# Conservation goals in international policies

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## 15.1 Introduction

Biodiversity and its importance has long been recognised and enshrined in national and international policies. While the earliest conservation policies were framed around 150 years ago and mainly consisted of national policies to protect biodiversity, over the last century conservation policies have undergone a significant shift in emphasis towards integration of, and alignment with, societal goals (Mace, 2014). Moving from a sole focus on species and habitat protection in the early twentieth century, or 'Nature for itself' as framed by Mace (2014), policies have gradually aligned with other societal aims. This started with a recognition of ecosystem services (Daily, 1997), as the benefits people derive from nature ('Nature for People'), which was brought into the mainstream by the Millennium Ecosystem Assessment (MA, 2005). There has since been a move away from utilitarian values to consider 'Nature and People' (Mace, 2014; Díaz et al., 2018) as a more inclusive concept to better support synergies and negotiate trade-offs of conservation and societal goals. In this chapter, we aim to demonstrate and discuss how this increasingly integrative view is reflected in the development of international conservation policies and related institutions. After briefly sketching the historical origins of current international conservation policies, we focus on the Convention on Biological Diversity (CBD), which couples its core objective of nature conservation with human well-being. Next, we show how an integrative view on nature conservation has shaped the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES). Finally, we explore the

Sustainable Development Goals (SDGs) as a third global enterprise that closely links the conservation of nature to other societal aspirations. Using these three examples, we address the following questions.

1. How do these three agreements function and how are decisions made?
2. What is the role of science and evidence in the CBD, IPBES and the SDGs?
3. What are the achievements so far, and how can scientists engage to foster progress?

## 15.2  A short history of conservation policies

To understand current conservation policies, it is useful to reflect briefly on their development. Historically, conservation policies were created in response to a realisation of loss of natural habitat, and led to national conservation designations, notably the first big national parks. In the USA, Yellowstone was established as the first National Park worldwide by the Yellowstone National Park Act in 1872, withdrawing almost one million hectares from further land use development to be 'dedicated and set apart as a public park ... for the benefit and enjoyment of the people'. In Europe, the UK was the first country to establish national parks under the 1949 National Parks and Access to the Countryside Act, also born out of a strong demand for open public access to private land. The Peak District National Park, designated in 1951, remains one of the most-visited national parks worldwide. Many more national parks followed in the 1970s and 1980s in Africa, Europe and across all continents. Often, however, these designations showed little consideration of local communities and their livelihoods ('Nature despite people'; Mace, 2014), leading at times to violations of rights of indigenous people and severe conflicts (Colchester, 2004). Protected areas continue to provide crucial cornerstones of local, regional and international strategies for biodiversity conservation. They have significantly contributed to halting losses of species and habitats, although their performance is at times mixed and often not known (Gaston et al., 2008; Mora & Sale, 2011).

International conservation policy development started with a series of global conventions in the 1970s and 1980s focusing on species and habitat protection (Table 15.1). Once countries ratified these multi-lateral environmental agreements, they proved to be drivers for national law development. For example, the US Endangered Species Act of 1973 was developed as a response to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) that had entered into force the same year. As another example, the European Union met its obligations for bird species under the Bern Convention (1979) and Bonn Convention (1979) through the *Council Directive 79/409/EEC on the conservation of wild birds* (*Birds Directive*) adopted in 1979. This has since been substantially amended several times to the Directive 2009/147/EC adopted in

**Table 15.1** *Important multi-lateral environmental agreements in the nature conservation context. Information retrieved from the treaty's websites or from www.informea.org (accessed 9 December 2018)*

| Treaty name | Abbreviation | Adoption | Entry into force | Parties* | Main target |
|---|---|---|---|---|---|
| Convention on Wetlands of International Importance | Ramsar Convention | 1971 | 1975 | 170 | Conservation and sustainable use of wetlands |
| Convention Concerning the Protection of the World Cultural and Natural Heritage | WHC/World Heritage Convention | 1972 | 175 | 193 | Protection of the world cultural and natural heritage |
| Convention on International Trade in Endangered Species of Wild Fauna and Flora | CITES | 1973 | 1975 | 183 | Regulation of trade of wild plants and animals |
| Convention on the Conservation of European Wildlife and Natural Habitats | Bern Convention | 1979 | 1982 | 51 | Conservation of wild flora and fauna and their natural habitats, and promotion of European cooperation |
| Convention on the Conservation of Migratory Species of Wild Animals | CMS/Bonn Convention | 1979 | 1983 | 126 | Conservation and sustainable use of migratory animals and their habitats |
| United Nations Framework Convention on Climate Change | UNFCCC | 1992 | 1994 | 197 | Prevention of dangerous anthropogenic interference with the climate system, slowing global warming and mitigating its impact |

**Table 15.1** (*cont.*)

| Treaty name | Abbreviation | Adoption | Entry into force | Parties* | Main target |
|---|---|---|---|---|---|
| Convention on Biological Diversity | CBD | 1992 | 1993 | 196 | Conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources |
| United Nations Convention to Combat Desertification | UNCCD | 1994 | 1996 | 197 | Prevention of desertification and land degradation |

\*  Number of member states as of December 2018.

