Valuation of Ecosystem Services (WAVES), co-funded, among others, by several G7 countries, is another global partnership that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts (see Example 4.21).

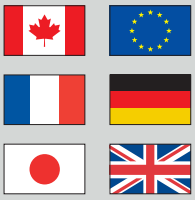
Example 4.20 The Economics of Ecosystems and Biodiversity (TEEB) (EU, France, Germany, Japan, UK)

The G8 (plus 5) environment ministers proposed in Potsdam, Germany, in 2007 to estimate the economic costs of biodiversity loss. Subsequently, Germany and the EU, under the auspices of the United Nations Environment Programme (UNEP), launched the global initiative TEEB. TEEB sought to reconcile the apparent contradiction between economy and ecology by compiling evidence on the economic benefits of biodiversity and ecosystem services and drawing attention to the growing costs associated with its loss, that is, to demonstrate that investing in biodiversity, or "natural capital," makes sound economic sense. It also collected examples of successful approaches to changing economic incentives in favor of biodiversity, thus addressing indirect drivers of loss. It compiled the evidence in five different reports targeting different users, including policy and business. The TEEB initiative since then has attracted many additional partner organizations and donors, including Japan and the UK.

Most notably, after the last report was presented in October 2010, Brazil and India announced their own TEEB studies at the national level. They were soon followed by several European countries, including Germany, which launched "Natural Capital Germany – TEEB DE" in 2012 to raise awareness of the diverse natural services and assets in Germany and France, which launched its own national assessment of French ecosystems and ecosystem services the same year (Évaluation française des écosystèmes et des services écosystémiques). Germany supports several partner countries, notably India and Brazil, and the EU supports five further developing countries in conducting TEEB country studies (Ecuador, Bhutan, the Philippines, Tanzania and Liberia). Several other countries have started their own initiatives.

The TEEB study has also encouraged business engagement with the biodiversity agenda, as businesses begin to recognize that the economic invisibility of nature poses significant risks to their business models and supply chains. The Natural Capital Coalition (which developed from TEEB) aims to develop a harmonized framework for how to value natural capital and apply it in business decision-making to facilitate the development of more sustainable long-term business models.

Example 4.21 Wealth Accounting and the Valuation of Ecosystem Services (WAVES) (Canada, EU, France, Germany, Japan, UK)



WAVES is a global partnership fostering collaboration among different actors at the global, national and sub-national levels, all working toward accomplishing WAVES' four objectives: help countries adopt and implement accounts that are relevant for policies and compile a body of experience; develop an ecosystem accounting methodology; establish a global platform for training and knowledge-sharing; and build international consensus around natural capital accounting. The program implements environmental accounting in partner countries: Botswana, Colombia, Costa Rica, Madagascar and the Philippines. The G7 is broadly involved in WAVES: Germany, France, Japan and the UK – and through EU involvement Italy as well – contribute financially toward a US$ 15 million World Bank Multi-Donor Trust Fund.

Example 4.22 Identifying harmful subsidies to biodiversity (France)

In France, the law "Loi Grenelle I," adopted in 2009, provides that "the [French] State, on the basis of an audit, will review tax measures that are harmful to biodiversity and will propose new tools to allow a gradual transition to a tax regime that will better suit to new environmental challenges." Hence, the French prime minister (through the Centre d'Analyse Stratégique) published a report that identified the main public subsidies that are harmful to biodiversity, based on: i) a participatory approach enabling the involvement of stakeholders to discuss and identify the most relevant issues; and ii) a scientific analysis of the contribution of different types of public subsidies (especially tax policy) according to the five causes of biodiversity loss identified by the CBD (i.e., fragmentation of habitats, overexploitation, pollution, invasive alien species and climate change). On this basis, four types of subsidies identified as harmful to biodiversity have been reformed so far: payments to water agencies; subsidies for rented housing; suppression of the reduced value-added tax on the most harmful phytosanitary products; and greening of the French annual registration and navigation duty tax for leisure boats (revision of the calculation mode of the tax to duly take into account the type of motor and extension to jet skis and sea scooters).
Source: Sainteny et al. (2012)

Example 4.23 Peatland restoration incentives (UK)

The Peatland Code is the voluntary standard for peatland restoration projects in the UK that want to be sponsored on the basis of their climate and other benefits. During its pilot phase, this draft Peatland Code is designed to support funding from businesses interested in restoring damaged peat bogs. It provides standards and robust science to give business supporters confidence that their financial contributions are making a measurable and verifiable difference to UK peatlands. The UK Peatland Code is designed to provide an open, credible and verifiable basis for the business sponsorship of specific pilot projects undertaking UK peatland restoration. The Code ensures that restoration delivers tangible climate change mitigation benefits, alongside other environmental benefits. At this stage, the pilot phase is designed to facilitate business sponsorship motivated by corporate social responsibility; it is not currently intended for use in formal offset schemes, corporate carbon reporting or to be traded on international carbon markets.

Also, the EU member states are carrying out work on the Mapping and Assessment of Ecosystems and their Services (MAES), assessing their economic value and including these values into accounting and reporting systems – with the assistance of the European Commission and the European Environment Agency. In addition, the EU has also highlighted the need to increase awareness about the important synergies between natural and cultural capitals in Europe, as well as to enhance the integration of biodiversity concerns into sectoral policies, in order to develop a greener economy (Charter of Rome).

4.3.4 Reforming counterproductive subsidies

Subsidies may either promote or reduce biodiversity, depending on the subsidy type. There are a number of examples of subsidies that may be harmful to biodiversity, including certain agricultural subsidies (Pe'er et al. 2014), certain preferential tax treatments as well as certain subsidies for biofuels that increase pressures on landscapes. The G7 countries that are Parties to the CBD agreed in 2014 (CBD COP12) that by 2018 they will have policies in place to identify, dismantle or reform counterproductive subsidies

(UNEP and CBD 2014). An example of a G7 activity in this area is the French approach toward systematically screening its tax system for its impacts on biodiversity (see Example 4.22).

4.4 Enhancing benefits from biodiversity and ecosystem services to society

As set out in Chapter 2, biodiversity and ecosystem conservation provide benefits to society in the form of ecosystem services at different levels. Depending on the governance approach chosen, conservation may also pose significant limitations and costs to local and indigenous communities – particularly for the poor and for women – in terms of restrictions in access to land and natural resources. Therefore, securing monetary and non-monetary benefits from biodiversity for communities and providing incentives for their involvement in conservation is crucial for inclusive development (e.g., through payment schemes for ecosystem services, ecotourism, bio-trade, co-management of protected areas, or fair and equitable sharing of benefits arising out of the utilization of genetic resources).

4.4.1 Promoting incentives for biodiversity conservation

Incentives for the conservation and sustainable use of biodiversity, such as environmental subsidies, payment schemes for ecosystem services, tax advantages and incentives derived from voluntary agreements with the private sector, are important tools to ensure biodiversity mainstreaming across government and society (SCBD 2011).

In addition to providing domestic incentives for conservation, G7 countries support their partner countries in the elaboration and implementation of incentive measures covering a wide variety of ecosystems, including agro-ecosystems, forests, grasslands, wetlands as well as marine, riparian and mountain ecosystems (see Example 4.23).

4.4.2 Enhancing societal benefits and communities' livelihoods

G7 countries also focus on improving the livelihoods of rural communities and on enhancing the benefits of biodiversity to society. For instance, G7 countries support developing countries in order to complement their strategies of adaptation and conservation of ecosystems (see Example 4.24); as the Canadian example shows, this topic is also dealt with domestically (see Example 4.25).

4.4.3 Promoting ecotourism

Tourism contributes approximately 8 percent to global gross domestic product (GDP), with 46 percent of the total workforce in tourism being comprised of women (SCBD 2009a). Places offering biodiversity and natural beauty

Example 4.24 Restoring Coastal Livelihoods in Indonesia (Canada)

Canada, among other organizations and national governments, is involved in the project "Restoring Coastal Livelihoods in Sulawesi, Indonesia." This project provides an example of how biodiversity is linked to sustainable livelihoods that improve the well-being of communities. Using a multi-stakeholder, collaborative approach – with a special focus on empowering women and securing their rights – the project works with vulnerable coastal communities on the west coast of South Sulawesi. Project activities include technical training; ecological restoration of mangrove forests; conservation and sustainable management of productive coastal intertidal ecosystems; and the dissemination of project methods and lessons learned. Under this initiative, nearly 400 hectares of abandoned fish ponds in the affected area have been restored, resulting in enhanced biodiversity.

Example 4.25 Cooperative natural resource management agreements with Aboriginal peoples (Canada)

The customary use of biological resources, including such activities as hunting, fishing, trapping and gathering, is an important element of the intimate cultural relationship many Aboriginal peoples in Canada have with nature. Through negotiated cooperative agreements, Aboriginal peoples are assuming increased levels of responsibility for the management of biological resources. Although some challenges remain for Aboriginal peoples to engage in the customary use of biological resources, there are also many positive examples that can be built upon.

For instance, the Haida Nation and the government of Canada cooperatively manage the land and water of Gwaii Haanas, which is an archipelago on the edge of the Pacific continental shelf, and of great cultural and ecological significance. "Gwaii Haanas" means "Islands of Beauty" in the Haida language, and this is reflected in the region's rugged beauty and remarkable biodiversity. Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site are cooperatively managed to protect approximately 5,000 km^2 of wilderness, stretching from alpine mountaintops through old growth temperate rainforests to the deep sea beyond the continental shelf. *Source: Canada (2014)*

Example 4.26 Thematic tourist routes in Albania (Italy)

Albania is one important example showing that Italy has been at the forefront in protecting biodiversity, conserving local species / varieties, both animal and vegetal, and amplifying the varieties of genetic resources available. With reference to biodiversity and the conservation of species of agricultural interest, Italy currently has more than 260 local agro-products and more than 520 wine varieties certified according to EU laws and regulations (i.e., protected designation of origin, typical or protected geographical indication, and traditional specialties guaranteed). In Italy, this agro-enological and ecological richness alone attracts millions of tourists every year. In a virtuous cycle, it further stimulates biodiversity conservation and territorial / environmental protection through, for instance, the creation of thematic tourist routes (gastronomic as well as ecological) and territorial branding. Based on this experience, Italian Development Cooperation promotes and shares this best practice in Albania through local, tailor-made methodologies. These have proven to be a successful driver of biodiversity protection and the preservation of autochthonous resources, the promotion of local development, and the protection of cultural and natural heritage through ecotourism.

serve as popular tourist destinations. This creates both threats and opportunities for biodiversity and its conservation. Sustainable tourism is a necessary precondition to ensure positive impacts on biodiversity as well as on the livelihoods of the local populations (SCBD and UNEP 2002, UNEP and WTO 2002).

The G7 countries have enrolled in a number of activities that seek to create synergies between tourism and biodiversity conservation, where local communities benefit via the creation of new jobs and the construction of infrastructure (e.g., schools, roads and health facilities) (see Examples 4.26 and 4.27).

Example 4.27 Giving sustainable whale watching a national scope in Madagascar (France)

Supported by the French government, this project is a follow-up to a "Small Scale Initiatives Program" grant in 2006 to the French association MEGAPTERA, resulting in the creation of the Association for the Protection of Marine Mammals around Madagascar (CETAMADA), which is responsible for developing whale watching on the island of Sainte Marie. Pursuing its initial work, the association is extending its activities to the national level by supporting the development and promotion of sustainable Madagascan whale ecotourism, which will benefit many organizations and local communities (starting with the towns of Tuléar and Nosy be). New local operators are trained in responsible whale watching according to a code of good practice and security at sea in order to disturb the marine mammals as little as possible. In addition, Madagascan students, assisted by European eco-volunteers, are trained in whale monitoring in order to develop these skills at the national level.
http://www.ffem.fr/jahia/webdav/site/ffem/shared/ELEMENTS_COMMUNS/U_ADMINISTRATEUR/6-PPI/publication2012/2012-PPI_plaquette-fichesUK.pdf

4.4.4 Improving access to genetic resources and benefit-sharing

For centuries, societies across the globe have transferred and traded biological resources. In doing so, they have sometimes drawn from traditional knowledge related to using those resources. Today, industries such as pharmaceuticals, cosmetics, as well as plant and animal breeding may search globally for genetic resources to develop or enhance their products, and academics seek access to genetic resources to better understand the biodiversity on this planet.

