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Biodiversity

a GRI Reporting Resource

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About GRI's Research and Development Publication Series

GRI's world class research and development program supports a commitment to continuous improvement by investigating challenging issues around reporting, tracking past and future trends in transparency, and innovating new ways to apply the GRI Reporting Framework in conjunction with other standards.

Publications in the GRI Research and Development Series are presented in three categories:

Topics: Research and implications on reporting related to subjects such as biodiversity and gender
Trends: Tracking reporting practice and implementation, and assessing future scenarios
Tools: Guidance for using the GRI Reporting Framework in combination with other standards

This document, "Biodiversity - A GRI Reporting Resource" falls under the ***topics*** *category.*

Biodiversity

a GRI Reporting Resource

January 2007

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The Challenge of Reporting on Biodiversity

How will the Biodiversity Resource Document help?

Reporting is a tool for sharing information with stakeholders about an organization's activities, impacts, and performance in relation to biodiversity. The Biodiversity Resource Document aims to:

- assist reporting organizations in understanding the issue of biodiversity and its relationship to their activities and operations;
- offer insights on specific issues and challenges related to biodiversity reporting;
- discuss how the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines can be used to report on biodiversity; and
- provide information resources and references to help organizations with their biodiversity reporting.

TARGET AUDIENCE FOR THIS DOCUMENT

The Biodiversity Resource Document is for organizations interested in learning more about biodiversity and approaches to reporting on it. The readers' knowledge level of biodiversity will vary significantly between those who are technical experts in the field of biodiversity, and those who are not biodiversity experts but who are responsible for reporting on it. The document tries to provide information that is useful for both audiences.

DOCUMENT STRUCTURE

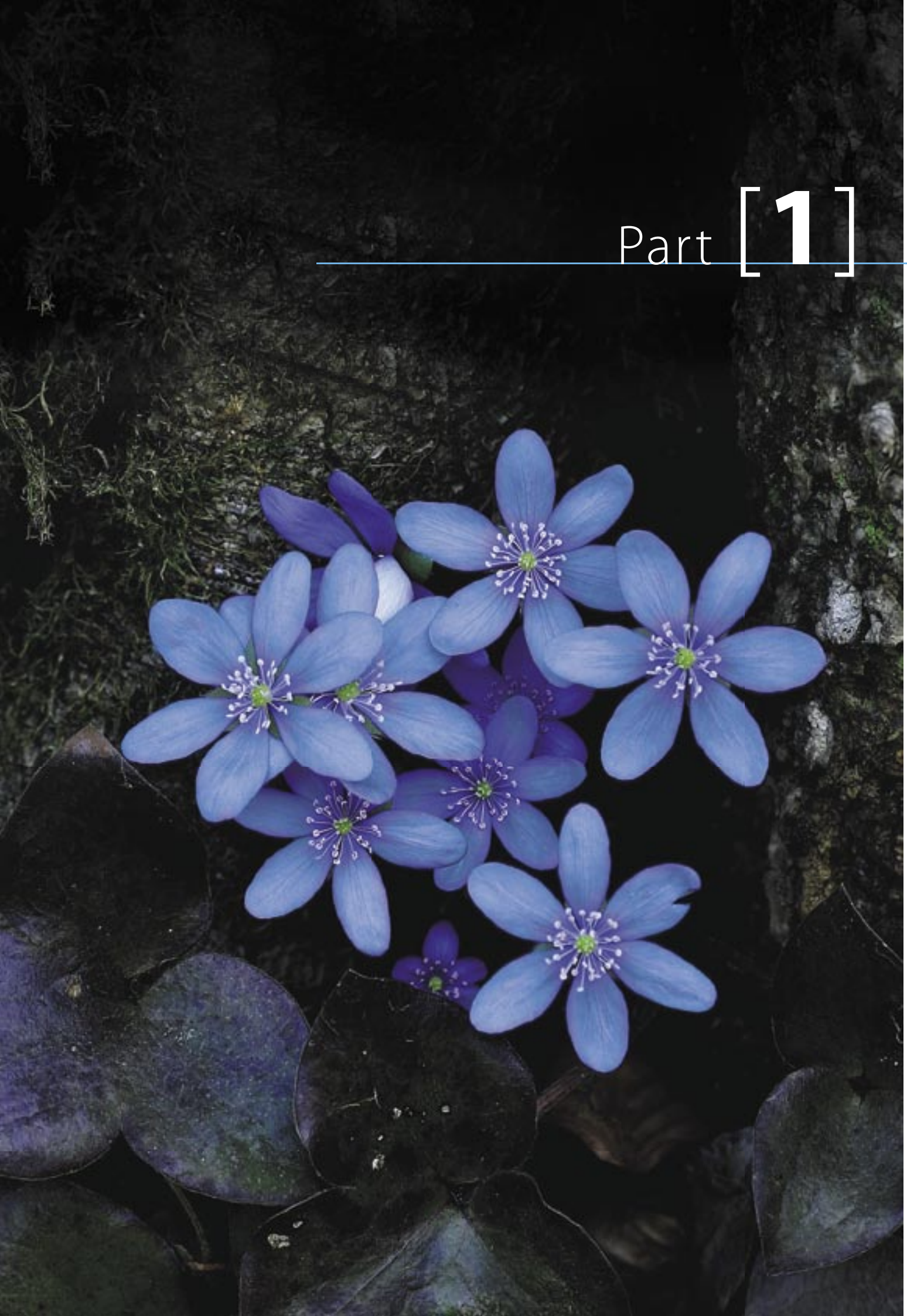
The Resource Document has been structured as follows:

Part 1 introduces the Biodiversity Resource Document. It discusses the relevance of biodiversity to organizations and briefly explains the relationship between this Resource Document and the Performance Indicators of the GRI Sustainability Reporting Guidelines.

Part 2 provides contextual information on biodiversity for organizations wishing to learn more about biodiversity in general. It elaborates on the value attributed to biodiversity by supporting the provision of ecosystem services, the (inter)national policy objectives relevant in this area, and the relationship between organizations and biodiversity. It concludes with the implications for reporting.

Part 3 deals with the engagement of stakeholders and approaches to telling the story on biodiversity. It addresses some of the practical issues that arise in reporting and approaches to handling these.

The bibliography and Annexes provide sources used for the preparation of this document, together with sources of information relevant for reporting for organizations aiming to obtain additional information or assistance.



Part [1]

Introduction

1.1 Introduction to the Biodiversity Resource Document

RELATIONSHIP OF ORGANIZATIONS WITH BIODIVERSITY

Value of biodiversity

Biodiversity is the variability among living organisms from all sources and the ecological complexes of which they are part[1], ranging from birds in the air, fish in the sea, and micro-organisms in the soil to genetic variety within agricultural crops and diversity of ecosystems. This variability is essential for ecosystems to function efficiently. Ecosystems provide 'ecosystem services' to organizations and society as a whole, including food, fresh water, wood and fibre, medicines, soil fertility, climate regulation, building materials, inspiration for scientific and technical development, genetic resources, flood regulation, and recreation facilities. *There is no organization that does not make use of one or more of these ecosystem services, either directly through their own activities or indirectly through supply chain partners.*

1] Part 2 provides an extensive explanation of biodiversity.

Biodiversity is important to the present and future operations of all types of organizations, regardless of their size, sector, or location. By managing its biodiversity-related activities proactively, an organization can realize many benefits (see Figure 1.1):

Figure 1.1 Business case for diversity

Strengthening the license to operate, grow, and innovate. Consent from a broad range of stakeholders, including governments, local communities, financial institutions, employees, and society, is a prerequisite for conducting business in a successful manner and operating on a long-term basis. An organization's performance on biodiversity can be a factor in obtaining this consent.

Gaining competitive advantage by operating in a sustainable and responsible way. Biodiversity receives attention from all constituencies: governments, business, non-governmental organizations (NGOs), and society. An organization's actions and performance can influence the decisions made by these constituencies, such as governmental investments and policies, customer preferences, supplier relationships, competitor strategies, and loan conditions.

Improving stakeholder relations by responding to their expectations and demands. Stakeholders expect organizations to take responsibility for any direct or indirect impact on biodiversity resulting from either the organization's own activities or from activities in their supply chain. They will also expect ongoing improvements in an organization's environmental performance, such as continuous investments and attempts to reduce the ecological footprint of its activities.

New market opportunities as a result of the growing demand for products produced without negative impacts on the environment. Decisions that anticipate growing customer preferences, new regulations, or investor demands can help differentiate an organization in crowded product and capital markets.

Long-term stability of operations. Many organizations will use biodiversity resources either directly through their own activities or indirectly through their supply chain. Conservation and sustainable use of biodiversity resources ensure that resource inputs remain consistent over time and, therefore, help an organization to avoid risks.

The value of biodiversity to organizations and society is often emphasized in terms of benefits, risk-avoidance, and other kinds of direct value, such as the food it delivers, the water it purifies, and the coastal lines that are protected. Although all of these values are important, biodiversity also has an intrinsic value that many feel merits respect on behalf of present and future generations.

IMPACTS ON BIODIVERSITY

In general, organizations impact biodiversity in two ways. First, all organizations make direct and indirect use of biodiversity resources, such as in fisheries, forestry, agriculture, and mining. Second, organizations contribute to changes in the quantity and/or quality of biodiversity, either in a positive or a negative way, through direct activities and performance or indirectly through secondary effects or the performance of supply chain partners (see Box 1). Both kinds of impacts are significant for biodiversity itself and the ecosystem services upon which society depends for survival. Stakeholders therefore expect organizations to be aware of their impacts on biodiversity and to adequately manage potential impacts.

Box 1: Direct versus indirect impact

Activities cannot be carried out by organizations without impacting biodiversity. They can cause:

- A **direct** impact when an organization's activities directly affect biodiversity. For example, when degraded land is converted for the benefit of production activities, surface water is used for irrigation purposes, toxic materials are released, or local species are disturbed through the noise and light produced at a processing site.

- An **indirect** impact when the impact is caused by parties in an organization's supply chain(s). For example, when an organization imports fruits and vegetables, produces cotton shirts, sells construction materials or publishes books, the production of the input for these goods will have direct impacts on biodiversity.

Indirect impacts can also include impacts from activities that have been triggered by the organization's operations. For example, a road constructed to transport products from a forestry operation can have the indirect effect of stimulating the migration of workers to an unsettled region and encouraging new commercial development alongside the road.
Indirect impacts may be relatively difficult to predict and manage, but they can be as significant as direct impacts and can easily affect an organization. Impacts on biodiversity can be either **negative** (degrading the quality/quantity of biodiversity) or **positive** (creating a net contribution to the quality/quantity of biodiversity).

1.2 The Biodiversity Resource Document and the GRI Indicators

The GRI's vision is for reporting on economic, environmental, and social performance by all organizations to be as routine and comparable as financial reporting.

The GRI accomplishes this vision by developing, continuously improving and building capacity around the use of a Sustainability Reporting Framework, the core of which are the Sustainability Reporting Guidelines (the 'Guidelines'). Other components in the Reporting Framework are Sector Supplements and Protocols. This reporting guidance - in the form of principles and standard disclosures - is provided as a free public good. The GRI Reporting Framework is summarized in Annex 1.

The Guidelines contain two categories of Performance Indicators: Core (relevant to most reporting organizations) and Additional (of interest to most stakeholders). Performance Indicators are structured according to a hierarchy of Category, Aspect, and Indicator[2]. One of the Aspects in the environmental category is **biodiversity**.
Table 1.1 gives an overview of the Core and Additional Biodiversity Performance Indicators in the G3 Guidelines.

BIODIVERSITY PERFORMANCE INDICATORS AND THE BIODIVERSITY RESOURCE DOCUMENT

Indicator Protocols have been developed by GRI to guide organizations on the interpretation of Indicators. Complementary to the Performance Indicators and their Indicator Protocols, this Resource Document is intended to offer an overview of biodiversity issues encountered in the context of reporting. Reading the Biodiversity Resource Document may help organizations to better structure their biodiversity reporting by understanding the wider context of, and relationship between, their activities and biodiversity.

Although the GRI Biodiversity Performance Indicators in the G3 Guidelines have been designed as a framework for organizations to report on biodiversity, the organization's relationship with biodiversity might encompass more than has been captured by the G3 Indicators. Some of the other most relevant G3 Indicators are summarized in Figure 3.3.

Organizations using this Biodiversity Resource Document are encouraged to take a broad view on biodiversity and translate this into their reporting.

Table 1.1: Core and Additional Performance Indicators on biodiversity[3]

CORE	**EN11**	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.
CORE	**EN12**	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.
ADD	**EN13**	Habitats protected or restored.
ADD	**EN14**	Strategies, current actions, and future plans for managing impacts on biodiversity.
ADD	**EN15**	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.

2] The GRI Sustainability Reporting Guidelines can be found at www.**globalreporting**.org.

3] EN11 refers to 'Environamental Indicator number 11'.

Part [2]

Biodiversity: its relationship with ecosystem services, policy frameworks and organizations

2.1 Biodiversity in relation to ecosystem services

WHAT IS BIODIVERSITY?