2009 and sits alongside the *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora* (Habitats Directive) adopted in 1992. Legal mechanisms for the achievement of international conventions at national scales are at the discretion of each member state.

During the 1980s, environmental pollution, the over-use of resources and the resulting loss of species and natural habitats gained increasing attention from the public and political representatives. This led to the 'Rio World Summit' in 1992 (United Nations Conference on Environment and Development, UNCED), at which three new conventions were opened for signature: the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD) and the Convention on Biological Diversity (CBD). Further details of the set up, operation and achievements of these three conventions are described in the sections below.

## 15.3  General set up and mode of operation

### 15.3.1  The Convention on Biological Diversity (CBD)

The CBD is, with regards to goals addressed, the most comprehensive global treaty dealing with nature conservation. Its three overarching objectives are (Article 1 of the Convention):

(a) the conservation of biological diversity,
(b) the sustainable use of its components and
(c) the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

Thus, the CBD's objectives refer to both intrinsic and instrumental values of biodiversity. It does so by including an unconditional call for the conservation of biodiversity in combination with the acknowledgement that people depend on nature and need to make use of it, as well as a call for dividing the benefits that are derived from nature equitably.

In total, the Convention's text contains 42 Articles that further define aims and assign duties to the bodies of the Convention. The CBD's clear recognition of the interaction between nature-related and societal goals is also codified in its principles. For example, the first CBD principle states that the 'objectives of management of land, water and living resources are a matter of societal choices', while the twelfth acknowledges that 'the ecosystem approach should involve all relevant sectors of society and scientific disciplines'. The CBD is a legally binding treaty. Thus, a state that has signed and ratified the Convention is obliged to implement the Convention on its territory through national policies and practical management. Every two years, representatives of the member states meet at the Conference of the Parties (COP). The COP is the highest decision-making body of the CBD and it operates according to the consensus principle. This means that the text of a decision is negotiated until a compromise is reached among all parties present. If no consensus is reached, parties do not vote. Instead, only text to which no party objects is agreed upon and a decision on unresolved questions is postponed. A CBD COP decision therefore almost always represents a compromise between states with differing views. This 'consensus principle' has been criticised for preventing progress and watering down any suggestion to the lowest common denominator, often resulting in general, vague or ambiguous text (Kanie, 2014; Kemp, 2016). However, a shift from the consensus principle to a voting system faces many obstacles, e.g. the fear that parties could perceive this as a loss of sovereignty and could therefore drop out of the Convention, or that such a reform would open a 'Pandora's box' and encourage open disputes on, and possibly change in, other principles or rules of procedure (Kemp, 2016).

To facilitate negotiations under the consensus principle, the CBD parties are divided into groups of states that discuss and align their positions; one of their members is then responsible for representing them in the plenary of the COP. Important associations of states are the European Union and the official United Nations Regional Groups (African Group, Asia–Pacific Group, Eastern European Group, Latin America and Caribbean Group, Western European and Others Group), alongside some informal groups, such as an alliance of

industrialised non-EU countries called JUSCANNZ (i.e. Japan, United States, Switzerland, Canada, Australia, Norway, New Zealand).

Meetings of the CBD COP and of many other CBD bodies (e.g. of the Subsidiary Body of Technical and Technological Advice – SBSTTA, see 15.5.1) are open to so-called 'observers'. The observer status can be obtained by, for example, non-governmental organisations, business associations or scientific institutions and it gives the right to speak in plenary but not to veto a decision.

One way in which the CBD fosters progress towards its objectives is by setting up particular Programmes of Work, each with a vision and suggested actions that CBD parties are encouraged to support. These are concerned with topics related to Agricultural Biodiversity, Dry and Sub-humid Lands Biodiversity, Forest Biodiversity, Inland Waters Biodiversity, Island Biodiversity, Marine and Coastal Biodiversity and Mountain Biodiversity. The CBD also dedicates work to cross-cutting issues, such as Climate Change and Biodiversity; Communication, Education and Public Awareness, Economics, Trade and Incentives Measures or Identification, Monitoring, Indicators and Assessments. It aims to link work on these themes closely with other UN Conventions by collaborating with, for example, UNFCCC and UNCCD secretariats (www.unccd.int/convention/about-convention/unccd-cbd-and-unfccc-joint-liaison-group).

Approximately every five years, parties must report the steps taken to implement the CBD provisions and their effectiveness to the CBD Secretariat. These 'National Reports' are used by the CBD Secretariat to gain an overview of global trends in the implementation process. However, as the parties are sovereign entities, they decide individually about their national implementation approaches, and are free to set own priorities (with the exception of EU member states who coordinate their efforts and are committed to EU regulations). There are no established CBD non-compliance procedures. The degree of compliance therefore varies widely and, overall, has proven to be generally insufficient, as the CBD's goals and targets, formulated in the Convention's Strategic Plans, have been repeatedly missed. For the period 2002–2010, the core element of the CBD's Strategic Plan was the '2010 Target': a 'significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth' (COP-Decision VI/26). However, this 2010 Target was widely missed (Butchart et al., 2010; Dirzo et al., 2014).

