

A person wearing a hat and a backpack is walking through a coffee plantation in a mountainous landscape. The person is seen from behind, walking along a path between rows of coffee plants. The background shows rolling hills and mountains under a hazy sky, suggesting a rural or agricultural setting.

Using Landscape Approaches in National Biodiversity Strategy and Action Planning



Convention on
Biological Diversity

Recommended citation

UNU-IAS and IGES (2023) Using Landscape Approaches in National Biodiversity Strategy and Action Planning

Acknowledgements

The creation of this guide was financially supported by the Ministry of the Environment, Japan (MoEJ) and it was written in collaboration with the Secretariat of the Convention on Biological Diversity. We would like to express our sincere gratitude to Evonne Yiu, Tomoko Uetake, William Dunbar, Mari Yamazaki, Makiko Yanagiya, Lijie Cai, Jillian Campbell, Nadine Saad, and Kaoru Akahoshi for their invaluable contributions to the project that culminated in the creation of this guide. Their roles encompassed conceptualization, workshop coordination, and providing essential inputs during the finalization process. We would also like to thank the CBD Parties and other reviewers of earlier versions of the guide, as well as the participants of a consultation webinar that helped sharpen the contents of the guide.

This report was written by Andre D Mader, Suneetha M Subramanian, Maiko Nishi and Miyuki Noguchi. Design by Masato Aoki, IGES.

© United Nations University Institute for the Advanced Study of Sustainability 2023

Special note

We welcome feedback on the guide. We particularly invite inputs based on implementation challenges and case studies that users may want to share. Please send your inputs to isi@unu.edu.

Table of Contents

Foreword.....	iv
Summary.....	v
1. Introduction.....	1
Landscapes and seascapes.....	2
About landscape approaches.....	3
Landscape approaches, NBSAPs and the GBF.....	4
2. Operationalizing landscape approaches.....	5
Who can implement landscape approaches?.....	6
Components of landscape approaches.....	7
3. Integrating landscape approaches into national biodiversity targets and updated NBSAPs.....	9
Who to involve.....	10
The GBF as a guide on applying landscape approaches to NBSAPs.....	11
Examples of landscape approaches contributing to GBF targets.....	12
4. Additional considerations.....	15
Where to focus landscape approaches.....	16
National government support for implementation.....	16
Monitoring, review and reporting.....	16
Other policy and strategy at national level.....	16
Annex: additional resource.....	17
Bibliography.....	19

Foreword

Shinobu Yume Yamaguchi

*Director of United Nations
University Institute for the
Advanced Study of Sustainability*



The urgent need to get back on track to achieve sustainability goals cannot be overemphasized. In a world where human–nature interactions are steeped in complexity, and take place in diverse contexts, we face challenges that transcend boundaries and sectors. The call for whole-of-government and whole-of-society approaches underscores the importance of comprehensive strategies. Yet they require careful adaptation within sectoral plans.

The Kunming–Montreal Global Biodiversity Framework of the Convention on Biological Diversity (CBD) sets ambitious targets for Parties, calling for synchronized action for biodiversity, climate, health, livelihoods, and development goals. This requires revising and enhancing National Biodiversity Strategies and Action Plans (NBSAPs).

UNU-IAS is pleased to present this guide, developed in collaboration with the Institute for Global Environmental Strategies and the Secretariat of the CBD, for incorporating landscape approaches into NBSAPs. These approaches — which consider the multiple uses of landscapes and seascapes, and incorporate diverse user priorities in decision-making — offer a holistic perspective on biodiversity planning. They have profound implications for biodiversity conservation, climate, health, livelihoods, development, and other national priorities.

This manual is a valuable tool for policymakers and administrators involved in biodiversity planning. It reflects our commitment to supporting implementation of the CBD, and we look forward to its positive impact on the journey towards a more sustainable and harmonious world for all.

Kazuhiko Takeuchi

*President of Institute for Global
Environmental Strategies*



Human beings influence almost every landscape and seascape around the world, and most landscapes and seascapes have multiple users and multiple uses. “Landscape approaches” are approaches to management that accept these multiple uses and meaningfully involve these multiple users.

Custodianship of the land and sea can be a powerful motivation for its conservation. If we acknowledge the variety of land and sea uses, and engage and involve the variety of users, it is more likely that those users will be good custodians who regard the landscape as theirs to protect.

Until now, there has been no simple yet comprehensive overview of how to apply landscape approaches at the national level. That information is needed if national and subnational actors are to contribute to achieving the goals and targets of the Kunming–Montreal Global Biodiversity Framework and the 2030 Agenda for Sustainable Development. This guide synthesizes a variety of key research to present a concise and user-friendly introduction to this robust approach.

It is my pleasure to have partnered with UNU-IAS and the CBD to produce this important publication, bringing a crucial concept to a much larger audience.

David Cooper

*Acting Executive Secretary of the
Convention on Biological Diversity*



In 2022, the world agreed to take action to halt and reverse biodiversity loss and put nature on a path to recovery by 2030, working toward a vision of living in harmony with nature by 2050. To achieve this vision, urgent action is needed. The Kunming–Montreal Global Biodiversity Framework, adopted in December 2022, seeks to ensure that we integrate social and environmental development, including how local and national economic, cultural, and social decisions consider both ecological consequences and human well-being.

Halting and reversing biodiversity loss requires addressing the values and priorities of different actors and interest groups who have preferences on how best to use a land or seascape. It is in this context that the concept of landscape approaches is particularly useful. It helps to unravel the complex interactions between people and nature, and how best to leverage and synergize efforts towards conservation, sustainable use and equity.

We are pleased to have collaborated with UNU-IAS and IGES in the development of this guide on incorporating landscape approaches for NBSAPs. We hope that Parties and non-state actors find it a useful tool to plan and strategize coordinated and coherent actions across multiple sectors and actors.

Summary

Landscape approaches are approaches to management that consider and integrate the multiple uses and the multiple users of a landscape or seascape. These multiple uses, and the priorities of multiple users, are often difficult to reconcile, but attempting to do so is more sustainable than working in silos.

In the context of biodiversity conservation landscape approaches can be applied directly (see section 2) or enabled at the national level through national biodiversity strategies and action plans (NBSAPs) (section 3) or other mechanisms (section 4). Landscape approaches could even help to align NBSAPs between countries by considering transboundary conservation.

Landscape approaches can be applied directly by national governments in cases where those governments are directly responsible for management at the landscape or seascape scale, for example in national parks. At subnational levels of government there is likely to be an even wider variety of opportunities for such direct application. Beyond the realm of government, indigenous peoples and local communities and private landowners are directly responsible for land management. After identifying who to involve, stakeholders can convene and establish objectives, setting out a map or vision and planning together with follow-up monitoring. NBSAPs can include guidelines such as those laid out here, for NBSAP users working at the landscape or seascape level.

Landscape approaches can be applied indirectly by incorporating landscape approaches principles into biodiversity strategy and planning at the national level. The Kunming-Montreal Global Biodiversity Framework, adopted by Parties to the Convention on Biological Diversity in December 2022, provides a guide for countries to set targets, with target 1 on spatial planning underpinning the need for landscape or seascape approaches to protecting biodiversity. Landscape approaches can be incorporated into national targets to varying degrees depending on the local situation and the target.

Beyond NBSAPs and in support of them national governments can work directly with various stakeholders, including subnational governments, who more typically work at the landscape level. A suggested precursor is to identify which landscape or seascape and which stakeholders to focus on for greatest effect. All significant successes and failures of application of landscape approaches should be monitored as a means of improving, and national reports to the Convention on Biological Diversity provide one important means to report these observations. Cross-sector plans and sector-specific plans should also be considered as potential channels for integrating landscape approaches, considering their applicability to the spectrum of land/sea use activities and users.



1

Introduction

- Landscapes and seascapes
- About landscape approaches
- Landscape approaches, NBSAPs and the GBF

The purpose of this guide is to introduce the concept of landscape and seascape approaches (henceforth, “landscape approaches” for ease of reading), and how they can be applied to national biodiversity strategy and planning. Although it is written from the point of view of biodiversity conservation, it is aimed at all the many sectors that affect, and are affected by, conservation. Throughout this document, “conservation” may also include the restoration and sustainable use of biodiversity.

The manual consists of four sections:

- **Section 1** provides context. It explains what is meant by landscapes, seascapes and waterscapes, and landscape approaches, and how they are relevant to national biodiversity strategies and action plans (NBSAPs) and the Kunming-Montreal Global Biodiversity Framework (GBF).
- **Section 2** explains how to operationalize or implement landscape approaches. Landscape approaches are typically implemented at the local level, which is usually beyond the remit of NBSAPs. However, there are cases in which national governments work at the local level. In many other cases, as discussed in section 3, national governments can enable and encourage landscape approaches. To do so, however, a basic understanding of the process of implementing landscape approaches is necessary.
- **Section 3** discusses how landscape approaches can be applied to the process of updating or developing NBSAPs, using the targets of the GBF. While section 2 outlines how to “do” landscape approaches, section 3, shows how to enable and encourage landscape approaches by integrating them into strategy at the national level.
- **Section 4** discusses additional ways of enabling and encouraging the uptake of landscape approaches, beyond NBSAPs, including how to be strategic about their application.

The manual is expected to remain useful for years to come. However, its release is timed to facilitate governments’ updating or review of NBSAPs in line with the GBF, in accordance with CBD Decision 15/6 [1].