Biodiversity is the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems[4].

Box 2: Definitions of biodiversity

Biodiversity covers a wide range of aspects. Annex II lists biodiversity-related terms in order for organizations to get acquainted with the main topics and definitions in this field.

Annex II only provides the **scientific** definitions and explanations of biodiversity-related issues. Social values related to biodiversity may differ from scientific values and can vary between different stakeholders. For example, an area may not be rich in biodiversity from a scientific or ecological point of view, but may be very valuable to local communities for religious and spiritual reasons. Organizations wishing to adequately manage activities related to biodiversity, and report on management and performance in this field, need to be aware of the views and perceived values of ***all*** their stakeholders. In general, the question of whether or not certain impacts on biodiversity are considered acceptable will depend on the values stakeholders attach to a specific area in combination with the scientific assessment.

4] This definition has been derived from the Convention on Biological Diversity (see section 2.2).

Table 2.1: Overview of Ecosystem services

Ecosystem Services	
Supporting • Nutrient cycle • Soil formation • Primary production • ...	**Provisioning** • Food • Fresh water • Wood and fiber • Fuel • ...
	Regulating • Climate regulation • Flood regulation • Disease regulation • Water purification • ...
	Cultural • Aesthetic • Spiritual • Educational • Recreational • ...
Life on Earth - Biodiversity	

Source: *Millennium Ecosystem Assessment*

ECOSYSTEM SERVICES

The key value of biodiversity lies in its role in ensuring the functioning of ecosystems and their ability to provide services to humans and other living organisms that comprise them. As the foundation of ecosystems and habitats, biodiversity supports the provision of basic human needs such as food, shelter, and medicines. It allows ecosystems to maintain oxygen in the air, enrich the soil, provide a habitat for flora and fauna, protect against storm damage, and regulate climate. Consequently, maintaining sufficient biodiversity is key to the continued delivery of essential ecosystem services.

Ecosystem services are the benefits that humans obtain from ecosystems, and they are produced by interactions within the ecosystem. Ecosystems like forests, grasslands, mangroves and urban areas provide different services to society. These include provisioning, regulating and cultural services that directly affect people. They also include supporting services needed to maintain all other services. Some ecosystem services are local (provision of pollinators), others are regional (flood control or water purification), and still others are global (climate regulation). Ecosystem services affect human well-being and its components, including basic material needs such as food and shelter, individual health, security, good social relations and freedom of choice and action.[5]

Table 2.1 gives an overview of classifications of ecosystem services[6].

The extent to which organizations are directly reliant on ecosystem services depends on the nature of their activities. For example, the availability of fresh water is essential for many organizations with irrigation needs, cooling-water requirements, cleaning, and water-consuming processes. Food is an ecosystem service that is key for organizations active in food processing and retail, whereas the availability of wood is indispensable for those involved in construction and the provision of many consumer goods.

Ecosystem services and biodiversity

Three aspects of biodiversity are significant for preserving ecosystems:

- **Maintaining interrelationships between species**
  All plants and animals in an ecosystem are interrelated, and disruption in the life cycle of flora or fauna species can have an impact on the ecosystem as a whole. For example, overfishing of predator species in a fishery can result in overpopulation by prey species and subsequent degradation of a marine ecosystem. Removal of plants for pharmaceutical purposes could negatively impact populations of animal species that depend on them for food or shelter. Such disruptions may, in the end, endanger the ability of the system to continue to provide ecosystem services.

- **Maintaining sufficient genetic diversity within species**
  The variety of genetic resources within a population is essential to the capacity of species to adapt to changes in ecosystems. In cattle breeding, for example, genetic variety of the animals is important to ensure that they will be able to resist different diseases. Insufficient genetic diversity within a population may leave it vulnerable to a new disease and therefore result in a collapse of the population. Diversity is therefore essential to the long-term survival of a species.

- **Maintaining a diversity of ecosystems**
  Balance in variety of biodiversity is an important factor in preserving *different* ecosystems and their specific services rendered.

5] This definition has been derived from 'Ecosystems and human well-being; Opportunities and Challenges for Business and Industry' of the Millennium Ecosystem Assessment.

6] Annex III gives a non-exhaustive overview of ecosystems and some of the services they provide.

2.2 International policy framework and biodiversity

Biodiversity is a frequently discussed topic in politics, business, society, and trade negotiations due to its importance to human development and the current trends of rapid loss of biodiversity. The variety of international policy and legislation in the field of biodiversity emphasizes the importance of biodiversity on the international agenda. The most important international convention in this respect is the CBD. International agreements are important as expressions of generally recognized expectations regarding responsibilities and are relevant references for reporting on biodiversity. Stakeholders will also be interested to know which international agreements are applicable to the organization and which actions have been taken in relation to the goals of these agreements. The role of international conventions is briefly described in this section.

CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

Signed by 150 government leaders at the 1992 Rio Earth Summit, the Convention on Biological Diversity (CBD) is dedicated to promoting sustainable development and sustainable use of biodiversity. "The Convention recognizes that biological diversity is about more than plants, animals and micro organisms and their ecosystems - it is about people and our need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live"[7]. The objectives of the CBD are:

The conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

An explanation of each of these objectives is provided in table 2.2

The translation of CBD objectives into national policies is the responsibility of each individual party to the Convention[8]. The CBD and resulting national policies may have a wide-ranging effect upon organizations. It could well be possible that governments involve organizations in reaching the objectives, either voluntarily or through legislation. An example is the increased regulatory constraints in some countries as governments seek to conserve and make sustainable use of biodiversity (and related ecosystem services). Legislation may lead to a limited access to land, to the obligation

Table 2.2: Explanation of the objectives of the CBD

Objectives of the CBD	Explanation
The conservation of biological diversity	Diversity in genetic resources is important to conserve for the quantity and quality of biodiversity. It provides a basis from which biodiversity resources can adapt to an amended habitat, an introduced predator, a new disease, etc. Organizations can also use extensive biological diversity as a pool to derive new products and services.
The sustainable use of the components of biological diversity	Any further decline in biodiversity is considered negative and undesirable, thus new human activities should not lead to a further decline in the level of biodiversity (see also Box 3 on the 2010 Biodiversity target). An approach supporting this statement is the sustainable use of biodiversity. 'Sustainable use' means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.
The fair and equitable sharing of the benefits arising out of the utilization of genetic resources	Genetic material is any material of plant, animal, microbial, or other origin containing functional units of heredity. Genetic resources represent genetic material of actual or potential value. This objective concerns the fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by the appropriate access to genetic resources and by the appropriate transfer of relevant technologies, - taking into account all rights over those resources and to technologies - and by appropriate funding.

7] http://www.biodiv.org
8] Currently, the CBD has been ratified by 189 Parties.

Box 3: 2010 Biodiversity target

The Conference of the Parties to the Convention on Biological Diversity adopted a Strategic Plan in 2002. In its mission statement, Parties committed themselves to a more effective and coherent implementation of the three objectives of the Convention, to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional, and national level as a contribution to poverty alleviation and to the benefit of all life on earth. This target was subsequently endorsed by the leaders of the world during the 2002 World Summit on Sustainable Development.

Source:
http://www.biodiv.org/2010-target/default.asp

to compensate for any loss of biodiversity caused by an organization's operations and to more stringent requirements when applying for permits.

Most articles in the CBD are relevant to organizations, as illustrated in Annex IV, and many decisions adopted by Parties over the years refer to business. Guidance and tools developed under the CBD can help organizations align their policies and practices in line with the CBD.

The CBD acknowledges that organizations can significantly contribute to achieving its objectives. In March 2006, a decision was adopted focusing exclusively on private-sector engagement[9]. Amongst other things, it covers: (1) governments' engagement with business in the development and implementation of biodiversity strategies and action plans, (2) the participation of business in CBD meetings, (3) the articulation and dissemination of the 'business case' for biodiversity, and (4) the compilation and development of good biodiversity practice in order to help organizations align their policies and practices with the three objectives of the CBD and its goals and targets, including the 2010 target (see Box 3).

OTHER INTERNATIONAL AGREEMENTS

Apart from the CBD, other agreements have been entered into at an international level covering topics such as wetlands, endangered species, and migratory species.

The other biodiversity related conventions are[10]:

- **CITES**
  The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Through its three appendices, the Convention accords varying degrees of protection to more than 30,000 plant and animal species.

- **CMS**
  The Convention on the Conservation of Migratory Species of Wild Animals (CMS, or the Bonn Convention) aims to conserve terrestrial, marine and avian migratory species throughout their range. Parties to the CMS work together to conserve migratory species and their habitats by providing strict protection for the most endangered migratory species, by concluding regional multilateral agreements for the conservation and management of specific species or categories of species, and by undertaking co-operative research and conservation activities.

- **Ramsar**
  The Convention on Wetlands (popularly known as the Ramsar Convention) provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The convention covers all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities.

- **WHC**
  The primary mission of the World Heritage Convention (WHC) is to identify and conserve the world's cultural and natural heritage, by drawing up a list of sites whose outstanding values should be preserved for all humanity and to ensure their protection through a closer co-operation among nations.

- **The International Treaty on Plant Genetic Resources for Food and Agriculture**
  The objectives of the Treaty are the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security. The Treaty

9] The potential benefit of engaging the private sector in the implementation of the Convention has long been recognized. Numerous decisions on specific mechanisms and issues, including technology transfer, sustainable use, agricultural and forest biodiversity, incentive measures and the clearing-house mechanism, refer explicitly to enhancing private sector engagement. (SCBD, Strengthening Business Engagement in the implementation of the Convention on Biological Diversity, 2005, http://www.biodiv.org/doc/meetings/biodiv/b2010-02/official/b2010-02-02-en.pdf)

10] http://www.biodiv.org/cooperation/joint.shtml

covers all plant genetic resources for food and agriculture, while its Multilateral System of Access and Benefit-sharing covers a specific list of 64 crops and forages. The Treaty also includes provisions on Farmers' Rights.

A core principle in several legislative and convention texts, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), is the ***precautionary principle***. There are many unknowns about the processes that influence biodiversity, particularly at the ecosystem level. The precautionary principle implies that if impacts cannot be established with sufficient certainty through impact assessments, the activity should be halted as a precaution until enough information is available. The GRI Guidelines include a disclosure item on the precautionary principle.

In its reporting, an organization can address agreements that are applicable to its production locations or to those of its supply chain partners, and how the expectations following these agreements are being dealt with.

2.3 National and local policy and legislation regarding biodiversity

The extent of national and local legislation in place to protect biodiversity and valuable ecological areas varies significantly. To check which national and local requirements are applicable to various operations, and therefore may also be important reference points for reporting, an organization could:

- Contact national authorities to become informed on national and regional policy and legislation;
- Check the country's National Biodiversity Action Plan (which is to be drawn up by all parties to the CBD), if available;
- Contact well-known environmental organizations in the country in question to become informed on the debates related to national policy and legislation; and
- Review the 2003 United Nations List of Protected Areas to assess whether or not the activities of the organization or its supply chain take place in or adjacent to a protected area or might otherwise influence these areas.

2.4 How organizations interact with ecosystems and impact biodiversity

CHAIN OF EVENTS

Measuring and reporting on biodiversity first requires an understanding of how an organization creates positive and negative impacts on biodiversity (see Figure 2.1). This can be understood as a "chain of events" in which an organization's activities and operations generate a series of impacts on the quantity and quality of biodiversity in an ecosystem. Figure 2.1 provides a simple out-line of this chain of events, and links the various elements to the objectives of the CBD.

The chain begins with the activities and operations involved in implementing the organization's processes and delivering its products and services. These typically involve the use of various natural resources and/or the release of pollutants or other outputs that affect the quality of the environment (e.g., air pollution). Although the nature and level of impacts will vary for each organization, all activities will result in some form of direct or indirect impact on the quality and availability of soil, air, water, or flora and fauna. These impacts may be small or large, positive or negative, but they are inevitable. For certain types of organizations, these activities will generate income. In cases where this income is derived from the use of genetic resources, one of the key CBD objectives is to support the fair and equitable sharing of benefits deriving from genetic resources.