For the following decade, the level of ambition was raised further: 'to halt the loss of biodiversity' by 2020. To better address the underlying causes of biodiversity loss and be more explicit about what needed to be done to make progress towards the CBD objectives, the Strategic Plan for 2011–2020 was underpinned with five strategic goals and 20 'Aichi Biodiversity Targets' that formed the backbone of the Plan (see Figure 15.1). Setting up such a comprehensive framework that addressed the direct and indirect drivers of

**Figure 15.1** The 20 Aichi Biodiversity Targets. Image: Copyright BIP/SCBD. (A black and white version of this figure will appear in some formats. For the colour version, please refer to the plate section.)

the ongoing biodiversity crises was seen as a major achievement. Furthermore, the Strategic Plan 2011–2020 has been highly relevant, beyond the global biodiversity agenda; it was endorsed by the UN General Assembly and other multi-lateral environmental agreements and therefore formed the principle global roadmap for the conservation of nature. The 20 Aichi Biodiversity Targets that formed the core of the Strategic Plan 2011–2020 were also incorporated into the global development agendas and fed into the Millennium Goals (until 2015) and subsequently the Sustainable Development Goals (until 2030).

However, despite this high political recognition, the Aichi Targets were not on track in 2018 and most will be widely missed by 2020, as indicated by the fourth Global Biodiversity Outlook report (Leadley et al., 2014) and the IPBES Global Assessment (IPBES/7/10/Add.1). Despite progress towards some Targets, the overall picture leaves no doubt: efforts need to be increased dramatically to halt and reverse the current situation, in which the drivers of biodiversity loss worldwide strongly override conservation efforts. There have been accelerated policy and management responses to the biodiversity crisis, but these are unlikely to significantly reverse trends in the state of biodiversity by 2020 (Tittensor et al., 2014).

For the post-2020 period, it is therefore crucial to focus on the implementation of the new CBD strategic framework that will then be in place. This needs to be achieved, in the first place, by the parties at the national level. Therefore, besides increased globally concerted efforts, place-based and context-specific approaches are essential for monitoring, conserving and sustainably using biodiversity.

### 15.3.2 Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES)

As a response to knowledge needs that became evident in the context of the CBD and other multi-lateral environmental agreements, the Millennium

Ecosystem Assessment (MA, 2005) was conducted in 2005, followed by several national ecosystem assessments (Schröter et al., 2016). Building on this experience (Carpenter et al., 2009) and modelled on the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES) was established in 2012 to generate an integrative knowledge foundation on biodiversity, ecosystems, ecosystem services and their impact on human and societal well-being (UNEP, 2012). IPBES is not a convention but a science–policy interface that supports governments and stakeholders in decision-making at multiple scales by providing policy-relevant and scientifically credible information on the status and trends of nature and its contributions to people (Brooks et al., 2014). IPBES does not enforce decisions on conventions or countries, but aspires to develop an expert-based platform that provides an accessible, useful and scientifically rigorous evidence base to support biodiversity-related decision-making by national governments and international conventions (e.g. CBD, RAMSAR, CITES, UNCCD).

To achieve this, IPBES operates via four main functions – assessment, knowledge generation, policy support and capacity-building – that are implemented through voluntary participation of experts chosen by governments and organisations globally, with balanced representation across regions, gender and disciplines (IPBES, 2014). Over the coming years, IPBES aims to continue bringing together the best knowledge-holders and institutions on biodiversity around the globe, synthesising the complex dynamics of nature and their impact on human societies and the planet, providing the most credible information available through research and practice, and catalysing the generation of new knowledge to fill critical gaps in order to better conserve nature and ensure human and societal well-being (Figure 15.2).

The IPBES Plenary, where 130 member states form a governing body, meets annually to track the progress of the work programme and to make decisions on the way forward. A Multidisciplinary Expert Panel (MEP) advises on scientific and technical aspects of the programme. The expert groups, taskforces and assessment authors are the scientists and knowledge-holders. Stakeholders and observers also play significant roles in IPBES by providing diverse perspectives and forms of knowledge and acting as catalysts for conservation in their respective communities of practice. In particular, IPBES is developing a mechanism to better integrate holders of indigenous and local knowledge into the process for a more comprehensive understanding and outlook on nature's values and futures (IPBES, 2014).

