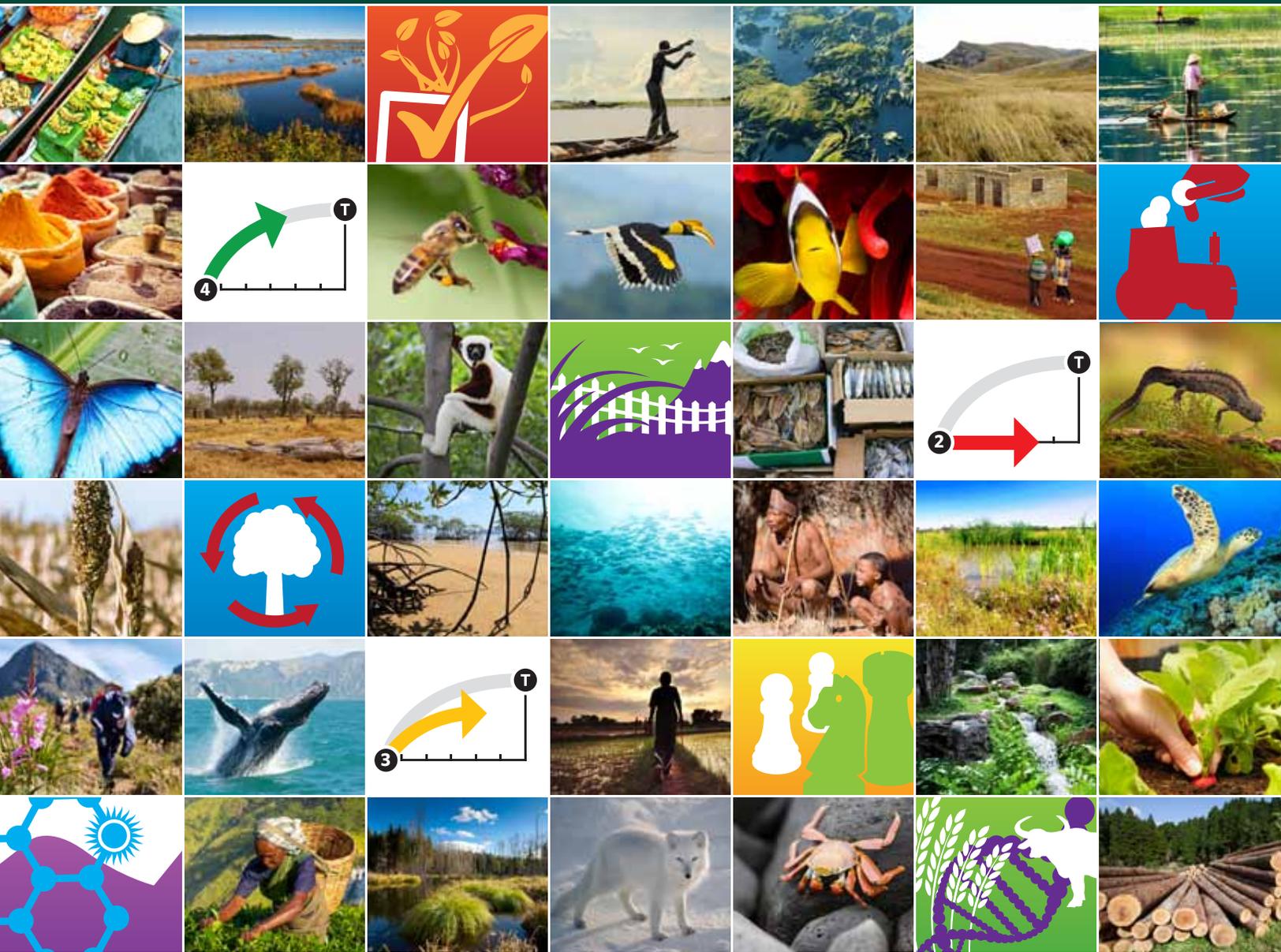


Global Biodiversity Outlook 4

Summary and Conclusions



Convention on
Biological Diversity



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“This Global Biodiversity Outlook 4 demonstrates that with concerted efforts at all levels, we can achieve the goals and targets of the Strategic Plan for Biodiversity 2011–2020. Success will significantly contribute to the broader global priorities of eliminating poverty, improving human health and providing energy, food and clean water for all.”

Ban Ki-moon
Secretary-General, United Nations



“Action to reduce negative impacts on biodiversity can support a broad range of societal benefits, and lay the groundwork for the socio-economic transition to a more sustainable and inclusive model of development. Under this model the economic value of biodiversity is directly accounted for, providing policymakers with very real incentives to ensure that our forests, oceans, rivers and the rich variety of species contained within them are responsibly managed.”

Achim Steiner
United Nations Under-Secretary-General and UNEP Executive Director



“GBO4 shows us that action does not come from ‘silver bullet’ solutions, but from those strategies that simultaneously address the multiple causes of biodiversity loss. The actions needed are varied: integrating the values of biodiversity into policy, changes in economic incentives, enforcing rules and regulations, involving indigenous and local communities and stakeholders and the business sector and conserving threatened species and ecosystems. Our efforts can and must be strengthened by understanding the critical links between biodiversity and sustainable development.”

Bráulio Ferreira de Souza Dias
Executive Secretary, Convention on Biological Diversity



Key messages

There has been significant progress towards meeting some components of the majority of the Aichi Biodiversity Targets. Some target components, such as conserving at least 17 per cent of terrestrial and inland water areas, are on track to be met.