Landscapes and seascapes

A landscape or seascape¹ is more of a concept than a physical space [2], and there are many ways to define them. Here, we use the understanding that landscapes and seascapes are multifunctional mosaics of ecosystems and land and sea use (see Figure 1) that are characterized by the presence of multiple stakeholders² and diverse human-nature interactions. The different elements of a landscape or seascape, including its species and ecosystems, are interconnected and interdependent. That means it is important to reconcile different uses and users of the landscape or seascape. Different boundaries can be used to demarcate a landscape or seascape. These can be ecological, like the transitions between land and water or between plains

and mountains or the perimeter of watersheds (catchment areas); or administrative such as the borders of a municipality or local community.

Diversity in a landscape or seascape depends on biophysical factors like topography, hydrology, substrate, vegetation, etc., and the influence of human beings [3]. A landscape can consist of, for example, protected areas or sacred areas, crops, human settlements, and infrastructure. A seascape might consist of strictly protected areas, less strictly protected areas, aquaculture, coast and open ocean, and areas that experience different forms of fishing. A landscape or seascape’s composition (the elements it contains, and their quality) and configuration (the way in which those elements are arranged and connected), affect its ecological integrity [4].

Ecological integrity is the capacity of ecosystems to function to their natural potential. In other words, ecological integrity means healthy landscapes and seascapes. Degraded landscapes or seascapes are often unable to support as many ecological functions, or as many species, as healthy ones. Connectivity between the elements of a landscape or seascape also facilitates ecological integrity, while barriers impede it. For example, fences or dams prevent organisms from migrating across a landscape, while pesticides might prevent pollinators from moving between natural vegetation and crops.

Ecosystem services are influenced by ecosystem integrity because ecosystem services depend on ecosystem functions. For example, croplands mostly produce food while natural grasslands may produce a broader spectrum of services including erosion control, flood retention and the provision of a diversity of species. Degraded cropland or grassland is less able to provide any of these services. Free-flowing rivers, unlike rivers fragmented by dams, transport nutrients and sediments to feed coastal ecosystems and allow the migration of fish upon which livelihoods depend.

About landscape approaches

The 2050 vision of the GBF is a world of living in harmony with nature. Part of the mission of the GBF, for the period up to 2030 and towards the 2050 vision, is to halt and reverse biodiversity loss. The vision and mission are elaborated in the goals and targets of the framework. Landscape approaches may be not only helpful, but necessary, for achieving the vision, mission, goals and targets of the framework, especially outside protected areas. That’s because landscape approaches aim to reconcile developmental priorities with conservation priorities, to maximize the benefits to each. Landscape approaches recognize the inevitable trade-offs between conservation and development [5].

1 In this document, the term “landscapes and seascapes” refers also to fresh and brackish inland and coastal waterscapes, unless otherwise specified. The term “landscape approaches” is applicable to all of these systems.

2 This manual refers to “stakeholders” in a broad sense to include both ‘rightsholders’ and those who do not possess legal rights and control over the relevant landscape or seascape.



Figure 1. A stylized representation of a terrestrial landscape, with different land-use types such as natural ecosystems, agriculture, forestry, settlements, and a waterway. Different land-use types typically have different people using them. However, within a land-use type there may also be different users, using the land for different purposes. The various elements of a seascape are less spatially explicit, but have similar characteristics in terms of users and use.

Without landscape approaches, conservation is less likely to happen, especially outside formally protected areas. A relatively small proportion of the planet is formally protected. Even areas that are protected are typically disconnected and are not always well managed. Target 3 of the GBF is to protect at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas; while goal A stresses the importance of the integrity, connectivity, and resilience of all ecosystems. Achieving such ambitious global conservation aims requires inclusive conservation outside protected areas, with the buy-in of a diverse range of stakeholders.

As the name suggests, landscape approaches are conducted at the scale of the landscape or seascape, and with the involvement of the stakeholders who use and manage the landscape or seascape [6]. Among stakeholders, some may have been, or may still be, marginalized and lacking in representation, and hence in need of due consideration. These may include indigenous peoples and local communities (IPLCs), women and girls, the elderly, youth, and anyone who is unfamiliar with the workings of government. Different stakeholders may have distinct roles, knowledge, and experiences related to landscapes and seascapes. Therefore, their participation could be necessary not only for their own empowerment, but also for sustainable development and successful biodiversity conservation.

Ideally, landscape approaches should be incorporated into a spatial plan. A spatial plan is a strategy for the development of an area, stating the policies, priorities, programmes and allocations of areas for implementation, and influencing the distribution of human settlements and activities [7]. A spatial plan usually includes a map of the relevant area, showing how different parts of the area are used or the intention for their use, based on existing information. A very basic plan can be enough – at least to start with (more details in section 2).

The terms “landscape approach” and “ecosystem approach” are sometimes used interchangeably [6]. The ecosystem approach, however, focuses mostly on managing entire ecosystems [8], while social and economic aspects may be “relegated to the background”. The ecosystem approach also tends not to address the critical aspect of managing conflicts and trade-offs between stakeholders [9], which requires careful negotiation. Multifunctional landscapes and seascapes with diverse stakeholders are complex and dynamic, so management needs to be adaptive and collaborative [10, 11]. A “good” landscape approach can be regarded as one that manages this process with as little conflict as possible and integrates the multiple uses of a landscape or seascape as much and as smoothly as possible. Finding synergies between different land or sea uses is a key goal of landscape approaches including, for example between biodiversity conservation and climate action.

Landscape approaches, NBSAPs and the GBF

Landscape approaches can be applied to national biodiversity strategy and planning to help achieve the goals and targets of the GBF [12]. The core of the GBF is a set of 23 targets that align with its four goals, and with the objectives of the CBD and its Protocols: to conserve and restore biodiversity, and to ensure that its use is sustainable, and its benefits are equitably shared. Countries are required to update or revise their NBSAPs in line with the GBF and its goals and targets. In so doing, they enable their contributions to achieving the goals and targets of the GBF. Some targets in the GBF already encourage landscape approaches. In the case of all GBF targets, however, national governments can adapt national targets to integrate landscape approaches (see section 3 of this manual). NBSAPs are, therefore, the ideal place for landscape approaches to enter the national planning process.

Landscape approaches could even help to harmonize NBSAPs across national boundaries through transboundary conservation. Indeed, the GBF invites Parties and other governments to cooperate at the transboundary, regional, and international levels in implementing the framework. In cases of transboundary development, the guidance of the Espoo Convention [13], on environmental impact assessment may be useful.

2

Operationalizing landscape approaches

- Who can implement landscape approaches?
- Components of landscape approaches

Landscape approaches need to take place at different scales [14]. NBSAPs and other strategies at the national level are needed to enable landscape approaches, which we discuss in section 3. The operationalization of landscape approaches, however, involves specific actions, at specific locations, by specific actors, involving all key stakeholders. Section 2 focuses on ways in which national government works at this local level, for example in the management of a national park or putting in place infrastructure.

Who can implement landscape approaches?

All stakeholders within a particular landscape or seascape can take part in implementing landscape approaches. In fact, comprehensive stakeholder representation is a big part of what defines landscape approaches. Ensuring fair representation can be challenging due to the power dynamics in almost any group of people. Among diverse groups, women, and IPLCs and other minority groups, have historically been at a disadvantage. The ways in which that can be avoided are beyond the scope of this report but are the focus of many other publications including some by the CBD [15, 16, 17, 18].

Participants in the implementation of landscape approaches

To be effective, government sectors involved in landscape and seascape management include those responsible for biodiversity conservation, as well as those responsible for development decisions that may have an impact on biodiversity, or be impacted by its conservation. These sectors may be public or private, national or local, formal, or informal. Some may be conservation oriented, while others may have a history of conflict with conservation, or no association with conservation at all. They all have a part to play in operationalizing landscape approaches.

For example, conservationists may be responsible for the management of protected areas and other areas managed primarily for conservation. IPLCs and others may manage “other effective area-based conservation measures” (OECMs), which contribute to conservation outcomes even if they are not managed for the sake of conservation. Spatial planners play a central role in determining and designing all aspects of landscape and seascape use. Development planners play a similarly central role to spatial planners, with less of a spatial focus. Agriculturists, aquaculturists, fishers, and foresters use disproportionately large areas of land or sea for critical production activities, with agriculture constituting 38% of the world’s land surface [19]. Those involved in infrastructure, mining, and energy production significantly alter parts of the landscape or seascape, as well as causing pollution. Tourism benefits from pristine landscapes and seascapes but may also impact them. Landscape approaches can help to mainstream biodiversity into many of these sectors.

As indicated in CBD COP Decision 15/12 [20], local and subnational governments may have a particularly important role to play in operationalizing landscape approaches because they

operate at a level where landscape approaches are most likely to be implemented. Local governments can also reach a range of local stakeholders, further facilitating implementation at the landscape or seascape level. Many subnational governments have subnational and local biodiversity strategies and action plans (LBSAPs), which are sometimes included in, and can complement, NBSAPs and facilitate local implementation of NBSAPs. National governments were invited to support the development of LBSAPs in paragraph 2 (b) of CBD COP Decision 15/12.

Civil society organizations, IPLC leaders and others who represent the interests of stakeholder groups, especially stakeholder groups that have historically been under-represented, can contribute by mobilizing stakeholders at the landscape or seascape scale to take part in landscape approach processes. Among stakeholders, such groups require special attention to avoid continued marginalization and to ensure involvement in decision-making.

