

Biodiversity and the Sustainable Development Goals

This briefing note describes the biodiversity component of the Sustainable Development Goals, why and how biodiversity underpins many of them, and the relationship of the 2030 Agenda for Sustainable Development and the post-2020 global biodiversity framework. The document has been developed as a background document for participants at the ninth Trondheim Conference on Biodiversity, and it is for information only.

Context

The [2030 Agenda for Sustainable Development](#)¹, adopted by the Member States of the United Nations in September 2015, is a far reaching globally agreed blueprint for peace and prosperity, for people and the planet, now and into the future. It sets out an ambition to eradicate poverty, protect natural resources and deliver economic prosperity. The 2030 Agenda explicitly acknowledges the integrated, coherent and indivisible nature of the economic, social and environmental dimensions of sustainable development and at its heart are 17 Sustainable Development Goals (SDGs). The Goals are intended to drive action across all sectors from governments and businesses, to children and youth, farmers, indigenous peoples, local authorities, non-governmental organisations, education and academia, scientific and technological communities, women, the ageing, workers and trades unions, people with disabilities and volunteers. Agenda 2030 aspires to ensure no-one is left behind in the course of global efforts to work towards achievement of the Goals.

The biodiversity-explicit targets of the Sustainable Development Goals

The 17 SDGs include 169 targets embedded within them and progress towards the targets is measured by a suite of 232 indicators which were agreed in 2016. SDGs 14 and 15, together with SDGs 2 and 6, are the goals which contain **biodiversity-explicit** targets. Table 1 below shows biodiversity-explicit targets in relation to the three dimensions of biodiversity (genes, species and ecosystems), and to the Aichi Biodiversity Targets within the current Strategic Plan for Biodiversity 2011-2020. The table shows that the biodiversity-explicit targets within the SDGs mainly address the conservation of ecosystems. The SDG targets also reflect all three goals of the Convention on Biological Diversity (the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from genetic resources).

Table 1 Biodiversity-explicit SDG Targets

Sustainable Development Goal	Biodiversity-explicit SDG targets	Dimensions of biodiversity addressed	Relevant Aichi Biodiversity Target
2 No hunger	Target 2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	Genetic diversity	13
6 Clean Water & sanitation	Target 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	Ecosystem diversity	5, 6,14
14 Life below water	Target 14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including	Ecosystem diversity	6,7

¹ United Nations General Assembly resolution 70/1 of 25 September 2015 “Transforming Our World: the 2030 Agenda for Sustainable Development”

<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>

	by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans		
	Target 14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	Ecosystem diversity	11
15 Life on land	Target 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	Ecosystem diversity	11,15
	Target 15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	Ecosystem diversity	5,6,14
	Target 15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	Species diversity	12
	Target 15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	Genetic diversity	16
	Target 15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	Species diversity	12
	Target 15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	Species diversity	9
	Target 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	Ecosystem/species diversity	2

A [new assessment of progress](#) towards all of the targets and indicators within the environmental dimension of the SDGs, which includes the above biodiversity-explicit targets, was published as part of the sixth edition of the Global Environment Outlook at the fourth session of the UN Environment Assembly (UNEA-4) in March 2019².

How biodiversity underpins other SDGs

The significance of biodiversity and ecosystems cuts through many of the other SDGs and associated targets through a wide range of direct contributions to human well-being, currently expressed as '[nature's contributions to people](#)'³. Some of the most significant linkages are summarised below.

Biodiversity is at the centre of many economic activities, particularly those related to crop and livestock agriculture, forestry, fisheries, and many forms of tourism directly based on nature and healthy ecosystems (SDG 8 and 12). Globally, nearly half of the human population is directly dependent on natural resources for its livelihood, and many of the most vulnerable and poorest people depend directly on biodiversity to fulfil their daily subsistence needs including from small-scale fisheries (SDG 2). Consequently, biodiversity loss most critically affects the poor (SDG 1, 8). Women are often responsible for subsistence agriculture so degradation of natural resources such as water quality and quantity, fuelwood, soils, agricultural and rangeland productivity, most often results in increased labour demands on women yet they also have a strong body of knowledge and expertise relating to agro-biodiversity and farming practices that can be used in adaptation strategies (SDG 2, 5).

² United Nations Environment Programme (2019) Measuring Progress: Towards Achieving the Environmental Dimension of the SDGs <https://wedocs.unep.org/bitstream/handle/20.500.11822/27627/MeaProg2019.pdf?sequence=1&isAllowed=>

³ Diaz S et al (2015) The IPBES Conceptual Framework — connecting nature and people. Current Opinion in Environmental Sustainability 14,1–16 <https://doi.org/10.1016/j.cosust.2014.11.002>.

Biodiversity contributes to nutritional security as well as food security, and more diverse diets are more nutritionally secure as well as having health benefits (SDG 2 and 3). While agricultural expansion and intensification focusing on fewer crops and fewer varieties of crops and livestock is often undertaken in attempts to strengthen subsistence and local economies, inappropriate agricultural expansion is a significant driver of biodiversity and ecosystem services loss. This paradox is at the heart of the biodiversity-poverty-agriculture nexus (SDG 1, 2, 15). Less biodiverse agricultural systems relying on fewer species cultivated and farmed more intensively may deliver greater productivity but at the cost of human health, decreased resilience, and greater vulnerability to disruption to ecosystem services that support agricultural productivity such as soil fertility, water quality and supply, and pollinators. For example, at least one-third of the world's agricultural crops depend upon pollinators. Achieving successful outcomes for SDG 2 will therefore need to include a much greater focus on maintaining and enhancing the benefits of biodiversity within agricultural systems.