However, in most cases this progress will not be sufficient to achieve the targets set for 2020, and additional action is required to keep the Strategic Plan for Biodiversity 2011–2020 on course. Key potential actions for accelerating progress towards each target are listed below.

Extrapolations for a range of indicators suggest that based on current trends, pressures on biodiversity will continue to increase at least until 2020, and that the status of biodiversity will continue to decline. This is despite the fact that society's responses to the loss of biodiversity are increasing dramatically, and based on national plans and commitments are expected to continue to increase for the remainder of this decade. This may be partly due to time lags between taking positive actions and discernable positive outcomes. But it could also be because responses may be insufficient relative to pressures, such that they may not overcome the growing impacts of the drivers of biodiversity loss.

Each of the Aichi Biodiversity Targets cannot be tackled in isolation, as some targets are strongly dependent on other targets being achieved. Actions towards certain targets will have an especially strong influence on the achievement of the rest. In particular there are targets relating to addressing the underlying causes of biodiversity loss (generally those targets under Strategic Goal A), developing national frameworks for implementing the Aichi Biodiversity Targets (Target 17), and mobilizing financial resources (Target 20).

Meeting the Aichi Biodiversity Targets would contribute significantly to broader global priorities addressed by the post-2015 development agenda; namely, reducing hunger and poverty, improving human health, and ensuring a sustainable supply of energy, food and clean water. Incorporating biodiversity into the sustainable development goals, currently under discussion, provides an opportunity to bring biodiversity into the mainstream of decision making.

Plausible pathways exist for achieving the 2050 vision for an end to biodiversity loss, in conjunction with key human development goals, limiting climate change to two degrees Celsius warming and combating desertification and land degradation. However, reaching these joint objectives requires changes in society, including much more efficient use of land, water, energy and materials, rethinking our consumption habits and in particular major transformations of food systems.

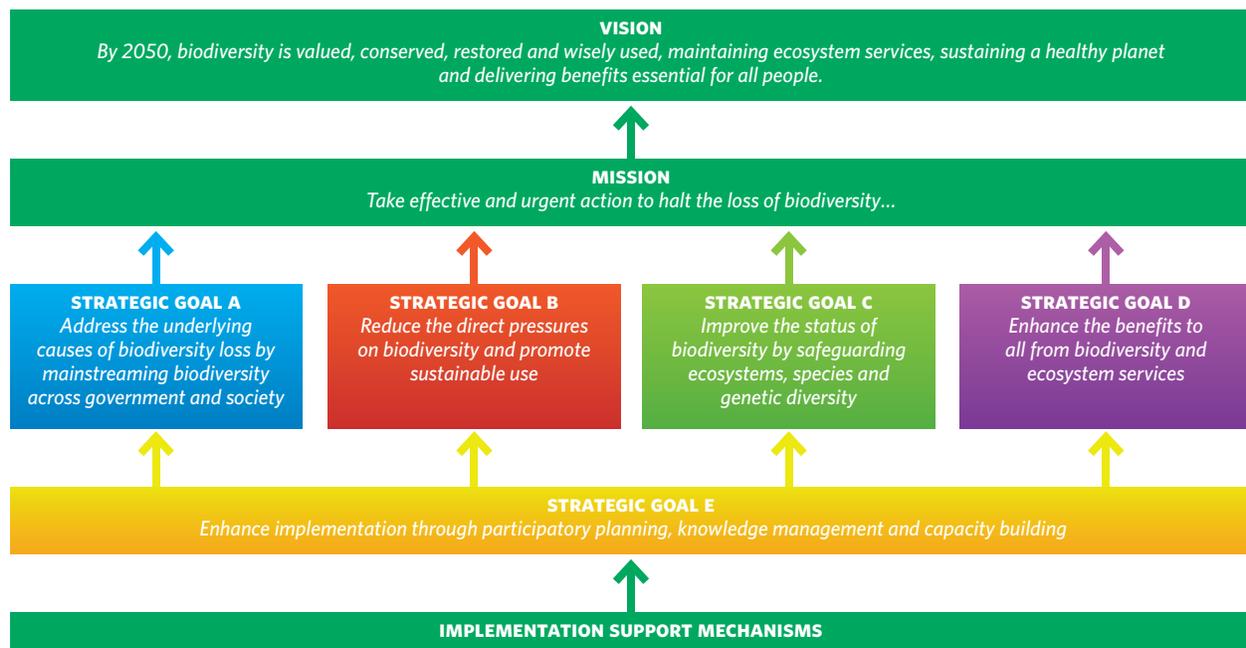
Analysis of the major primary sectors indicates that drivers linked to agriculture account for 70 per cent of the projected loss of terrestrial biodiversity. Addressing trends in food systems is therefore crucial in determining whether the Strategic Plan for Biodiversity 2011–2020 will succeed. Solutions for achieving sustainable farming and food systems include sustainable productivity increases by restoring ecosystem services in agricultural landscapes, reducing waste and losses in supply chains, and addressing shifts in consumption patterns.



Summary of progress and key actions related to the Strategic Plan for Biodiversity 2011–2020

The following summarizes the conclusions of GBO-4 and includes the recent trends, current status and projections to 2020 relating to the five overarching goals of the Strategic Plan for Biodiversity 2011–2020 and their corresponding Aichi Biodiversity Targets, and identifies some key potential actions that would accelerate progress towards the targets, if more widely applied.

This report brings together multiple lines of evidence derived from a wide range of sources. It draws upon targets, commitments and activities of countries as reported in national biodiversity strategies and action plans (NBSAPs) and national reports, as well as Parties' own assessments of progress towards the Aichi Biodiversity Targets. It takes into account information on the status and trends of biodiversity reported by Parties and in the scientific literature, and makes use of indicator-based statistical extrapolations to 2020 as well as longer-term model-based scenarios.