The third objective of the CBD aims at ensuring a fair and equitable sharing of the benefits arising from the utilization of genetic resources, thus creating an incentive for conservation and sustainable use for providers of genetic resources and associated traditional knowledge. The CBD establishes clear principles on how to address this issue. Its Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity entered into force on October 12, 2014. It establishes mechanisms to i) provide more legal certainty to users of genetic

Kyrgyzstan. *Alex Lovegrove (Darwin Initiative)*

Example 4.28 Supporting ABS development (EU, France, Germany)

The Access and Benefit-Sharing (ABS) Capacity Development Initiative was established in 2006 to support the development and implementation of national regulations on "access and benefit-sharing." In this regard, the multi-donor (France, Germany, Denmark, Norway, the EU and the Institut de la Francophonie pour le développement durable) ABS Initiative, hosted by Germany, seeks to better materialize the poverty alleviation potential of ABS at the nexus of natural resource management, trade and governance. This helps to create enabling environments in which genetic resources and associated traditional knowledge are utilized sustainably while contributing toward improved health and delivering economic and development opportunities. Geographically, the activities of the ABS Capacity Development Initiative engage members of the African, Caribbean and Pacific Group of States.

http://www.abs-initiative.info/about-us/

Example 4.29 Traditional ecological knowledge in Sabah: A consolidation of issues and experiences related to biodiversity conservation and sustainable resource management (Japan)

The 18-month program examining the traditional ecological knowledge of Sabah was managed through the Programme Steering Committee headed by the Natural Resources Office of the Sabah State Chief Minister's Department as part of the Bornean Biodiversity and Ecosystems Conservation Programme Phase 2 (BBEC II). The primary goal of the program was to strengthen the biodiversity and ecosystem conservation system of Sabah. It was an innovative approach in which bilateral technical assistance utilized multilateral initiatives such as the CBD to catalyze interagency coordination among various state agencies and other stakeholders. The study was conducted through the following two core components. First, a series of workshops and seminars aimed at broadening understanding of the issues and recent developments concerning traditional ecological knowledge were delivered with the intention of developing a learning platform for biodiversity conservation, including biocultural elements. This exchange of information and sharing of expertise allowed for the strengthening of the capacities of conservation-related agencies, local communities and civil society organizations to address access and benefit-sharing issues. Second, the study focused on the identification of potential indigenous peoples' and community conserved areas in Sabah. A statewide review was performed to assess the status of traditional ecological knowledge as well as to explore and identify measures to recognize and support community-based biodiversity conservation.

http://www.global-diversity.org/southeast-asia/projects/traditional-ecological-knowledge-sabah

resources with respect to accessing genetic resources and the sharing of benefits from their utilization; ii) obtain prior informed consent from the providers of the genetic resources, unless otherwise determined by the relevant state party, and to require the establishment of mutually agreed terms, which may address benefit-sharing and subsequent use.

G7 countries such as France, Germany and Italy are involved in capacity-building initiatives supporting the development and implementation of national regulations on Access and Benefit-Sharing (ABS), the establishment of ABS-compliant value chains and the participation of indigenous peoples and local communities. France also has a specific chapter within its national draft legislation on biodiversity aiming at setting up a national ABS regime to protect its genetic resources and traditional knowledge. The draft legislation is currently being discussed by the French Parliament. Moreover, the EU, Japan and other G7 countries have been very active in developing the concept of ABS, both through the negotiations within the CBD leading to the Nagoya Protocol, and by providing considerable support in capacity-building and enabling exchange of best practices with developing countries (see Examples 4.28 and 4.29). The G7 also supports the International Treaty on Plant Genetic Resources for Food and Agriculture as a specialized ABS agreement consistent with the CBD and the Protocol recognizing the importance of these genetic resources and their special role in food security.

5.

Interlinkages with other G7 commitments

Nomadic people working on a field. Songot, Kenya. *Thomas Trutschel/photothek.net*

5. Interlinkages with other G7 commitments

Key messages

- The G7 has active commitments in the fields of biodiversity, food security, health and climate change and recognizes the links between these commitments. Activities of the G7 therefore aim at reducing trade-offs and fostering synergies between measures for these areas and can help to address poverty by increasing resilience.
- The G7 countries employ a range of activities in relation to biodiversity and food security. They try to reduce food loss and waste, promote agro-ecology and sustainable use of natural resources as well as promote the conservation of crop varieties. The utilization of agro-biodiversity contributes to more resilient agricultural systems.
- G7 efforts to slow the loss of biodiversity can support – at least indirectly – several health commitments given by the G7, for example by securing genetic diversity and its chemical components with potential for pharmaceutical applications.
- To address climate change mitigation in synergy with biodiversity protection, G7 countries strongly engage in the protection of forests to reduce greenhouse gas emissions. Also, with regard to adaptation, synergies with biodiversity are addressed through the support of ecosystem-based adaptation.

Addressing biodiversity loss can help contribute toward other development goals and G7 commitments (see Annex A). Biodiverse – and therefore resilient – ecosystems can better adapt to climate change, help to mitigate climate change, ensure the availability of good quality water and reduce health pressures; genetic diversity increases food security; healthy ecosystems provide a bundle of ecosystem services that are the natural foundation to sustaining economic development. While the three commitments on food security, health and climate change are discussed individually in terms of their interconnections with biodiversity, these deliberations also reveal that food security, health and climate change are linked as well.

5.1 Biodiversity and food security

5.1.1 G7 efforts to address interactions between biodiversity and food security

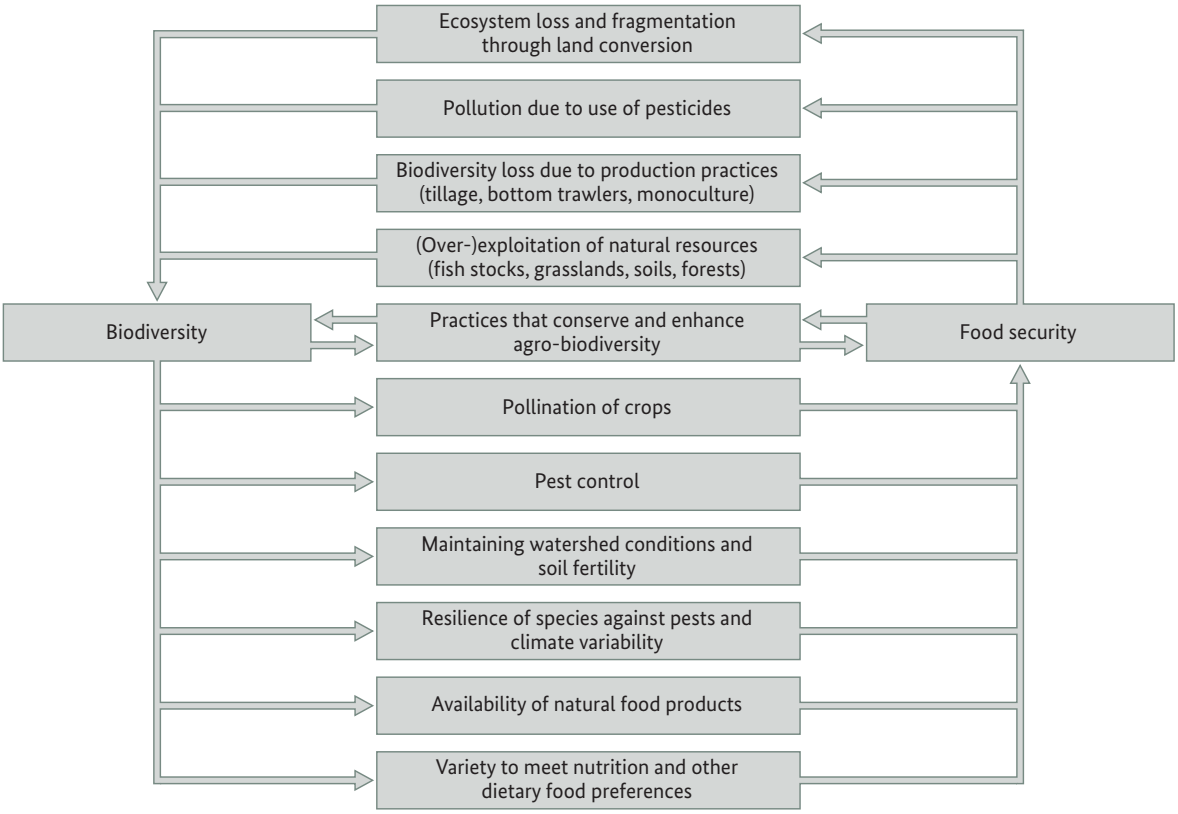
Currently, an estimated 805 million people are chronically undernourished (FAO et al. 2014). With the world population growing to an estimated 9.6 billion people by 2050 (UN 2013), this concern becomes even more significant. In recent years, the G8 has prioritized food security and nutrition on its agenda. Food security is multi-faceted (see Box 5.1) and interacts with biodiversity in a variety of ways (see Figure 5.1).

New community seedbank. Ethiopia. *Bioversity International/C.Fadda*

Box 5.1 Food security

"Food security" exists when all people, at all times, have physical, social and economic access to sufficient quantities of safe and nutritious food that meets their dietary needs and food preferences for active and healthy lives (Committee on World Food Security 2013). Food security has four dimensions (FAO 2006):
Food availability: The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid).
Food access: Access by individuals to adequate resources for acquiring appropriate foods for a nutritious diet.
Utilization: Utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being in which all physiological needs are met.
Stability: To be food secure, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g., an economic or climatic crisis) or cyclical events (e.g., seasonal food insecurity). The concept of stability can therefore refer to both the availability and access dimensions of food security.

Figure 5.1 Interconnections between biodiversity and food security



Source: Own elaboration

Biodiversity contributes to a stable and varied provision of food products, and provides for a diversified and balanced diet, which supports good nutrition. At the same time, unsustainable agricultural and fishing practices are major driving forces of biodiversity loss (Matson et al. 1997, Tilman et al. 2001, FAO 2014). Biodiversity and the provision of ecosystem services are threatened by ecosystem loss and fragmentation as a result of: land conversion, such as forest clearance to expand farm land; the improper use of chemicals, such as pesticides and fertilizers; harmful practices (i.e., inappropriate tilling techniques, trawling in fisheries and continuous large-scale monocultures); and overexploitation of natural resources, which can exhaust fish stocks and soils as well as lead to loss of forests and to land degradation and desertification through overgrazing of grasslands. To reduce the impacts of food production on biodiversity, it is important to understand the underlying driving forces that lead to increased competition for land.

The combination of a growing world population and changes in food consumption preferences, often associated with increased levels of income, have led to increases in the global demand for food products. The rising levels of meat consumption in particular require relatively large land spaces and a great number of other inputs for a particular amount of nutrition, as compared to a plant-based diet.