The decision-making process of IPBES is lengthy but transparent, due to the nature of the intergovernmental plenary system (Figure 15.3 shows the participants).
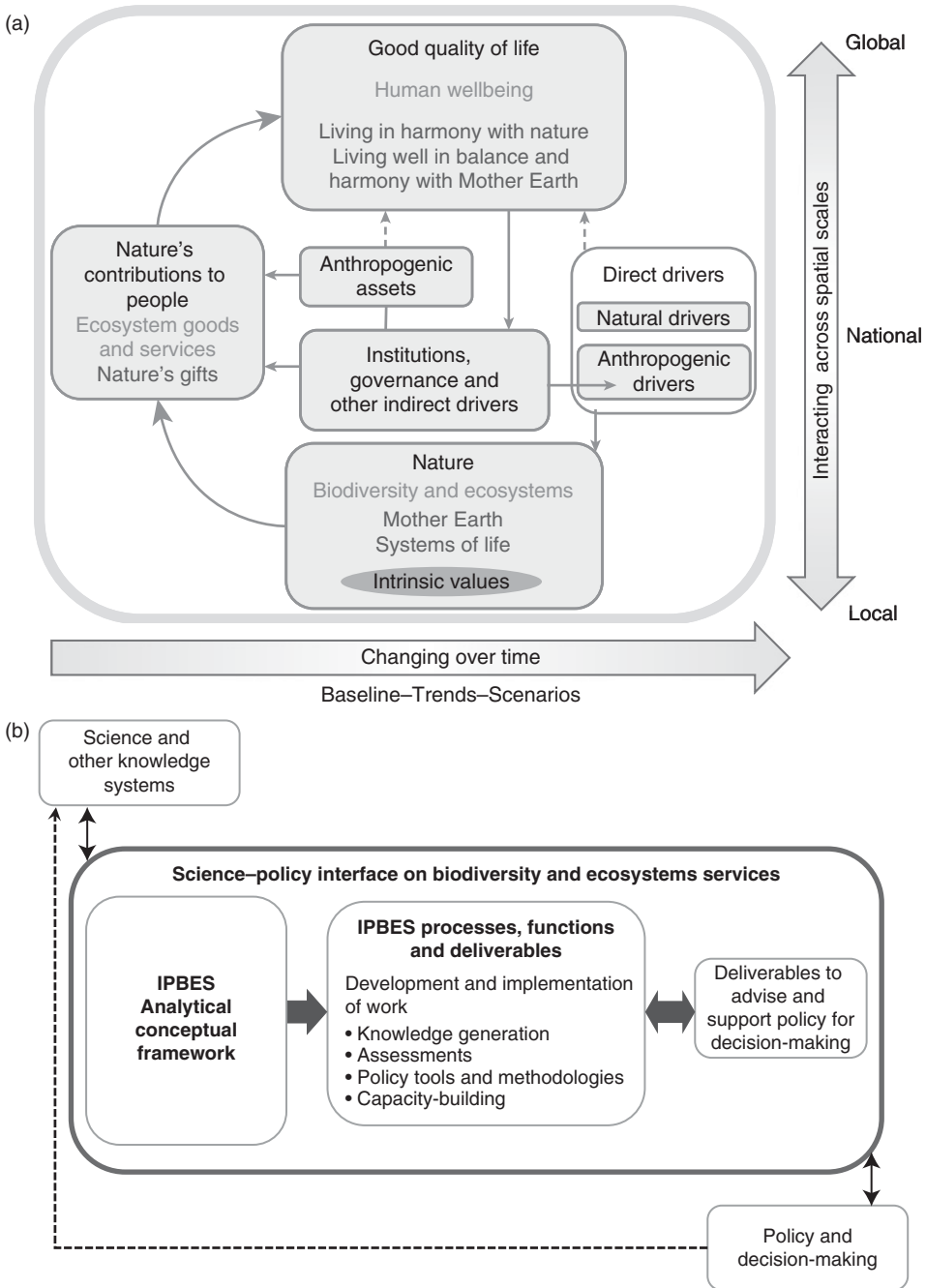
**Figure 15.2** (a) IPBES operational model of the Platform (adapted from IPBES, 2014), (b) analytical conceptual framework of assessments (adapted from Díaz et al., 2015). (A black and white version of this figure will appear in some formats. For the colour version, please refer to the plate section.)
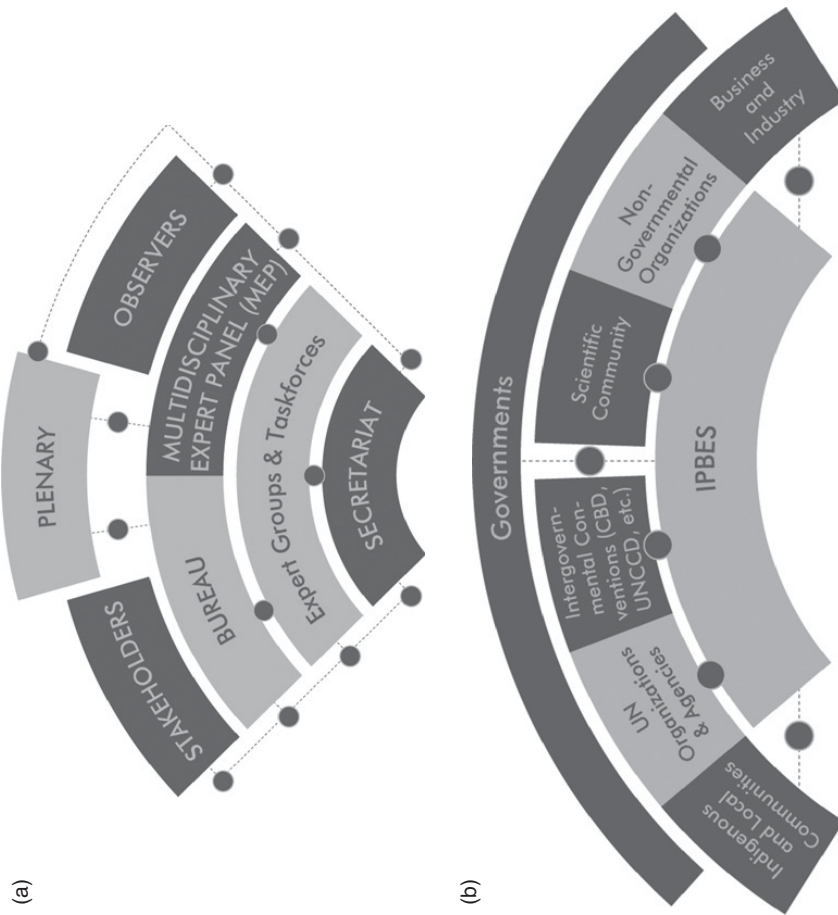
**Figure 15.3** Structures of IPBES (a) science–policy platform, (b) intergovernmental plenary (IPBES, 2018b). (A black and white version of this figure will appear in some formats. For the colour version, please refer to the plate section.)