Coordinators of the implementation of landscape approaches

Aside from those who should be involved in implementing landscape approaches, there are also those who can support and facilitate the process. Experts on the application of landscape approaches may already be working in government, or they may need to be consulted on a temporary or permanent basis. For example, experts in the facilitation of meetings and negotiations can help to ensure a smooth-running and fair discussion. Experts in ecology, conservation biology, systematic conservation planning, and other natural science disciplines can provide expertise about the natural elements of the landscape or seascape. Experts on indigenous and local knowledge, gender and other aspects of social inclusion can facilitate the representation of marginalized groups and provide useful information about the area in question and its custodians in the past. Experts in geography, public health, and other areas of social science can provide expertise about the socio-cultural elements of the landscape or seascape. Experts in finance and economics can foster an understanding of financial risks and benefits of different decisions regarding the use of an area.

Components of landscape approaches

This section outlines components or elements of landscape approaches. The components are presented in a sequence in which they could be applied, but the order may differ in different situations. More detailed guidelines are provided by initiatives like the Terraso Platform, which provides the various stakeholders in a landscape or seascape with software, data tools, and the access to financial resources to find common ground [21]. Note that the components listed below may need to be repeated in an iterative process of dialogue. That requires time, but it enables relationships to be built and conflicts gradually to be resolved.

Identify the landscape or seascape and its stakeholders

Identification of a landscape or seascape and identification of its stakeholders are interlinked, and so they are part of the same exercise. The boundaries of the landscape or seascape will determine who to include. If the area requires a group that is too large or too complex to convene, it may be that the area is too large to be considered as a single landscape or seascape. In that case, the boundaries may need to be reconsidered before landscape approaches are applied. Identify all stakeholder groups in the landscape or seascape and identify representatives with whom to engage. Invite stakeholder representatives to a scoping meeting and explain that their participation will enable them to air their views and express their needs.

Things to consider:

- Local media and other local stakeholder networks (e.g., farmers or other stakeholder networks) may be useful to invite stakeholders to take part in the process.
- Indigenous and local knowledge on management and resource utilization could provide valuable input. When soliciting indigenous and local knowledge, respect the rights of IPLCs [12] and make sure to get their prior and informed consent [17].
- Note the unique needs of different stakeholders. They may, for example, require interpretation or materials in other languages.

Convene and establish objectives

Implementing landscape approaches involves identifying issues in the landscape or seascape, noting trade-offs and synergies between different land uses, and then working together with stakeholders to minimize tradeoffs and maximize synergies. The goal is to get as close as possible to defined, agreed and shared management objectives [6, 14] and a shared vision. Trust is essential and requires openly sharing objectives and values.

Start by enlisting the support of facilitators who can help to ensure smooth discussions. When everyone is together, ask different stakeholders about their objectives, concerns, aspirations, and incentives for cooperation. Identify knowledge inputs and expertise, giving sufficient attention to indigenous and local knowledge [22]. Clarify responsibilities and rights, including land rights [6]. Agree on a legitimate system that can be consulted in case arbitration is required. Try to secure the commitment of all to work together to plan and manage the landscape or seascape.

Consider starting with simple, attainable goals for cooperation. A visioning exercise can enable different stakeholders to describe their hopes for the landscape or seascape. Discussing and comparing these individual visions can lead into discussing and describing a common future vision.

Things to consider:

- The challenging task of minimizing trade-offs can include simple actions like identifying alternatives for development, or means of production, that have even a slightly lighter impact on biodiversity.
- The process should not override existing rights of stakeholders, including IPLCs and women, that have been recognized in the landscape or seascape.
- Agreeing on the boundaries of the area will help to clarify objectives [23].
- Power relations exist in any group, especially if it is heterogenous. Being aware of that can help to balance inputs [24].

Map

Compile a map of the landscape or seascape, indicating different forms of land use and which stakeholders are active in each. The complexity of maps depends on information and tools available, but simpler is generally better. The scale of the map should match its purpose, but to be useful it should be at a resolution fine enough to capture all of the land uses that are represented. A draft map can be prepared before convening stakeholders, and then refined together. To integrate conservation considerations, start with an existing map of ecosystems and land cover, if available. Maps of land cover and/or land use may also be found in, for example, municipal master plans, or in the plans of other sectors like agriculture. Where possible, it can be helpful to indicate existing administrative and/or ecological boundaries and/or physical boundaries such as watersheds. As described in section 1, the area needs to be an appropriate size for applying a landscape approach. If no maps are available at the local level, try starting with national scale maps. If those are also not available, try global scale data such as the land cover maps from ESA [25], protected areas from the WDPA [26], or various maps available from UN Biodiversity Lab [27]. Even global maps might be at a scale that is fine enough to use in a landscape or seascape.

Areas of high importance for biodiversity should be included in landscape or seascape mapping. The world database on key biodiversity areas can be used alongside tools like the world database on protected areas, to assess the most important areas for conservation in a landscape or seascape.

Things to consider:

- A geographic information system (GIS) is the most precise way to map an area. Consider options like the free QGIS [28], or paid versions like ArcGIS [29]. Bear in mind that some land use data are likely to be more accurate than other data.
- Whatever the accuracy of your map, ground-truthing (on-the-ground checking to see whether the map is accurate in various places) may be necessary.

Plan

Depending on the outcome of the visioning exercise mentioned under “convene and establish objectives” above, the map discussed above can be adapted into a simple spatial plan. Such a plan could indicate what is intended for the landscape or seascape in future, acknowledge conflicting multiple objectives. For example, if stakeholders agree to expand a protected area, the spatial plan could indicate the new boundaries of that area. This can form the basis of a basic management plan, which also states what will be done by different stakeholders in the landscape or seascape, and by when. For example, it may state that a protected area will be managed by the local government in partnership with an NGO, with concessions to IPLCs and a tour operating company.

A spatial planning exercise can be time-consuming and challenging [30]. If it is not possible to compile a detailed map, use a simple one accompanied by a management plan so that the landscape or seascape approach process is not hindered. Review and modify draft spatial plans with stakeholders. If sufficient agreement is reached, you may be able to go on to develop a budget and agree on who is responsible for funding. Where relevant, circulate the plan for public consultation, and then implement the plan.

For more detailed guidance see, for example, the “LandScale” initiative, which has developed a framework for integrated impact monitoring at landscape or seascape scale including for biodiversity [14, 31], and a guide to landscape financing [32].

Things to consider:

- It can be useful to be aware of the overarching legislation pertaining to land use in your country or area, systems of taxation, policies that support or threaten biodiversity (including subsidies), and support mechanisms.
- Team building exercises can foster cooperation between stakeholders, and encourage the participatory approaches needed to develop plans using landscape approaches.
- Incentives, such as recognition for participation, may help to motivate stakeholders to take part in planning.

Monitor

Identify and agree on metrics for measuring success. Be adaptive based on outcomes and changing circumstances. Indicators of progress can be difficult to identify. Some, however, already exist including in the draft monitoring framework for the GBF [33] and other publications. All GBF indicators may be relevant to landscape approaches, but some are specifically relevant to landscape approaches. Relevant indicators, in the GBF and elsewhere, may include: Level of stakeholder representation

- Existence of a biodiversity-inclusive spatial plan [3].
- Proportion of agricultural area under productive and sustainable agriculture [33].
- Progress towards sustainable forest management [33].
- Area of the landscape with continuous vegetative cover [34].
- Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34].

In other cases, a specific landscape or seascape may need specific indicators to be developed – ideally also with the involvement of all stakeholders. For example, in a mosaic of protected areas and farmland, the level of human-animal conflict may be an indicator of the success of a landscape approach. Use the monitoring process to inform the next round of implementation of landscape approaches, building on the lessons and mistakes of the previous round.

Things to consider:

- Involving all stakeholders as much as possible in the process of monitoring [23], including data collection, can foster ownership of the process and build capacity to manage the landscape or seascape in an integrated way, thus supporting strong governance [35].
- Ensuring that stakeholders have access to a fair justice system can put stakeholders at ease, knowing that they have recourse in case of dispute or disagreement [5].

3

Integrating landscape approaches into national biodiversity targets and updated NBSAPs

- Who to involve
- The GBF as a guide on applying landscape approaches to NBSAPs
- Examples of landscape approaches contributing to GBF targets

Parties to the CBD are required to update or revise their NBSAPs and their national targets in line with the goals and targets of the GBF. This provides an opportunity for the integration of landscape approaches into national biodiversity planning and implementation. While landscape approaches are implemented at the local level, NBSAPs and national targets can provide a framework for biodiversity-friendly land management for all of government and the whole of society, including at the local level. Annex I of CBD COP Decision 15/6 [1] provides guidance for revising or updating NBSAPs to align with the GBF, including a template in which countries can describe how landscape approaches have been used to align national targets with those of the GBF.

Who to involve

If stakeholder groups are involved in the process of formulating NBSAP targets, NBSAPs can be a tool to stimulate action at the landscape or seascape level. At the national level it is usually impractical to involve stakeholders representing individual landscapes or seascapes, simply because there are too many landscapes and seascapes and too many stakeholders. However, stakeholder groups may be represented at the national level, where they can help to convey the general concerns common to those groups of stakeholders. With broad stakeholder participation and buy-in, both national and local objectives are likely to be more attainable and sustainable.

Stakeholder representatives in this process may include:

- Government and other sectors that have an impact on the environment such as agriculture, fisheries, forestry, infrastructure, energy, finance, etc.
- Government and other sectors that benefit from conserving biodiversity, such as health departments, disaster risk planning, culture, etc.
- Local government representatives, to ensure representation and coordination at national level and to facilitate the development of LBSAPs
- Representatives of neighboring countries, in cases where transboundary cooperation is being explored
- Private sector representation from sectors such as agriculture, forestry, aquaculture, fisheries, financial institutions, mining, local government, energy, transport, etc., as well as private landowners and private protected areas
- Civil society organizations and representatives of stakeholder groups, especially those that are known to be under-represented
- IPLCs

Experts may need to be brought in to facilitate the development of the NBSAP. Experts include people with expertise on landscape approaches or related skills, such as working with diverse stakeholders. Such experts may already be working in government, or they may need to be brought in from outside on a temporary or permanent basis. Depending on the relevant target, they may include:

- Professional facilitators
- Ecologists, conservation biologists and other natural scientists
- Spatial planners and conservation planners
- Geographers, public health experts and other social scientists
- Experts on indigenous and local knowledge

Subnational government representatives at a level between local and national, may be able to bridge national government and local governments.