Agricultural production not only affects biodiversity but also depends on it. Conservation and utilization of agricultural genetic resources are essential for the improvement of crop varieties, farm animals and agricultural microbial products. As an ecosystem service, the continued provision of food depends on the functioning of the ecosystem as a whole. Although we use only a small subset of the total number of species of plants and animals on the planet for our food, the availability of what we consume depends on

Workers on a breeding station for one of the biggest freshwater fishes, the paiche. Tarapoto, Peru. *Thomas Imo/photothek.net*

Example 5.1 Reducing food waste (Japan)

The Japanese Food Recycling Law aims to facilitate efforts made by food-related businesses (engaged in manufacturing and distributing food products or providing catering and restaurant services) toward recycling recyclable food resources. More specifically, the law encourages food-related businesses to restrain or reduce the production of food waste, such as large volumes of unsold or uneaten food waste that occur in food production processes, and to recycle them as raw materials for animal feed and fertilizer. Some results have been achieved since the enforcement of the law. However, in food distribution, downstream businesses generate food waste in small and varying quantities, so their recycling rates remain low. Against this backdrop, the Food Recycling Law was revised to strengthen guidance on and supervision of food-related businesses and facilitate recycling.

the health and productivity of a great many species that we do not use for food (Hillel and Rosenzweig 2008). Many insects play a role in pollinating crops. Approximately 70 percent of the more than 1,300 tropical crops and 85 percent of more than 260 crops cultivated in Europe benefit from animal pollination[1] (Garibaldi et al. 2011, Leadley et al. 2014). Similarly, various birds, bats, wasps and other animals are essential for pest control. The condition of watersheds and soil is the joint result of many species interacting in ecosystems, decomposing waste and wastewater, and recycling nutrients and water. Furthermore, the genetic variety of species is necessary for food production to be resilient to pests and climatic shocks, such as droughts. Wild relatives of crop plants contain traits that might prove useful in the future, for example, if new pests arise or if climatic conditions change, thus providing a form of insurance and option value at the global level. Finally, natural ecosystems provide a variety of plants, fruits and animals that provide locally important food products, particularly for poor groups within society. Overall, the variation in food products from natural ecosystems and agriculture serves dietary food preferences.

Increasing food production can be done in synergy with conserving biodiversity, particularly agro-biodiversity. The G7 applied three types of measures to address food security while also benefiting, or minimizing impacts on, biodiversity: i) addressing consumption patterns and food losses and waste; ii) supporting sustainable agricultural and fishery practices, through, among other things, applying agro-ecological and agro-forestry practices, preventing soil exhaustion, maintaining genetic variety in seeds, and using improved seed varieties; iii) promoting sustainable use of natural resources. Moreover, most G7 countries are Parties to the Food and Agriculture Organization (FAO)'s International Treaty on Plant Genetic Resources for Food and Agriculture, which facilitates access to the exchange of genetic resources and stimulates research on climate-smart agriculture (CSA).[2]

Reducing food losses and waste can reduce global demand for food production, and thereby reduce the pressures on land resources.[3] FAO (2011) estimates that roughly "one-third of food produced for human consumption is lost or wasted globally" – around 1.3 billion tons per year. Per capita, the total amount of food lost and wasted amounts to 230–300 kg per year in industrialized countries and 120–170 kg per year in sub-Saharan Africa and South / Southeast Asia. In industrialized countries, around 40 percent of this loss results from the behaviors of retailers and consumers (FAO 2011). G7 countries are taking action domestically through campaigns to raise consumer awareness about food waste. For example, Japan's Food Recycling Law prevents and reduces food waste (see Example 5.1). France promotes reductions in food waste through the slogan "I buy clever – I preserve food – I cook smartly – I cook with leftovers."[4] The United Kingdom (UK) implements its "Love Food Hate Waste" program, Germany implements its "Too good for the bin" initiative and the United State (US) has introduced its "Food Waste Challenge." Italy has a law encouraging the donation of unused food to charities and developed the "Bologna Charter against food waste."[5]

Example 5.2 Promoting sustainable agriculture in the Choluteca and Rio Negro watersheds (Canada)

The Promoting Food Security in the Choluteca and Rio Negro Watersheds (PROSADE) project in Honduras demonstrates an integrated approach to natural resource management. It brings together ecologically sustainable agricultural and agro-forestry practices; environmental protection (including soil conservation); crop diversification; increased production; local market development and access; rural infrastructure development; improved incomes and nutrition – all supported by enabling government policies at the local and national levels. Canada, in partnership with Care Canada, works with 160 rural communities to develop agro-ecological best management practices such as soil conservation, reductions in pesticide use, utilization of manures and tree planting along the perimeters of agricultural fields. Through these practices, PROSADE enables 2,014 farmers (975 male and 1,039 female) to increase their productivity and ensure sustainable production of agricultural crops, indirectly enhancing the agro-ecological ecosystems in the Dry Corridor of Honduras. These ecosystems are used as ecological corridors to provide wildlife with food and water, ensure genetic variability among populations to remain healthy and provide a cleaner environment for two protected areas of the Dry Corridor: Guanacaure Mountain, which provides drinking water to five municipalities; and La Botija National Park, a tributary of the Coco and Segovia River, located between Honduras and Nicaragua.

The project also works with the Gender Regional Development Council, 10 Municipal Gender Units and 10 women's networks in the Southern Dry Corridor to increase female participation in the domestic violence law reform. This component addresses the indirect drivers of biodiversity change and loss by building female capacity to advocate gender issues, such as women's participation in policy development. It provides access to resources and economic opportunities through targeted training and the creation of 78 village savings and loans. With the support of PROSADE, women groups have constructed improved stoves. One group has now become a small business consisting of 11 members (seven female and four male) with the sole purpose of constructing improved stoves. It has built 414 improved stoves, benefitting 62 men and 352 women.

All G7 governments are striving to improve the sustainability of agricultural practices. The G7 countries have promoted and supported approaches in different countries (see Examples 5.2 and 5.3). Agro-ecological practices[6] and biological or organic agriculture can build diverse and resilient food production systems in which natural fertilizers (e.g., nitrogen-binding plants) and natural pest controls (e.g., wasps, birds) function in a synergistic way. For example, in Timor Leste, Germany has actively contributed to the reintroduction and conservation of seed varieties and the selection of climate-resilient local crops by farmers through the establishment of a local seed fair. Agro-ecological practices can also improve the productivity per hectare by combining different crops on the same plot. On the other hand, yields from organic or biological agriculture tend to be lower and may therefore lead to the expansion of agricultural activity onto more land, which could contribute to habitat loss. Therefore, all countries must seek ways to sustainably intensify agricultural production. It is important that policies are in place to ensure that efforts to intensify agriculture will not lead to a loss of biodiversity but rather promote sustainable intensification.

Sustainable use of natural resources is important for maintaining biodiversity and the food provision services they provide in the long run. Examples of the unsustainable use of natural resources are: overharvesting of fish, timber and other species; pumping groundwater at higher rates than can be naturally replenished; exhaustion of soils; and overgrazing of pastures. Many G7 countries employ strategies that focus on changing unsustainable practices for different resources (see Example 5.4). Example 5.5 highlights France's support for integrated approaches in which ecosystem protection and the sustainable use of fish and forest resources are combined.

Example 5.3 Connecting Environmental Services and Market Values of Coffee Agroforestry (CAFNET) (G7 involvement through European Commission)

The European Commission supports a number of projects that promote a greener agriculture with sustainable practices and quality products. The major challenge is to secure and increase agricultural yields while at the same time conserving ecosystems and maintaining resources for those who rely on agriculture for their livelihoods. The key lies in the implementation of sustainable agriculture integrating economic profitability, environment protection and social equity.

Projects funded promote sustainable agricultural practices, including the efficient use of water; increased use of organic and natural soil nutrients; optimal cultivation and tillage techniques; integrated pest control; the development of green or ecologically certified products; and the promotion of ecotourism. Greening agriculture in developing countries – and concentrating on smallholders in particular – is the most effective way to improve food security, to increase carbon sequestration and to minimize climate change risks while preserving biodiversity.

An example of this is the CAFNET program, implemented in major coffee agro-forest regions in Central America, East Africa and India. This program aims to link sustainable management and the environmental benefits of coffee agro-forests with appropriate remuneration for producers by providing better access to markets and payment for environmental services. This involves finding ways to improve livelihoods for coffee farming communities while at the same time conserving natural resources.
http://ongoing-research.cgiar.org/factsheets/cafnet-connecting-enhancing-and-sustaining-environmental-services-and-market-values-of-coffee-agroforestry-in-central-america-east-africa-and-india/

Example 5.4 G7 involved in sustainable fisheries (Germany, UK, US)

The United States (US) engages in activities to change destructive fishing practices, including through community patrols (Uganda and Kenya), changing community fishing techniques (Kenya) and diversifying livelihoods (Philippines). These projects protect local fish stocks and ensure a sustainable source of nutritious food. In some communities, such projects also prevent the use of high-risk and potentially unhealthy techniques for fishing, such as cyanide and dynamite fishing. Germany supports the measures taken by its partner countries to improve sustainable fishing policies, fisheries management, the protection of spawning areas, fisheries industry and aquaculture methods. Cooperation in this area includes investments in infrastructure and technology, providing organizational advice and helping to build up local capacity in order to improve food security and incomes for the population groups concerned. The United Kingdom (UK) is involved in a project that aims to provide integrated management of marine ecosystems in Central Africa (Republic of Congo and Gabon) as a result of establishing a network of interconnected and effectively managed Marine Protected Areas that enhance ecological integrity while contributing to food security and poverty reduction in communities in the region. Another project of the UK is the Kew Gardens "Useful Plants" initiative, which focuses on the (*ex situ*) protection and growing of native plants that support everyday needs for food, medicine, fuel and building materials. Biodiversity is protected while local communities in Africa and Latin America benefit from sustainable development.

5.1.2 The G7 commitments on food security

As shown here, the G7 deals with indirect and direct drivers of biodiversity loss and food security, both separately and simultaneously. The L'Aquila Joint Statement on Global Food Security put forward a comprehensive approach to food security with attention on the protection of natural resources. The commitment on the New Alliance has an explicit focus on new technologies and innovations. In its objective, the New Alliance refers explicitly to the mutual relevance of biodiversity and food production: "Determine 10-year targets in partner countries for sustainable agricultural yield improvements, adoption of improved production technologies, including improved seed varieties, as well as post-harvest management practices as part of a value-chain approach, and measures to ensure ecological sustainability and safeguard agro-biodiversity" (The White House 2012). Although the 2014 Progress Report of the New Alliance (USAID 2014a) does not mention biodiversity explicitly, this chapter has given some examples in which G7 countries recognize the importance of biodiversity for food security as well as potential negative impacts that food production may have on biodiversity. However, there is still scope for further enhancing efforts to strengthen biodiversity considerations in policies for food security and agricultural development, as improving the ecosystem services of an agricultural landscape is often an important step in increasing sustainable productivity.