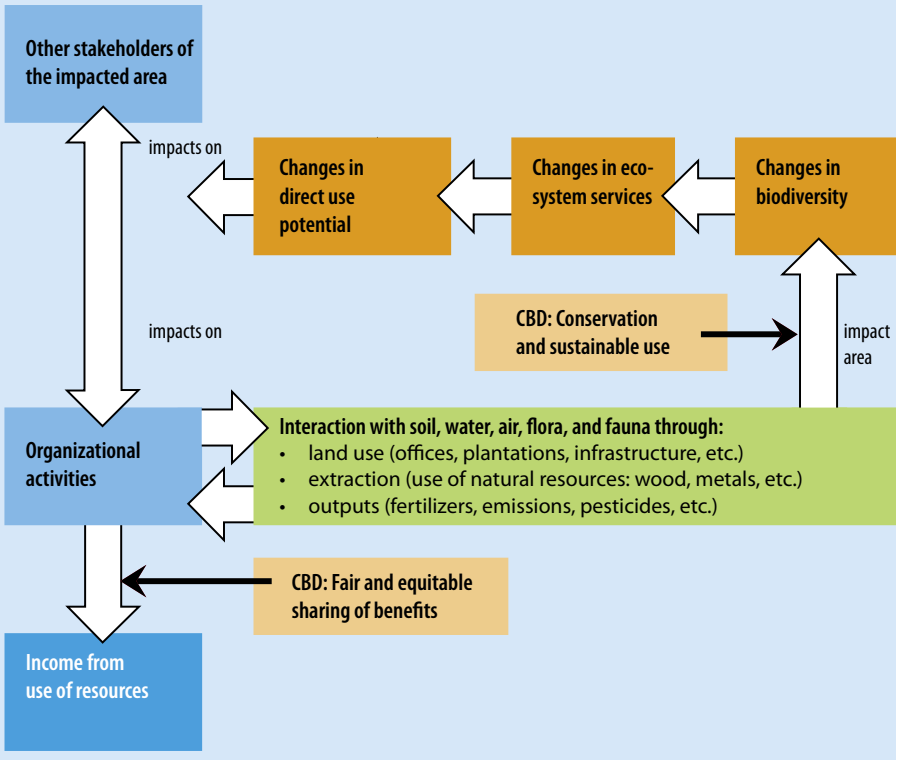
Regular interactions in an ecosystem can result in changes in biodiversity depending on:

- the nature of interaction with soil, water, air, flora, and fauna;
- the level of biodiversity in the intervention area; and
- the quality of the plans used to protect biodiversity from adverse impacts.

Changes in biodiversity can subsequently lead to changes in the availability of ecosystem services. The resulting changes in the potential for ecosystems to provide services can affect stakeholders active in or involved with the intervention area ***and*** the organizational activities. The other CBD objectives are therefore to ensure the sustainable use and conservation of biodiversity.

Figure 2.1 can serve as a reference for reporting on biodiversity and for explaining an organization's actions and impacts. It also illustrates the different steps and types of changes that could be the focus of the indicators used by the organization or by other parties. For indicators for organizational reporting, one of the key questions is to determine where interactions can be observed and measured and where there is sufficiently clear influence to define it as a reflection of organizational performance. Part 3 references Figure 2.1 when addressing the reporting of organizational performance in relation to biodiversity.

Figure 2.1: Relationship between an organization and biodiversity

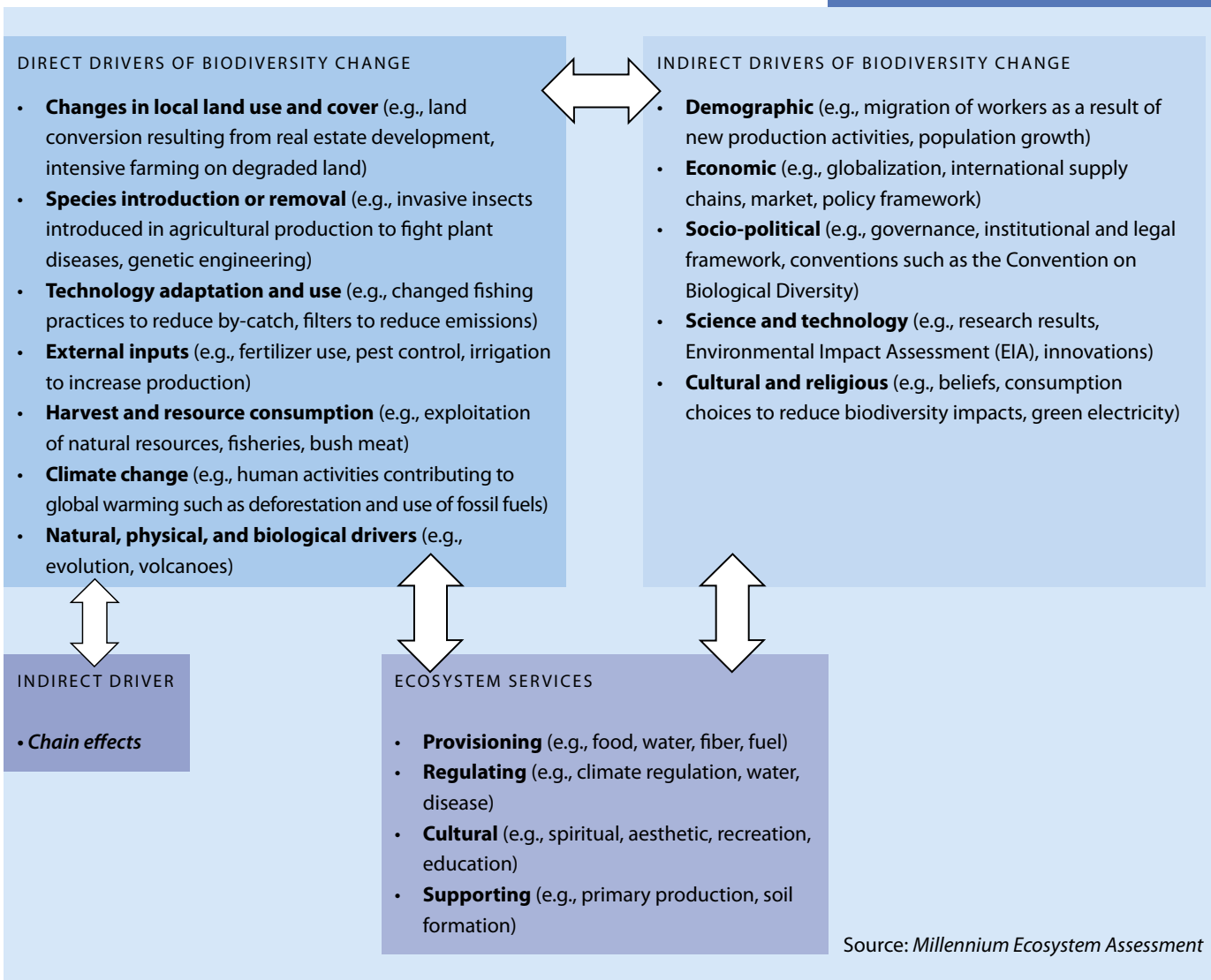


DESCRIBING RELATIONSHIPS: DIRECT AND INDIRECT DRIVERS OF BIODIVERSITY CHANGE

Within the context of Figure 2.2, all organizations contribute to changes in biodiversity in some manner, either positively or negatively. The Millennium Ecosystem Assessment (MA)[11] provides a framework for those trying to categorize or describe the types of activities that can result in biodiversity change.

It is vital to recognize that the depletion of ecosystem services is generally addressed at the local scale, even if the human activities and the effects (such as climate change, decreased supplies) are felt globally.

Figure 2.2: Relationships between ecosystem services and drivers of biodiversity change.



Source: *Millennium Ecosystem Assessment*

11] http://www.maweb.org/en/index.aspx

From an organizational point of view, the most common drivers negatively impacting biodiversity, and therefore the most relevant issues and activities to be reported, include:

- **Land conversion**
  Most activities require the use of land for the siting of various types of facilities whether these involve production of goods, residential units, or development of infrastructure. Vast stretches of land are necessary to meet the demands following from increasing consumption levels and global population growth. This conversion often comes with a cost for biodiversity.

- **Habitat degradation**
  Habitat degradation can result from resource extraction, releases of pollutants or other materials, and various land use patterns. This can occur directly through the introduction or removal of materials as well as indirectly through by-products such as acid rain. Another problem is habitat reduction resulting from e.g. infrastructure cutting through natural areas. Reducing the size of habitats can result in isolated populations affecting their ability to reproduce and maintain a diverse gene pool.

- **Introduction of new species**
  Organizations can intentionally and unintentionally (e.g., insects that have nested in cargo containers) introduce new species into habitats. Sometimes these species can then drive existing populations in the ecosystem to extinction and unbalance the system.

- **Overexploitation of resources**
  Resources are available in finite quantities with different renewal cycles. Over-exploitation of resources such as timber, fisheries, and other products typically comes at a significant cost to biodiversity.

2.5 Implications for reporting

Important as it is, biodiversity is not always explicitly addressed in sustainability reports. The complex nature of biodiversity, misconceptions about the importance of biodiversity for the organization, or lack of information, are all reasons for this.

From a reporting point of view, Part 2 raises three key points:

1] *International goals and expectations, especially the CBD objectives, should frame organizational reporting.*

These form reference points organizations can be sensitive to when undertaking activities and reporting on them, since they express standard societal expectations. Specifically, reporting organizations can respond to the following questions:

- How does the organization contribute to the conservation and sustainable use of biological diversity?
- Has attention been paid to the fair and equitable sharing of benefits deriving from biological resources?
- Have the organization and/or its supply chain partners processed these objectives in strategic or operational management?

2] *To be able to manage impacts on biodiversity and to report on biodiversity, an organization should identify which ecosystem services are key to its activities and to the interests of its stakeholders.*

Dependency on key ecosystem services can stem from either the organization's own activities or the importance of these services to major partners (e.g., suppliers). For example, pulp and paper companies are clearly dependent on having a consistent flow of timber. Cotton production is very water-intensive and depends on the availability of fresh water.

Dependency is not always direct. The availability of water may not be an issue to the supermarket itself, but it may be essential to its food suppliers. Water shortages in food producing countries can affect the food supply and, consequently, affect the supermarket's sales. In other words, a negative impact on key services anywhere in the supply chain may jeopardize an organization's (future) operations.

3] *A reporting organization should focus on and understand both the direct and indirect drivers that result in biodiversity and ecosystem change (i.e., its chain of events).*

Once an organization identifies which ecosystem services are most important to its activities and operations, it should then trace the chain of events backward to identify which aspects of biodiversity are most important, and which of its interactions affect biodiversity. Relevant activities may be direct actions (e.g., operating a pulp and paper plant) or indirect actions (e.g., the use of water by cotton suppliers). However, when an organization reports on its impacts, it is expected that material impacts are reflected whether they are direct or indirect.

Part 2 has intended to provide background information and a general framework for organizations reporting on biodiversity. Guidance for reporting on actual performance is provided in **Part 3.**

Part [3]

Approaching biodiversity reporting and its challenges

3.1 Introduction

Although biodiversity is recognized more and more as an important issue, it is often difficult for organizations to transform theory into practice: from reading and learning about biodiversity to actually implementing tools to adequately manage and consistently act in coherence with the objective of conservation and sustainable use of biodiversity.

Reporting offers organizations an opportunity to explain their relationship with biodiversity. In what way does the organization respond to negative impacts on biodiversity deriving from its activities? What are positive impacts? Part 3 offers guidance to organizations taking up the challenge of reporting on their actual performance in relation to biodiversity.

3.2 Stakeholder expectations and engagement

Stakeholders are vital in determining the success of an organization and the direction in which it is heading. In relation to biodiversity, stakeholders' values combine with scientific assessments to determine which ecosystem services are considered valuable in a specific area, and therefore which biodiversity impacts are considered acceptable. They also constitute an essential, local source of information for organizations. The GRI Guidelines refer specifically to stakeholder engagement conducted by the organization over the course of the reporting period[12]. Disclosure items indicated in the Guidelines include:

- List of stakeholder groups engaged by the organization;
- Basis for identification and selection of stakeholders with whom to engage (this includes the organization's process for defining its stakeholder groups, and for determining the groups with which to engage and not to engage);
- Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group; and
- Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.

When reporting on biodiversity, it may be important to engage stakeholders with regard to:

- **Their interest in the relationship between the organization and biodiversity**
  What is the value of biodiversity for the organization? Are biodiversity resources being used sustainably? Are benefits deriving from biological resources fair and equally shared? Does the organization face-or expect to face-diminished or decreased resources (such as fresh water) or increased regulation? Where do changes in biodiversity occur as a result of organizational activities? Which operational processes or products could be altered to mitigate negative impacts on biodiversity or enhance positive impacts? Stakeholders will be interested to learn to which extent their thoughts and concerns in respect of the organization's relationship with biodiversity are being dealt with. Their interests could be based on material risks of the company (e.g., shareholders wishing to secure their investments), but also on the loss of ecosystem services that may not be 'material' for the organization but are valuable to other stakeholders (such as local communities).

- **Their knowledge of biodiversity**
  Throughout the supply chain and even within a single organization, there may be multiple production locations. Which deserve particular attention from a biodiversity point of view? Where do conflicts exist with the needs of local fauna and flora? Which production processes are neutral or beneficial to biodiversity? Stakeholders may have comprehensive knowledge on the biodiversity status of specific locations and/or global biodiversity issues. They may also have useful networks, tools, and people to assist in recording impacts, collating information, certifying production processes, or improving production practices.

- **Review of a sustainability report**
  Reporting on an organization's relationship with biodiversity and related policies and performance can build trust and credibility with stakeholders, and create a 'value-adding' reputation. However, achieving this goal involves ensuring that the report addresses the interests of the users and will serve as an effective tool for further dialogue and performance improvement. One option could be to engage them in a review process prior to report finalization to test the report against their expectations.