In the process of developing or updating their NBSAPs, national governments need to involve stakeholders across government and beyond government, providing sufficient time to integrate their inputs. To emphasize this need, target 1 of the GBF stipulates participatory spatial planning, and target 21 stipulates participatory management.

Stakeholders' input could help to finetune the NBSAP or even steer it in a better direction and can instill some sense of ownership of the process. Stakeholders could also be invited to provide their views on a draft document of NBSAP targets, allowing input from a larger number of potential contributors.

GBF targets as a guide on applying landscape approaches to NBSAPs

Section 2 explains how landscape approaches are applied in practice. But they are always applied at the landscape or seascape (local) level. NBSAPs function at the national level and lay out an overarching strategy that can guide implementation at the local level. NBSAP targets can be designed so that they encourage landscape approaches at the local level.

Going another level up, the GBF and its 23 targets provide a framework for national target setting in NBSAPs. Here, we explain how landscape approaches can be applied to individual targets in the NBSAP and which indicators may be used to measure progress. Indicators may need to be used in combination to indicate whether landscape approaches have contributed toward a target, and the monitoring framework for the GBF [31] includes some such indicators that may be useful. Other indicators are borrowed from other sources. The relevance of each target to application of landscape approaches is indicated by the background color, with the darkest green being the most relevant.

Target 1

Ensure that all areas are under participatory integrated biodiversity inclusive spatial planning and/or effective management processes addressing land and sea use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.

Landscape approaches

Target 1 inherently acknowledges the need for landscape approaches. It can be applied more-or-less as it is at the national level in the NBSAP.

Possible landscape & seascape -related indicators

Number of local authorities applying landscape approaches in a country

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Proportion of agricultural area under productive and sustainable agriculture [33, 36]

Progress towards sustainable forest management [33]

Progress towards sustainable water management

Number of integrated landscape initiatives [34]

Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]

Availability of geospatial mapping tools to support decision-making and landscape planning

Target 2

Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

Landscape approaches

Actions toward target 2 can integrate landscape approaches by setting targets of restorative land and sea use, such as erosion control in agriculture and soil amelioration where industry and mining have occurred.

Possible landscape & seascape -related indicators

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Progress towards sustainable forest management [33]

Progress towards sustainable water management

Number of integrated landscape initiatives [33]

Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]

Area of landscapes with continuous vegetative cover [34]

More relevant



Less relevant

Target 3

Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities including over their traditional territories.

Landscape approaches

Landscape approaches can be applied to target 3 if protected areas are designated, and OECMs recognized, with the agreement and commitment of those involved in managing those areas. Building capacities and creating opportunities for a wide set of stakeholders is central to applying landscape approaches to this target.

Possible landscape & seascape -related indicators

- Number of local authorities applying landscape approaches in a country
- Proportion of agricultural area under productive and sustainable agriculture [33, 36]
- Progress towards sustainable forest management [33]
- Progress towards sustainable water management
- Number of integrated landscape initiatives [34]
- Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]
- Area covered by OECMs and mixed-use protected areas

Target 4

Ensure urgent management actions, to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.

Landscape approaches

Human-wildlife conflict is a part of target 4 that is particularly relevant to landscape approaches, for example through ongoing consultation with those who interact most with wildlife. Raising of awareness about endangered species that occur in parts of the landscape or seascape where conservation is not a priority and reducing adverse impacts on the most threatened species, are also relevant.

Possible landscape & seascape -related indicators

- Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]
- Proportion of agricultural area under productive and sustainable agriculture [33, 36]
- Progress towards sustainable forest management [33]
- Progress towards sustainable water management
- Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]
- Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Target 5

Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spill-over, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.

Landscape approaches

Target 5 of the GBF implies human use of the landscape or seascape other than conservation. Therefore, it already encourages landscape approaches as long as actions are applied to various parts of the landscape or seascape and not only conserved areas, and if applied to various users of the landscape or seascape.

Possible landscape & seascape -related indicators

Percentage of the population in traditional occupations [33]

Proportion of agricultural area under productive and sustainable agriculture [33, 36]

Progress towards sustainable forest management [33]

Progress towards sustainable water management

Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]

Target 6

Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 percent, by 2030, eradicating or controlling invasive alien species especially in priority sites, such as islands.

Landscape approaches

Target 6 of the GBF incorporates landscape approaches if actions acknowledge the role of multiple users of the landscape or seascape, and their potential role in reducing the introduction and spread of invasive species, for example in the control of invasive species in agriculture and aquaculture.

Possible landscape & seascape -related indicators

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Percentage of the population in traditional occupations [33]

Proportion of agricultural area under productive and sustainable agriculture [33, 36]

Progress towards sustainable forest management [33]

Progress towards sustainable water management

Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

More relevant



Less relevant

Target 7

Reduce pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use; reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and also preventing, reducing, and working towards eliminating plastic pollution.

Landscape approaches

Pollution is caused by various land and water uses other than conservation, so actions toward target 7 can be aimed at addressing the need to reduce pollution by different forms of land use. At the same time, as stated in this target, food security and livelihoods should be taken into account, for example through acceptable levels of chemicals required for agriculture, aquaculture and forestry, and waste management.

Possible landscape & seascape -related indicators

- Percentage of the population in traditional occupations [33]
- Proportion of agricultural area under productive and sustainable agriculture [33]
- Progress towards sustainable forest management [33]
- Progress towards sustainable water management
- Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]
- Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Target 8

Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

Landscape approaches

Climate change mitigation, adaptation, and risk reduction can be applied by almost all land and sea users to almost all aspects of land and sea use. Target 8 is thus relevant across sectors and can borrow from existing climate change strategies. To contribute to target 8, actions need to explicitly consider negative impacts on biodiversity.

Possible landscape & seascape -related indicators

- Level of cross-sector involvement in compiling an NBSAP
- Number of local authorities applying landscape approaches in a country
- Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]
- Number of integrated landscape initiatives [34]
- Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]

Target 9

Ensure that the management and use of wild species are sustainable, thereby providing social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products and services that enhance biodiversity, and protecting and encouraging customary sustainable use by indigenous peoples and local communities.

Landscape approaches

Target 9 reflects landscape approaches when actions toward the target acknowledge and involve all relevant stakeholders impacted by, or impacting, the sustainable use of wild species. Traditional practices of IPLCs are particularly relevant due to their close relationship with wild species.

Possible landscape & seascape -related indicators

- Level of cross-sector involvement in compiling an NBSAP
- Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]
- Percentage of the population in traditional occupations [33]
- Progress towards sustainable forest management [33]
- Progress towards sustainable water management
- Number of integrated landscape initiatives [34]
- National policy support for integrated landscape management [34]
- National policy support for integrated basin management

Target 10

Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches contributing to the resilience and long-term efficiency and productivity of these production systems and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.

Landscape approaches

Due to its focus on sustainable agriculture, aquaculture, fisheries or forestry, target 10 is inherently landscape or seascape oriented if the stakeholders who manage these areas consulted and involved in target setting.

Possible landscape & seascape -related indicators

- Level of cross-sector involvement in compiling an NBSAP
- Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]
- Proportion of agricultural area under productive and sustainable agriculture [33, 36]
- Progress towards sustainable forest management [33]
- Progress towards sustainable water management
- Number of integrated landscape initiatives [34]
- Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]
- National policy support for integrated landscape management [34]
- National policy support for integrated basin management
- Degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries [37]

More relevant



Less relevant

Target 11

Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as regulation of air, water, and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and ecosystem-based approaches for the benefit of all people and nature.

Landscape approaches

Almost all land and sea users in almost all types of land and sea use, benefit from ecosystem services. Landscape approaches are therefore inherently relevant to target 11 whenever the stakeholders who manage these areas are involved in, and benefit from, the restoring, maintaining, and enhancing of ecosystem services.

Possible landscape & seascape -related indicators

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Proportion of agricultural area under productive and sustainable agriculture [33, 36]

Progress towards sustainable forest management [33]

Progress towards sustainable water management

Proportion of agricultural area managed with climate-, water- and biodiversity-friendly practices [34]

Area of landscapes with continuous vegetative cover [34]

Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Target 12

Significantly increase the area and quality and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature and contributing to inclusive and sustainable urbanization and the provision of ecosystem functions and services.

Landscape approaches

Cities can be considered as landscapes, so target 12 has landscape approaches built into it to some extent. Various landowners, including city governments and large corporations, can be involved in creating, improving, and promoting access to green and blue spaces in urban and densely populated areas and conserving their species. Special access rights for local stakeholders can help to foster stewardship.

Possible landscape & seascape -related indicators

Number of local authorities applying landscape approaches in a country

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Area of landscapes with continuous vegetative cover [34]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Target 13

Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030 facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.

Landscape approaches

Facilitating access to genetic resources and ensuring the fair and equitable sharing of benefits arising from the use of genetic resources, and as relevant, of associated traditional knowledge, requires multi-stakeholder involvement. Target 13 is therefore another target that already has landscape approaches built-into it.