5.2 Biodiversity and human health

5.2.1 G7 efforts to address interactions between biodiversity and human health

Human health ultimately depends on ecosystem services that are enabled by biodiversity as well as the products derived from them (TEEB 2012).[7] The G7 is committed to health through 12 active commitments; many of them are indirectly related to the biodiversity commitment. Three

Example 5.5 Sustainable use of fish and forest resources in Quirimbas National Park in Mozambique (France)

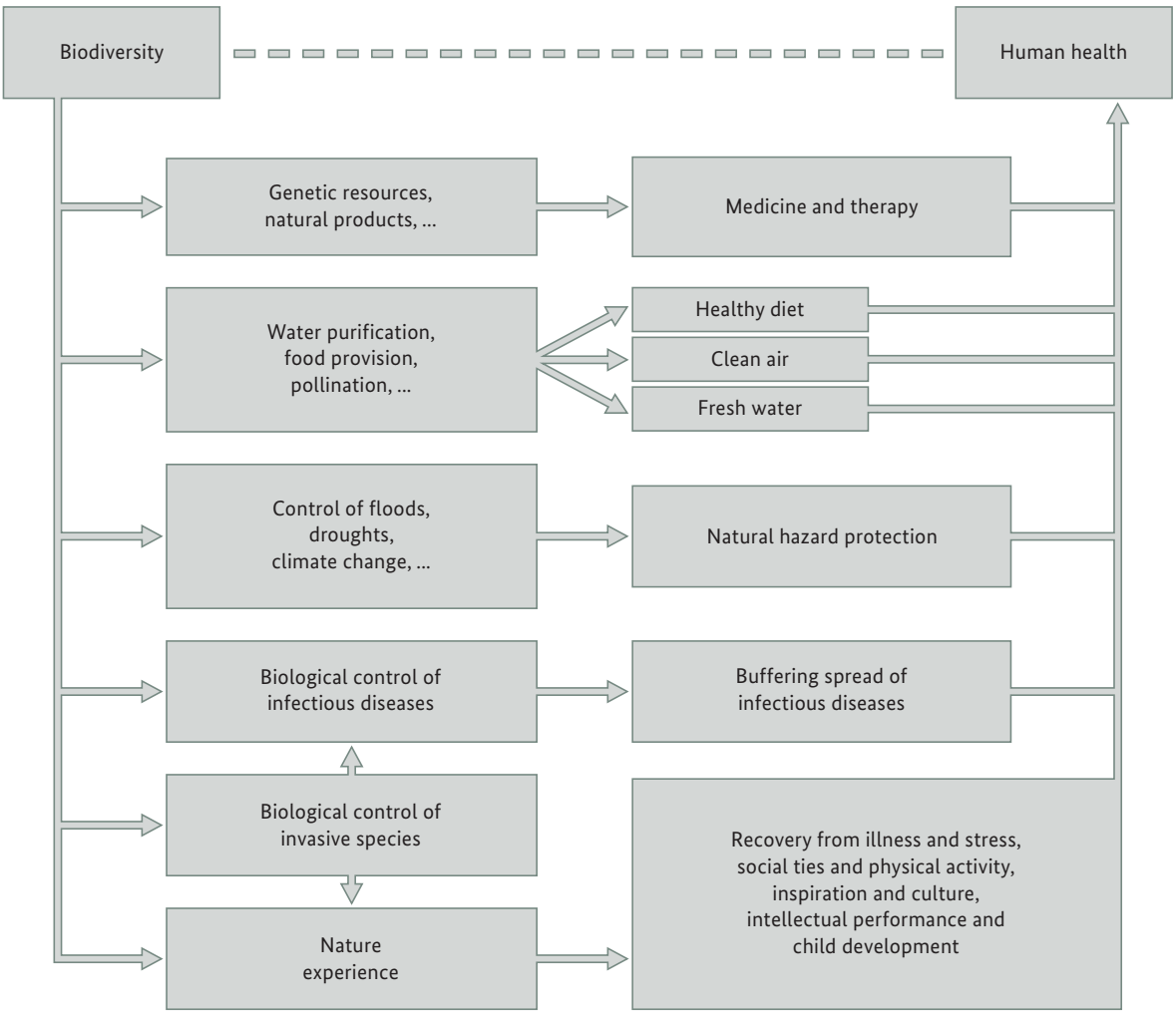
Quirimbas National Park in Mozambique – encompassing marine and terrestrial ecosystems – covers an area of 7,500 km^2 and is located in one of the poorest provinces of Mozambique. It was created in 2002 with the support of the World Wide Fund for Nature (WWF), with the aim of promoting dynamic development via ecosystem and natural resource conservation. The French Development Cooperation Agency (AFD) and the French Global Environment Facility (FFEM) are the main financial partners of the park. The first phase (2004–2009) led to the setting up of co-management mechanisms, a drastic reduction in the illegal use of fisheries and forestry resources, and an increase in agricultural and fishery yields as well as in income from ecotourism. With growing pressure on habitats and natural resources – particularly forests, fresh water and large mammals – the second phase (2010–2014) aimed to enhance: i) local socioeconomic conditions through natural resource conservation, thus contributing to combating food insecurity; ii) the park's governance and management structure; and iii) the park's financial sustainability (tourism income, carbon credits), while taking the need for climate change adaptation into account.

The project thus finances the strengthening of local resource management committees; the preservation and monitoring of activities in marine and terrestrial areas; the dissemination of sustainable practices (conservation agriculture, fishing, creation of marine sanctuaries); the management of conflicts between farmers and elephants; and the development of ecotourism by awarding concessions for new sites and supporting community tourism.
http://www.afd.fr/webdav/shared/PORTAILS/SECTEURS/BIODIVERSITE/AFD-Action-Plan-Biodiversite-VA.pdf

commitments focus on health financing and strengthening health systems; at the core of three other commitments are neglected tropical diseases, prevention of infectious diseases as well as maternal health and child care; the remaining commitments focus on specific diseases such as HIV and AIDS, malaria, tuberculosis, polio and measles.

The relationships between biodiversity and human health are varied, complex and far-reaching (SCBD and WHO 2015), and the concept of ecosystem services (see Section 2.1) is useful to better understand them (TEEB 2012). Figure 5.2 provides an overview on how biodiversity, ecosystem services, human health and human well-being are related.

Figure 5.2 Interconnections between biodiversity and human health



Source: TEEB (2012)

Biodiversity directly and indirectly influences human health through different pathways: It safeguards the quality of essential life support systems such as air, water and soil, thereby ensuring healthy environments and the means for production of a healthy and balanced diet (see Section 5.1).

More directly, biodiversity is an important resource for traditional and modern medicine, both today and in the future (Newman et al. 2008, Cox 2009, Cragg and Newman 2013). Residents in developing countries in particular depend strongly on traditional medicines provided by nature (Newman et al. 2008); traditional herbal medicines are the primary medicines for 80 percent of the world's population (WHO 2002). Furthermore, many modern synthetic medicines have natural origins and are derived from biodiversity (Newman and Cragg 2012). Biodiversity loss ultimately reduces the potential pool of nature's genes and chemicals for developing future drugs (Beattie et al. 2011, Ibrahim et al. 2013, SCBD and WHO 2015); see also Example 5.6.

Biodiversity can serve as a protection against natural hazards, and thus have positive health impacts. It can lower the risk of floods because forest or other natural vegetation in a floodplain slows the spread of floodwater over the land, resulting in the land absorbing much of the water (Melillo and Sala 2008). A reduced danger of flooding also reduces the risk of transmitting water-borne diseases caused by mingling untreated or partially treated sewage with freshwater (Parmesan and Martens 2009).

Conserving biodiversity can help to buffer the spread of infectious diseases, such as malaria, and several of the neglected tropical diseases (NTDs), such as Dengue fever, Leishmaniasis and Schistosiomaniasis (see Box 5.2 and Example 5.7). Neglected tropical diseases such as river blindness, leprosy and sleeping sickness affect primarily poor populations living in tropical and subtropical climates, and individuals are often afflicted with more than one parasite or infection (WHO 2006).

Biodiversity loss and changes in the ecosystem can, in some situations, increase the risk of infectious disease outbreaks in plants, animals and humans when it changes the ecology of the infectious disease agent (pathogen). This happens, for example, through changes in: the abundance of the host or vector; the behavior of the host, vector or parasite; or the condition of the host or vector (see Box 5.2 for examples) (Keesing et al. 2010).

Nature including biodiversity has beneficial effects on psychological and physical health: Contact with nature is beneficial for recovering from illness or stress; living near nature enhances human well-being; contact with nature also fosters social ties and encourages physical activity as well as

Example 5.6 Utilizing and preserving genetic resources for medicines (Japan)

The Research Center for Medicinal Plant Resources (RCMPR) at the National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN) in Japan is dedicated to the proactive collection and storage of medicinal plants. It is also engaged in the following research activities: (i) the cultivation and breeding of medicinal plants, (ii) the chemical and biological evaluation of active plant constituents,[8] (iii) the development of underutilized plant resources of foreign origin and (iv) tissue engineering of medicinal plants. In order to ensure the sustainable use of medicinal plants, valuable seeds are cryopreserved[9] to save genetic material. Moreover, the research center maintains close contact with herbariums,[10] botanic gardens and research institutes around the world, sending and exchanging stock lists and seeds where appropriate to enrich its collection. The NIBIOHN's Rare Disease Bank stores biological samples collected from patients with intractable rare diseases and provides them to scientists for research purposes.

Box 5.2 Disease transmission and biodiversity

Birds are host to the **West Nile virus** and low levels of bird diversity are strongly correlated with an increased human risk of West Nile encephalitis in the US (e.g., Allan et al. 2009). The reason is that in bird communities with low levels of species diversity, those species that act as host for the virus dominate, whereas in more diverse communities, the density of bird species acting as hosts is lower (TEEB 2012).

Regionally, different types of **Hantaviruses** cause hemorrhagic fever and severe kidney problems in Asia and Europe, and affect the lungs (Hantavirus pulmonary syndrome) in the Americas (Pongsiri et al. 2009). Rodents act as host animals and transmit the virus to humans. Studies of recent outbreaks have shown that all outbreaks occurred in habitats highly disturbed by humans with reduced biodiversity (Suzán et al. 2008, Pongsiri et al. 2009). There is evidence that lower levels of diversity of rodents increase the prevalence of the virus within the rodents, and consequently increases the risk to humans (see TEEB 2012).

Biodiversity does not directly contribute to fewer **malaria** infections but can contribute toward controlling malaria by providing the necessary diversity of genes and chemicals to further develop medicines. Malaria is caused by parasites that are transmitted to people through the bites of infected mosquitoes. Following a "long-established epidemiological practice" (Johnson and Thieltges 2010), domestic livestock serve as a buffer and break the chain of disease transmission. Sleeping in close proximity to domestic livestock, particularly cattle, may reduce the rate at which mosquitoes bite humans, and thereby the risk of contracting malaria (Dobson et al. 2006). Hence, wild or domestic animals are used for diverting blood-seeking mosquitoes away from potential human hosts (*zooprophylaxis*).

stimulates intellectual performance and children's development (Kellert 2009).

Nevertheless, the interaction between biodiversity and human health is not a one-way street because activities for improving human health can also have negative effects on biodiversity if they are not properly managed. The management of mosquito habitats through the drainage of swamps and floodplains as well as through controlled water levels, which are traditional strategies for controlling malaria, has created worldwide reductions in and the elimination of some wetland habitats, including a global decline in important food resources (waterfowl, fisheries) (Parmesan et al. 2009).[14] Furthermore, the use of wildlife products in traditional medicines can pose a threat to biodiversity. In recent years, the dimension of the use of wildlife products such as rhino horn and pangolin scales is threatening the survival of these already endangered species (see Example 5.8).

5.2.2 The G7 commitments on human health

The commitment to reduce biodiversity loss contributes to the fight against infectious diseases by securing genetic diversity and chemical components with potential pharmaceutical value. Hence, the biodiversity commitment relates to several G7 health commitments, including Commitment 6 (to provide "at least a projected US$ 60 bn to fight infectious diseases and strengthen health systems"), Commitment 10 ("working across sectors to prevent, detect and respond to infectious diseases, whether naturally occurring, accidental, or the result of a deliberate act by a state or non-state actor") and Commitment 9 ("to support the control or elimination of high-burden Neglected Tropical Diseases (NTDs)"). Biodiversity's contribution to the development of medicine, especially vaccines and antibiotics, also relates at least indirectly to commitments addressing HIV and AIDS (Commitment 12), malaria (Commitment 14) and tuberculosis (Commitment 15).

Example 5.7 Exploring potential applications of biodiversity to human health (US)

The National Institutes of Health (NIH) and the National Science Foundation (NSF) support an International Cooperative Biodiversity Groups (ICBG) competitive grants program to explore the potential application of biodiversity to human health. The program invests in research capacity to support sustainable use of natural resources, the knowledge to conserve them and equitable partnership frameworks among research organizations in the US and low- and middle-income countries with high levels of biodiversity.

The ICBG program supports international, public-private, interdisciplinary research teams in the exploration and discovery of novel compounds and natural extracts with potential for development as therapeutic agents for multiple diseases, while at the same time building research capacity and supporting biodiversity conservation in partnering countries. Grants also included biodiscovery for agricultural, crop protection and animal health applications as well as bioenergy agents and biofuels.