Stakeholders are not static; their composition and number will differ geographically (each location, product, and service has its own stakeholders) and will change over time. An example of the range of stakeholders that may be linked to an organization's activities is presented in Box 4.

Box 4: Identifying stakeholders[13]

A paper processing industry uses a small river for the intake of processing water. The intake of process water by the paper mill changes the hydrology of the river. Identifying ecosystem services in a well-defined area provides a way to signal all relevant stakeholders. Direct stakeholders in the intervention area are those that benefit from the activity for which water is being taken from the river: the paper mill, people making a living at the paper mill, and possibly customers of the paper mill's products. Stakeholders linked to the floodplains being affected include: farmers depending on groundwater for irrigation (economic value), the public water supply company from a nearby city (social value), the association of fishermen depending on abundant wetlands and high water levels (economic value), recreational fishermen, nature protection groups (ecological value because of the migratory birds), local recreational companies (boat rental, restaurants, hotels) because they fear loss of income from tourists or day trippers, etc.

12] See G3 Reporting Guidelines, Profile, Governance section.
13] Biodiversity Assessment Framework, 2004

3.3 How to tell the story of biodiversity

Effective reporting should communicate the organization's relationship with biodiversity, its approaches to managing its impacts, and the results achieved. Figure 3.1 identifies the key elements to consider in reporting on biodiversity.

Relationship with biodiversity and ecosystem services

The starting point for telling the story on biodiversity is the nature of the relationship between the organization's activities and biodiversity. This will define the nature of the expectations on the organization and the resulting approaches to be implemented and performance goals to be achieved. In its reporting, an organization could communicate its understanding of how its activities affect biodiversity and, in turn, ecosystem services. Determining the nature of this interaction involves analyzing the ecosystem services that are important for an organization and its stakeholders and the biodiversity upon which those services depend (see Part 2 for discussion of these issues).

Perceived role and responsibilities

The second element lies in placing the organization's approach and performance in the context of its perceived roles and responsibilities. For many stakeholders, the CBD objectives as well as other points expressed in international agreements and national laws will be key reference points against which the organization can explain its performance. In particular, an organization should consider reporting its role and responsibilities regarding conservation and sustainable use of biodiversity, and fair and equitable sharing of benefits (CBD objectives).

Policy and management approach

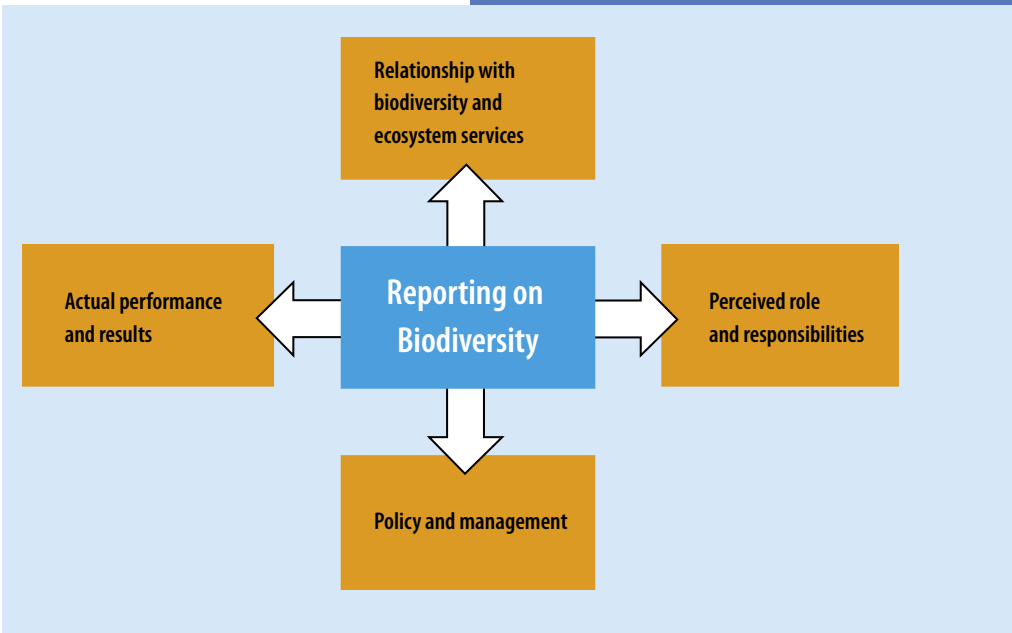
When the relationship to biodiversity and ecosystems and its role and responsibilities have been identified, the organization can start to report the specific policies and management approaches that are put in place to guide day-to-day activities. In communicating these, an important aspect is how they relate to an ecosystem approach (a "strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way"[14]).

Performance and results

The last element is to communicate the results achieved. Reporting on an organization's performance in relation to biodiversity will involve the use of indicators, including the GRI Environmental Performance Indicators, which specify the common information to be reported, and organization-specific biodiversity indicators. For most organizations, performance will be a combination of describing results achieved with respect to policy goals and describing absolute changes seen in the key areas impacted.

Combined, the above four elements provide an outline of the key points in telling the story of biodiversity. The remaining section of Part 3 provides more detail on issues faced in reporting on management approaches and actions and performance.

Figure 3.1: Telling the story of biodiversity



14] Definition derived from the Convention on Biological Diversity (CBD).

3.4 Reporting on approaches and performance

IN GENERAL

The relationship with biodiversity and its expectations to biodiversity are key contextual information for an organization in understanding performance, as described in Part 2. Once these are established, an organization then should be able to communicate its approach to establishing good management practices and the results in terms of biodiversity outcomes.

REPORTING ON APPROACHES AND ACTIONS

Reporting on actions is both a backward-looking exercise and a forward-looking exercise. It involves assessing whether previous approaches have been successful, as well as new approaches to drive future performance.

There is a range of initiatives and activities that organizations engage in as part of their broader biodiversity strategy that are typically of interest to stakeholders where they exist. For example:

Changing business practices

Business practices refer to the nature of operations, production methods used, raw materials sourced, and so on that determine the impacts of the organization on biodiversity. Changes to core processes are generally the types of actions that are most interesting to stakeholders since they potentially have the farthest-reaching effects.

Many organizations will have already implemented routine management policies or controls, either voluntarily or required by law, to minimize negative impacts on biodiversity. For example, air filter installations to reduce toxic air emissions, waste water requirements to prevent toxic elements from entering surface water, and mandated Environmental Impact Assessments (EIA) in biodiversity sensitive areas[15].

Where new potentially negative impacts on biodiversity are assessed, organizations will likely have assessed new management strategies or production processes to further minimize or avoid future impacts. Sometimes a small change in a production process may create positive changes, but in other cases it may take significant changes and investments to realize benefits for biodiversity. The trade-offs and opportunities involved in such decisions are useful for helping to communicate an organization's approach to biodiversity.

Changing operational practices can involve making alterations to product design, production processes, or management strategies. This could include:

- **Preventing negative impacts**
  This involves adjusting standard business practices so that biodiversity will no longer be negatively harmed as a result of organizational activities. For example:
  - Implementing new sourcing policies and practices (supplier, product, production location, etc.);
  - Redesigning production processes (conversion to drip irrigation, use of green energy, use of biological fertilizers, alternative technology, etc.); and/or
  - Changing plans for new activities (e.g. abandon road construction plans, abstain from new activities that may pose biodiversity threats).

- **Mitigating negative impact**s
  Mitigating measures could be used to minimize potential negative impacts on biodiversity. Examples of mitigating measures include:
  - Designing wildlife friendly features into new infrastructure (construction of a wildlife viaduct to offset the impacts of a new road); and
  - Placing obstructions that discourage fauna (both on the ground and in the air) from entering production sites.

- **Enhancing positive impacts**
  Other than counteracting negative

15] In view of the close connections between biodiversity and the environment, biodiversity can benefit from positive attention to environmental aspects.

impacts, organizational practices can also be adjusted to strengthen positive effects. Examples of such adjustments include:

- Planting native flora species around an existing agricultural production location to serve as a buffer zone; and
- Planning activities and land use based on the condition of land and the potential for habitat restoration.

Using influence in the supply chain

Supply chain partners depend on one another to varying degrees. To some organizations, the loss of a particular supplier or purchaser would force it to cease operations, while others who are less dependent on this supplier/purchaser would only note a minor effect on its everyday activities.

Organizations with significant influence in the supply chain are often closely scrutinized for the activities of their business partners. From a reporting perspective, the boundaries of their reporting will also extend to include disclosure on performance within the supply chain. In practical terms, this might involve:

- including biodiversity as a selection criterion when awarding a contract;
- requiring existing suppliers to adhere to certain standards or apply certain processes (e.g., not accepting certain ingredients or raw materials); and
- requiring certification verifying biodiversity-friendly operations.

In addition, influential organizations may use their power to raise standards in the industry in which they take a leading position. A market leader paying attention to biodiversity and communicating the same to its stakeholders often forces competitive organizations to follow. The end result of using such influence may be reduced negative impacts on biodiversity.

Researching and developing new processes and technologies

Increased attention to biodiversity in production processes over the years has fuelled research and development in the area of biodiversity-friendly practices. Research and development can play an important role in bringing about change in an organization's activities or in the development of new techniques aimed at diminishing impacts on biodiversity in the supply chain. Some examples include:

- converting to water-saving drip irrigation;
- soil-conserving harvesting techniques;
- water recycling methods;
- fishing techniques reducing bycatch; and
- catching and processing production emissions.

Using labels, guidelines, and codes of conduct

Labels, guidelines, and codes of conduct that deal adequately with biodiversity issues can enhance biodiversity when they are used to direct an organization's production and/or purchasing policy. Certification by third parties ensures credibility and can save an organization the effort of ensuring that standards are being observed. The use or production of certified (semi)manufactured products can be a credible and practical strategy for attracting consumers and satisfying the demands of other stakeholders as well.

Providing resources to support biodiversity protection efforts

Apart from revising production processes or supply chain partners, biodiversity can be enhanced by organizations in many other ways such as:

- financially supporting conservation organizations;
- investing in existing biodiversity funds or establishing a new biodiversity fund (e.g., a fund that is specifically tailored to an organization's sector);
- supporting the management of existing conservation areas;
- funding biodiversity-related research; and
- providing opportunities for employees to do environmental-related volunteer work.

TYPES OF PERFORMANCE INDICATORS

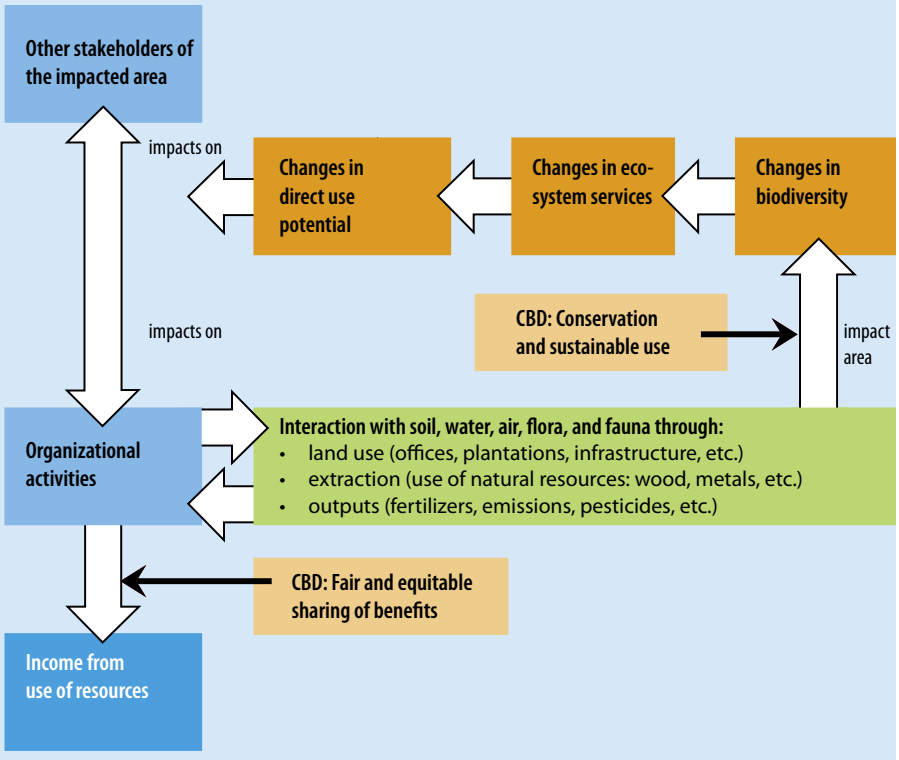
An organization's management approach is important for understanding what guides its actions with regard to biodiversity, but indicators are necessary to tell the real story of the results and outcomes achieved. How many hectares of land have been used for activities and at which location? Which activities have been undertaken to enhance biodiversity at the production sites? How many Environmental Impact Assessments (EIA) have been carried out prior to undertaking new or extended activities? What has happened to the populations of keystones species in an area? Which stakeholders have been involved and how often have dialogues taken place?