IPBES is an independent intergovernmental platform that works in partnership with the large United Nations Programmes such as the UN Environment Programme (UNEP), the UN Educational, Scientific and Cultural Organization (UNESCO), the Food and Agriculture Organization of the UN (FAO) and the UN Development Programme (UNDP). Its work is aligned to the CBD and other international Conventions (e.g. Ramsar, CITES, as well as the UNCCD). Its unique role is to mobilise scientific communities from multiple disciplines to harmonise research agendas on biodiversity and its impact on societies among key organisations, such as the International Union for the Conservation of Nature (IUCN), Future Earth and the Group On Earth Observations Biodiversity Observation Network (GEO BON) (IPBES, 2018a). While the social sciences and humanities are still underrepresented in the process (Vadrot et al., 2018), IPBES aims to attract more social scientists.

### 15.3.3  The Sustainable Development Goals

The establishment of IPBES was well timed to coincide with the inception of United Nation's new global agenda, the Sustainable Development Goals (SDGs) (UN, 2015). Historically, the concept of sustainability builds on more than 30 years of intense political discourse, following the Brundtland Commission (1987), the Rio Declaration on Environment and Development (UN, 1992) and the eight Millennium Development Goals (MDGs) (McArthur, 2014). These included a goal to 'ensure environmental sustainability', but did not relate to biodiversity specifically. Based on the MDGs, the SDGs were developed as a more holistic and integrated approach to development following the United Nations Conference on Sustainable Development in 2012. In January 2016, the *2030 Agenda for Sustainable Development*, comprising 17 SDGs with 169 targets and a declaration, were officially approved during a UN Summit attended by 193 member states (UN, 2015). The 2030 Agenda aimed to stimulate action in areas of critical importance for humanity and the planet with a set of approved goals (Figure 15.4). It provides a holistic strategy that combines economic development, social inclusion and environmental sustainability and applies to all countries – poor, rich and middle-income alike – and to all segments of society (ICSU, 2017); this is the major novelty and strength of this framework, in which biodiversity conservation is no longer isolated.

Its main decision body, the High-level Political Forum, provides a central platform for all member states to review progress towards the 2030 Agenda for Sustainable Development and the SDGs. To foster the implementation of the SDGs, the United Nations partnered with several governmental and nongovernmental organisations worldwide to ensure commitment to this cause and also enhance synergies across global conventions. Several international coalitions, including the G20 and G8, have incorporated the 2030 Agenda
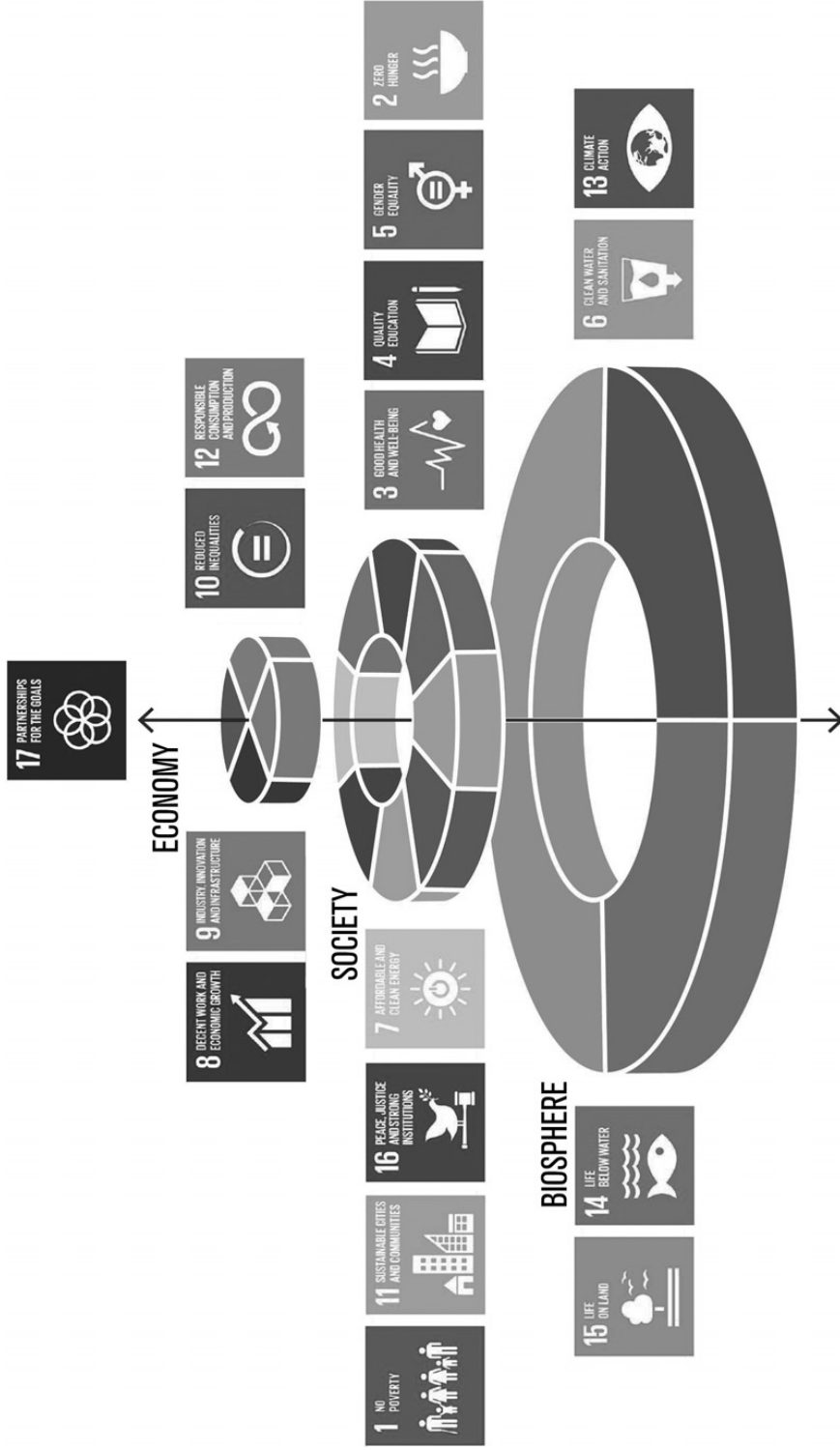
**Figure 15.4** The Sustainable Development Goals 'wedding cake' (source/credit: Azote Images for Stockholm Resilience Centre, Stockholm University). (A black and white version of this figure will appear in some formats. For the colour version, please refer to the plate section.)