This diagram shows the structure of the Strategic Plan for Biodiversity 2011–2020. Progress towards a 2050 Vision is achieved through a 2020 Mission. In turn, the Mission is addressed through five Strategic Goals under which the 20 Aichi Biodiversity Targets are organized, and supported by implementation mechanisms. The Strategic Plan serves as a flexible framework for the establishment of national and regional targets and it promotes the coherent and effective implementation of the three objectives of the Convention on Biological Diversity.

Strategic Goal A

Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society



Recent trends, current status and projections

Based on the limited evidence available, public awareness of biodiversity and its importance appears to be increasing in both the developed and developing world, although it remains at a low level in some countries (Target 1). Important progress has been achieved in incorporating biodiversity values into planning processes and strategies to reduce poverty. There has also been progress when it comes to integrating natural capital into national accounts. Wide variations among countries remain, but international initiatives are helping to reduce these differences (Target 2). Governments continue to provide subsidies harmful to biodiversity, and while agricultural subsidies are increasingly shifting towards positive incentives for conserving biodiversity, the evidence on whether these incentives will achieve their aims is inconclusive (Target 3). While natural resources are being used much more efficiently to produce goods and services, this progress is overwhelmed by our greatly increased total levels of consumption. It is unlikely that ecosystems can be kept within safe ecological limits given current patterns of consumption (Target 4).



Key potential actions that could accelerate progress towards this goal, if more widely applied

- Coherent, strategic and sustained communication efforts, strategies and campaigns to increase awareness of biodiversity and its values, and of ways to support its conservation and sustainable use.
- Better use of the social sciences, including an understanding of the social, economic and cultural drivers motivating behaviour and their interplay, in order to improve the design of communication and engagement campaigns and of relevant policies.
- The further compilation of environmental statistics and building environmental-economic accounts, including developing and maintaining national accounts of biodiversity-related natural resource

stocks (such as forests and water) and where possible, integrating these into national financial accounts.

- Developing and implementing policy plans, including priorities and timelines, leading to the removal, phasing out, or reform of harmful subsidies in cases where candidate incentives and subsidies for elimination, phase-out or reform are already known, taking timely action.
- Better targeting and integration of agri-environmental schemes and other policy instruments towards desired biodiversity outcomes.
- Strengthening partnerships among companies and industry associations, civil society and government agencies, in an accountable and transparent manner, to promote sustainable practices that address biodiversity.



Strategic Goal B

Reduce the direct pressures on biodiversity and promote sustainable use



Recent trends, current status and projections

Loss of forest habitats in some regions, for example the Brazilian Amazon, has been significantly slowed.



However, deforestation in many other tropical areas of the world is still increasing, and habitats of all types, including grasslands, wetlands and river systems, continue to be fragmented and degraded



(Target 5). Overfishing continues to be a major problem, with an increasing percentage of fish stocks overexploited, depleted or collapsed, and inappropriate fishing practices causing damage to habitats and non-target species. On the other hand, an increasing number of fisheries, concentrated in developed countries, are certified as sustainable



(Target 6). Increased certified forestry, especially in boreal and temperate zones, and increased adoption of good agricultural practices signify more sustainable production. Nevertheless, unsustainable practices in agriculture, aquaculture and forestry still cause substantial environmental degradation and biodiversity loss



(Target 7). Nutrient pollution has stabilized in parts of Europe and North America but is projected to increase in other regions, and remains a significant threat to aquatic and terrestrial biodiversity. Other forms of pollution such as from chemicals, pesticides and plastics are increasing



(Target 8). Governments are increasingly taking steps to control and eradicate invasive alien species. For example, a growing number of eradications, particularly from islands, show that reversing the threat from invasive species is often feasible and effective. However, the overall rate of invasions, with great economic and ecological costs, shows no sign of slowing. Preventive measures have been taken in a limited number of countries (Target 9). Multiple land and marine based pressures on coral reefs continue to increase, although some large coral areas are being incorporated into marine protected areas. Less information is available regarding trends for other ecosystems especially vulnerable to climate change, including mountain ecosystems such as cloud forest and páramos (high altitude tundra in tropical Americas) as well as low-lying ecosystems vulnerable to sea-level rise (Target 10).

Key potential actions that could accelerate progress towards this goal, if more widely applied

- Developing integrated policies to address habitat loss and degradation, covering positive and negative incentives; engagement with sectoral groups, indigenous and local communities, landowners, other stakeholders and the general public; effective protected area networks and other area-based conservation measures; and enforcement of relevant regulations and laws.
- Making greater use of innovative fisheries management systems, such as community co-management, that provide fishers and local communities with a greater stake in the long-term health of fish stocks combined with the elimination, phasing out or reform of subsidies that contribute to excess fishing capacity, phasing out destructive fishing practices and further developing marine protected area networks.
- Making agriculture more efficient, including through improved targeting and efficiency of fertilizer, pesticide and water use, reducing post-harvest losses and minimizing food waste, and promoting sustainable diets.
- Reducing nutrient pollution by improving nutrient use efficiency in agriculture to reduce losses to the environment, enhancing treatment and recycling of sewage and industrial waste water, eliminating phosphates from detergents and the conservation and restoration of wetlands.
- Increasing efforts to identify and control the main pathways responsible for species invasions, including through the development of border control or quarantine measures to reduce the likelihood of potentially invasive alien species being introduced, and making full use of risk analysis and international standards.
- Sustainably managing fisheries on coral reefs and closely associated ecosystems, combined with managing coastal zones and inland watersheds in an integrated manner in order to reduce pollution and other land-based activities that threaten these vulnerable ecosystems.