The ICBG program has led to the discovery of promising therapeutic leads. In addition, concrete outcomes of this program have included the declaration of new biodiversity reserves, national parks and one World Heritage Site based on the bioinventory and drug discovery data generated through the program. Since the 1990s, the program has also trained many US and foreign students in a range of biodiscovery sciences (natural products chemistry, drug discovery, molecular biology, taxonomy, systematics, genomics, ecology, botany, microbiology, biodiversity policy, ethnomedicine,[11] and others).

From 2003 to 2014, ICBG – in cooperation with the National Science Foundation and the Smithsonian Center for Tropical Forest Science – has also supported the development of a large, permanent, forest dynamics research plot in Papua New Guinea. On the plot, researchers document every tree greater than 1 centimeter in diameter and follow it over many years, with the intention of capturing the impacts of climate change and human activity on the trees. The ICBG added an endophyte[12] survey to the research, the first survey in the world in a forest dynamics research plot, and at the same time sampled endophytes to feed into the drug-discovery effort. To provide dependable incomes for the community and sustainability for the science, local parataxonomists[13] have been trained, and the community that owns the land is actively engaged in the effort.

In the past, poorly managed measures to control or eradicate disease vectors have had negative impacts on biodiversity. Although biodiversity does not provide the answer to deal with every disease we address through Commitments, biodiversity does offer support through the provision of components for many medicines, and the natural regulation of disease vectors and environmental conditions. The examples of G7 efforts show that the value of biodiversity for health is recognized and addressed in many cases. In addition, we see scope for further expanding upon elements to protect this health value, possibly as part of integrated projects addressing biodiversity, food security and climate change. We can also do more to recognize that health supports biodiversity, since healthy people are better positioned to contribute to healthier and more biodiverse ecosystems.

Example 5.8 Reducing the use of endangered species in traditional medicine, Vietnam (Germany)

The global demand for wildlife products used for perceived health benefits, among many other reasons, has given rise to a poaching industry that has reduced animal populations and contributed to the demise of endangered species. In Vietnam, for example, rhino horn is used for traditional and recreational purposes and is said to relieve fever and provide a hangover cure. Its consumption also increased dramatically after rumors spread that its use cured a prominent public figure of cancer. There is, however, no credible scientific evidence on the effects of such treatments. China, for example, removed rhino horn already in 1993 from the official Chinese pharmacopeia, which is the country's official compendium of traditional Chinese and Western medicines.

In the context of Germany's broader commitment to support the implementation of measures along the entire illegal trade chain to tackle poaching and illegal wildlife trade in Africa and Asia, Germany has recently supported efforts in Vietnam to discuss ways in which traditional medicine practitioners can help protect endangered species that are used for alleged health purposes. Together with the Vietnamese Ministry of Health, TRAFFIC (the wildlife trade monitoring network), and WWF, information has been shared with traditional medicine practitioners and academics, particularly on the current illegal trade of rhino horn, mainly from Africa. Based on analyses and enhanced understanding of the motivations leading to rhino horn consumption, the initiative aims at increased levels of public-government collaboration and at publicly visible commitments to action from key stakeholders in order to undermine some of these motivations. The initiative explores the dimensions of the illegal wildlife trade, the historical use of rhino horn in traditional medicine, current laws covering the use of endangered species in alternative medicine in Vietnam, and presents effective alternatives such as herbs.

5.3 Biodiversity and climate change

5.3.1 G7 efforts to address interactions between biodiversity and climate change

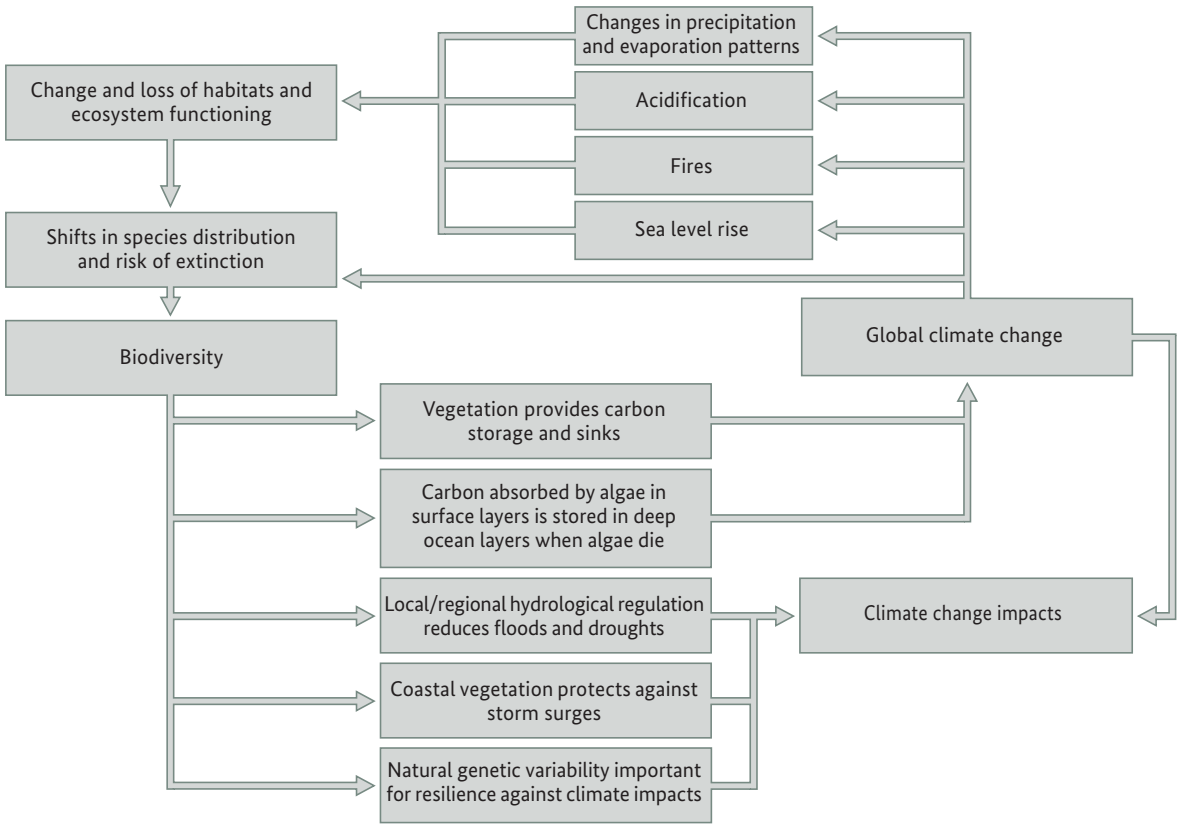
Climate change is a major threat to human well-being. The resulting sea level rise and changes in global patterns of rainfall and evaporation are expected to result in changes in floods, droughts and other extreme weather events, which can threaten human life directly and indirectly, for example through crop failure. The current G7 commitment on climate change addresses specifically the need to provide financial support for actions to adapt to a changing climate in developing countries. Biodiversity loss and global climate change have similar root causes in the underlying direct and indirect drivers of environmental change, and are highly interdependent (see Figure 5.3). This must be taken into account in activities addressing them (Jones et al. 2014).

Climate change is one of the major drivers of biodiversity change and likely to become the main driver of biodiversity loss in the future (Settele et al. 2014). Increased global

A post for measuring the tidal flows in the marshlands. Rugezi, Rwanda.
FAO/Giulio Napolitano

temperatures affect biodiversity directly. Changes in evaporation and in rainfall patterns can significantly alter natural conditions, and thus lead to changes in ecosystems and their species composition. Acidification of the ocean waters due to increased CO_2 levels strongly influences marine ecosystems and their species, for example coral reefs (Pörtner et al. 2014). These changes, even at low rates, lead to loss of habitats and changes in the distribution of species, thereby threatening their existence (MA 2005, Settele et al. 2014). The Arctic region is a clear example of how climate change and the reduced availability of colder ecosystems threaten species directly. Moreover, warming of the Arctic is increasing the accessibility of the region to humans, which can in turn lead to additional ecosystem disturbance, pollution and the introduction of invasive species (CAFF 2013). In the Arctic and other relatively cold regions, the impacts of global warming further reinforce climate change (Larsen et al. 2014). For example, thawing permafrost releases substantial amounts of methane and carbon dioxide into the atmosphere. Receding snow and ice cover reduces sunlight reflection from the Earth's surface (reduced albedo effect). Both climate change impacts subsequently enhance global warming. Sea level rise and fires caused by drier conditions can lead to direct loss of ecosystems.

Figure 5.3 Interconnections between biodiversity and climate change



Source: Own elaboration

At the same time, the decline of biodiversity and related reductions in the functioning of ecosystems may accelerate climate change, as biodiversity and ecosystems play a crucial role in climate regulation and at providing carbon storage and sinks. All green vegetation can take up carbon, a process referred to as carbon sequestration. A special case of this is sequestration by algae in oceans, which leads to storage of carbon in deep ocean layers when the algae die. Conversely, deforestation and peat drainage/burning release carbon as CO_2 into the atmosphere. These emissions accounted for around 10 percent of global greenhouse gas emissions for the period 2000–2009 (IPCC 2014).[15]

Ecosystems also play an important role in regulating the climate at the local and regional scale through interception of rainwater. Intact ecosystems and vegetation help regulate water flow by slowing the runoff of rainwater and allowing it to infiltrate into the ground to be released over time. This reduces flooding and ensures the availability of water during times with less rain. Vegetation is also important to ensure rainfall in areas further away from seas. High evaporation by plants creates low air pressure and attracts additional moist air from above the sea. This moisture can return as rainfall further inland. Forests can thus function as a giant "biotic pump" (Makarieva and Gorshkov 2007, Sheil and Murdiyarso 2009).

Example 5.9 Supporting biodiversity safeguards in REDD+ (Germany)

Germany plays a proactive role in helping to design and implement REDD+ in its partner countries under the conviction that forests, with their essential ecological and social functions, are far more than carbon pools. The German-Indonesian Forests and Climate Change (FORCLIME) Programme, for instance, supports the Indonesian government in developing a REDD+ Safeguards Information System, as called for at the United Nations Framework Convention on Climate Change (UNFCCC) COP16 in 2010. Based on an assessment of existing mandatory and voluntary instruments in use in Indonesia, such as environmental impact assessment or voluntary responsible forestry standards, a set of principles, criteria and indicators were developed in consultation with different stakeholders for providing information on REDD+ safeguards implementation. Moreover, in 2014 the Zoological Society London, together with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) developed guidance for how to monitor biodiversity in REDD+, be it at the project or at the country level.

Example 5.10 The Darwin project on mangroves in Madagascar (UK)

This project aims to help coastal communities in western Madagascar earn income from the sale of carbon credits, charcoal and timber that they supply through mangrove reforestation and sustainable forest management, and enables them to improve their livelihoods and conserve mangrove forests over the long term. The foreseen outputs of this project include that: i) communities have clear and uncontested land and user rights to their customary mangrove areas and that they have Free, Prior and Informed Consent to use these areas for a forest carbon project; ii) communities have established mangrove afforestation and reforestation, Sustainable Forest Management and conservation areas and are competently managing these areas; iii) communities produce sustainable carbon and timber; iv) the carbon stocks and harvestable timber of the community mangroves have been measured and are being monitored; and v) the requirements for a forest carbon project that will generate carbon offsets are fulfilled.

Aerial view of the Anavilhanas National Park. Manaus, Brazil. *Thomas Trutschel/photothek.net*

Coastal vegetation contributes to the development and stabilization of natural levees and helps to protect against floods. Lastly, protection of natural genetic variety is important, since it increases our ability to develop crops that may be more resilient to climatic changes (Hillel and Rosenzweig 2008).

Through these processes, biodiversity can reduce the impacts of climate change. The three topics of health, food security and climate change have strong interrelations as well. The impacts of global warming, for example floods, droughts, tropical storms and heavy rain, cause yield losses, put livelihoods at risk, destroy infrastructure and are life-threatening, directly or indirectly, especially for the poor.