into their policy frameworks, although reviews have indicated that the implementation of SDGs in general and the biodiversity goals in particular (SDG 14 life below water and SDG 15 life on land) are not yet sufficiently incorporated into national policies of either OECD or non-OECD countries (O'Connor et al., 2016; Schmidt-Traub et al., 2017). Achieving the SDGs requires a willingness to cooperate at the international level and sustainable development to be anchored as a guiding principle in all policy fields at national, European and international levels (Schmidt-Traub et al., 2017). However, the achievement of many SDGs depends largely on action taken in member states and above all requires the development and implementation of strong operative concepts at national and regional levels (Schmidt-Traub et al., 2017). Governments and other stakeholders are expected to mobilise efforts to establish national and regional plans towards implementation of the SDGs (ICSU, 2017). This requires a balance between addressing the scope and systemic nature of the 2030 Agenda with budgetary, political and resource constraints that inevitably mean countries prioritise certain targets (ICSU, 2017) and the associated risk of negative effects for 'non-prioritised' ones, particularly if they are in a conflicting, even mutually exclusive, relationship (Schmalzbauer & Visbeck, 2016). Furthermore, the goals are rarely independent and consequently failures in one area can quickly undermine progress in other areas (Schmalzbauer & Visbeck, 2016). National policy-makers thus face the challenge of understanding the inter-dependencies across the SDGs and achieving coherent implementation to ensure that progress in some areas is not made at the expense of progress in others. In addition, national policies often have implications on neighbouring countries or across globalised value chains, i.e. we need to avoid pursuing objectives in one region that negatively affect other countries' pursuit of their objectives (ICSU, 2017).

## 15.4  Joint working of the CBD and SDG 2030 Agenda

According to the CBD, the Strategic Plan for Biodiversity and the 2030 Agenda are consistent with each other and mutually supportive (CBD et al., 2017). The central role of the biosphere is explicitly acknowledged in the new illustration of the SDGs, as layers in a 'wedding cake' that build on one another, developed by the Stockholm Resilience Centre (see Figure 15.4). It implies a transition away from sectoral approaches embedding economy and society as parts of the biosphere and recognises that the related goals of promoting human dignity and prosperity can only be achieved sustainably if the Earth's vital biophysical processes and ecosystem services are safeguarded (ICSU, 2017). However, working towards the implementation of the SDGs in UN member states requires a process of prioritisation. This poses a fundamental challenge and possibly a genuine risk to

biodiversity conservation, as biodiversity concerns may not always be adequately anchored in other non-environmental policy sectors and thus may be overridden by other interests, especially when trade-offs arise between short-term development achievements and long-term sustainability (Schmalzbauer & Visbeck, 2016). These trade-offs will often be at the expense of biodiversity (SDGs 14 and 15), with likely negative consequences for several other SDGs, such as those related to food security, water supply and climate change mitigation. There have been some attempts to analyse these links further (Scharlemann et al., 2016; SRC 2016; CBD et al., 2017), but the critical question of how to resolve potential trade-offs in practice remains to be negotiated at the local, national and regional scales.