Strategic Goal C

Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity



Recent trends, current status and projections

Taking current commitments into account, the element of Target 11 on conserving 17 per cent of terrestrial areas by 2020 is likely to be met globally, although protected area networks remain ecologically unrepresentative and many critical sites for biodiversity are poorly conserved. The element to protect 10% of coastal and marine areas is on course to be met in coastal waters, although open ocean and deep sea areas, including the high seas, are not well covered. Inadequate management of protected areas remains widespread. Despite individual success stories, the average risk of extinction for birds, mammals and amphibians is still increasing (Target 12). Genetic diversity of domesticated livestock is eroding, with more than one fifth of breeds at risk of extinction, and the wild relatives of domesticated crop species are increasingly threatened by habitat fragmentation and climate change (Target 13).



Key potential actions that could accelerate progress towards this goal, if more widely applied

- Expanding protected area networks and other effective area-based conservation measures to become more representative of the planet's ecological regions, of marine and coastal areas (including

deep sea and ocean habitats), of inland waters and of areas of particular importance for biodiversity, including those that contain unique populations of threatened species.

- Improving and regularly assessing management effectiveness and equitability of protected areas and other area-based conservation measures.
- Developing species action plans aimed directly at particular threatened species.
- Ensuring that no species is subject to unsustainable exploitation for domestic or international trade, including by actions agreed under the Convention on International Trade in Endangered Species (CITES).
- Promoting public policies and incentives that maintain local varieties of crops and indigenous breeds in production systems, including through increased cooperation with, and recognition of, the role of indigenous and local communities and farmers in maintaining in situ genetic diversity.
- Integrating the conservation of the wild relatives of domesticated crops and livestock in management plans for protected areas, conducting surveys of the location of wild relatives, and including this information in plans for the expansion or development of protected area networks.



Strategic Goal D

Enhance the benefits to all from biodiversity and ecosystem services



Recent trends, current status and projections

Habitats important for ecosystem services, for example wetlands and forests, continue to be lost and degraded (Target 14). However, restoration is under way for some depleted or degraded ecosystems, especially wetlands and forests, sometimes on a very ambitious scale, as in China. Many countries, organizations and companies have pledged to restore large areas. Abandonment of farmland in some regions, including Europe, North America and East Asia, is enabling “passive restoration” on a significant scale (Target 15). The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization enters into force on 12 October 2014, opening up new opportunities for the fair and equitable sharing of the benefits arising from the utilization of genetic resources (Target 16).



Key potential actions that could accelerate progress towards this goal, if more widely applied

- Identifying, at the national level, with the involvement of relevant stakeholders, those ecosystems that are particularly important in providing ecosystem services, with particular attention to

ecosystems upon which vulnerable groups are directly dependent for their health, nutrition and general well-being and livelihoods, as well as ecosystems that help to reduce risks from disasters.

- Reducing the pressures on and, where necessary, enhancing the protection and restoration of those ecosystems providing essential services (for example wetlands, coral reefs, rivers, and forests and mountain areas acting as “water towers”, among others).
- Identifying opportunities and priorities for restoration, including highly degraded ecosystems, areas of particular importance for ecosystem services and ecological connectivity, and areas undergoing abandonment of agricultural or other human-dominated use.
- Where feasible, making restoration an economically viable activity, by coupling employment and income generation with restoration activities.
- Putting in place, by 2015, legislative, administrative or policy measures and institutional structures for implementing the Nagoya Protocol; and undertaking associated awareness-raising and capacity, building activities, including by engaging with indigenous and local communities and the private sector.



Strategic Goal E

Enhance implementation through participatory planning, knowledge management and capacity-building



Recent trends, current status and projections

National biodiversity strategies and action plans are expected to be in place for most Parties by 2015 (Target 17), helping to translate the aims of the Strategic Plan for Biodiversity 2011–2020 into national actions. Traditional knowledge continues to decline as indicated by the loss of linguistic diversity and large-scale displacement of indigenous and local communities, although this trend is reversed in some places through growing interest in traditional cultures and involvement of local communities in management of protected areas (Target 18). Data and information on biodiversity are being shared much more widely through initiatives promoting and facilitating free and open access to digitized records from natural history collections and observations, including through citizen science networks; however, much data and information remain inaccessible and capacity is lacking to mobilize them in many countries (Target 19). There are insufficient data to report with confidence on progress towards the mobilization of financial resources from all sources. However, based on the data that are available, further efforts will be needed to significantly increase the financial resources, from all sources, for effective implementation of the Strategic Plan for Biodiversity 2011–2020 (Target 20).