Possible landscape & seascape -related indicators

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Percentage of the population in traditional occupations [33]

Number of companies reporting on disclosures of risks, dependencies and impacts biodiversity [33]

Number of integrated landscape initiatives [34]

Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Target 14

Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, fiscal and financial flows with the goals and targets of this framework.

Landscape approaches

Target 14 reflects landscape approaches if the integration of biodiversity values into policies, assessment, planning, and development acknowledges and involves diverse stakeholders and manages trade-offs with other key development goals.

Possible landscape & seascape -related indicators

Level of cross-sector involvement in compiling an NBSAP

Number of companies reporting on disclosures of risks, dependencies and impacts biodiversity [33]

Number of integrated landscape initiatives [34]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

More relevant



Less relevant

Target 15

Take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions: (a) Regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity including with requirements for all large as well as transnational companies and financial institutions along their operations, supply and value chains and portfolios; (b) Provide information needed to consumers to promote sustainable consumption patterns; (c) Report on compliance with access and benefit-sharing regulations and measures, as applicable; in order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.

Landscape approaches

Business is a broad term that can reflect a wide diversity of landscape and seascape uses, from small to large and from agricultural/ aquacultural to industrial to financial. Many are a significant part of the landscape or seascape. Target 15 reflects landscape approaches if actions consider both the impacts and the benefits of business on the full range of landscape and seascape users.

Possible landscape & seascape -related indicators

Level of cross-sector involvement in compiling an NBSAP

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Number of companies reporting on disclosures of risks, dependencies and impacts biodiversity [33]

Number of integrated landscape initiatives [34]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

Target 16

Ensure that people are encouraged and enabled to make sustainable consumption choices including by establishing supportive policy, legislative or regulatory frameworks, improving education and access to relevant and accurate information and alternatives, and by 2030, reduce the global footprint of consumption in an equitable manner, halve global food waste, significantly reduce overconsumption and substantially reduce waste generation, in order for all people to live well in harmony with Mother Earth.

Landscape approaches

Target 16 addresses ecological footprint at a fairly global level, but landscape approaches can contribute collectively when actions include, for example, standards for sustainable production practices such as certification of sustainable production, providing sustainable options for consumers.

Possible landscape & seascape -related indicators

Level of cross-sector involvement in compiling an NBSAP

Number of companies reporting on disclosures of risks, dependencies and impacts biodiversity [33]

Number of integrated landscape initiatives [34]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

Target 17

Establish, strengthen capacity for, and implement in all countries biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity and measures for the handling of biotechnology and distribution of its benefits as set out in Article 19 of the Convention.

Landscape approaches

Facilitating access to genetic resources and ensuring the fair and equitable sharing of benefits arising from the use of genetic resources, and associated traditional knowledge, inherently requires multi-stakeholder involvement.

Possible landscape & seascape -related indicators

Proportion of agricultural area under productive and sustainable agriculture [33, 36]

Progress towards sustainable forest management [33]

Progress towards sustainable water management

Number of companies reporting on disclosures of risks, dependencies and impacts biodiversity [33]

Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Target 18

Identify by 2025, and eliminate, phase out or reform incentives, including subsidies harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least 500 billion United States dollars per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.

Landscape approaches

Actions toward target 18 can encourage rational and safe use of chemicals in production activities and incentivize policies and activities for various sectors that will reduce impact on ecosystems and biodiversity.

Possible landscape & seascape -related indicators

Level of cross-sector involvement in compiling an NBSAP

Number of companies reporting on disclosures of risks, dependencies and impacts biodiversity [33]

Number of integrated landscape initiatives [34]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

More relevant



Less relevant

Target 19³

Substantially and progressively increase the level of financial resources from all sources, in an effective, timely and easily accessible manner, including domestic, international, public and private resources, in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, by 2030 mobilizing at least 200 billion United States dollars per year.

Landscape approaches

National governments can obligate environmental safeguards, policies, compensatory mechanisms and penalties in case of adverse events to people and nature. Systems of fees to access landscapes and seascapes can also be considered, for commercial activities

Possible landscape & seascape -related indicators

Level of cross-sector involvement in compiling an NBSAP

Number of companies reporting on disclosures of risks, dependencies and impacts biodiversity [33]

Number of integrated landscape initiatives [34]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

Target 20

Strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation, including through South-South, North-South and triangular cooperation, to meet the needs for effective implementation, particularly in developing countries, fostering joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the framework.

Landscape approaches

Actions toward target 20 incorporate landscape approaches if they ensure that relevant knowledge, including traditional knowledge, innovations and practices of IPLCs, guide decision-making.

Possible landscape & seascape -related indicators

Level of cross-sector involvement in compiling an NBSAP

Percentage of the population in traditional occupations [33]

Number of companies reporting on disclosures of risks, dependencies and impacts biodiversity [33]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

³ Target 19 is too long to include here. Please see the GBF for its full text [12].

Target 21

Ensure that the best available data, information and knowledge, are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent, in accordance with national legislation

Landscape approaches

Establish freely accessible clearing house mechanisms available for decision makers at multiple levels, that integrate data from different sectors.

Possible landscape & seascape -related indicators

Number of local authorities applying landscape approaches in a country

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Percentage of the population in traditional occupations [33]

National policy support for integrated landscape management [34]

National policy support for integrated basin management

Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Target 22

Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.

Landscape approaches

Landscape approaches, by definition, align with this target. Any application of this target is likely to promote the inclusion of diverse stakeholder groups, recognizing their role in landscape and seascape management. The protection of environmental human rights defenders may be relevant because landscape approaches can be an important tool in mediating resource conflicts, where biodiversity is threatened by other interests.

Possible landscape & seascape -related indicators

Number of local authorities applying landscape approaches in a country

Percentage of land and seas covered by biodiversity-inclusive spatial plans [33]

Percentage of the population in traditional occupations [33]

[38]National policy support for integrated landscape management [34]

National policy support for integrated basin management

Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Proportion of IPLC groups involved in landscape and seascape planning.

Proportion of the adult population with secure tenure rights to land, across genders [38].

More relevant



Less relevant

Target 23

Ensure gender equality in the implementation of the framework through a gender-responsive approach where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.

Landscape approaches

Landscape approaches, by definition, align with this target. Any application of this target is likely to promote the inclusion of women and girls, recognizing their crucial role in landscape management.

Possible landscape & seascape -related indicators

Percentage of the population, across genders, in traditional occupations [33]

Extent to which education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in national education policies, curricula, teacher education and student assessments [33]

Percentage improvement in the multiple dimensions of human well-being of households within a landscape [34]

Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control [REF 5.A.2]

Degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries [37]

Examples of landscape approaches contributing to GBF targets

The basic principles of landscape approaches, as outlined in section 1, are straightforward and universal. However, specific circumstances can vary enormously and therefore the means of formulating national targets with landscape approaches in

mind can differ greatly from country to country, and within countries. The following diverse examples show how landscape or seascape-scale initiatives can address the GBF targets through landscape approaches. In each case, the numbers of relevant GBF targets are indicated. Applying landscape approaches in the formulation of NBSAP targets can help to enable and encourage local initiatives like these.

Example	GBF Targets	
<p>Enabling community-led landscape initiatives in Kenya [39]</p> <p>Policy information often remains within government circles. In Kenya an initiative was launched to involve communities in the policy development and review process. The Nature Conservancy (TNC) and Kenya Wildlife Conservancies Association (KWCA) implemented the Community Conservancy Policy Support and Implementation Program to support communities' and landowners' participation in national policy review processes to enable better access to policy information and incentives. They operated across 12 regional wildlife conservancy associations, representing private and community-based conservancies. The program covered land and resource policy, community governance systems, conservation incentives and inclusion of women and youths for more equitable distribution of conservancy benefits.</p>	<p>3</p> <p>14</p> <p>22</p>	<p>5</p> <p>18</p> <p>23</p>
<p>Species conservation in Japan [40]</p> <p>Sasa palmata is a plant that grows naturally in the mountainous northern part of Kyoto City in Japan. Used to wrap traditional confections or make good luck charms, it has long been a part of Kyoto culture. The plant's population is in decline due to browsing by deer as well as a shortage of workers engaged in forest management. A project by the City of Kyoto aims to restore populations of S. palmata, to secure forest workers, and to promote traditional techniques and distribution of S. palmata to revitalize local culture and industry, involving local residents. An existing fenced area is being expanded to protect S. palmata from deer browsing, while young forest workers are being recruited to resurrect traditional techniques. Public awareness for a sustainable mechanism to support these activities is being encouraged by involving the business sector and urban residents.</p>	<p>2</p> <p>5</p> <p>10</p> <p>15</p>	<p>4</p> <p>9</p> <p>11</p> <p>22</p>
<p>Integrated development and livelihood promotion in India [41]</p> <p>The Integrated Basin Development and Livelihood Promotion (IBDLP) Programme was initiated by the subnational government of Meghalaya in India to institutionalize ecologically sustainable and inclusive development in Meghalaya. Involving all departments of the subnational government, the programme reached out to support citizens in any of eleven identified livelihood sectors – agriculture, aquaculture, apiculture, livestock, sericulture, water, rural energy, tourism, horticulture, forestry and plantation crops, and services / non-farm sector. They engaged with communities to formulate development interventions, documenting traditional knowledge to juxtapose it with modern knowledge to strengthen livelihood enterprise decisions. To address the common requirements of sectors, the implementation of the IBDLP was based on the four pillars of knowledge management, natural resource management, entrepreneurship development, and good governance, and aims to instill an entrepreneurial spirit including through the empowerment of women.</p>	<p>1</p> <p>9</p> <p>14</p> <p>21</p>	<p>5</p> <p>10</p> <p>15</p> <p>23</p>

Biodiversity conservation and indigenous knowledge in Panama [42]

The community of Usdub in Gunayala, Panama, has a population of approximately 2,500 people with limited monthly income, who subsist on fishing and agriculture. The local administration is under traditional authority that manages community resources with support from other local institutions, including women and youth groups. The area is at risk of losing agricultural biodiversity and degradation of ecosystems. To simultaneously preserve biodiversity and indigenous knowledge, the Foundation for the Promotion of Indigenous Knowledge gathered indigenous experts on agricultural biodiversity and inventoried and cultivated native seeds in danger of local extinction as well as producing a 10-year management plan for agricultural biodiversity and ecosystems. This was done in cooperation with community authorities and institutions and governmental institutions.