In approaching performance, there are different types of indicators that can be applied across the chain of events (see Fig. 3.2) to show the changing state of biodiversity and associated ecosystem services. The total picture comes from using a combination of indicators and measures provided by different parties that covers the steps of the chain. These will include indicators on:

- Inputs/outputs to the environment;
- Changes in biodiversity conditions;
- Quality and availability of ecosystem services in a region;
- Longer-term health and stability of ecosystems and local habitats; and
- Social and economic impacts of changes to the environment.

Responsibilities for measuring performance and gathering data on biodiversity are shared amongst different constituencies depending on roles and capacities. Government agencies will have different opportunities (and obligations) for gathering data on the state of biodiversity and ecosystems in a given jurisdiction than companies. Organizational performance reporting will focus around indicators where a significant degree of influence exists and actions can be identified as having a significant impact or degree of causality on biodiversity and its associated ecosystem services. For indicators intended to demonstrate performance (as opposed to providing baseline data on static environmental conditions), there is an added expectation that organizations reporting on the same indicator will have different outcomes to report.

Figure 3.2: Relationship between an organization and biodiversity



The indicators in the G3 Guidelines focus on the inputs/outputs to the environment and the impacts on or changes in biodiversity that are observable to the organization. These contribute to understanding the impacts of an organization in terms of areas where it has measurable influence, and are most useful if used in conjunction with other information. There is also a considerable amount of work underway to understand the other types of indicators needed and the manner in which organizational reporting can play a role in developing these.

The use of any indicators always raises questions about interpretation and appropriate baselines for comparison. As a general rule, reporting requires both quantitative and narrative information since neither can tell a full story on its own. Quantitative information benefits from having supporting explanation about underlying trends or drivers and facts that aid in its interpretation.

CBD Indicators

Recognizing the difficulty of measuring biodiversity over time, the CBD is developing indicators for assessing progress towards the 2010 Biodiversity Target (see Box 3). Such indicators may assist organizations in drafting their own parameters to assess their direct and indirect impacts on biodiversity, although not all of the possible indicators could be used in an organizational context. The indicators identified at the time of writing this document are listed below in Table 3.1.

GRI Performance Indicators and Biodiversity

The G3 Guidelines include a set of indicators on biodiversity that involve reporting on the impacts of the organization as well as changes in biodiversity associated with land use. However, these are not the only GRI Indicators that are relevant for reporting on biodiversity.

All production processes influence biodiversity, either positively or negatively, through the raw materials used, the energy required for production, the land converted for the production site, the necessary transport to deliver the products, and so on. Links can be made between biodiversity and other Environmental Performance Indicators. Some examples of the points of connection are listed below:

- **Water:** Water is essential to maintain all three elements of biodiversity (diversity of ecosystems, diversity between species, and diversity within species). A shortage or profusion of water may profoundly alter the level of biodiversity in a certain area (e.g., the kind of species that are able to survive). Performance against GRI Indicators on the consumption and release of water will also have implications for biodiversity.

- **Air:** Emissions to air can affect flora and fauna as well as carry pollutants over extended distances to impact water bodies and soil. In reporting on air emissions under the G3, an organization could also consider whether any of these emissions are likely to have an effect on biodiversity (e.g., mercury releases).

- **Soil:** Soil quality can be affected by any number of environmental releases which can have subsequent effects on its ability to perform various ecological functions (e.g., resulting in a degraded ecosystem bearing a smaller variety of species).

- **Habitat:** Fragmentation of habitats can endanger the survival of a population by weakening its genetic basis (e.g., fragmentation of a habitat as a result of construction of new infrastructure projects such as roads).

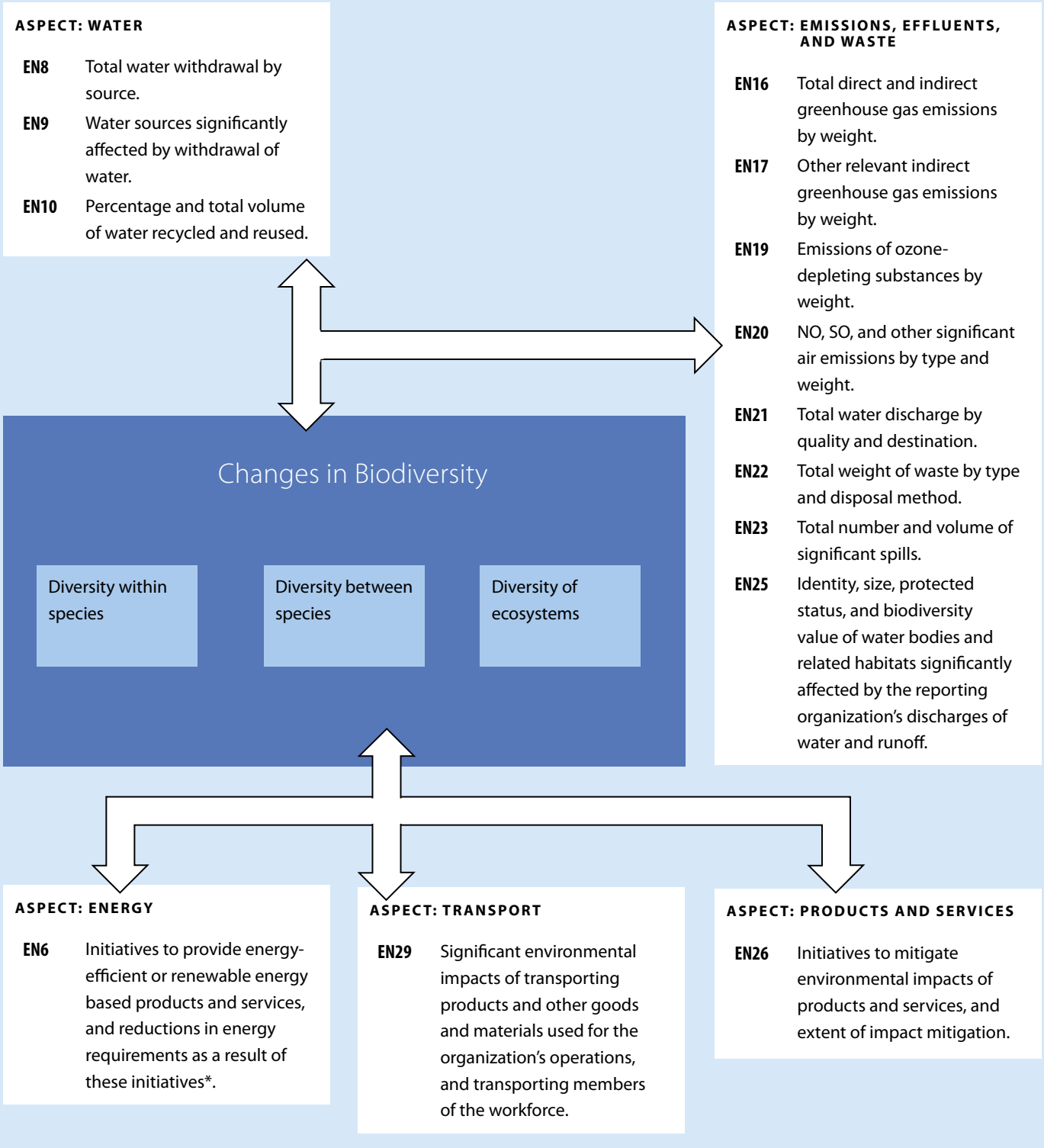
Table 3.1: Draft indicators for assessing progress towards the 2010 Biodiversity Target

Focus areas	Indicators for immediate testing
Status and trends of the components of biological diversity	• Trends in extent of selected biomes, ecosystems, and habitats • Trends in abundance and distribution of selected species • Change in status of threatened species • Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socioeconomic importance • Coverage of protected areas
Ecosystem integrity and ecosystem goods and services	• Marine Trophic Index • Connectivity/fragmentation of ecosystems • Water quality in aquatic ecosystems
Threats to biodiversity	• Nitrogen deposition • Trends in invasive alien species
Sustainable use	• Area of forest, agricultural, and aquaculture ecosystems under sustainable management • Ecological Footprint and related concepts
Status of traditional knowledge, innovations, and practices	• Status and trends of linguistic diversity and number of speakers of indigenous languages
Status of access and benefit-sharing	Indicators to be developed
State of resource transfers	• Official development assistance provided in support of the Convention

Source: Secretariat of the Convention on Biological Diversity (2006) Global Biodiversity Outlook 2, Montreal. http://www.biodiv.org/gbo2/default.shtml

Figure 3.3: Biodiversity in relation to other GRI Environmental Performance Indicators

These types of connections are reflected in Figure 3.3, which demonstrates that the GRI Indicators on water and emissions, for example, may be as relevant for reporting on the organization's biodiversity performance as the GRI Indicators that are actually labelled "biodiversity".



* Biomass is increasingly used as a renewable source of energy. Cultivation of energy products could be accompanied by significant impacts on biodiversity, for example, due to taking up large areas of natural habitats or extensive water use. Organizations need to take possible disadvantages of biomass as a renewable source of energy into account and ideally report on the origin of biomass sources used.

3.5 Measurement in practice

GATHERING INFORMATION

The assessment of biodiversity value, the assessment of impacts on biodiversity, and the challenges of tracing impacts, are discussed below in relation to the information gathering processes used by reporting organizations.

Assessment of biodiversity value

Assessing the biodiversity value of an area and the value of biodiversity and ecosystem services for stakeholders is a complex task. In the end, the value that is attributed to ecosystem services in a specific area will depend on the stakeholders involved (e.g., government, NGOs, local communities, research institutes). Based on the determined value, stakeholders can decide whether or not a particular impact on biodiversity is acceptable.

The biodiversity value of an area is linked to factors such as:

- the degradation level of the area (e.g., pristine forest versus production forest)
- species variety and abundance; and
- the ecosystem services the area provides, including ecological services (e.g., key habitat for migratory birds).

Considering the diversity of ecosystems in which the organization and the different supply chain partners are likely to operate, assessing the value of biodiversity in areas directly and indirectly affected by an organization's operations may require substantial effort. Moreover, simple tools that 'just' collect biodiversity data do not exist. Only a few aspects of biodiversity can be measured quantitatively, including:

- trends in species variety and abundance;
- the level of genetic variety of biodiversity resources used in the supply chain; and
- the number of hectares in areas with a high biodiversity value located within or adjacent to production sites.

This challenges organizations to be creative in obtaining quantitative data and then finding ways to interpret the data collected. Expert advice on data collection methods and tools may be sought from nature conservation organizations or local ecologists.

Assessment of biodiversity impacts

When do an organization's activities affect biodiversity? How can an organization assess the extent of the impact?

Reporting on direct and indirect impacts on biodiversity presumes the reporting organization has knowledge of the changes to biodiversity that have occurred throughout its supply chain(s). It is generally easier for an organization to control and measure direct impacts resulting from an organization's own activities than to gather data about indirect impacts on biodiversity further down the supply chain.

A large number of assessment instruments have been developed to assist organizations in collecting data for organizational management and reporting. Drawing on guidance from the CBD, ***Annex V*** provides extensive information on how biodiversity can be integrated into Environmental Impact Assessments (EIA).

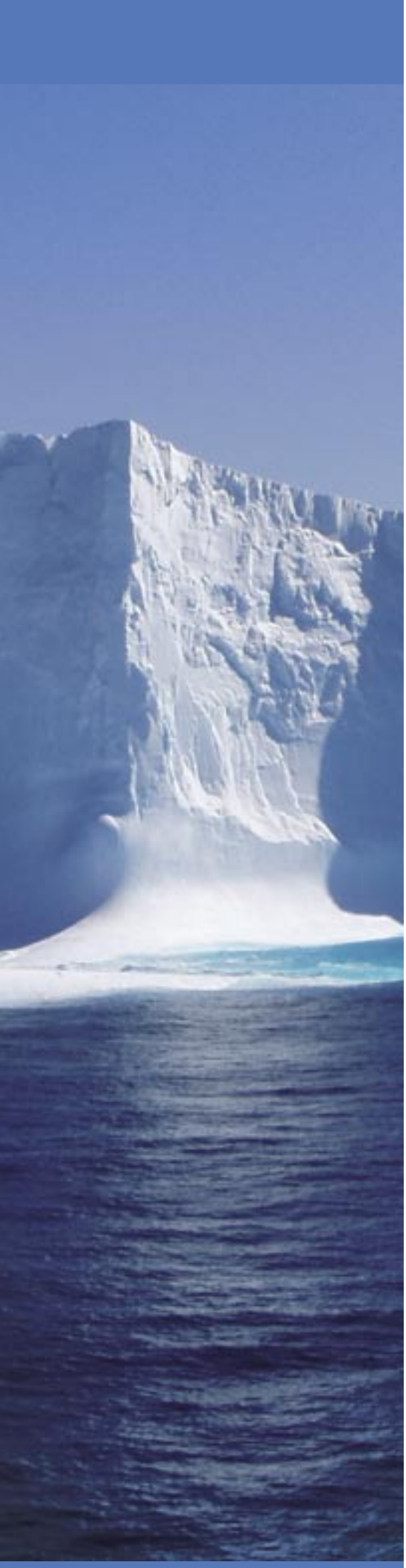
It may be difficult for an organization to thoroughly assess and report on all biodiversity impacts arising in its supply chain(s). One alternative is to monitor production processes known to have a risk for significantly impacting biodiversity, and to monitor production areas known to be sensitive to impacts or to have high conservation value. Here, stakeholder input can support for the choices an organization makes about which sites to monitor. In addition, assessing the biodiversity value of a particular location might require expert knowledge.