Climate change can therefore be considered to further enhance or aggravate the consequences of biodiversity loss, making it even more important to protect biodiversity to develop resilient systems that support food security and health.

Approaches to deal with climate change address the reduction of i) the emission of greenhouse gases into the atmosphere, referred to as mitigation, and ii) the impacts of climate change, referred to as adaptation. Both mitigation and adaptation provide opportunities to simultaneously protect or enhance biodiversity. Possibilities in this regard are also supported by decisions of the Conference of the Parties of the Convention on Biological Diversity.[16]

Protecting forests and (re-)planting with native tree species adapted to a changing climate provide direct win-win situations for climate mitigation and biodiversity, particularly in tropical regions. Conserving peat areas or, where already drained, rewetting them enhances carbon sequestration and avoids additional emissions. The most prominent policy instrument in this regard is REDD+ (Reducing Emissions from Deforestation and Forest Degradation). The idea of REDD+ is to create a value for carbon stored in forests in developing countries to provide incentives not to deforest (UNEP 2011). Many REDD+ initiatives are already ongoing. Multilateral REDD+ initiatives include the UN-REDD Programme, the Forest Carbon Partnership Facility (FCPF) and the Forest Investment Program, hosted by the World Bank. To address concerns that a focus on forest carbon would negatively impact biodiversity through a focus on those tree species that have the highest carbon content,

Example 5.11 Ecosystem-based adaptation in the Solomon Islands (US)

The US Department of State, through United States Agency for International Development (USAID), has provided US$ 1 million to the Secretariat of the Pacific Regional Environment Program to design ecosystem-based adaptation solutions to climate change impacts. Focused on the Choiseul Province of Solomon Islands, the program integrates funding and support from a variety of other entities, including GIZ, the Australian Agency for International Development (AusAID), the Nature Conservancy and the Secretariat of the Pacific Community. Through activities such as mangrove reforestation and coral reef monitoring and protection, the program is building the resilience of local communities to climate-related impacts, such as sea level rise, coral bleaching, flooding and deterioration of water quality and availability. At the same time, these activities strengthen local ecosystems and support the conservation of various species that rely on corals, mangroves and forests for their habitats.

environmental and social safeguards were agreed upon in the Cancun Agreements (UNFCCC 2011). All G7 countries are involved in activities that aim to reduce emissions from deforestation and forest degradation. Some countries do this primarily by financially supporting multilateral initiatives, whereas others have forest carbon conservation as a top priority and have initiated and supported various projects for avoiding deforestation directly (see Examples 5.9 and 5.10).

Mangrove. Virgin Islands. *Kate Fuller/GRID Ardenal*

Because of the negative impacts of climate change on biodiversity, any measure that limits greenhouse gas concentrations is beneficial to biodiversity on a global scale. However, at a local level, mitigation measures can have negative impacts on biodiversity that require a thorough *ex ante* assessment. The impacts of climate change mitigation measures on biodiversity is a complex matter.

Consequently, further scientific research and analysis is required to enable a better understanding of this relationship. Although national conditions differ significantly, two examples with potential negative impacts on local biodiversity are hydropower and biofuel production. Dams and weirs for hydropower projects fragment river habitats, prevent the migration of species and influence the supply of nutrients and sediments from upstream to downstream areas. Moreover, hydropower generally alters the natural variations in high and low flow, which are important for ecosystem processes in order to create variation in habitats and to fight pests. Biofuel production may increase the demand for agricultural land and may lead to additional land conversion. Hence, addressing the impacts of climate change mitigation measures, including the impacts on biodiversity, requires a thorough environmental assessment and the mainstreaming of biodiversity in development planning (see Section 4.3).

Increasing the resilience of ecosystems and ensuring they will continue to be able to deliver a whole bundle of ecosystem services, including the provision of food and water as well as protection against natural hazards, that

Example 5.12 Climate-smart agriculture (CSA) (Canada, France, Japan, UK, US)





France, Japan, the UK and the US are all members of the newly formed Global Alliance for Climate Smart Agriculture (GACSA). Launched at the United Nations Climate Summit, the Alliance aims to improve food security and nutrition by incorporating climate-smart approaches into agriculture of all types and all scales in order to achieve the following three aspirational outcomes: (i) sustainable and equitable increases in agricultural productivity and incomes; (ii) greater resilience of food systems and farming livelihoods; and (iii) reduction and/or removal of greenhouse gas emissions associated with agriculture (including the relationship between agriculture and ecosystems), wherever possible.

The UK's Department for International Development (DFID) supports Scaling-up Climate-Resilient Agriculture in Africa, a program to develop the evidence base (what works, where and for whom) for a range of low-cost CSA technologies, based on Conservation Agriculture, that increase yields, increase resilience to drought, reduce erosion, maintain soil fertility and increase carbon sequestration – the five wins (see also Section 5.1). This will include Conservation Agriculture and agro-forestry, combined, where appropriate, with linked support to integrated pest management, improved water management, improved drought-resilient crop and livestock breeds and practices – for which there is significant emerging experience in the region.

More than a year ago, the International Fund for Agricultural Development (IFAD), of which all G7 countries are members, launched the Adaptation for Smallholder Agriculture Programme (ASAP), which operates in more than 30 developing countries and has become the largest global financing source dedicated to supporting the adaptation of poor smallholder farmers to climate change. Canada and the UK are contributing to the funding of the ASAP.

help people to adapt to climate change, is referred to as "ecosystem-based adaptation" (UNEP 2009). The G7 undertakes activities in developing countries to increase resilience to a changing climate. These projects often combine multiple objectives of climate adaptation, biodiversity protection and sustainable development. For example, the EU, the UK (Example 5.10) and the US (Example 5.11) are involved in projects that aim at strengthening the resilience of coral reefs, mangroves and related ecosystems, and support sustainable livelihoods of local communities. The work on CSA (Example 5.12) by several G7 countries (Canada, France, Japan, UK, US) aims at improving agricultural practices that reduce greenhouse gas emissions from agriculture, increase the resilience of agricultural production to climate change and contribute to food security and nutrition.

Where "hard" infrastructure is used to increase protection against the consequences of climate change, for example by constructing flood walls or storage reservoirs, it is important that negative impacts on biodiversity are minimized as much as possible, and that residual impacts are compensated (see Section 4.3).

5.3.2 The G7 commitment on climate change

Climate change and biodiversity loss affect each other, and policy measures intended to address either of these may also interact and create synergies or trade-offs. Thus, strengthening synergies where possible, for example via ecosystem-based adaptation and minimizing trade-offs, is an overarching goal of the overlapping environmental regimes. The active G7 commitment on the provision of climate adaptation finance is an important contribution to climate adaption in developing countries. Although the examples show that the G7 engages in synergetic activities and aims to minimize trade-offs, this focus on synergies between adaptation and biodiversity conservation was not reflected explicitly in the specific adaptation finance

commitment. However, the G8 explicitly addressed the interconnections between climate change and biodiversity in the Carta di Siracusa (G8Italy 2009). Although the current G7 commitments do not include mitigation, the G7 actively engages in activities targeting both biodiversity conservation and carbon sequestration, as highlighted in this chapter.

1 Furthermore, pollinators can increase the production of ≈75 percent of the 115 most important crops worldwide, as measured by food production and economic value. They improve the production of 70 percent of the most globally valuable crop species (see Garibaldi et al. 2011 and references therein).

2 See http://www.planttreaty.org/content/recent-progress

3 Food loss is defined as those losses that take place in the production process of the food product. Food waste is the result of actions of retailers and consumers (FAO, 2011).

4 See http://alimentation.gouv.fr/gaspillage-alimentaire-campagne

5 See http://www.minambiente.it/sites/default/files/archivio_immagini/Galletti/Comunicati/alma_mater_bologna/LA%20CARTA%20DI%20BOLOGNA%20-%20VERSIONE%20IN%20INGLESE.pdf

6 Approaches to increase agricultural production by using diverse production systems and ecological principles, agro-forestry and silvopastoral production systems also fall into this group of approaches and are likely to promote resilient agriculture and agro-biodiversity (Neely and Fynn, 2010).

7 For a full account of how biodiversity and human health are linked, please see "WHO/CBD State of Knowledge Review on Health and Biodiversity."

8 Active plant constituents are ingredients or substances of a plant that have a possibly medical activity for humans.

9 Cryopreservation describes a process in which cells, whole tissues, seeds or any other substances susceptible to damage caused by chemical reactivity or time are preserved by cooling to sub-zero temperatures.

10 A herbarium is a collection of dried, preserved plant specimens.

11 Ethnomedicine as discipline refers to studies or comparisons of the traditional medicine practiced by various ethnic groups, and especially by indigenous peoples.

12 Endophytes are bacteria or fungi that live within a plant for at least part of their lifespan without causing apparent disease or damage to their hosts.

13 Parataxonomists assist or replace academically trained taxonomists in the practice and science of classification of species in the field.

14 Mosquito control does not, by definition, require destruction of wetlands; more important than mosquito control is control of standing water near human homes.

15 Of the global 49.5 gigatons of carbon dioxide equivalent per year (Gt CO_2 eq/y) in 2010, 10–12 Gt CO_2 eq/y come from agriculture, forestry and other land use. Within the agriculture, forestry and other land-use group, land-use change and forestry accounted in the 2000–2009 period for a little under 4 Gt CO_2 eq/y; drainage of peat and peat fires for around approximately 1 Gt CO_2 eq/y. Approximately 5 Gt CO_2 eq/y is mainly due to various agricultural practices and agricultural crop residues.

16 For example, CBD-decision X/33 invited Parties and other governments to consider implementing ecosystem-based approaches for climate change adaptation and mitigation. This decisions, as well as others pertaining to biodiversity and climate change, can be found at: http://www.cbd.int/climate/decision.shtml.
Furthermore, decision XII/1 encouraged Parties, other governments and organizations to make use – in a flexible and voluntary manner – of the lists of key potential actions identified in Global Biodiversity Outlook 4 (available at: http://www.cbd.int/gbo4/) that could accelerate progress in the implementation of the Strategic Plan for Biodiversity 2011–2020. In the context of climate change and biodiversity, the actions related to Targets 5, 7, 10, 11, 14 and 15 are particularly relevant.

6.

Discussion and conclusions

Fisherman. Democratic Republic of the Congo. *Guenay Ulutunçok/GIZ*

6. Discussion and conclusions

Key messages

- The G7 has taken an essential step by recognizing the importance of biodiversity for human well-being, sustainable development and poverty alleviation, and committing to reducing its loss.
- The G7 is acting on its commitment through policies, finance and other means and is demonstrating good practices to conserve biodiversity while supporting other development goals.
- However, in view of the ongoing loss of biodiversity, the G7 recognizes that much remains to be done to make progress on the G7 biodiversity commitment.

Overall assessment of the G7 commitment

Since the Deauville commitment in 2011, the G7 has made significant financial contributions toward the global protection of biodiversity. At home as well as abroad, the G7 has continued to implement and support biodiversity conservation measures and proactively engaged in new initiatives addressing underlying economic and political drivers of biodiversity loss. The different efforts described cannot be added up to a total score; however, overall, they support the conclusion that the G7 has intensified its efforts to slow the loss of biodiversity. Since the status of biodiversity is still declining globally, the report is a timely reminder that this commitment is still of great significance.