Fisheries, offshore oil, and ecosystems in Norway [9]

In a study of conflicting sea use between fisheries and oil companies, researchers found that in Norway, these two industries have learned to coexist through “decades of conflict and dialogue between the industries, their associations, and the related government agencies and research institutions”. By engaging around use of the seascape, they have learned to cooperate. Their cooperation has implications for the ecosystems affected by both industries, because “the industries have to consider each other’s needs, as conflicts and clarification of differences tend to raise government environmental standards and requirements, and because these processes promote knowledge generation, technology development, and the search for more sustainable solutions.”



4

Additional considerations

- Where to focus landscape approaches
- National government support for implementation
- Monitoring, review and reporting
- Other policy and strategy at national level

Where to focus landscape approaches

Most countries consist mostly of multifunctional landscapes and seascapes, and their coastal waters consist mostly of multifunctional seascapes. These landscapes and seascapes may cross national and other boundaries. That's too much for a government to manage, so landscape approaches cannot be applied everywhere, immediately, and it is necessary to prioritize. Experts in the relevant fields, as outlined in section 3, can be approached to help with the prioritization process. Here are two ways to prioritize:

- Identify biodiversity priority areas, where especially rich biodiversity is under threat. In many cases such areas are already known, or there may be experts or organizations that are able to provide this information. Spatial planners, especially conservation planners, could be engaged to assist in identifying them.
- Identify areas where landscape approaches are already being applied to some extent. These may not be the most important areas for biodiversity but, where landscape approaches arise spontaneously, they may require a relatively small amount of support to help them succeed. Landscape approaches that arise spontaneously are also more likely to be adapted to meet local needs and priorities.

If your country has a national-level biodiversity or ecosystem assessment, you may already know where biodiversity priority areas are and where information gaps exist. If not, it is advisable to plan a biodiversity assessment [43] for the future. Several initiatives have also identified international biodiversity priority areas worldwide, including key biodiversity areas (KBAs) [44], indigenous and community conserved areas (ICCAs) [45], Ramsar wetland sites [46], natural world heritage sites [47], essential life support areas (ELSAs) [48], and the red list of ecosystems [49]. Biodiversity prioritization needs to be a continuous process, and it relies on up-to-date data.

National government support for implementation

In addition to introducing policy and strategy at the national level, as outlined in section 3, national governments may be able to allocate some time toward working directly with people or institutions that are trying to apply landscape approaches at the local level. National governments may, for example, be able to provide information on how to proceed with landscape approaches, or they may be able to put different champions of landscape approaches, from different parts of a country, in contact with one another to share lessons or work together.

Recognition of the efforts of local proponents of landscape approaches can encourage them to continue and to expand their efforts and can serve as a model for others. This might be achieved by sponsoring the attendance of individuals to national-level meetings on biodiversity planning, and/or by presenting an award of some kind, for example a certificate of

recognition of efforts. National government representatives may also be able to participate in local-level meetings on applying landscape approaches.

National governments can also conduct workshops specifically to build the capacity of local proponents to apply landscape approaches. This can be done even before attempting to carry out landscape approaches. It can include training on mapping of territories within the larger landscape or seascape as well as already established governance mechanisms that allow for sustainable use and access within the landscape or seascape. Community-based monitoring and information systems provide some good examples [50].

Depending on the national and local context, different forms of outreach could be used to raise awareness about landscape approaches, and experts could be invited to take part or to facilitate the sessions. This could take the form of a communication, education and public awareness (CEPA) plan such as those promoted by the Ramsar Convention [51], including relevant targets and actions for integration into the NBSAP.

Monitoring, review and reporting

Even when landscape approaches are enabled by national governments, those governments may not be aware of their existence. A system of monitoring can keep track of where landscape approaches are being applied so that efforts can be supported, lessons can be shared, and successes can be replicated.

Monitoring needs to happen both at the national level to provide an overview, and at the local level where individual landscape approaches can be examined in some detail. At the local level, especially, it is important and helpful to involve stakeholders in monitoring [23]. A participatory approach to monitoring and evaluation, by which stakeholders measure progress, identify gaps and report the monitoring results back finally to national governments, can help to build the capacity of stakeholders through information exchange and awareness raising.

Comparing outcomes over time can provide clues on how to adapt and improve landscape approaches, and the use of indicators can provide support for evidence-based policymaking and implementation [52]. There is no single monitoring approach that will work in all situations, but several globally accepted frameworks and indicators are available. A draft "Monitoring framework for the Kunming-Montreal Global Biodiversity Framework" [33] was adopted at the fifteenth meeting of the Conference of the Parties (decision 15/5). Other useful indicators may be found in the Livelihood Vulnerability Index [53], the Social Vulnerability Index [54], and among the planetary boundary indicators [55]. It may be possible to adapt or downscale some of these indicators to suit local circumstances [56]. National governments can also survey stakeholders' opinions on a regular basis, at a frequency that matches their capacity.

National governments can report their observations of the successes and failures of landscape approaches back to stakeholders at the national level and at the landscape or seascape level, feeding into the processes outlined throughout sections 2 and 3. Part of this reporting process should ideally be a summary of lessons learned, and progress, in the national reports [57] that all Parties are expected to submit to the CBD. Once several countries begin to report on landscape approaches, comparison and sharing of lessons will become possible at the international level, which will enable further progress in designing better landscape approaches.

Other policy and strategy at national level

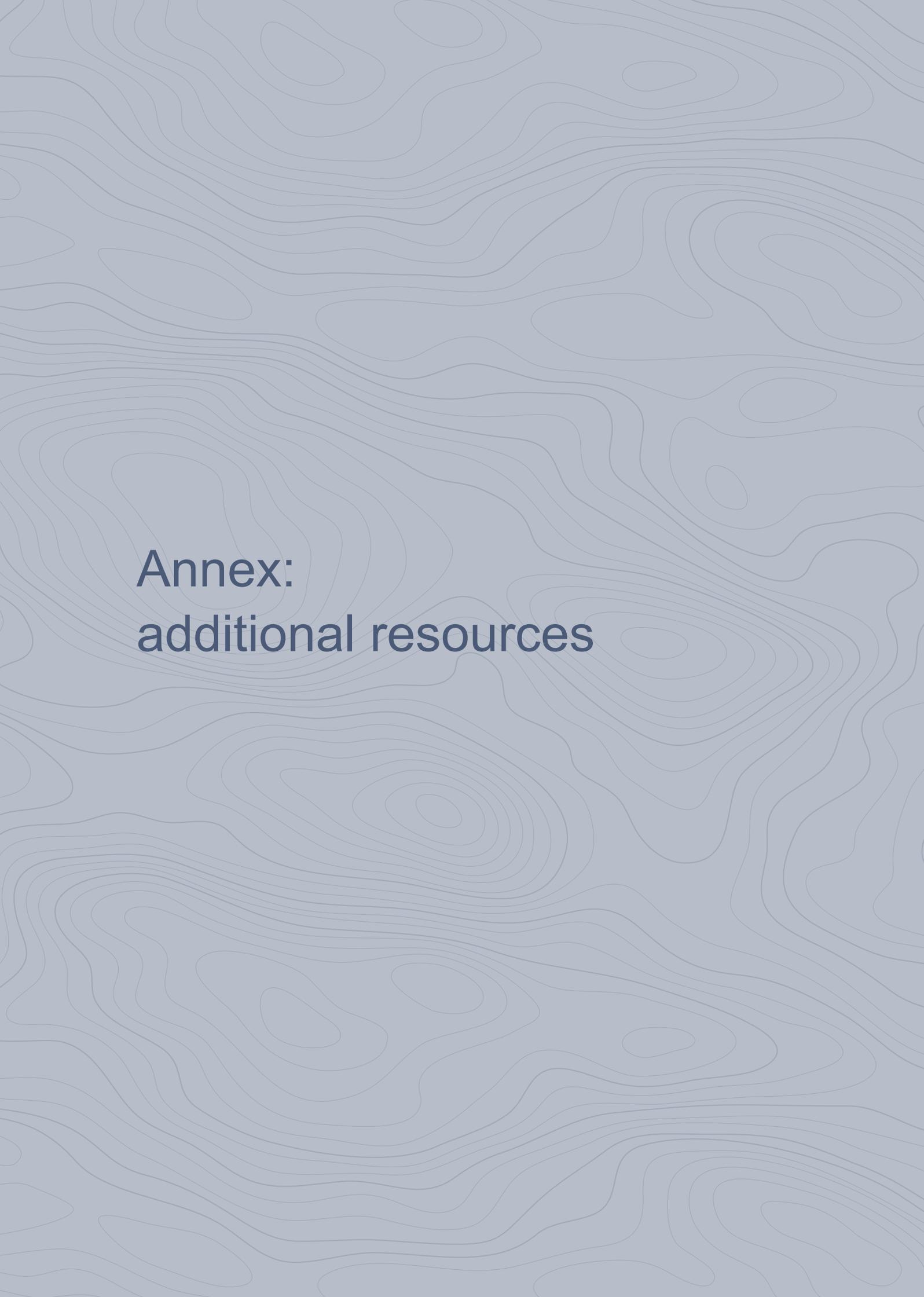
NBSAPs should be seen as “whole of government” and “whole-of-society” strategies. However, national governments also often have broader master plans or cross-sectoral plans, to address various aspects of governance. Integrating key messages from the NBSAP into these broader plans can be an effective way of mainstreaming conservation messages [58]. Integrating landscape approaches into national sustainable development plans, poverty reduction plans, climate adaptation plans, watershed or aquifer management plans, and national development plans, is appropriate because landscape approaches specifically aim to address the needs of various stakeholders.