Human health is dependent on biodiversity via a number of complex pathways (SDG 3). For example, many medical drugs have their origins in plants, trees, and other forms of nature. Biodiversity provides a pharmacopeia of genetic material critical for future research, and over 28,000 species of plants around the world are used medicinally. Nature is also a source of pathogens, with negative effects on human health, though it is often human agency through land-use change which disrupts ecosystems leading to greater pathogen mobility and dispersal. There is growing evidence that human physical and mental health can be improved by contact with nature through the presence of green spaces and nature within living and working environments especially cities, where more than half of the world's population now lives (SDG 9, 11). This contributes to reducing risks from non-communicable diseases such as those linked to heart disease, obesity and stress. (SDG 3, 8).

Climate change is a direct driver of biodiversity loss through its disruptive effects on many aspects of biodiversity, including species distributions, phenology, population dynamics, community structure and ecosystem function. However, in turn the contribution of biodiversity to tackling climate change is potentially immense. Forests on land and sea (mangroves) sequester and store carbon, contributing to climate change mitigation, and nature-based solutions can also play a major part in adaptation efforts. (SDG 13).

Box 1. Linkages between SDGs

The Stockholm Resilience Centre developed a hierarchical categorization of the SDGs which helps to emphasise these linkages more visually⁴. It shows that economies and societies are inherently embedded into the biosphere. This re-interpretation of social, economic, and ecological systems, often perceived as separated from each other, depicts society's dependency on the well-being of the biosphere and on achieving Goals 6, 13, 14, and 15.



Credit: Azote Images for Stockholm Resilience Centre, Stockholm University

⁴ Folke, C., R. Biggs, A. V. Norström, B. Reyers, and J. Rockström. 2016. Social-ecological resilience and biosphere-based sustainability science. *Ecology and Society* 21(3):41. <http://dx.doi.org/10.5751/ES-08748-210341>

The SDGs and the post-2020 global biodiversity framework

Many of the biodiversity relevant targets contained within the SDGs have drawn directly upon the Aichi Biodiversity Targets of the Strategic Plan for Biodiversity 2011-2020; as a result a number also come to maturity in 2020 rather than 2030 (see Table 1), the time frame of the 2030 Agenda and therefore of

Furthermore, Parties invited “the General Assembly of the United Nations to convene a high-level biodiversity summit at the level of Heads of State/Heads of Government in 2020 in order to raise the political visibility of biodiversity and its contribution to the 2030 Agenda for Sustainable Development and to the development of a robust post-2020 global biodiversity framework”⁵. In turn, as part of the process agreed for development of the post-2020 global biodiversity framework, the co-chairs will seek to ensure the coherence and complementarity of the post-2020 global biodiversity framework with other existing or upcoming international processes, in particular with regard to the 2030 Agenda for Sustainable Development and other related processes, frameworks and strategies.⁶

The deliberations, negotiations and ultimately the Decisions of the Parties to the Convention on Biological Diversity will therefore have substantial relevance to Agenda 2030 in the coming months, and represent an important opportunity to re-emphasise the underpinning role of biodiversity across the entire suite of SDGs.

Selected resources for further reading

- CBD Secretariat (2017), Biodiversity and the 2030 Agenda for Sustainable Development (CBD/SBSTTA/21/2/Add.1). <https://www.cbd.int/doc/meetings/sbstta/sbstta-21/official/sbstta-21-02-add1-en.pdf>
→Explores how the 2030 Agenda provides an enabling environment for the achievement of the Aichi Biodiversity Targets as well as the longer-term goals of the Strategic Plan for Biodiversity 2011-2020 and its 2050 Vision, and discusses implications for the mutually reinforcing implementation of the two frameworks.
- CBD Secretariat (2015), Links between the Aichi Biodiversity Targets and the 2030 agenda for Sustainable Development (UNEP/CBD/SBSTTA/19/INF/9). <https://www.cbd.int/doc/meetings/sbstta/sbstta-19/information/sbstta-19-inf-09-en.pdf>
- CBD, FAO, World Bank, UNEP, UNDP (2015) Biodiversity and the 2030 Agenda for Sustainable Development - Technical note: <https://www.cbd.int/development/doc/biodiversity-2030-agenda-technical-note-en.pdf>.
→This publication presents a mapping of the linkages between the SDGs, and the Strategic Plan for Biodiversity 2011-2020 and its 20 Aichi Biodiversity Targets.
- Schultz, M., Tyrrell, T.D. & Ebenhard, T. 2016. The 2030 Agenda and Ecosystems - A discussion paper on the links between the Aichi Biodiversity Targets and the Sustainable Development Goals. SwedBio at Stockholm Resilience Centre, Stockholm, Sweden. http://swed.bio/wp-content/uploads/2016/11/The-2030-Agenda-and-Ecosystems_spread.pdf
- Wood S *et al* (2018) Distilling the role of ecosystem services in the Sustainable Development Goals. *Ecosystem Services* 29, 70-82. <https://doi.org/10.1016/j.ecoser.2017.10.010> .
→This paper summarises a survey on the contributions of 16 ecosystem services to achieving SDG targets linked to environment and human well-being.
- World Health Organization and Secretariat of the Convention on Biological Diversity (2015), Connecting global priorities: biodiversity and human health: a state of knowledge review. http://apps.who.int/iris/bitstream/10665/174012/1/9789241508537_eng.pdf
→A major contribution to understanding biodiversity and human health linkages.

⁵ CBD COP Decision 14/34, paragraph 13

⁶ CBD COP Decision 14/34, Annex, paragraph 9