G7 international biodiversity financing

The G7 contributions for financing biodiversity through official development assistance (ODA) are substantial and a crucial pillar of biodiversity aid. An increasing part of this funding is channeled through programs geared toward other development objectives, reflecting efforts to integrate or mainstream biodiversity considerations into other sectors of development cooperation. In addition, considerable support is also provided to multilateral institutions, as reflected, for instance, in contributions to the Global Environment Facility (GEF). All G7 countries rank among the top 10 GEF donors. Some G7 countries have already more than doubled their contributions, in line with decisions taken under the Convention on Biological Diversity (CBD). Overall, the financial contributions for biodiversity in developing countries by G7 countries have been relatively stable over the past years, reflecting a strong commitment to biodiversity, even in times of a major financial crisis. The different methods used for reporting on biodiversity finance impede calculating total contributions and quantifying total G7 contributions. To increase transparency further, efforts are needed at the international level to refine and harmonize methods for financial reporting. The prioritization of biodiversity in the national development plans and strategies of partner countries remains an important prerequisite for international biodiversity finance through ODA, given that the G7 countries follow the principle of alignment and value ownership by developing-country partners. The G7, together with its partners, could further investigate how it can best invest ODA funds strategically to mobilize additional resources for biodiversity.

G7 approaches and good practices

The G7 countries have undertaken significant efforts to conserve biodiversity by supporting the establishment and management of terrestrial protected areas, combating poaching, as well as combating the trade of illegal timber, wildlife and its related products. However, efforts related to the conservation of marine biodiversity may warrant further attention.

As regards direct drivers of biodiversity loss, G7 countries are very active in dealing with habitat loss and invasive alien species, but drivers such as overexploitation and pollution require more attention, including in areas beyond national jurisdiction.

A variety of dried maize cobs. Sudan. *FAO/Raphy Favre*

International support for biodiversity conservation of the G7 countries is generally focused on improving local livelihoods and enhancing benefits to societies. This is done, among other ways, by supporting activities such as agroforestry, sustainable fisheries, sustainable agriculture and community-based conservation, and by creating financial incentives for local communities to contribute to conservation. Yet, social and environmental impacts of economic instruments for conservation and sustainable use need to be better understood and taken into account in all activities.

In terms of addressing indirect drivers of biodiversity loss, the G7 is strongly engaged in efforts to better integrate the economic value of ecosystem services in development planning as well as to change consumption patterns and reduce food waste. Initial steps have also been taken to identify and reform harmful subsidies for biodiversity. Still, there is a need to further assess how policies as well as production and consumption patterns of the G7 countries affect biodiversity abroad. Incorporating biodiversity in important economic sectors such as agriculture, industry and transport also remains a challenge and could be fostered domestically and internationally.

Interlinkages with other development goals

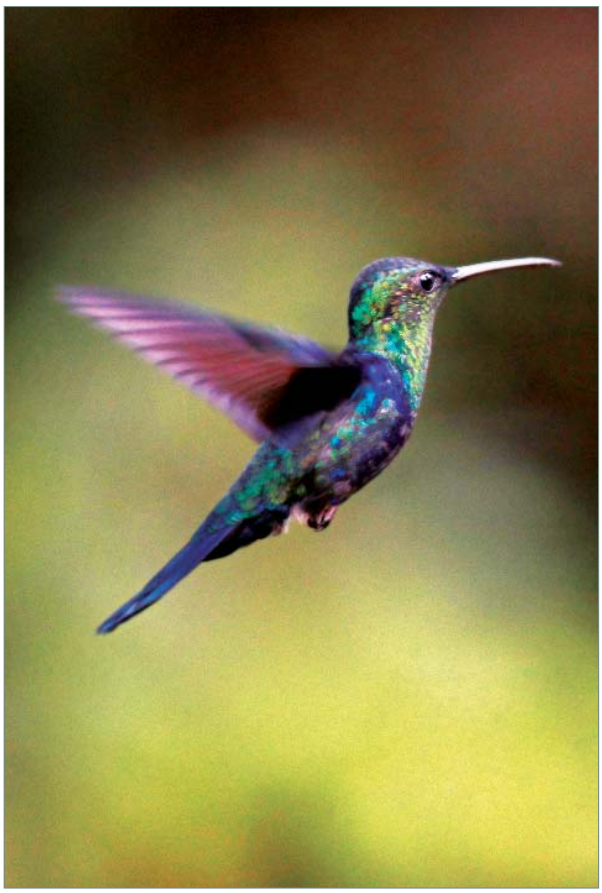
Biodiversity is closely connected to active G7 commitments in the fields of food security, health and climate change. Efforts to halt the loss of biodiversity may contribute to fulfilling these commitments and development objectives, and vice versa. Biodiversity supports more resilient food production and human health, provides carbon sinks and can help to reduce the impacts of climate change. At the same time, trade-offs between biodiversity conservation and other development goals need to be observed carefully when designing development measures. Taking this into account, G7 countries are promoting synergetic projects in all three areas: To address climate change mitigation in synergy with biodiversity protection, G7 countries strongly engage in the protection of forests to reduce greenhouse gas emissions and have introduced biodiversity safeguards in their programs. With regard to adaptation to climate change, the G7 countries also promote the management of ecosystems for societal adaptation, known as "ecosystem-based adaptation," such as the conservation of mangroves. The G7 seeks to promote food security by supporting activities that enhance synergies with biodiversity conservation such as promoting sustainable and resilient agriculture, reducing food waste, protecting agricultural genetic resources and promoting the sustainable use of forests and fish stocks. As regards health, G7 efforts to slow the loss of biodiversity contribute to securing genetic diversity and the diversity of chemical compounds. Thus, they can support, at least indirectly, several of the G7 health commitments. By now, the G7 has addressed the biodiversity–health linkage to a lesser extent, and the understanding of the complex linkages between biodiversity and health still needs to be strengthened.

This report is being published at a time when important decisions are being made regarding the international development agenda: The International Conference on Financing for Development in Addis Ababa in July 2015 will detail the financial architecture for development; the United Nations summit for the adoption of the post-2015 development agenda will be held in New York City in September 2015; and a new climate agreement is being negotiated within the United Nations Framework Convention on Climate Change (UNFCCC) and may be adopted at the 21st Conference of the Parties in Paris in December 2015. The abovementioned interlinkages between biodiversity conservation and other development may also be of interest to those leading these related international processes.

Lessons on the G7 accountability process

Considering the short time since the Deauville commitment, important actions have been taken. This Elmau Progress Report reveals that the protection of biodiversity requires a long-term commitment, and efforts need to be sustained over time. This report provides an input for further discussions among the G7 countries. The report has also made it clear that measuring the G7 contributions toward reducing the loss of biodiversity is far from straightforward. First, there is no single and simple indicator for measuring the global status of biodiversity; rather, there are several indicators capturing different components of biodiversity and ecosystem services – for many indicators, no recent data is available. Second, biodiversity conservation occurs through long and complex impact chains; establishing the causal links between overall G7 efforts and the status of global biodiversity remains challenging. Impact data at the level of G7 programs and initiatives still needs to be improved as a basis for measuring effectiveness. This report is the first that analyzes the interlinkages between different G7 commitments. This was useful since it led to the identification of good practices that serve multiple objectives. Biodiversity, but also other development objectives, can benefit from such an integrated approach to development.

Hummingbird. Costa Rica. *Thomas Koehler/photothek.net*



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ANNEX A: LIST OF ACTIVE G7 COMMITMENTS

G7 2015 COMMITMENTS

Key G7 Commitments that will be monitored through the G7 accountability process for development and development-related commitments – total 42.

AID and AID EFFECTIVENESS

Increasing Development Assistance

1. Each G8 member country made a specific commitment at the Gleneagles Summit to increase its international assistance. These commitments varied in size and schedule and the detail of each country's progress is shown in the main report.
   Gleneagles 2005 Annex II Commitments

Development Effectiveness

2. We will implement and be monitored on all commitments we made in the Paris Declaration on aid effectiveness (now superseded by the Global Partnership for Effective Development Cooperation), including enhancing efforts to untie aid; disbursing aid in a timely and predictable fashion, through partner country systems where possible, increasing harmonisation and donor coordination, including more programme based approaches. We have all agreed to implement the Busan Common Standard on Aid Transparency, including both the Creditor Reporting System of the OECD Development Assistance Committee and the International Aid Transparency Initiative (IATI), by 2015. To show greater G8 leadership we will ensure data on G8 development assistance is open, timely, comprehensive and comparable.
   Gleneagles 2005, Africa, 32
   Lough Erne 2013, Communiqué, para. 49

ECONOMIC DEVELOPMENT

Remittances

3. We will work to achieve in particular the objective of a reduction of the global average costs of transferring remittances from the present 10 percent to 5 percent in 5 years (by 2014) through enhanced information, transparency, competition and cooperation with partners.
   L'Aquila 2009, Responsible Leadership for a Sustainable Future, para. 134

Trade and Development

4. We stand ready to continue to provide, within our current Aid for Trade commitments, substantial technical assistance and capacity building to help implement a WTO Trade Facilitation deal, in particular to the benefit of the Least Developed Countries.
   We will also be more transparent in reporting the aid we provide, and work with developing countries, especially the poorest, to ensure that resources are better matched to needs.
   Lough Erne 2013, Communiqué para. 17

5. The G8 will work with African countries and regional economic communities to meet the AU's target of doubling intra-Africa trade and reducing crossing times at key border posts by 50% by 2022. The G8 commits to provide increased support for project preparation facilities for African regional infrastructure programmes.
   Lough Erne 2013, Communiqué, paras. 19 and 20

HEALTH

Health Financing and Strengthening Health Systems

6. We will continue our efforts toward the goal of providing at least a projected US$ 60 billion to fight infectious diseases and improve health systems. (Reiterated in 2008 and 2009: We reaffirm our existing commitments, including the US $60 billion investment to fight infectious diseases and strengthen health systems by 2012.)
   Heiligendamm 2007, Growth and Responsibility in Africa, para. 48; L'Aquila 2009, Responsible Leadership for a Sustainable Future, para. 125

7. Mobilizing support for the Global Fund to fight AIDS, Tuberculosis and Malaria.
   St. Petersburg 2006, Fight Against Infectious Diseases, 2; Muskoka 2010, para. 15

8. The G8 members will work towards increasing health workforce coverage towards the WHO threshold of 2.3 health workers per 1000 people, initially in partnership with the African countries where we are currently engaged and that are experiencing a critical shortage of health workers.
   Hokkaido 2008, Development and Africa, para. 46 (b)

Neglected tropical diseases

9. We continue to support the control or elimination of high-burden Neglected Tropical Diseases (NTDs).
   Muskoka 2010, para. 15

Prevent infectious diseases

10. To address the threat posed by infectious diseases, we support the Global Health Security Agenda and commit to working with partner countries to strengthen compliance with the World Health Organisation's (WHO) International Health Regulations and enhance health security around the world. We commit to working across sectors to prevent, detect and respond to infectious diseases, whether naturally occurring, accidental, or the result of a deliberate act by a state or non-state actor. That includes building global capacity so that we are better prepared for threats such as the recent Ebola outbreak in West Africa and working together, in close cooperation with WHO, to develop a Global Action Plan on antimicrobial resistance.
    Brussels 2014, para. 22

Maternal Health and Child Care

11. The Muskoka Initiative on Maternal, Newborn and Under Five Child Health. The G8 undertakes to mobilize US$ 5.0 billion of additional funding for disbursement over the period of 2010 -2015, in international development assistance for maternal, newborn and under-five child health (MNCH).
    Muskoka 2010, Recovery and New Beginnings, paras. 9, 10 and Annex I

HIV/AIDS

12. We reaffirm our commitment to come as close as possible to universal access to prevention, treatment, care and support with respect to HIV/AIDS.
    Muskoka 2010, Declaration, para. 15

13. We commit to counter any form of stigma, discrimination and human rights violation and to promote the rights of persons with disabilities and the elimination of travel restrictions on people with HIV/AIDS.
    L'Aquila 2009, Responsible Leadership for a Sustainable Future, para. 123

Malaria

14. Working with African countries to scale up action against malaria to reach 85 percent of the vulnerable populations with the key interventions that will save 600,000 children's lives a year by 2015 and reduce the drag on African economies.
Gleneagles 2005, Africa para. 18 (g), reiterated at St. Petersburg, 2006, Fight Against Infectious Diseases, para. 21