Box 5. Example of assessing biodiversity

One way to gather data on the level of biodiversity within and around production sites is to select a number of indicator species or key habitats. The data gathered would then need to be analyzed: Have key species benefited from a new management approach to biodiversity? How can the degradation in key habitats be explained?

An organization could decide to report on:

- the criteria used to support the selection;
- the results of the data;
- the experts and local stakeholders involved in assessing the value of biodiversity; and
- the nature of their participation.



Changes in biodiversity

A reporting organization should not count on ecosystems remaining stable over time; fauna and flora species that are present in a particular area one year will not necessarily be there the following year. Fauna and flora species are dynamic and may not limit their distribution to one area. Food, reproduction, and territorial issues can all motivate plant and animal species to extend or move to a different habitat. This could represent a periodic change in the presence of a particular species in an area, but not necessarily indicate significant changes to biodiversity. Comprehensive reporting, therefore, requires regular reviews of whether or not potential significant impacts are occurring.

Area of influence

When assessing and reporting on its impacts, a reporting organization needs to consider that its area of influence may reach beyond the limits of its operational area. For example, its pollutants may travel by air or surface water, or it may disturb biodiversity functions that are vital to the maintenance of other areas. In fact, the geographical range affected as a result of a certain activity is often many times larger than the actual production area. This is an important factor to consider when mapping the production sites in a supply chain, which can be located either inside or adjacent to areas of high biodiversity value. Impacts can be far-reaching, and intervention areas may be miles away from an organization's operational area.

Duration of influence

When assessing its biodiversity impacts, reporting organizations will need to consider the duration of its influence. Here, a distinction can be made between the duration of activities that cause impacts and the duration of the impact itself:

- The duration of activities that cause impacts: for how long each week, month, or year does the impact occur (e.g., spraying of insecticides)? Or is the impact a one-time event (e.g., land conversion)?
- The duration of impact: the range of influence can reach beyond the time horizon of the activity, for example, the longevity of nuclear waste.

Changes in ecological processes outside the natural range of variation (e.g., salinity, changes in the groundwater level) often do not immediately impact biodiversity, though in the long term could affect the composition of flora and fauna species. Reporting should make clear what steps the organization has taken to identify and manage impacts, including those that may reach beyond the areas of direct operation and/or occur over a longer period of time.

Lack of traceability

Many organizations seek to understand and track their indirect impacts on biodiversity, but encounter limits in their ability to gather useful information from their supply chain. For example, a reporting organization may find itself in a position in which the origin of one or more of the products it uses is not known. Limited ability to trace impacts may prevent the organization from reporting on the full extent of its biodiversity impacts. In this case, reporting on issues *connected* to the products in question (i.e., *potential impacts*), rather than reporting on the organization's performance itself (or the performance of supply chain partners) (i.e., *actual impacts*) may be an option.

Reporting potential impacts is generally possible when some of the following data are available on the product in question:

- the country or region of origin (e.g., biodiversity value of areas in the region, presence of adequate legislation, publications on biodiversity impacts in the region);
- resource requirements (e.g., water consumption, soil type); and
- common production practices (e.g., monoculture production, processing requirements, land clearing practices) and related impacts.

Internet research can generate some useful information for understanding a particular product and how it was produced. Additional information can also be gleaned from labels and relevant codes of conduct. Experts can also assist.

Reporting on an issue rather than on detailed performance allows an organization to inform its stakeholders about its potential impacts on biodiversity and dilemmas faced in improving performance. However, when reporting in this way it is also important to communicate plans for addressing the issue in the future, including improving access to objective data to measure performance.

PROCESSING INFORMATION: FROM IMPACT TO REPORTING

An organization with a network of production sites and/or supply chain partners located in various areas may encounter variations in:

- applicable environmental legislation;
- expectations from local stakeholders; and/or
- types of local impacts on biodiversity.

Moreover, when processing information, an organization should take into account that:

- local impacts occurring in different places and at different times cannot simply be summarized by aggregate numbers in the same way as some other types of data (e.g., financial data);
- local data should be processed and summarized in a way that supports comprehensive and systematic reporting; and
- biodiversity is a local issue and highly variable so that reporting priorities may vary between sites.

The main challenge an organization encounters in processing information for reporting purposes is consolidating data on its relationship with and its impacts on biodiversity and to turn this into a section of a sustainability report. An organization can support effective reporting processes by:

- sharing information on key biodiversity pressures (the extent of these pressures, the impacts of the pressures, and countermeasures taken by the organization) resulting from its activities;
- designing standard procedures, forms, and questionnaires to address biodiversity aspects that compile the necessary information throughout the supply chain. This may help organizations to obtain data on biodiversity issues. See Table 3.2 for an example.
- describing actual impacts with case studies;
- describing the movement patterns and number of key indicator species, or changes over time of key habitats potentially affected by the organization rather than trying to catalog all species;
- describing the depth of implementation of management procedures (e.g., the percentage of production locations that have developed biodiversity action plans);
- collecting comparative information with respect to the biodiversity performance of production locations (e.g., the number of sites that have reduced negative impacts on biodiversity);
- where data is difficult to aggregate, showing the pattern of impacts across the range of operations (e.g., keystone species' population has improved at 45% of the organization's operating sites since commencement of operations); and
- providing separate sustainability reports for different locations in addition to a corporate sustainability report.

Table 3.2: Examples of questions for finding information

Topic	Aspects
Land conversion	• What is the size of the land being used for the activities? • What kind of land has been converted in order for the activities to take place? • Has the level of biodiversity been measured prior and/or after land conversion? If so, what are the most relevant findings? • Has an Environmental Impact Assessment (EIA) been undertaken prior to land conversion taking place? If so, how has biodiversity been addressed?

Bibliography

This bibliography is divided into three sections.

The first section includes the sources used to write the Biodiversity Resource Document.

The second and third sections present a selection of biodiversity organizations and initiatives that represent various perspectives on some of the topics addressed in the Biodiversity Resource Document.

Note: *The information provided on organizations and initiatives has been taken from their respective websites and does not represent the opinion of the Global Reporting Initiative (GRI). The inclusion of these sources also does not constitute an endorsement by the Global Reporting Initiative (GRI), as other sources may be as useful and reliable as those included here.*

Sources used to write the Biodiversity Resource Document

GRI Boundary Protocol,
Global Reporting Initiative, January 2005
[http://www.globalreporting.org/Services/ResearchLibrary/GRIPublications/]

Global Biodiversity Outlook 2, 2006
Secretariat of the Convention on Biological Diversity, Montreal.
[http://www.biodiv.org/gbo2/default.shtml]

Millennium Ecosystem Assessment, 2005
Ecosystems and Human Well-being: Opportunities and Challenges for Business and Industry.
World Resources Institute, Washington, DC.
[http://www.wri.org/business/pubs_description.cfm?pid=4155]

Biodiversity Assessment Framework
Slootweg en van Schooten/CREM, April 2004
[http://www.crem.nl/main.php?page=124&lang=en]

Selected organizations

Conservation International
Conservation International's mission is to conserve the earth's living natural heritage, our global biodiversity, and to demonstrate that human societies are able to live harmoniously with nature.
[http://www.conservation.org]

Convention on Biological Diversity
[http://www.cbd.int]

Global Biodiversity Information Facility (GBIF)

Information about biodiversity (natural history collections, library materials, databases) is not distributed evenly around the globe. Three-quarters or more of data about biodiversity are stored in the developed world. However, most data cannot be transferred to developing countries because it is not digitized, or the capacity to handle digital information is lacking, or both. Facilitating digitization and global dissemination of primary biodiversity data, so that people from all countries can benefit from the use of the information, is the mission of the Global Biodiversity Information Facility (GBIF).

[http://www.gbif.org]

Greenpeace

As a global organization, Greenpeace focuses on the most critical threats to the planet's biodiversity and environment. It campaigns to:

- Stop climate change
- Protect ancient forests
- Save the oceans
- Stop whaling
- Oppose genetic engineering
- Stop the nuclear threat
- Eliminate toxic chemicals
- Encourage sustainable trade

[http://www.greenpeace.org/international]

International Association for Impact Assessment (IAIA)

IAIA is the leading global authority on best practice in the use of impact assessment for informed decision making regarding policies, programs, plans, and projects. The Association brings together researchers, practitioners, and users of various types of impact assessment to provide an international forum for advancing innovation and communication of best practice in all forms of impact assessment in order to further the development of local, regional, and global capacity in impact assessment.

[http://www.iaia.org]

Rainforest Alliance

The mission of the Rainforest Alliance is to protect ecosystems and the people and wildlife that depend on them by transforming land use practices, business practices, and consumer behaviour. Companies, cooperatives, and landowners that participate in Rainforest Alliance programs meet rigorous standards that conserve biodiversity and provide sustainable livelihoods.

[http://www.rainforestalliance.org]

The Nature Conservancy

The mission of The Nature Conservancy is to preserve the plants, animals, and natural communities that represent the diversity of life on earth by protecting the lands and waters they need to survive.

[http://www.nature.org]

The World Conservation Union (IUCN)
IUCN is the world's largest conservation network. The Union brings together 82 states, 111 government agencies, more than 800 non-governmental organizations, and some 10,000 scientists and experts from 181 countries in a worldwide partnership. The Union's mission is to influence, encourage, and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. IUCN prepares lists of globally protected areas and a Red List of Threatened Species.
[http://www.iucn.org]

United Nations Environment Programme (UNEP)
The mission of the United Nations Environment Programme (UNEP) is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations. The World Conservation Monitoring Centre is the biodiversity and information assessment arm of the United Nations Environment Programme (UNEP).
[http://www.unep.org] and [http://www.unep-wcmc.org]

World Business Council for Sustainable Development (WBCSD)
The World Business Council for Sustainable Development (WBCSD) is a coalition of 175 international companies united by a shared commitment to sustainable development via the three pillars of economic growth, ecological balance, and social progress.
[http://www.wbcsd.org]

World Resources Institute (WRI)
The World Resources Institute (WRI) is an environmental think tank that goes beyond research to find practical ways to protect the earth and improve people's lives. Its mission is to move human society to live in ways that protect Earth's environment and its capacity to provide for the needs and aspirations of current and future generations.
[http://www.wri.org]

WWF
WWF's ultimate goal is to stop and eventually reverse environmental degradation and to build a future where people live in harmony with nature, by:
- conserving the world's biological diversity;
- ensuring that the use of renewable natural resources is sustainable; and
- promoting the reduction of pollution and wasteful consumption.

[http://www.panda.org]

Selected initiatives

Biodiversity Economics
Biodiversity Economics is a website devoted to the economics of biodiversity. The site is sponsored by IUCN and WWF and aims to promote economic approaches to the conservation of nature by providing access to key documents, a calendar of events, and a database of practitioners around the world.
[http://www.biodiversityeconomics.org]

Biosafety Clearing-House (BCH)

The Biosafety Clearing-House (BCH) is an information exchange mechanism established by the Cartagena Protocol on Biosafety to assist Parties to the Protocol in implementing its provisions and to facilitate sharing of information on, and experience with, living modified organisms (LMOs).
[http://bch.biodiv.org]

Business & Biodiversity Resource Centre (BBRC)

The Business & Biodiversity Resource Centre can assist organizations in unravelling the important role that biodiversity plays in business. The Centre provides information on how different sectors impact wildlife and nature, and what organizations are doing to help conserve and manage biodiversity. The Resource Centre is hosted by Earthwatch Institute (Europe) and supported by English Nature and DEFRA.
[http://www.businessandbiodiversity.org]

Clearing-House Mechanism of the CBD

The Clearing-House Mechanism of the Convention on Biological Diversity (CBD) aims to promote and facilitate technical and scientific cooperation within and between countries, develop a global mechanism for exchanging and integrating information on biodiversity, and develop the necessary human and technological network.
[http://www.biodiv.org/chm/]

Conservation Commons

The Conservation Commons is a collaborative effort of non-governmental organizations, international and multi-lateral organizations, governments, academia, and the private sector, to improve open access to data, information, and knowledge related to the conservation and sustainable use of biodiversity with the belief that this will contribute to improving conservation outcomes.
[http://www.conservationcommons.org]

Conservation Measures Partnership (CMP)

The Conservation Measures Partnership (CMP) is a partnership of conservation non-governmental organizations (NGOs) that seek better ways to design, manage, and measure the impacts of their conservation actions. CMP is developing standard taxonomies to help industry and other sectors assess their conservation actions, management, and impacts, including the ***Taxonomy of Direct Threats and the Taxonomy of Conservation Action*** (both available on the CMP website).
[http://www.conservationmeasures.org]