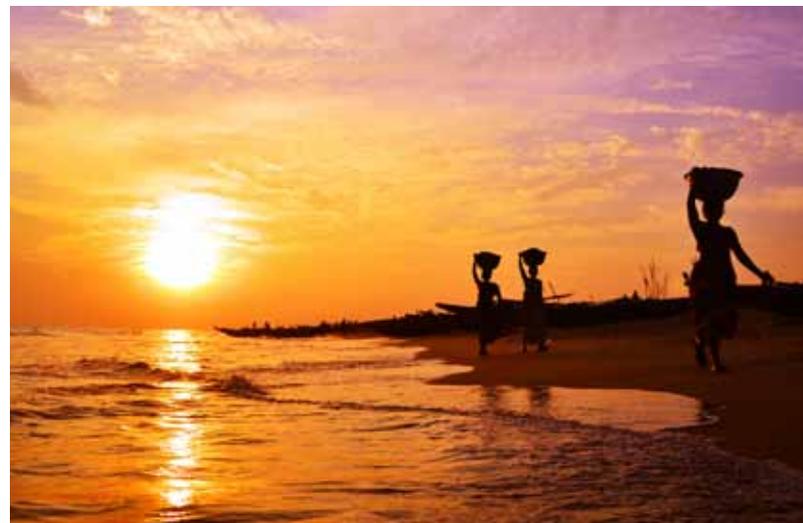


Key potential actions that could accelerate progress towards this goal, if more widely applied

- Ensuring that national biodiversity strategies and action plans are up to date and aligned with the Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets, for example by setting national targets with corresponding indicators and monitoring mechanisms, with the participation of all stakeholders.
- Promoting initiatives that support traditional and local knowledge of biodiversity and promote customary sustainable use, including traditional health care initiative, strengthening opportunities to learn and speak indigenous languages, research

projects and data collection using community-based methodologies, and involving local and indigenous communities in the creation, control, governance and management of protected areas.

- Strengthening and promoting the further mobilization of and access to data by, for example, encouraging the use of common informatics standards and protocols, promoting a culture of data sharing, investing in digitization of natural history collections and promoting citizen scientists' contributions to the body of biodiversity observations.
- Establishing or strengthening monitoring programmes, including monitoring of land-use change, providing near-real-time information where possible, in particular for “hotspots” of biodiversity change.
- Developing national financial plans for biodiversity, as part of national biodiversity strategies and action plans, aligned, where possible, with national annual and multi-year financial planning cycles.
- Increasing national and international flows of resources for biodiversity, broadening biodiversity funding sources including by exploring innovative financial mechanisms, such as subsidy reform and payment for ecosystem services schemes, recognizing that a range of funding sources will be needed.



Target “dashboard”—A summary of progress towards the Aichi Biodiversity Targets, broken down into their components

The table below provides an assessment of progress made towards individual components of each of the Aichi Biodiversity Targets, as well as the level of confidence (★★★), based on the available evidence. It aims to provide summary information on whether or not we are on track to achieve the targets. The assessment uses a five-point scale:



TARGET ELEMENTS	STATUS	COMMENT
 TARGET 1		Limited geographical coverage of indicators. Strong regional differences
		Evidence suggests a growing knowledge of actions available, but limited understanding of which will have positive impacts
 TARGET 2		Differences between regions. Evidence largely based on poverty reduction strategies
		The evidence shows regional variation and it is not clear if biodiversity is actually taken into consideration
		Initiatives such as WAVES show growing trend towards such incorporation
		Improved accounting implies improvement in reporting
 TARGET 3		No significant overall progress, some advances but some backward movement. Increasing recognition of harmful subsidies but little action
		Good progress but better targeting needed. Too small and still outweighed by perverse incentives

TARGET ELEMENTS

STATUS

COMMENT



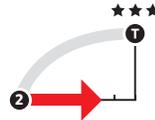
TARGET 4

Governments, business and stakeholders at all levels have taken steps to achieve, or have implemented, plans for sustainable production and consumption...



Many plans for sustainable production and consumption are in place, but they are still limited in scale

... and have kept the impacts of use of natural resources well within safe ecological limits



All measures show an increase in natural resource use



TARGET 5

The rate of loss of forests is at least halved and where feasible brought close to zero



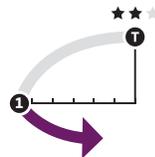
Deforestation significantly slowed in some tropical areas, although still great regional variation

The loss of all habitats is at least halved and where feasible brought close to zero



Varies among habitat types; data scarce for some biomes

Degradation and fragmentation are significantly reduced



Habitats of all types, including forests, grasslands, wetlands and river systems, continue to be fragmented and degraded



TARGET 6

All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches



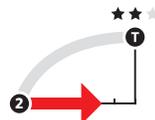
Great regional variation; positive for some countries but data limited for many developing countries

Recovery plans and measures are in place for all depleted species



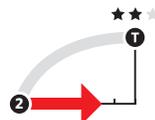
Variable; progress in some regions

Fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems



Some progress e.g. on long-lining used in tuna fisheries, but practices still impacting vulnerable ecosystems

The impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, i.e. overfishing avoided



Overexploitation remains an issue globally, but with regional variation



TARGET 7

Areas under agriculture are managed sustainably, ensuring conservation of biodiversity



Increasing area under sustainable management, based on organic certification and conservation agriculture. Nutrient use flattening globally. No-till techniques expanding

Areas under aquaculture are managed sustainably, ensuring conservation of biodiversity



Progress with sustainability standards being introduced, but in the context of very rapid expansion. Questions about sustainability of expansion of freshwater aquaculture

Areas under forestry are managed sustainably, ensuring conservation of biodiversity



Increasing forest certification and criterion indicators. Certified forestry mostly in northern countries, much slower in tropical countries

TARGET ELEMENTS

STATUS

COMMENT



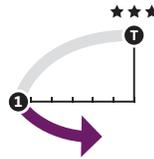
TARGET 8

Pollutants (of all types) have been brought to levels that are not detrimental to ecosystem function and biodiversity

No clear evaluation

Highly variable between pollutants

Pollution from excess nutrients has been brought to levels that are not detrimental to ecosystem function and biodiversity



Nutrient use leveling off in some regions, e.g. Europe and North America, but at levels that are still detrimental to biodiversity. Still rising in other regions. Very high regional variation