Tuberculosis

15. Supporting the Global Plan to Stop TB, 2006–2015.
St. Petersburg 2006, Fight Against Infectious Diseases, para. 21

Polio

16. We stress our continuing commitment to the eradication of polio which is a reachable objective ... To this end, we will continue to support the Global Polio Eradication Initiative.
Deauville 2011, para. 60 (d)

Measles

17. Will work towards a steady decrease in the number of measles-related deaths, progress in halting the spread of measles ..., and its eventual elimination.
St. Petersburg 2006, Fight Against Infectious Diseases, para. 29

WATER and SANITATION

18. Implement the G8 water action plan agreed at Evian, including through increasing aid to this sector; maintaining political momentum and commitment to the water issues; and reinforcing coordination and monitoring mechanisms.
Gleneagles 2005, Africa, para. 18 (i)
L'Aquila 2009, Responsible Leadership for a Sustainable Future, para. 118

19. Strengthen Africa-G8 partnership on water and sanitation.
L'Aquila 2009, Responsible Leadership for a Sustainable Future, para. 118

FOOD SECURITY

20. Increase investment for agriculture and food security, including additional resources for food and development, by mobilising, with other donors, US$ 20 billion over three years (by 2012) through the L'Aquila Food Security Initiative (AFSI). We commit to fulfil outstanding L'Aquila financial pledges, seek to maintain strong support to address current and future global security challenges, including through bilateral and multilateral assistance, and agree to take new steps to accelerate progress towards food security and nutrition in Africa and globally, on a complementary basis.
L'Aquila 2009, Joint Statement on Global Food Security, 12; Camp David 2012, Declaration, para. 16

21. We commit to launch a New Alliance for Food Security and Nutrition to accelerate the flow of private capital to African agriculture, take to scale new technologies and other innovations that can increase sustainable agricultural productivity, and reduce the risk borne by vulnerable economies and communities. This New Alliance will lift 50 million people out of poverty over the next decade and be guided by a collective commitment to:
    - invest in credible, comprehensive and country-owned plans,
    - develop new tools to mobilize private capital,
    - spur and scale innovation,
    - and manage risk;
    - and engage and leverage the capacity of private sector partners – from women and smallholder farmers, entrepreneurs to domestic and international companies.

Camp David 2012, Declaration, para. 18

EDUCATION

22. The G8 will continue to work with partners and other donors to meet shortfalls in all FTI (now the Global Partnership for Education – GPE) endorsed countries.
Heiligendamm 2007, Growth and Responsibility in Africa, para. 38

GOVERNANCE

Anti-corruption

23. Work toward ratification of the UN Convention Against Corruption and start discussions on mechanisms to ensure its effective implementation.
Kananaskis 2002; Gleneagles 2005, para. 14 (f)

24. International cooperation against corruption should be enhanced in order to achieve effective results. We are therefore committed to update G8 anticorruption initiatives and further support outreach activities and technical assistance to other countries.
L'Aquila 2009, para. 31

Extractives

25. The G8 will take action to raise global standards for extractives transparency and make progress towards common global reporting standards, both for countries with significant domestic extractive industries and the home countries of large multinational extractives corporations.
    - EU G8 members will quickly implement the EU Accounting and Transparency Directives.
    - The US, UK and France will seek candidacy status for the new EITI standard by 2014.
    - Canada will launch consultations with stakeholders across Canada with a view to developing an equivalent mandatory reporting regime for extractive companies within the next two years.
    - Italy will seek candidacy status for the new EITI standard as soon as possible.
    - Germany is planning to test EITI implementation in a pilot region in view of a future candidacy as implementation country.
    - Russia and Japan support the goal of EITI and will encourage national companies to become supporters.

    Lough Erne 2013, Communiqué, paras. 36 and 38

26. We will partner with resource rich developing countries, the private sector and civil society to strengthen capacity and increase transparency in the extractive sectors. [Partnerships will be] tailored to the needs of each country and support national development plans with the objective of improving transparency and governance in the extractive sector by 2015.
Lough Erne 2013, Communiqué, paras. 41–42

27. Acting effectively in the UN and in other fora to combat the role played by 'conflict resources' such as oil, diamonds and timber, and other scarce natural resources, in starting and fuelling conflicts.
Gleneagles 2005, para. 10 (e)

CONNEX

28. We today announce a new initiative on Strengthening Assistance for Complex Contract Negotiations (CONNEX) to provide developing country partners with extended and concrete expertise for negotiating complex commercial contracts, focusing initially on the extractives sector, and working with existing fora and facilities to avoid duplication, to be launched in New York in June and to deliver improvements by our next meeting, including as a first step a central resource hub that brings together information and guidance.
Brussels 2014, para. 18

Base Erosion and Profit Shifting (BEPS)

29. We look forward to the OECD recommendations [on addressing Base Erosion and Profit Shifting (BEPS)] and commit to take the necessary individual and collective action. We agree to work together to address base erosion and profit shifting, and to ensure that international and our own tax rules do not allow or encourage any multinational enterprises to reduce overall taxes paid by artificially shifting profits to low-tax jurisdictions. The ongoing OECD work will involve continued engagement with all stakeholders, including developing countries.
    Lough Erne 2013, Communiqué, para. 24

Beneficial Ownership

30. We agree to publish national Action Plans to make information on who really owns and profits from companies and trusts available to tax collection and law enforcement agencies, for example through central registries of company beneficial ownership.
    Lough Erne 2013, Communiqué, para. 3

Anti-bribery

31. We will fully enforce our laws against bribery of foreign public officials and, consistent with national legal principles, will rigorously investigate and prosecute foreign bribery offences.
    L'Aquila 2009, para. 30

Asset Recovery

32. We reiterate our previous commitments to deny safe havens to corrupt individuals and their illicitly acquired assets, and to prevent corrupt holders of public office from gaining access to the fruits of their illicit activities in our financial systems. We will strive to improve international legal cooperation in asset recovery investigations within the framework of the UNCAC, including by seeking ways to facilitate informal cooperation and supporting identification and dissemination of good practices. We will strengthen cooperation on asset recovery, including through the Stolen Asset Recovery initiative (StAR)." "We continue our engagement to and support of United Nations Office on Drugs and Crime and the World Bank's Stolen Asset Recovery Initiative. We welcome the outcomes of the Ukraine Forum on Asset Recovery and look forward to the third Arab Forum on Asset Recovery. The G7 remains committed to working with governments and global financial centres to follow up on asset recovery efforts.
    L'Aquila 2009, para. 32
    Brussels 2014, para. 20

Capacity Building

33. We will continue to provide practical support to developing countries' efforts to build capacity to collect the taxes owed to them and to engage in and benefit from changing global standards on exchange of information, including automatic exchange of information…and we will continue to provide practical support for developing countries seeking to join the Global Forum [on Transparency and Exchange of Information for Tax Purposes]. We each commit to continue to share our expertise, help build capacity, including by engaging in long-term partnership programmes to secure success…We will take practical steps to support [the OECD's Tax Inspectors Without Borders] initiative, including by making tax experts available.
    Lough Erne 2013, Communiqué, paras. 27 and 28

Land Transparency

34. We will support greater transparency in land transactions including at early stages, and increased capacity to develop good land governance systems in developing countries. [Partnerships] will be tailored to the needs of each country and support national development plans with the objective of improving land governance and in particular transparency in land transactions by 2015. In addition, Japan and Italy are providing increased support through FAO and World Bank to support implementation of the Voluntary Guidelines on the Responsible Governance of Tenure of Land in developing countries.
    Lough Erne 2013, Communiqué, paras. 44–45

Open Data

35. G8 members will, by the end of [2013], develop [Open Data] action plans, with a view to implementation of the [Open Data] Charter and technical annex by the end of 2015 at the latest.
Lough Erne 2013, Communiqué, para. 48

Sexual and Reproductive Health and Reproductive Rights

36. We are committed to ensuring sexual and reproductive health and reproductive rights, and ending child, early and forced marriage and female genital mutilation and other harmful practices.
Brussels 2014, para. 21

PEACE and SECURITY

37. Develop regional centres of excellence for military and civilian aspects of conflict and peace support.
L'Aquila 2009, para. 129
Heiligendamm 2007, paras. 40, 42
Sea Island 2004, para. 9
Kananaskis 2002, Africa Action Plan

38. Support maritime security capacity development in Africa and improve the operational effectiveness and response time of littoral states and regional organizations in maritime domain awareness and sovereignty protection.
Kananaskis 2002, Africa Action Plan
Sea Island 2004, 9; Heiligendamm 2007, paras. 40, 42
L'Aquila 2009, para. 129
Muskoka 2010, Annex II/II

39. Increase the G8 contribution to the training of formed police units for use in peace operations. Build peace operations capabilities (including through the Africa Standby Force) by: strengthening international police operations, including through the mentoring, training and, where appropriate, equipping of police, including Formed Police Units; strengthening international deployable civilian capacities to reinforce state institutions; and advance the rule of law through deployment of experts and by building capacity within developing countries and emerging donors.
Hokkaido Toyako 2008, 71 (b)
Heiligendamm 2007, paras. 40, 42
Muskoka 2010, Annex II/I & II/III

ENVIRONMENT and ENERGY

40. Address the need for financing for adaptation through appropriate bilateral and multilateral mechanisms.
L'Aquila 2009, para. 76 (d)

41. We are … committed to intensifying our efforts to slow the loss of biodiversity.
Deauville 2011, para. 54

42. We will continue to promote inclusive and resilient growth in Africa, working with governments and citizens in Africa to … improve infrastructure, notably in the energy sector…
Brussels 2014, para. 14

ANNEX B: LIST OF ABBREVIATIONS

ABS	Access and Benefit-Sharing
AFD	French Development Agency / Agence Française de Développement
AU	African Union
BMZ	Federal Ministry for Economic Cooperation and Development / Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung
CAFNET	Connecting Environmental Services and Market Values of Coffee Agroforestry
CBD	Convention on Biological Diversity
CGIAR	Used to be an acronym, but the organization officially abandoned the underlying full name, yet kept CGIAR as their name.
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
COP	Conference of the Parties
CRS	Creditor Reporting System
CSA	Climate-Smart Agriculture
DFID	Department for International Development
EITI	Extractive Industries Transparency Initiative
EU	European Union
EUBS	EU Biodiversity Strategy
FAO	Food and Agriculture Organization
FCPF	Forest Carbon Partnership Facility
FFEM	French Global Environment Facility / Fonds Français pour l'Environnement Mondial
FLEGT	Forest Law Enforcement, Governance and Trade action plan
FTI	Fast Track Initiative
G7	The Group of 7 consists of seven major advanced economies: Canada, France, Germany, Italy, Japan, the United Kingdom and the United States
G8	The Group of 8 consists of the G7 countries plus Russia
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ICBG	International Cooperative Biodiversity Groups
IFAD	International Fund for Agricultural Development
IFI	International Financial Institution
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
LEAR	Lough Erne Accountability Report
NBSAPs	National Biodiversity Strategies and Action Plans
NCFF	Natural Capital Financing Facility
NGO	Non-Governmental Organization
NIBIOHN	National Institutes of Biomedical Innovation, Health and Nutrition
NTD	Neglected Tropical Disease
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OECD-DAC	Organisation for Economic Co-operation and Development / Development Assistance Committee
PROSADE	Promoting Food Security in the Choluteca and Rio Negro Watersheds
REDD/REDD+	Reducing Emissions from Deforestation and Forest Degradation
TEEB	The Economics of Ecosystems and Biodiversity
UK	United Kingdom

UN	United Nations
US	United States
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
WAVES	Wealth Accounting and the Valuation of Ecosystem Services
WHO	World Health Organization
WTO	World Trade Organization
WWF	World Wide Fund for Nature

ANNEX C: BOXES, TABLES, FIGURES AND EXAMPLES

Boxes

Tables

Figures

Examples

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