In local government, master plans provide the same opportunity for integration of biodiversity goals, especially from the perspective of landscape approaches. Where possible, national governments may want to encourage or propose policy that requires cooperation between sectors when formulating strategy. Alternatively, a committee or other mechanism can be set up to enable and encourage discussion between different sectors that should be involved in landscape approaches.

National governments are also likely to have sectoral plans, other than NBSAPs, that are also relevant to biodiversity. These may include nationally determined contributions (NDCs) and national adaptation plans (NAPs), as well as plans in non-environmental fields, which are relevant to biodiversity in various ways. They offer the opportunity to provide biodiversity-relevant input, in the same way that various government sectors are involved in the NBSAP. This opportunity may even result from inviting other sectors to be involved in the NBSAP process. In other cases, it might require approaching individuals and offering biodiversity-related expertise. Cross-sectoral cooperation like this can also increase understanding of the processes and challenges faced by different sectors. At best, it may help to guide the formulation of strategy and policy that is more conscious of the need for biodiversity conservation and the involvement of all stakeholders.

Policy may also be needed to apply landscape approaches across national borders, which could require cooperation between neighboring countries. Transboundary landscape approaches may be beneficial even when stakeholders on one

side of a national border have never been in contact with those on the other. For example, when a river flows over a border, communities and biodiversity downstream are affected by activities upstream. Landscape connectivity, in general, can play a key role in landscape approaches.



Annex: additional resources

- Integrated Spatial Planning Workbook (2022). A UNDP publication showing how countries can use integrated spatial planning to reveal pathways toward the achievement of multiple nature-based goals at once. Employing step-by-step explanations and case studies from 11 countries, the workbook shows how nations can develop 'Maps of Hope' that indicate where to protect, manage, and restore ecosystems to meet their unique goals.
- NBSAP Forum. The NBSAP Forum is a community of practice aiming to support the implementation of the UN Biodiversity Convention and its policy and reporting mechanism. It is led through a partnership between the Secretariat of the CBD, the United Nations Development Programme (UNDP), and UN Environment Programme (UNEP). Its purpose is to support countries in finding the information they need to develop and implement effective NBSAPs and prepare National Reports.
- Convention in Biological Diversity (revised 2011-2012). NBSAP Capacity Building Modules. A set of modules produced by the CBD outlining different aspects of NBSAPs including mainstreaming, setting targets, ensuring inclusive societal engagement, gaining political support, communication, subnational authorities and gender.
- Landscape approaches are a key aspect of the Satoyama concept, which "aims to build on mutually beneficial human-nature relationships, where the maintenance and development of socio-economic activities (including agriculture, fishing and forestry) aligns with natural processes" and "entailing a range of activities including expanding the body of knowledge about how the relationships between humans and nature should function in a wide variety of production landscapes and seascapes from both social and scientific points of view."
- Forest Peoples Programme (2020). Local Biodiversity Outlooks 2: The contributions of indigenous peoples and local communities to the implementation of the Strategic Plan for Biodiversity 2011–2020 and to renewing nature and cultures. This, the second iteration of the local biodiversity outlook, is a complement to the fifth edition of the Global Biodiversity Outlook produced by the CBD Secretariat. It "presents the perspectives and experiences of indigenous peoples and local communities (IPLCs) on the current social-ecological crisis, and their contributions to the implementation of the Strategic Plan for Biodiversity 2011–2020 and to the renewal of nature and cultures.
- Ajjugo J, Kamanga J, Kanyamibwa S, Scherr SJ. (2020). How Integrated Landscape Management can contribute to the CBD Post-2020 Biodiversity Framework: Recommendations for policymakers from African Landscape Leaders: Recommendations for policymakers from African Landscape Leaders. Results of a dialogue looking at African perspectives of biodiversity conservation and emphasizing the provision of policy support for locally led landscape partnerships, building 'green' landscape economies, and measuring landscape-level performance.
- Secretariat of the Convention on Biological Diversity. (2011). Report on how to improve sustainable use of biodiversity in a landscape perspective (UNEP/CBD/SBSTTA/15/13). An official document of the Fifteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, offering a rationale for focus on the landscape level.
- IUCN. (2021). Science-based ecosystem restoration for the 2020s and beyond. A "think piece" that presents recommendations for "specific actions to be undertaken by public and private stakeholders to sustain and restore the diverse and functioning ecosystems essential for human wellbeing and the preservation of biodiversity." It offers "a framework of questions, key messages and recommendations."
- Mitchell N, Rössler M, Tricaud P (2009). World Heritage Cultural Landscapes: A Handbook for Conservation and Management. A book designed "to assist managers of World Heritage inscribed cultural landscapes, those to whom they are responsible and with whom they should be working, and to inform those seeking potential nomination of cultural landscapes of the requirements for successful on-site management". Its focus is on protecting the outstanding universal value in the inscribed landscape. This requires skills, knowledge and information, a planning process which is inclusive and multi-tiered, promotion and funding. Maintaining the landscape and its values and assessing the limits of acceptable change are the key challenges.
- Ervin J, Mulongoy KJ, Lawrence K, Game E, Sheppard D, Bridgewater P, Bennett G, Gidda SB, Bos P. (2010). Making Protected Areas Relevant: A guide to integrating protected areas into wider landscapes, seascapes and sectoral plans and strategies. CBD Technical Series No. 44. Montreal, Canada: Convention on Biological Diversity, 94pp. This guide provides conservation planners with a concrete set of steps they can take to improve protected area integration, including getting started, assessing the broader context, developing and implementing strategies and monitoring the results. This guide also aims to inform and support others involved in land use planning to help them better understand and integrate conservation principles into their work.
- Secretariat of the Convention on Biological Diversity. (2011). NBSAP training modules version 2.2 – Module 2. Using the Biodiversity Planning Process to Prepare or Update a National Biodiversity Strategy and Action Plans. Montreal, June 2011. This module forms part of a training package on the updating and revision of national biodiversity strategies and action plans (NBSAPs) in line with the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets. The package is intended for national focal points of the Convention on Biological Diversity, those responsible for updating and implementing NBSAPs and other biodiversity planners, including those responsible for other biodiversity related conventions.

- Boedhihartono, Klintuni A. (2012). *Visualizing Sustainable Landscapes: Understanding and Negotiating Conservation and Development Trade-offs Using Visual Techniques*. Gland, Switzerland: IUCN. (56 pp). This manual aims to support the environmental community who is using visualization techniques to communicate both abstract and concrete ideas when dealing with conservation and development situations. The manual contains various visualization techniques that will facilitate communication among various stakeholders from different ethnic groups, with different levels of educations and literacy and different needs.
- Guidance on integrating human rights in National Biodiversity Strategy and Action Plans (NBSAPs) is intended to support UN Country Teams, States, policymakers and stakeholders in integrating human rights into their NBSAPs under the Convention on Biological Diversity.
- IIED and UNEP-WCMC. (2015). *Putting biodiversity at the centre of development: a checklist for reviewing the mainstreaming potential of a country's NBSAP*. This toolkit targets those who want to mainstream biodiversity concerns into development policy and planning or to highlight how biodiversity contributes to nutrition and social development or are involved in developing or revising an NBSAP. This guides these toolkit users to: 1) Make better use of the NBSAP revision opportunity; 2) Understand the mainstreaming process – biodiversity into development and development into biodiversity – and find out more about helpful tools and approaches; 3) Acquire the ability and skills to select, assemble, analyse and present compelling evidence on the links between biodiversity and national development priorities; and 4) Develop a communication strategy.
- Shames, Seth, and Sara J. Scherr. 2020. *Mobilizing Finance across Sectors and Projects to Achieve Sustainable Landscapes: Emerging Models*. Washington, DC: EcoAgriculture Partners