Invasive alien species identified and prioritized



Measures taken in many countries to develop lists of invasive alien species

Pathways identified and prioritized



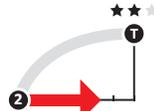
Major pathways are identified, but not efficiently controlled at a global scale

Priority species controlled or eradicated



Some control and eradication, but data limited

Introduction and establishment of IAS prevented

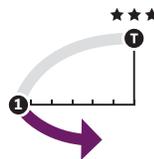


Some measures in place, but not sufficient to prevent continuing large increase in IAS



TARGET 9

Multiple anthropogenic pressures on coral reefs are minimized, so as to maintain their integrity and functioning



Pressures such as land-based pollution, uncontrolled tourism still increasing, although new marine protected areas may ease overfishing in some reef regions

Multiple anthropogenic pressures on other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning

Not evaluated

Insufficient information was available to evaluate the target for other vulnerable ecosystems including seagrass habitats, mangroves and mountains



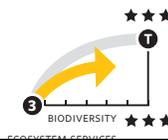
TARGET 10

At least 17 per cent of terrestrial and inland water areas are conserved



Extrapolations show good progress and the target will be achieved if existing commitments on designating protected areas are implemented. Inland water protection has distinct issues.

At least 10 per cent of coastal and marine areas are conserved



Marine protected areas are accelerating but extrapolations suggest we are not on track to meet the target. With existing commitments, the target would be met for territorial waters but not for exclusive economic zones or high seas

Areas of particular importance for biodiversity and ecosystem services conserved



Progress for protected Key Biodiversity Areas, but still important gaps. No separate measure for ecosystem services

Protected areas are ecologically representative



Progress, and possible to meet this target for terrestrial ecosystems if additional protected areas are representative. Progress with marine and freshwater areas, but much further to go



TARGET 11

TARGET ELEMENTS

STATUS

COMMENT



TARGET 11

Protected areas are effectively and equitably managed



Reasonable evidence of improved effectiveness, but small sample size. Increasing trend towards community involvement in protection. Very dependent on region and location

Protected areas are well connected and integrated into the wider landscape and seascape

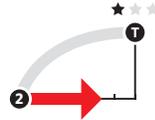


Initiatives exist to develop corridors and transboundary parks, but there is still not sufficient connection. Freshwater protected areas remain very disconnected



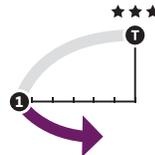
TARGET 12

Extinction of known threatened species has been prevented



Further extinctions likely by 2020, e.g. for amphibians and fish. For bird and mammal species some evidence measures have prevented extinctions

The conservation status of those species most in decline has been improved and sustained



Red List Index still declining, no sign overall of reduced risk of extinction across groups of species. Very large regional differences

The genetic diversity of cultivated plants is maintained



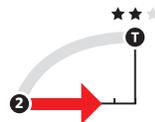
Ex situ collections of plant genetic resources continue to improve, albeit with some gaps. There is limited support to ensure long term conservation of local varieties of crops in the face of changes in agricultural practices and market preferences

The genetic diversity of farmed and domesticated animals is maintained



There are increasing activities to conserve breeds in their production environment and in gene banks, including through in vitro conservation, but to date, these are insufficient

The genetic diversity of wild relatives is maintained



Gradual increase in the conservation of wild relatives of crop plants in ex situ facilities but their conservation in the wild remains largely insecure, with few protected area management plans addressing wild relatives

The genetic diversity of socioeconomically as well as culturally valuable species is maintained

Not evaluated

Insufficient data to evaluate this element of the target

Strategies have been developed and implemented for minimizing genetic erosion and safeguarding genetic diversity

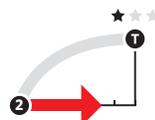


The FAO Global Plans of Action for plant and animal genetic resources provide frameworks for the development of national and international strategies and action plans



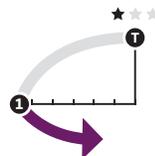
TARGET 14

Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded ...



High variation across ecosystems and services. Ecosystems particularly important for services, e.g. wetlands and coral reefs, still in decline

... taking into account the needs of women, indigenous and local communities, and the poor and vulnerable

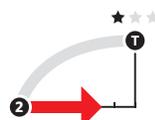


Poor communities and women especially impacted by continuing loss of ecosystem services

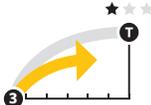
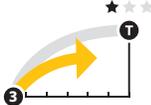
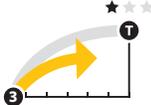


TARGET 15

Ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced through conservation and restoration



Despite restoration and conservation efforts, there is still a net loss of forests, a major global carbon stock

