

Guidance

The ISO management system and
the protection of biological diversity



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der Umweltverbände

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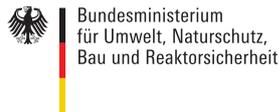
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Foreword

It has now become an accepted fact that our economy is critically dependent on successfully functioning ecosystems. Businesses and organisations that already have an efficient management system are increasingly acknowledging their activities are leading to the destruction of ecosystems and biodiversity, and are striving to improve the situation. However, there is often a lack of knowledge about how a business's or organisation's individual performance can be better assessed and made comparable when it comes to the maintenance and promotion of biodiversity.

The following manual aims to fill this gap. It sets out specific requirements and recommendations designed to enable organisations to shape their management system processes in an environmentally responsible way and thereby improve their own performance.

This manual is the result of a project undertaken by a number of environmental experts, working as part of the KNU (Coordination network for German environmental NGOs on standardisation) on standardisation committees in the fields of the environment, energy and resource management. The support of representatives from a variety of areas, such as business, science, public institutions, environmental organisations and foundations, has made it possible to adapt this practical tool to the needs of management systems. I would like to take this opportunity to thank all those who have taken part for sharing their expertise and experience. Marion Hammerl, who has shown great commitment to the project, deserves particular praise.

I hope that our proposals will encourage many businesses and organisations to consider the needs of biodiversity in their future day-to-day decision-making and strategic planning and I wish us all every success in our joint efforts to maintain biodiversity on Earth

Marion Hasper

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1 Introduction

Biological diversity, also known as "biodiversity", is a term that is applied to the wide array of different forms of life and represents a fundamental aspect of existence on this planet. It is only if we manage to preserve our ecosystem and a wide diversity of species that present and future generations will be able to enjoy a high quality of life; in addition, it is only then that we will be able to rely on the "services" provided by the natural world on which we and the economy depend: clean water, healthy food, sustainable resources, an appropriate living environment and attractive natural surroundings, to cite just a few of these aspects.

Experts worldwide agree that, in addition to climate change, the loss of biological diversity poses one of the greatest challenges to our society and our planet. Significant impairment to 60% of the services provided by our ecosystem has occurred over the past few decades (MEA 2005). In Germany, about 72% of all natural habitats are endangered. Businesses make use of biodiversity and ecosystem services in many forms, frequently depend on their functioning and make significant in-roads in the ecosystem. This is why businesses both suffer from and represent part of the social cause of the loss of biological diversity. The continuing loss of biological diversity is thus not only an environmental topic, but also has serious economic consequences. Clear evidence of this has emerged from an increasing number of studies, including the TEEB for Business (TEEB 2012) and Naturkapital Deutschland (Naturkapital Deutschland 2013) projects.

In some branches of the economy, such as agriculture or the extraction of raw materials, this relationship is clear, while in others the most serious negative effects are attributable to the delivery chain or the results of using the product. From an economic point of view, it is particularly important to be aware that ecosystem services as a traditional natural commodity can neither be fully quantified, nor are their costs truly reflected in the market (also see Chapter 3.1). "Maintenance of ecosystem services as an important economic goal"). It is of equal importance to realise that biological diversity involves complex interactions and can often only be protected by means of non-intervention. At this point of time, for example, we can only speculate about the consequences of the lack of certain components in complex

food chains. However, gaps in our knowledge and a lack of long-term, practical experience do not justify the failure to regard biodiversity as a significant environmental aspect in corporate and political decision-making.

The aim of this guideline is to encourage businesses to integrate the complex concept of protection of biological diversity in their operational (environmental) management planning on a step-by-step basis in order to continuously and systematically reduce any negative effects they may be having on biodiversity.

This publication has a practical orientation and does not seek to "re-invent the wheel"; it makes reference to projects, instruments and experiences of businesses that have been dealing with the topic of "business and biodiversity" for some considerable time.