Global Biodiversity Forum (GBF)

The Global Biodiversity Forum (GBF) was founded in 1993 by IUCN, WRI, UNEP, and ACTS, and includes a number of other institutions as its conveners. It is an open and independent mechanism to encourage analysis, dialogue, and partnership on key ecological, economic, social, and institutional issues related to biodiversity. It contributes to the further development and implementation of the Convention on Biological Diversity (CBD), the Ramsar Convention, the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD), and other biodiversity-related conventions at the local, national, regional and international levels.
[http://www.gbf.ch]

International Finance Corporation (IFC) Biodiversity Guide

The International Finance Corporation (IFC) is the private sector arm of the World Bank Group. Its mission is to promote sustainable private sector investment in developing countries, helping to reduce poverty and improve people's lives. IFC has developed A Guide to Biodiversity for the Private Sector: Why Biodiversity Matters and How It Creates Business Value. This web-based guide is designed to help organizations operating in emerging markets to better understand their relationship to biodiversity issues and how they can effectively manage those issues to improve business performance and benefit from biodiversity.
[http://www.ifc.org/BiodiversityGuide]

Millennium Development Goals (United Nations)

The eight Millennium Development Goals (MDGs) – which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015 – form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world's poorest. The 7th Goal is to ensure environmental sustainability.
[http://www.un.org/millenniumgoals]

Millennium Ecosystem Assessment (MA)

The Millennium Ecosystem Assessment (MA) is an international initiative launched by the United Nations and led by the United Nations Environment Program (UNEP) and the World Resources Institute (WRI) to assess the conditions of the world's ecosystems.
[http://www.millenniumassessment.org]

Public-private partnerships

Increasingly, partnerships arise between public and private parties. Multiple issues can be addressed through such partnerships and the topic of biodiversity is one of them. Biodiversity is a complex issue to deal with, especially when:

- operations are not limited to individual sites;
- activities are known for their potential negative impacts on biodiversity; or
- areas of high conservation value are not recognized.

A partnership can offer assistance by recording impacts and collecting information, developing biodiversity management plans, performing impact assessments, or transferring knowledge.

Annexes

Annex I

About GRI

The "Global Reporting Initiative" is a large multi-stakeholder network of thousands of experts, in dozens of countries worldwide, who participate in GRI's working groups and governance bodies, use the GRI Guidelines to report, access information in GRI-based reports, or contribute to develop the Reporting Framework in other ways – both formally and informally.

The GRI's vision is that reporting on economic, environmental, and social performance by all organizations is as routine and comparable as financial reporting.

The GRI network accomplishes this vision by developing, continuously improving and building capacity around the use of a Sustainability Reporting Framework, the core of which are the Sustainability Reporting Guidelines. Other components in the Reporting Framework are Sector Supplements and Protocols. This reporting guidance - in the form of principles and indicators - is provided as a free public good.

To ensure the highest degree of technical quality, credibility, and relevance, the GRI Reporting Framework is developed and continuously improved through intensive multi-stakeholder engagement that involves reporting organizations and information seekers, who together develop and review content for the Reporting Framework.

The GRI Reporting Framework

The Reporting Framework contains the core product of the Sustainability Reporting Guidelines ("the Guidelines"), as well as Protocols and Sector Supplements.

A. GRI REPORTING FRAMEWORK

The Guidelines should be used as the basis for all reporting. They are the foundation upon which all other reporting guidance is based, and outline core content for reporting that is broadly relevant to all organizations regardless of size, sector, or location. The Guidelines contain principles and guidance as well as standard disclosures – including indicators – to outline a disclosure framework that organizations can voluntarily, flexibly, and incrementally, adopt.

Protocols are the "recipe" behind each indicator in the Guidelines and include definitions for key terms in the indicator, compilation methodologies, intended scope of the indicator, and other technical references.

Sector Supplements respond to the limits of a one-size-fits-all approach. Sector Supplements complement (not replace) use of the core Guidelines by capturing the unique set of sustainability issues faced by different sectors such as mining, automotive, banking, public agencies and others.

B. ADDITIONAL MATERIALS

Research and Development Publications
GRI's Research and Development publications support the GRI Reporting Framework by providing background information on topics and trends that are of interest to GRI users. Research topics include those that are covered in the GRI Reporting Framework, as well as topics that have no direct coverage in the GRI Reporting Framework. Research publications are a source of additional ideas, expertise, and knowledge to inspire both individual users and future GRI Working Groups.

For organizations wishing to produce a GRI-based report, research publications should be used as helpful tools to gain insight into topics or trends around reporting, but any specific references to use of the GRI Framework as the basis for the report should be made with respect to the G3 Guidelines, Supplements, or Protocols. When declaring a level of application of the GRI Reporting Framework, reference must be made to the Guidelines, Supplements and Protocols only. Download the GRI Reporting Framework free of charge at: **www.globalreporting.org.**

Annex II

Definitions

This annex gives a short overview of the main topics and definitions in the field of biodiversity in alphabetical order.

BIODIVERSITY

Biodiversity is the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems.

BIOLOGICAL RESOURCES

Biological resources include genetic resources, organisms or parts thereof, populations or any other biotic component of ecosystems with actual or potential use or value for humanity.

ECOSYSTEM

An ecosystem is a dynamic complex of flora, fauna, microbes and their non-living environment (soil, air, water) interacting with one another as a functional unit. Ecosystems deliver services and goods essential to human existence. Different types of ecosystems and services can be distinguished. Annex III gives an overview of ecosystems and some of the services they provide.

ECOSYSTEM APPROACH

The ecosystem approach is defined as a strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems[16].

EXOTIC SPECIES

See invasive species.

HABITAT

A habitat is the place or type of site where an organism or population naturally occurs.

HABITAT DEGRADATION

Habitat degradation is the diminishment of habitat quality, which results in a reduced ability to support flora and fauna species. Human activities leading to habitat degradation include polluting activities and the introduction of invasive species. Adverse effects can become immediately noticeable, but can also have a cumulative nature. Biodiversity will eventually be lost if habitats become degraded to an extent that species can no longer survive.

HABITAT FRAGMENTATION

Habitat fragmentation occurs when a continuous habitat has become divided into separate, oftentimes isolated, small patches interspersed with other habitat. Small fragments of habitat can only support small populations of fauna and these are more vulnerable to extinction. The patches may not even be habitable by species occupying the original, undivided habitat. The fragmentation also frequently obstructs species from immigrating between populations.

Habitat fragmentation stems from geological processes that slowly alter the layout of the physical environment or human activities such as land clearing and construction of roads. Adverse effects often are not immediately noticeable and sufficient habitats may ostensibly be maintained. However, inbreeding, lack of territories, and food shortage are some of the problems small populations can encounter. Fragmentation of habitats is therefore expected to lead to losses of biological diversity in the longer term.

HABITAT LOSS

Habitat loss is the outcome of a process of land use change in which a "natural" habitat-type is removed and replaced with another habitat-type, such as converting natural areas to production sites. In such a process, flora and fauna species that previously used the site are displaced or destroyed. Generally, this results in a reduction in biodiversity.

16] The Convention on Biological Diversity (CBD) (Rio de Janeiro, 1992, see section 2.2) has introduced the 'ecosystem approach'. The 'ecosystem approach' has been adopted by the Parties of the Convention at the 5th Conference of Parties. The application of the ecosystem approach will help to reach a balance of the three objectives of the CBD: conservation, sustainable use, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

IMPACT (MAJOR/SIGNIFICANT)

A major impact on biodiversity results from an activity affecting (either on its own or together with other forces) the integrity of an area/region, by substantially changing in the long term its ecological features, structures, and functions across its whole area. This means that the habitat, its population level, and/or the species that make that habitat important cannot be sustained. An impact is generally regarded as a negative change, but it may also refer to a change positively influencing biodiversity in the area/region.

Biodiversity forms the foundation of ecosystems and habitats. A negative impact on biodiversity may therefore endanger the continued provision of ecosystem services. A major negative impact may also affect a subsistence or commercial resource use to the degree that the well-being of the user is affected over the long term.

An organization's impact can be either direct or indirect:

- **Direct impact**

  A direct impact is the result of an organization's activities directly affecting biodiversity. For example, converting land for the benefit of production locations the organization owns, leases, or manages; production processes affecting local flora and fauna species; or the use of chemicals to increase harvest yields.

- **Indirect impact**

  Organizations are faced with an indirect impact if their activities do not directly affect biodiversity, but an impact is caused by another link in the supply chain to which they belong. For example, organizations importing products that have been produced in a manner that affected local biodiversity. Indirect impacts could also be triggered by an organization's operations, such as attracting development by opening up an area for logging, or spurring the migration of people to a new area by offering employment (migration and population growth can impact biodiversity through increased use of land and natural resources).

INVASIVE SPECIES

Invasive species are those that are introduced – intentionally or unintentionally – to an ecosystem in which they do not naturally appear. These species can become invasive due to their high reproduction rates and by competing with and displacing indigenous (native) species. Invasive species are also referred to as exotic species. Invasive species might be introduced as a result of accidents (e.g., escaped species), transport (e.g., in the ballast water of ships), or in the form of Genetically Modified Organisms (GMOs).

LAND CONVERSION

Land conversion is the conversion of an area with a certain level of degradation to an area with a higher (negative land conversion) or lower (positive land conversion) level of degradation. Negative land conversion often involves the conversion of a non-productive area into a productive area.

LAND USE

Land use refers to how a specific piece of land is allocated – i.e., its purpose, need, or use. (e.g., agriculture, industry, residential, or nature).

MITIGATING MEASURES

Mitigating measures allow an activity with a negative impact on biodiversity to take place, but reduce the impact on site by considering changes to the scale, design, location, siting, process, sequencing, management, and/or monitoring of the proposed activity. Mitigation requires a joint effort of the proponent, planners, engineers, ecologists, and other specialists to arrive at the best practicable environmental option. An example of a mitigating measure: the construction of a certain road has an unacceptable impact on biodiversity. The road will be constructed as planned, but will include the construction of a wildlife viaduct.

NATIVE SPECIES

Native species are flora and fauna species that occur naturally in a given area or region. Native species are also referred to as indigenous species.

NON-POINT SOURCE POLLUTION

Non-point pollution is generated by diffuse land use activities rather than by a specific, identifiable, or discrete source. Because non-point sources are diffuse, they are often difficult to identify or locate precisely, thus, pollutants cannot be controlled easily. The reporting organization should be aware that pollution may affect biodiversity directly (e.g., the pollution harms specific plant species) or indirectly (e.g., the pollution affects the environment of a species to such an extent that the species ultimately disappears).

OVEREXPLOITATION

Overexploitation occurs when harvesting of specimens of flora and fauna species from the wild is out of balance with reproduction patterns and, as a consequence, species may become extinct.

POINT SOURCE POLLUTION

Point source pollution is pollution discharged from a clearly identifiable, localized source, such as pipes, ditches, wells, vessels, and containers. The reporting organization should be aware that pollution may affect biodiversity directly (e.g., the pollution harms specific plant species) or indirectly (e.g., the pollution affects the environment of a species to such an extent that the species ultimately disappears).

PREVENTIVE MEASURES

Preventive measures are taken to prevent or avoid a particular impact on biodiversity. An example of a preventive measure: the construction of a road would have an unacceptable impact on biodiversity so it is redirected.

PROTECTED AREA

A protected area is a geographically defined area that is designated or regulated and managed to achieve specific conservation objectives.

RESTORED AREA

A restored area is an area that was used or affected during operational activities, but remediation measures have restored the environment to its original state as a healthy functioning ecosystem.

STAKEHOLDERS

Stakeholders are specific people, groups in society, governmental entities, or organizations which have a stake in or may be impacted by the outcome of a particular activity or set of activities. Stakeholders vary by activity and may include shareholders, management, employees, suppliers, government, regulators, non-governmental organizations, and the (local) community. Responsible decision-making requires consideration of the effects on all stakeholders involved. Stakeholders are identified on the basis of observed or expected effects of the activity and the subsequent changes in biodiversity.

SUPPLY CHAIN

The supply chain represents the flow of materials, information, and finances as they move from supplier to manufacturer to wholesaler to retailer to consumer. The supply chain begins with the processing of raw materials, continuing with production of perhaps a series of intermediate inputs, and ending with final assembly and distribution. The value of biodiversity and the extent to which biodiversity is impacted depend on the activities taking place in a particular supply chain. For example, the processing of fruits and vegetables is likely more interconnected with biodiversity than the processing of glass jars.

SUSTAINABLE USE

Sustainable use refers to the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

WASTE

Waste consists of materials and other inputs that are not part of the final product leaving an organization. This includes unused raw materials, by-products, packaging, and operating materials that are not part of the final product. Waste in this context includes recycled materials (processed) as well as unprocessed materials from external sources.

Annex III

Ecosystems and some of the services they provide

The table below includes a selection of ecosystems and some of the services they provide. The ability of ecosystems to deliver these services depends on complex biological, chemical, and physical interactions.