## 15.5  Role of science and evidence

### 15.5.1  CBD

To conserve biodiversity, it is important to devise action on reliable, sound knowledge about its components. The CBD has incorporated this principle by obliging all contracting parties to identify and monitor particularly diverse ecosystems and habitats, threatened species and other biodiversity components of ecological, social, economic, cultural or scientific importance (Article 7 and Annex 1 of the Convention). To effectively conserve biodiversity, it is furthermore crucial to build action on sound evidence about the factors that lead to its loss and measures to reduce their impact, e.g. possible policy and management responses and their effectiveness.

The CBD collates, utilises and synthesises such knowledge in various ways. The CBD secretariat, for example, regularly publishes notifications that call for input with regard to particular questions. Approximately every five years, it publishes the 'Global Biodiversity Outlook', an assessment of global biodiversity states and trends and of the progress toward the CBD objectives (Leadley et al., 2014).

The CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) is responsible for processing knowledge-related tasks and providing advice and guidance to the COP with respect to scientific (and technical and technological) questions. The SBSTTA plays a crucial role because it presents recommendations that are often later followed by the COP (sometimes with modifications). Therefore, its meetings are highly politicised and cannot provide a comprehensive and balanced evidence base with regard to upcoming COP negotiations. This has long been a major criticism of the SBSTTA and was one of the major motivations for creating the Intergovernmental Platform on Biodiversity and Ecosystem Services.

### 15.5.2  IPBES

As a platform of scientific communities and knowledge-holding networks, IPBES is expected to play a critical role in providing the best available, rigorous

and comprehensive scientific evidence to various biodiversity-related conventions and international initiatives. Since its establishment in 2012, IPBES has brought together more than a thousand scientists and knowledge-holders from around the globe to integrate knowledge systems from multiple disciplines. The main IPBES products and deliverables are assessments, which synthesise scientific findings and evidence on biodiversity change and its impact on human well-being to inform policy decisions.

One of the first IPBES assessments, the IPBES pollination assessment (IPBES, 2016) has made a significant global impact on policy development. For instance at the 13th Conference of the Parties to the Convention on Biological Diversity in Mexico in 2016 (CBD COP13), a COP decision recognised its relevance for the planned fifth edition of the Global Biodiversity Outlook and listed it among the best available scientific information. The COP also encouraged parties, other governments, relevant organisations, the scientific community and stakeholders, as well as indigenous peoples and local communities, to develop and use these tools and contribute to their further development (CBD, 2016a). The pollination assessment provides a best-practice 'toolkit' of the approaches that can be used to decide policies and actions by governments, the private sector and civil society. Different valuation methodologies are evaluated according to different visions, approaches and knowledge systems, as well as their policy relevance, based on the diverse conceptualisation of values of biodiversity and nature's benefits to people, including provisioning, regulating and cultural services. As such, this assessment has generated a wide range of follow-up products, actions and policy initiatives, including the following.

- A formal endorsement of the key messages of the assessment by the parties to the CBD at the 13th Conference of the Parties (COP13) in Mexico (CBD, 2016b).
- The formation of a 'Coalition of the Willing' by a growing number of governments around the world, inspired by the assessment to act nationally to protect pollinators and promote pollination (Promote pollinators, 2018).
- Publications in high-ranking scientific journals building on and reviewing the assessments (Potts et al., 2016; Díaz et al., 2018).
- An expanding list of national strategies and action plans on pollination in countries including, among others, Brazil, France, Germany, the Netherlands, the Republic of Korea and South Africa.

The IPBES scientific community also made significant contributions to the controversial discourse on the appropriateness of the ecosystem service concept and paved the way to reconciling differing views on conceptualisation of the human–nature relationship (Díaz et al., 2018; Stenseke & Larigauderie, 2018). It should be recognised, however, that the community will continue to

use many different terms for ecosystem services or the contributions people receive from nature, depending on context, and this plurality should be welcomed (Peterson et al., 2018). Both the open-ended stakeholder network and the new concept of nature's contributions to people reflect the co-design and co-development aspects of IPBES as a learning organisation.

The challenges posed in IPBES are many, including a more balanced integration of scientists and experts from both natural and social sciences for a holistic understanding of biodiversity and its interactions with society and humanity (Jetzkowitz et al., 2018; Stenseke & Larigauderie, 2018). A more thorough consideration of, and improvement in, achieving the balance and quality of geographic, gender and disciplinary representations will be critical in filling the knowledge gaps and adding interdisciplinary value to the IPBES assessments (Obermeister, 2017; Heubach & Lambini, 2018). Moving forward, it will be important for IPBES to liaise with the private sector for greater impact on socially responsible and sustainable development, and with the public in disseminating scientific knowledge to promote changes in individual behaviour and decisions conscious of biodiversity conservation.