	TARGET ELEMENTS	STATUS	COMMENT
 TARGET 15	At least 15 per cent of degraded ecosystems are restored, contributing to climate change mitigation and adaptation, and to combating desertification		Many restoration activities under way, but hard to assess whether they will restore 15% of degraded areas
	The Nagoya Protocol is in force		The Nagoya Protocol will enter into force on 12 October 2014, ahead of the deadline set.
 TARGET 16	The Nagoya Protocol is operational, consistent with national legislation		Given progress that has been made, it is likely that the Nagoya Protocol will be operational by 2015 in those countries that have ratified it
	Submission of NBSAPs to Secretariat by (end of) 2015		For those Parties for which information is available, about 40% are expected to have completed their NBSAP by October 2014 and about 90% by the end of 2015
 TARGET 17	NBSAPs adopted as effective policy instrument		The adequacy of available updated NBSAPs in terms of following COP guidance is variable
	NBSAPs are being implemented		The degree of implementation of updated NBSAPs is variable
 TARGET 18	Traditional knowledge, innovations and practices of indigenous and local communities are respected		Processes are under way internationally and in a number of countries to strengthen respect for, recognition and promotion of, traditional knowledge and customary sustainable use
	Traditional knowledge, innovations and practices are fully integrated and reflected in implementation of the Convention ...		Traditional knowledge and customary sustainable use need to be further integrated across all relevant actions under the Convention
 TARGET 19	... with the full and effective participation of indigenous and local communities		Efforts continue to enhance the capacities of indigenous and local communities to participate meaningfully in relevant processes locally, nationally and internationally but limited funding and capacity remain obstacles
	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved		Significant effort on delivery of information and knowledge relevant to decision makers is being made, and relevant processes and institutions are in place
 TARGET 20	Biodiversity knowledge, the science base and technologies are widely shared and transferred and applied		Improvements in analysis and interpretation of data gathered from disparate collecting and monitoring systems. However, coordination to guarantee models and technologies that can integrate this knowledge into functional applied systems needs to be improved
	Mobilization of financial resources for implementing the Strategic Plan for Biodiversity 2011-2020 from all sources has increased substantially from 2010 levels		Limited information on many funding sources, including domestic funding, innovative financial mechanisms, and the private sector. General increase in bilateral ODA against 2006-2010 baseline



Achievement of the 2050 vision for biodiversity

The role of biodiversity in supporting human well-being is recognized in broad terms in the 2050 Vision of the Strategic Plan for Biodiversity 2011-2020: “By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people”.

Scenarios for 2050 indicate that very substantial changes from business-as-usual trends are needed in order to address the challenges highlighted in the previous section and to meet three key global objectives: slow and then stop the loss of biodiversity; keep average global temperature increases below 2°C; and attain other human development goals. As many examples of recent environmental successes illustrate, solutions for a sustainable future will require a wide range of deep societal transformations—there is no individual, simple policy tool available to address all of these challenges.

Global scenarios developed in the context of the “Rio+20” United Nations Conference on Sustainable Development help to illustrate the diversity, complexity and feasibility of pathways to a sustainable future. They provide an insight into the major transformations in development pathways that are required to meet all three objectives for 2050; and

that will need to be fully engaged over the current decade in order to meet these objectives, because of the long lag times inherent in social and technical transitions and in the biological, climate and oceans systems of the Earth.

Scenarios suggest that these biodiversity goals can be attained while also reaching broader socio-economic objectives that include strong climate mitigation, improved diets and the eradication of hunger. Several indicators of biodiversity are improved in the alternative scenarios: population abundance, status of threatened species and mean species abundance, as well as the status of marine fish stocks. Such outcomes can be achieved by various mixes of policies; the three pathways explored in the scenario analysis point to some common elements (with the emphasis on each differing among the alternative scenarios).

The actions that contribute most significantly to pathways for long-term sustainability fall into two major areas of activity and decision making.

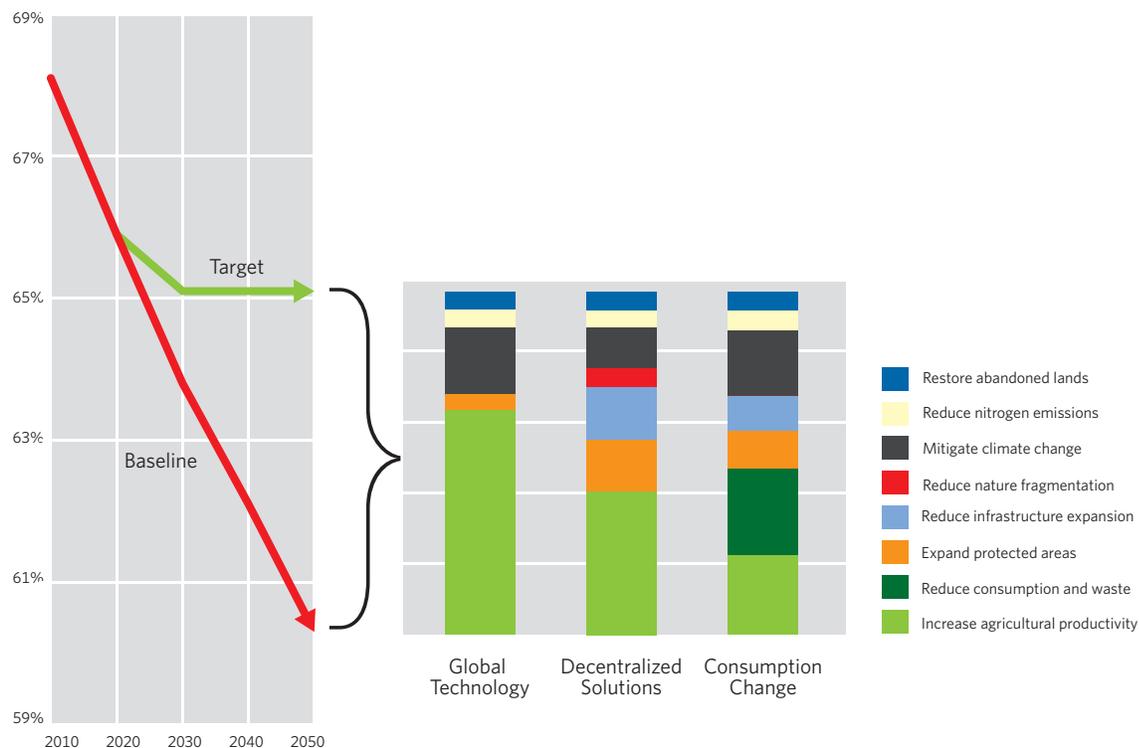
- **Climate change and energy systems:** Halting deforestation and appropriately implementing reforestation could make important contributions to climate mitigation and protection of biodiversity.