Bibliography

- [1] CBD, Decision 15/6. Mechanisms for planning, monitoring, reporting and review, 2022.
- [2] A. Farina, "The Cultural Landscape as a Model for the Integration of Ecology and Economics," *BioScience*, vol. 50, no. 4, p. 313–320, 2000.
- [3] L. Denier, S. Scherr, S. Shames, P. Chatterton, L. Hovani and N. Stam, *The little sustainable landscapes book*, Oxford: Global Canopy Programme, 2015.
- [4] A. H. Perera, U. Peterson, G. Martínez Pastur and L. R. Iverson, *Ecosystem Services from Forest Landscapes: Broad-scale Considerations*, Cham: Springer, 2018, p. 265.
- [5] J. Sayer, "Reconciling Conservation and Development: Are Landscapes the Answer?," *Biotropica*, vol. 41, no. 6, pp. 649–652, 2009.
- [6] J. Sayer, T. Sunderland, J. Ghazoul and L. E. Buck, "Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses," *Proceedings of the National Academy of Sciences*, vol. 10, no. 21, p. 8349–8356, 2013.
- [7] European Commission, "INSPIRE registry," 2015. [Online]. Available: <https://inspire.ec.europa.eu/featureconcept/SpatialPlan>.
- [8] CBD, Decision 5/6: Ecosystem approach, 2000.
- [9] P. Arbo and P. T. T. Thùý, "Use conflicts in marine ecosystem-based management — The case of oil versus fisheries," *Ocean & Coastal Management*, vol. 122, pp. 77–86, 2016.
- [10] A. Velázquez, E. M. Cué-Bär, A. Larrazábal, N. Sosa, J. L. Villaseñor, M. McCall and G. Ibarra-Manríquez, "Building participatory landscape-based conservation alternatives: A case study of Michoacán, Mexico," *Applied Geography*, vol. 29, no. 4, pp. 513–526, 2009.
- [11] M. Nishi and M. Yamazaki, *Landscape Approaches for the Post-2020 Biodiversity Agenda: Perspectives from Socio-Ecological Production Landscapes and Seascapes*, UNU-IAS, 2020.
- [12] CBD, Decision 15/4. Kunming-Montreal Global Biodiversity Framework, 2022.
- [13] United Nations, *Convention on Environmental Impact Assessment in a Transboundary Context*, 1991.
- [14] J. Ajjugo, J. Kamanga and S. S. S. J. Kanyamibwa, "How integrated landscape management can contribute to the CBD post-2020 biodiversity framework: Recommendations for policymakers from African landscape leaders," *Fairfax: EcoAgriculture Partners*, 2020.
- [15] CBD, "CBD Technical Series No. 49: Guidelines for Mainstreaming Gender into National Biodiversity Strategies and Action Plans," Secretariat of the Convention on Biological Diversity, 2010.
- [16] CBD, "CBD Technical Series No. 64: Recognizing and Supporting Territories and Areas Conserved by Indigenous and Local Communities Global Overview and National Case Studies," Secretariat of the Convention on Biological Diversity, 2012.
- [17] CBD, "Mo' otz Kuxtal Voluntary Guidelines for the development of mechanisms, legislation or other appropriate initiatives to ensure the "prior and informed consent", "free, prior and informed consent" or "approval and involvement", Secretariat of the Convention on Biological Diversity, 2019.
- [18] CBD, "Decision 15/11. Gender Plan of Action," Secretariat of the Convention on Biological Diversity, 2022.
- [19] FAO, "Sustainable Food and Agriculture," [Online]. Available: <https://www.fao.org/sustainability/news/detail/en/c/1274219/>. [Accessed 19 07 2023].
- [20] CBD, Decision 15/12. Engagement with subnational governments, cities and other local authorities to enhance implementation of the Kunming-Montreal Global Biodiversity Framework, 2022.
- [21] Technology Matters, "Terraso: Building a sustainable future," 2023. [Online]. Available: <https://techmatters.org/project/1000-landscapes/>.
- [22] B. Martín-López, M. R. Felipe-Lucia, E. M. Bennett, A. Norström, G. Peterson, T. Plieninger, C. C. Hicks, F. Turkelboom, M. García-Llorente, S. Jacobs, S. Lavorel, Locatelli and B., "A novel telecoupling framework to assess social relations across spatial scales," *Journal of Environmental Management*, vol. 241, pp. 251–263, 2019.
- [23] E. Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press, 1990.
- [24] J. Cameron and D. Grant-Smith, "Putting people in planning: participatory democracy, inclusion and power," in *Australian environmental planning: Challenges and future prospects*, Routledge, 2014, pp. 197–205.
- [25] European Space Agency, "ESA Climate Change Initiative," 2015. [Online]. Available: <https://www.esa-landcover-cci.org>.
- [26] UN-WCMC, "Protected Areas (WDPA)," 2023. [Online]. Available: <https://www.protectedplanet.net/en/thematic-areas/wdpa?tab=WDPA>.
- [27] UN Biodiversity Lab, "UN Biodiversity Lab," 2023. [Online]. Available: <https://map.unbiodiversitylab.org>.

- [28] QGIS Association, "QGIS Geographic Information System," 2023. [Online]. Available: <http://www.qgis.org>.
- [29] ArcGIS, "ArcGIS Online," 2023. [Online]. Available: <https://www.arcgis.com>.
- [30] J. Sayer, C. Margules, A. K. Boedhihartono, A. Dale, T. Sunderland, J. Supriatna and R. Saryanthi, "Landscape approaches: what are the pre-conditions for success?," *Sustainability Science*, vol. 10, p. 345–355, 2014.
- [31] Conservation International, "Landscape," 2023. [Online]. Available: <https://www.conservation.org/projects/landscape..>
- [32] S. James and S. J. Scherr, "Mobilizing Finance across Sectors and Projects to Achieve Sustainable Landscapes: Emerging Models," Washington, DC, 2020.
- [33] CBD, "Decision 15/5. Monitoring framework for the Kunming-Montreal Global Biodiversity Framework," 2022. [Online].
- [34] EcoAgriculture Partners, *An Integrated Landscape Target for the Sustainable Development Goals*, 2014.
- [35] E. A. Morgan, T. Cadman and B. Mackey, "Integrating forest management across the landscape: a three pillar framework," *Journal of Environmental Planning and Management*, vol. 64, no. 10, pp. 1735-1769, 2021.
- [36] United Nations, "End hunger, achieve food security and improved nutrition and promote sustainable agriculture," [Online]. Available: <https://sdgs.un.org/goals/goal2>.
- [37] United Nations, "Conserve and sustainably use the oceans, seas and marine resources for sustainable development," [Online]. Available: <https://sdgs.un.org/goals/goal14>.
- [38] United Nations, "End poverty in all its forms everywhere," [Online]. Available: <https://sdgs.un.org/goals/goal1>.
- [39] USAID, *Community Conservation Policy Support*, 2020.
- [40] Ministry of the Environment of the Government of Japan, *Satoyama in Japan – for nature-based solutions*, 2022.
- [41] Meghalaya, "About IBDLP," Accessed 2023. [Online]. Available: <https://miemeghalaya.org/about-ibdpl/>.
- [42] Satoyama Initiative, "Conservation and management of biodiversity of cultural, spiritual and food sovereignty importance, and recovery of indigenous knowledge in the management of their territory," Accessed 2023. [Online]. Available: https://sdm.satoyama-initiative.org/projects/2018_panama/.
- [43] UN-WCMC, "National ecosystem assessments for people & nature," 2023. [Online]. Available: <https://www.ecosystemassessments.net>.
- [44] IUCN, "Key Biodiversity Areas," 2022. [Online]. Available: <https://www.iucn.org/resources/conservation-tool/key-biodiversity-areas>.
- [45] UN-WCMC, "Supporting indigenous peoples' and local communities' contributions to conservation," 2023. [Online]. Available: <https://www.unep-wcmc.org/en/news/supporting-indigenous-peoples-and-local-communities>.
- [46] Ramsar, "Wetlands of international importance," 2014. [Online]. Available: <https://www.ramsar.org/sites-countries/wetlands-of-international-importance>.
- [47] UNESCO, "Natural World Heritage," 2023. [Online]. Available: <https://whc.unesco.org/en/natural-world-heritage/>.
- [48] UNDP, "Integrated Spatial Planning Workbook," New York, 2022.
- [49] IUCN, "Red List of Ecosystems," 2022. [Online]. Available: <https://iucnrl.org>.
- [50] C. d. J. V. S. B. Maurizio Farhan Ferrari, "Community-based monitoring and information systems (CBMIS) in the context of the Convention on Biological Diversity (CBD)," *Biodiversity*, 2015.
- [51] Ramsar Convention, "CEPA action plans and guidelines," 2023. [Online]. Available: <https://www.ramsar.org/activity/cepa-action-plans-and-guidelines>.
- [52] M. Nishi, Y. Natori and D. Dublin, *Resilience in Landscapes & Seascapes: Building Back Better from COVID-19*, UNU-IAS, 2021.
- [53] M. B. Hahn, A. M. Riederer and S. O. Foster, "The Livelihood Vulnerability Index: A pragmatic approach to assessing risks from climate variability and change—A case study in Mozambique," *Global Environmental Change*, vol. 19, no. 1, pp. 74-88, 2009.
- [54] U. C. R. Toolkit, "Social Vulnerability Index," 2021. [Online]. Available: <https://toolkit.climate.gov/tool/social-vulnerability-index>.
- [55] S. R. Centre, "The nine planetary boundaries," 2022. [Online]. Available: <https://www.stockholmresilience.org/research/planetary-boundaries/the-nine-planetary-boundaries.html>.
- [56] M. Nishi, S. M. Subramanian and H. Gupta, *The Biodiversity–Health–Sustainability Nexus: Integrated Solutions from Landscapes & Seascapes*, Tokyo: UNU-IAS, 2022.
- [57] CBD, "National Reports," 2023. [Online]. Available: <https://www.cbd.int/reports/>.
- [58] CBD, *Updating National Biodiversity Strategies and Action Plans in line with the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets Training Package (Version 2.1)*, 2011.

United Nations University

Institute for the Advanced Study of Sustainability

5-53-70 Jingumae, Shibuya-ku, Tokyo 150-8925 Japan

Tel: +81-3-5467-1212

unu.edu/ias

UNU is committed to the ideals and practices of environmental sustainability, and is an ISO140001 certified institution. Designed by IGES

Copyright ©2023 United Nations University. All Rights Reserved.

Institute for Global Environmental Strategies

2108-11 Kamiyamaguchi, Hayama, Kanagawa, 240-0115 Japan

Tel: +81-46-855-3700

iges.or.jp



THE GLOBAL GOALS
For Sustainable Development