### 15.5.3 SDGs

It is crucial that progress in the implementation of the SDGs in national policy processes is adequately monitored (Hák et al., 2016; Reyers et al., 2017). To track the SDGs, the UN Statistics Commission has recommended over 230 official indicators, and countries are invited to submit voluntary national reviews of their progress to the High-Level Political Forum (Sachs et al., 2017). However, not all of the indicators have well-established definitions or data for all UN member states. A review of reports submitted so far (Bizikova & Pinter, 2017) found they were particularly weak on the environmental SDGs 12–15 (Sachs et al., 2017) and the assessment of interlinkages, synergies and trade-offs between targets (Allen et al., 2018). The evaluation of SDGs and tracking the progress to their achievement requires holistic scientific approaches to better understand the linkages between the SDGs and their underlying challenges, to understand thresholds, rebound effects and tipping points, and to explain the benefits and trade-offs of a range of development pathways that could lead to a more sustainable global society (Schmalzbauer & Visbeck, 2016).

The IPBES community of scientists can also provide best expert knowledge and scientific evidence for the sustainable development of the planet to inform the SDGs. For example, the recent IPBES assessment of land degradation and restoration (IPBES, 2018c) mapped the relevance of land degradation against the SDG goals. This may help to mainstream biodiversity across sectors and societies and bring forth synergies between global initiatives. A well-functioning knowledge generation mechanism connecting scientific and policy bodies of the platform will be particularly important if IPBES is to become

an effective catalyst and orchestrator of harmonised science, policy and practice for better conservation.

## 15.6  Achievements of the CBD, IPBES and SGDs

There are several developments at the national level that can directly be traced to the CBD, such as the adoption of National Biodiversity Strategies and Action Plans in 185 countries of the world (as of December 2018, according to the CBD website). Other examples of direct influence of the CBD on its member states are the national regulations that parties have adopted to comply with the provisions of the two Protocols that have arisen from the CBD: the Cartagena Protocol on biosafety and the Nagoya Protocol on Access and Benefit Sharing. However, the CBD's influence on biodiversity governance at the national scale still appears limited. This is partly due to the power imbalances that exist among global institutions, and strong global forces that prioritise economic considerations over nature conservation, as well as power relations and societal preferences at the national scale. Furthermore, the fact that the CBD lacks a non-compliance mechanism may further weaken its influence.

Nonetheless, the CBD has provided inspiration to a great variety of state and non-state actors to initiate conservation actions. For example, the Aichi Biodiversity Targets (included in the Strategic Plan of the CBD for the period 2011–2020) have sparked debates and research on biodiversity-related questions and serve as important reference points in calls for greater efforts in nature conservation (e.g. they are often referred to by non-governmental organisations). These Targets, along with the UN Decade on Biodiversity with the same timeframe (2011–2020), have also inspired numerous actions on the ground, as documented on the CBD website (www.cbd.int/2011–2020/). Furthermore, the CBD mobilises resources and may provide finances to developing countries for the purpose of implementing the Convention (e.g. via the Global Environment Facility).

An important area where the CBD and SDGs exert influence is through fostering collaborations, between different biodiversity-related conventions and among relevant organisations and stakeholder groups at all subglobal scales. Alongside IPBES, they have also raised awareness of the values of biodiversity and their integration in other societal goals.

## 15.7  What next – how to engage?

As demonstrated, the past decades have seen an alignment of biodiversity-related agendas with different sectoral policies. Now the Aichi Biodiversity Targets and the SDGs need an increased implementation effort to deliver tangible results. In the national policy context this hinges on ensuring consistency within and between these two agendas and other political processes, effective governance systems, institutions and partnerships, and intellectual and financial resources

(ICSU, 2017). Scientists can – jointly with societal and policy actors – help to provide supporting evidence (see also Schmalzbauer & Visbeck, 2016):

- to build new partnerships across disciplines, to engage different knowledge domains and thereby foster innovation;
- to develop problem- and solution-oriented metrics, tools and indicators to aid the process of continuous learning and adaptive management;
- to provide open-source and open-access data and infrastructure to share knowledge and good practice;
- to conduct economic, social and health cost–benefit analyses to assess joint action versus silo approaches;
- to assist forecasting and informed decision-making through scenarios and models.

In order to maximise the impact of science in society through international conventions, national policies and local implementations, scientists can:

- address conservation questions in their own research and proactively enhance the transferability of research results as evidence for real-world application;
- actively engage with government agencies, NGOs and the public to learn about their knowledge needs, the ongoing political processes and the mode of operation, to enhance the societal relevance of their own research and better frame and communicate own research findings in a policy context (see Chapters 10 and 13);
- attend meetings of CBD, SDG, IPBES and other relevant conventions and initiatives as experts, observers, stakeholders or delegations through the channels of organisations and countries;
- proactively engage as authors or reviewers in IPBES assessments or other science–policy reports and contribute scientific evidence throughout the process, even if not a formal contributing author. IPBES has open calls and is open for engagement on many levels;
- develop transdisciplinary research collaborations and networks with experts from agencies, NGOs and other civic organisations.

This engagement at the science–policy interface requires time, openness and willingness for true collaboration between scientists, policy advisors and practitioners. While not always easy in short-term research funding circles, this can be very rewarding for everyone involved. Overall, conservation can only move forward when aligned with other policy goals and through integral support of all disciplines and all sectors to work for 'People and Nature'.

## 15.8 Acknowledgements

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