Major reductions in greenhouse gas emissions and improved energy efficiency are required to keep global warming below 2°C, while also reaching human development goals. Biodiversity objectives can only be attained if massive deployment of biofuels is avoided. A substantial degree of climate change by 2050 and beyond is already committed due to long lags in the Earth’s climate system, so adaptation plans for biodiversity are needed. For example, adaptation will require anticipating climate change in the design of protected area systems.

▪ **Food systems:** Major transformations to food systems are among the key areas of actions for achieving sustainability. First, food waste needs to be reduced: roughly a third of harvested food is lost either in the food transport and transformation chain (primarily in developing countries) or in the home (primarily in developed countries). Second, diverse diets combined with global convergence to moderate

levels of calorie and meat consumption would improve health and food security in many areas and also substantially reduce impacts on biodiversity. Third, there is a need for improved management of agriculture, aquaculture and wild-capture fisheries. Realistic changes in management of crops and livestock could substantially reduce both water consumption and pollution. Significant reductions in fishing pressure and changes in fishing techniques in most marine fisheries would lead to rebuilding of fisheries over the next one to two decades.

This analysis emphasizes the crucial importance of major changes in our systems of food production, distribution and consumption, as well as in energy use, if we are to reach a more balanced and sustainable relationship between human aspirations and the capacity of the planet to provide them. Achieving these transformational changes will thus require engagement of key economic sectors.



Contrasting pathways to sustainability using the Rio+20 socioeconomic scenarios. The scenarios illustrated here would each reach by 2050 the goals of slowing and eventually halting biodiversity loss, while also keeping global average temperature increases within two degrees Celsius and achieving a range of socio-economic development goals, including ending hunger, and providing universal access to safe drinking water, basic sanitation and modern energy sources. The goals can be reached by three different pathways.

Conclusions

This Outlook provides a timely reminder that continuing with “business as usual” in our present patterns of behaviour, consumption, production and economic incentives will not allow us to realize the vision of a world with ecosystems capable of meeting human needs into the future.

Since the agreement of the Strategic Plan for Biodiversity 2011-2020 in 2010, encouraging steps have been taken around the world to tackle biodiversity loss at many levels. Nevertheless, it is clear from this mid-term review that, on their current trajectory, they will not be sufficient to meet most of the Aichi Biodiversity Targets by the deadlines committed to.

The Strategic Plan and the Aichi Biodiversity Targets remain a solid framework on which to concentrate action that will lead us towards a world in harmony with nature. They also point the way towards many actions that will meet multiple needs of human societies, including the aspirations currently being discussed in the context of the Sustainable Development Goals.

The following general conclusions can be drawn from the assessment carried out for this Outlook:

- Meeting the Aichi Biodiversity Targets would contribute significantly to broader global priorities addressed by current discussions on the post-2015 development agenda: namely, reducing hunger and poverty, improving human health, ensuring a sustainable supply of energy, food and clean water, contributing to climate-change mitigation and adaptation, combating desertification and land degradation, and reducing vulnerability to disasters.
- Actions to achieve the various Aichi Biodiversity Targets should be undertaken in a coherent and coordinated manner; the individual Aichi Biodiversity Targets should not be addressed in isolation. Actions towards certain targets, notably those that address the underlying causes of biodiversity loss, the development and implementation

of national biodiversity strategies and action plans, the further development and sharing of information, and the mobilization of financial resources, will have an especially strong influence on the achievement of the other targets.

- Attaining most of the Aichi Biodiversity Targets will require implementation of a package of actions, typically including: legal or policy frameworks; socioeconomic incentives aligned to such frameworks; public and stakeholder engagement; monitoring; and enforcement. Coherence of policies across sectors and the corresponding government ministries, is necessary to deliver an effective package of actions.
- It will be necessary to broaden political and general support for the Strategic Plan for Biodiversity 2011-2020 and the objectives of the Convention. This will require working to ensure that all levels of government and stakeholders across society are aware of the multiple values of biodiversity and related ecosystem services.
- Partnerships at all levels are required for effective implementation of the Strategic Plan for Biodiversity 2011-2020, to leverage broad-scale actions, to garner the ownership necessary to ensure the mainstreaming of biodiversity across sectors of government, society and the economy and to enable synergies in the national implementation of the various multilateral environmental agreements.
- There are opportunities to support implementation of the Strategic Plan through enhanced technical and scientific cooperation among Parties. Further capacity-building support will also be needed, especially for developing countries, in particular the least developed countries and small island developing States, as well as countries with economies in transition.
- An overall substantial increase in total biodiversity related funding, is needed for the implementation of the Strategic Plan for Biodiversity 2011–2020.

Published almost at the halfway point of the 2011–2020 Strategic Plan for Biodiversity, this fourth edition of the Global Biodiversity Outlook (GBO-4) provides a timely report on progress towards meeting the 20 Aichi Biodiversity Targets and potential actions to accelerate that progress, on prospects for achieving the 2050 Vision for “Living in Harmony with Nature”, and on the importance of biodiversity in meeting broader goals for sustainable human development during this century.

The Convention on Biological Diversity is one of the three “Rio Conventions”, emerging from the UN Conference on Environment and Development, also known as the Earth Summit, held in Rio de Janeiro in 1992. It came into force at the end of 1993, with the following objectives: “The conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.” There are currently 194 Parties to the Convention (193 countries and the European Union).

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