Table III: Ecosystems and some of the services they provide

Ecosystem	Ecosystem services
Mountain and polar	• Food • Fiber • Fresh water • Erosion control • Climate regulation • Recreation and ecotourism • Aesthetic values • Spiritual values
Forest and woodlands	• Food • Timber • Fresh water • Fuel wood • Flood regulation • Disease regulation • Carbon sequestration • Local climate regulation • Medicines • Recreation • Aesthetic values • Spiritual values
Coastal	• Food • Fiber • Timber • Fuel • Climate regulation • Waste processing • Nutrient cycling • Storm and wave protection • Recreation and ecotourism • Aesthetic values
Marine	• Food • Climate regulation • Nutrient cycling • Recreation

Ecosystem	Ecosystem services
Inland water (rivers and other wetlands)	• Fresh water • Food • Pollution control • Flood regulation • Sediment retention and transport • Disease regulation • Nutrient cycling • Recreation and tourism • Aesthetic values
Cultivated	• Food • Fiber • Fresh water • Dyes • Timber • Pest regulation • Biofuels • Medicines • Nutrient cycling • Aesthetic values • Cultural heritage
Drylands	• Food • Fiber • Fuel wood • Local climate regulation • Cultural heritage • Recreation and ecotourism • Spiritual values
Urban (parks and gardens)	• Air quality regulation • Water regulation • Local climate regulation • Cultural heritage • Recreation • Education
Island	• Food • Fresh water • Recreation and tourism

Source: Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Opportunities and Challenges for Business and Industry. World Resources Institute, Washington, D.C. http://www.wri.org/business/pubs_description.cfm?pid=4155

Annex IV

Key articles of the CBD for organizations

The Convention on Biological Diversity (CBD) promotes the conservation and sustainable use of biodiversity and the fair and equitable sharing of the benefits resulting from the use of genetic resources. In the table in this Annex a selection of key articles of the CBD for organizations is presented[17].

Table IV: Business related aspects of the CBD

CBD article	Subject	Relevance to business
Article 6	National Biodiversity Strategies and Action Plans (NBSAPs) and mainstreaming of biodiversity	NBSAPs provide frameworks for companies to link their own biodiversity action plans into wider action at the country level and for biodiversity to be integrated into sectoral and cross-sectoral plans, programmes and policies
Article 8	*In situ* conservation	*In situ* conservation calls for governments to establish protected area systems and undertake conservation activities to preserve ecosystems and the species they contain in the wild. These actions have implications for where a business can and cannot operate and provides the context for businesses to contribute to biodiversity by undertaking conservation activities in and around operations. Furthermore, Article 8(g) calls for means to regulate, manage or control risks associated with the release of living modified organisms resulting from biotechnology, and thus is of particular interest to the agriculture, forestry and pharmaceutical industries. Article 8(h) calls for preventing the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species, and is thus of particular importance to the exotic pet trade, the aquaculture industry and the horticulture industry.
Article 9	*Ex situ* conservation	*Ex situ* conservation calls for the preservation of natural resources outside the context of their natural environments.
Article 10	Sustainable use	Article 10(e) encourages cooperation between government authorities and the private sector in developing methods for sustainable use of biological resources.
Article 11	Incentive measures	Incentive measures create opportunities for new markets for biodiversity goods and services, using market instruments such as labelling, and establish innovative financial mechanisms for promoting responsible small and medium-sized companies in emerging economies.
Article 14	Impact assessment	Article 14.1 promotes the integration of biodiversity into Environmental Impact Assessment (EIA) processes and therefore could result in government adopting new and different requirements for impact assessment procedures. Article 14.2 addresses the issue of liability and redress, including restoration and compensation, for damage to biodiversity, posing a risk to companies that may be having deleterious impacts on biodiversity.
Article 15	Access to genetic resources	The access to genetic resources debate in the CBD is raising important issues for business such as 'mutually agreed terms', 'prior informed consent', and 'fair and equitable distribution of benefits'.
Article 16	Access to and transfer of technology	Promotes facilitating access to technology relevant to conservation and sustainable use of biodiversity or make use of genetic resources, so companies that are developing new technologies may find that new frameworks for technology transfer between countries provides new business opportunities. Article 16.2 looks into the transfer of technology which is subject to intellectual property rights. Article 16.4 calls for the parties to the CBD to take legislative, administrative or policy measures to ensure that the private sector facilitates access to technology for the benefit of both governmental institutions and the private sector of developing countries, offering opportunities for collaboration between the private sector in developed and developing countries.
Article 19	Handling of biotechnology and distribution of its profits	Of particular relevance to those businesses that are involved in biotechnology, even indirectly.

17] Assistance to organizations in understanding the context of the CBD and implementing the same in policies can be derived from 'Business and Biodiversity, A Guide for the Private Sector' (Stone, D., Ringwood, K., Vorhies, F. 1997), http://biodiversityeconomics.org/document.rm?id=144

Annex V

Assessing the impact on biodiversity

An environmental assessment gives information on the impact resulting from specific activities of the reporting organization and in this way provides input for reporting.

An environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before the decisions are made. The process involves an analysis of the likely effects on the environment. The environment and biodiversity are inextricably linked to one another, though it appears that environmental assessments do not *automatically* cover all aspects of biodiversity. Many countries have legislative requirements in terms of environmental impact assessments.

VARIETY OF ENVIRONMENTAL ASSESSMENTS

In principle, environmental assessments can be undertaken for individual projects such as a dam, motorway, airport, or factory ('Environmental Impact Assessment') or for plans, programmes, and policies ('Strategic Environmental Assessment'). Simultaneously, environmental assessments can be either *general* (applicable to all kinds of industries) or targeted at a specific branch of industries.

INTEGRATION OF BIODIVERSITY IN ENVIRONMENTAL IMPACT ASSESSMENTS (EIA)

A better integration of biodiversity-related considerations in environmental assessments has received increasing attention over the last several years. Under the CBD, voluntary guidelines have been designed on biodiversity-inclusive Environmental Impact Assessments (EIA) and Strategic Environmental Assessment (SEA)[18].

Environmental Impact Assessment

For the purpose of these guidelines, the definition of an EIA reads as follows:

"Environmental impact assessment is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse."

Pursuant to the guidelines, the fundamental components of an EIA are said to involve the following stages:

a. **Screening:** to determine which projects or developments require a full or partial impact assessment study;
b. **Scoping:** to identify which potential impacts are relevant to assess (based on legislative requirements, international conventions, expert knowledge, and public involvement) to identify alternative solutions that avoid, mitigate, or compensate adverse impacts on biodiversity (including the option of not proceeding with the development, finding alternative designs or sites which avoid the impacts, or providing compensation for adverse impacts), and to derive terms of reference for the impact assessment.
c. **Assessment and evaluation of impacts and development of alternatives:** to predict and identify the likely environmental impacts of a proposed project or development, including the detailed elaboration of alternatives.
d. **Reporting:** the Environmental Impact Statement (EIS) or EIA report, including an Environmental Management Plan (EMP) and a non-technical summary.
e. **Review:** of the EIS, based on the terms of reference (scoping) and public participation (including authority).
f. **Decision-making:** on whether to approve the project or not, and under what conditions; and
g. **Monitoring, compliance, enforcement, and environmental auditing:** to monitor whether the predicted impacts

18] http://www.biodiv.org/doc/publications/imp-bio-eia-and-sea.pdf (English); http://www.biodiv.org/doc/publications/cbd-ts-26-fr.pdf (French); http://www.biodiv.org/doc/publications/cbd-ts-26-es.pdf (Spanish)

and proposed mitigation measures occur as defined in the EMP and to verify the compliance with the EMP, to ensure that unpredicted impacts or failed mitigation measures are identified and addressed in a timely fashion.

The guidelines consider for each stage how biodiversity issues can be incorporated as follows:

Sub a. Screening

Biodiversity criteria should be included in screening criteria or else there is a risk of screening out proposals with a potentially significant impact on biodiversity. Biodiversity-inclusive screening criteria may relate to:

- categories of activities that are known to cause biodiversity impacts, including thresholds with respect to the size of the intervention area and/or magnitude, duration, and frequency of the activity;
- the magnitude of biophysical change resulting from the activity; or
- maps indicating areas important for biodiversity, with their legal status if applicable.

Sub b. Scoping

If the project screening identifies a potential negative impact on biodiversity resulting from the proposed activity, the following aspects could be addressed (in order to derive the terms of reference of an impact study):

- Description of the type of project, e.g., its nature, magnitude, location, timing, duration, and frequency;
- Identification of possible alternatives in relation to scale, layout, siting, location, and/or technology (it could be that alternatives are not readily identifiable prior to going through the impact study);
- Description of expected biophysical changes (in soil, water, air, flora, fauna) resulting from proposed activities or induced by socio-economic changes deriving from these changes;
- Determination of the spatial and temporal scale of influence of each biophysical change;
- Description of ecosystems and land-use types lying within the range of influence of biophysical changes;
- Assessment, for each of the ecosystems and land use types, of the potential negative impact on biodiversity due to the biophysical changes;
- Gathering of information on baseline conditions of the affected areas and any anticipated trends in biodiversity in the absence of the proposed activities;
- In consultation with stakeholders, identification of the current and potential ecosystem services generated by the affected ecosystems or land use types and determination of the values they represent for society;
- Determination of the ecosystem services that will be significantly affected by the proposed activities;
- Identification of possible measures to enhance biodiversity or to avoid, minimize, or compensate for significant damage to biodiversity and/or ecosystem services;
- In consultation with stakeholders, assessment of the importance of expected impacts for the various alternatives considered;
- Identification of necessary surveys to collect information required to support decision making as well as important gaps in knowledge; and
- Providing details on required methodology and timescale.

Sub c. Assessment and evaluation of impacts and development of alternatives

This stage in the EIA involves assessing impacts and re-designing alternatives. Tasks may include:

- Refinement of the understanding of the nature of the potential impacts identified during the two previous stages of the EIA, including the identification of indirect and

cumulative impacts and the likely cause-effect chains;
- Identification and description of relevant criteria for decision-making; and
- Review and redesign of alternatives together with the evaluation of impacts and the consideration of mitigation, enhancement, or compensation measures.

Sub d. Reporting

Reporting on the potential effects resulting from the proposed activities serves to assist:
- The organization in planning, designing, and implementing the proposed activities in such a way that a potential negative residual impact is eliminated or minimized;
- The responsible authority in deciding whether or not the proposed activities may be undertaken and the terms and conditions that should be applied; and
- The public in understanding the scope of the impacts and getting an opportunity to comment on the proposed activities.

Sub e. Review

Review, preferably performed by a third party, serves to ensure that the EIA provides sufficient and technically accurate information. Apart from this, the review should inter alia evaluate whether:
- The potential impact would be acceptable from an environmental point of view;
- Relevant standards and policies are adhered to;
- All relevant impacts, including indirect and cumulative impacts, of the proposed activities have been identified and adequately addressed; and
- Concerns and comments of all stakeholders are adequately considered.

Sub f. Decision-making

Decision-making takes place throughout all stages of the EIA, up to and including the final decision to either refuse or authorize the proposed activities. In order to incorporate biodiversity issues in decision-making, it is important that clear criteria are developed for taking biodiversity into account. The final decision should not only consider biodiversity, however, but seek to strike a balance between conservation and sustainable use, as well as address economic, social, and ecological aspects.

Sub g. Monitoring, compliance, enforcement, and environmental auditing

This stage serves to compare the actual effects after the proposed activities have been implemented with those anticipated before implementation. In addition, it serves to verify that the environmental management plan is adhered to.

Strategic Environmental Assessment

The guidelines on biodiversity-inclusive Strategic Environmental Assessment (SEA)[19] argue that organizations should pay attention to integrating biodiversity in SEAs for several reasons:
- Legal or international obligations. Examples of legal obligations are:
  - protected areas and protected species
  - valued ecosystem services
  - international treaties, conventions and agreements
  - lands and waters traditionally occupied or used by indigenous and local communities
- Facilitate stakeholder indication
- Safeguard livelihoods
- Sound economic decision-making
- Cumulative effects on biodiversity
- Maintaining the genetic base of evolution for future opportunities

In a SEA, biodiversity is defined in terms of ecosystem services provided by biodiversity. Organizations can assess potential impacts on ecosystem services through analyzing their policies, plans and programs. To judge if a policy, plan or program has potential biodiversity impacts, two elements are important to consider:
1. affected area and ecosystem services linked to this area
2. types of planned activities that can act as driver of change in ecosystem services

Human interventions (activities) resulting in biophysical and social effects are acknowledged to be direct drivers of change in biodiversity and associated ecosystem services. Indirect drivers of change are societal change which might impact ecosystem services.

19] https://www.biodiv.org/doc/reviews/impact/SEA-guidelines.pdf

In assessing policies, plans and programs, organizations should identify if their activities impact ecosystem services in terms of changes in composition, changes in structure, or changes in key processes. In addition, indirect impacts should be assessed by using this approach.

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