An ever-increasing number of businesses are dealing with the economic aspects of biological diversity, while new studies, instruments and practical examples are appearing all the time. For this reason, it is the intention of the authors to revise this publication accordingly in the near future. The team of authors welcomes any feedback and information on practical experience from users of this guideline, which will be incorporated in the planned revised version.

2 Scope

This guideline is designed for businesses of all sizes operating in all economic sectors that have an implemented management system and that operate within Germany or beyond the borders of Germany. It is thus not possible to go into detail with regard to a particular branch of business or commerce. The aspects outlined here are merely initial recommendations that require sector-specific analysis and the definition of relevant activities. References are provided where examples of the application of the recommended activities are already available. The guideline is designed to be process-orientated and provides information on aims, measures and key statistics that are relevant to all business sectors.

Within the context of this guideline, the term "business" is extended to apply to refer to all kinds of organisations, both commercial and otherwise. Hence, the term "business" is here also applied to municipal authorities and communal institutions. There are some specific recommendations for the implementation of a systematic sustainability management programme in such organisations (see ISO 37101), which will be discussed in more detail in Chapter 5.4.

The risks and opportunities associated with biodiversity will also be outlined. The avoidance of negative effects reduces the risks to businesses. Quite often, measures to promote biodiversity result in considerable cost savings and enhance a business's public image and its reputation among its clients. All contributions that businesses make towards preserving biodiversity and maintaining a healthy ecosystem will benefit them too by ensuring their future commercial vitality.

Businesses thus have both direct and indirect effects and thus influence biodiversity. The guideline discusses both aspects and places emphasis on the avoidance and reduction of the negative effects on biological diversity, as well as on the measures businesses can use to enhance their positive influences.

The majority of businesses structure their (environmental) management system in accordance with the functional units (departments) within the organisation. This guideline considers the standard "divisions" of a business and their influence on biodiversity.

Biodiversity is all about the complex interaction of ecosystems, animal and plant species and genetic variety. Not all of these interactions have been scientifically researched and there are still many gaps in our knowledge, especially when it comes to demarcating and evaluating ecosystem services. However, researchers all over the world agree about the main causes of the loss of biodiversity (MEA 2005); these are:

- The conversion, degradation and destruction of eco-systems
- The excessive exploitation of natural resources
- The introduction of invasive alien species
- Climate change
- Pollution/emissions.

The following chapters thus provide recommendations for the ways in which businesses can contribute towards the elimination of the main causes of the loss of biodiversity. Environmental management systems traditionally cover the main aspects of climate change (energy consumption, transport, emissions, etc.) and environmental pollution (waste production, chemicals, etc.) This is the reason why this guideline is primarily concerned with counteracting the effects of the conversion, degradation and destruction of ecosystems, the excessive exploitation of natural resources and the proliferation of invasive alien species.

At this point, it is again worth stressing that all measures designed for climate protection and the reduction of environmental pollution also contribute towards protecting biodiversity.

Ecosystem services are not the main focus of this publication. Biodiversity has a value of its own, which must be preserved beyond its mere functionality. In the same way, protecting biodiversity is mainly about preserving the ecosystems, as only intact ecosystems can provide important services over the long term.



3 Background

Concerns about the loss of biodiversity provided the incentive for 168 nations to sign the "Convention on Biological Diversity (CBD 2010)" (see 16.2 International Conventions), the objective of which is to put an end to the loss of biodiversity by 2020 (CBD 2010). The biodiversity policies of the European Union are in line with these ambitious goals and, like many other countries, Germany has also promulgated a national biodiversity strategy.

All these strategies emphasise the special significance of the economy and the fact that the goals can only be achieved by 2020 if businesses integrate protection of biodiversity into their entrepreneurial activities.

For some years, two other concepts in addition to biodiversity have been discussed that are based on economic premises and that highlight the significance of biodiversity for corporate activities: Ecosystem services and natural capital. These concepts are briefly explained below.

3.1 Ecosystem services

The preservation of biodiversity and the ecosystem services that biodiversity provides is of fundamental importance to human existence. The availability of clean drinking water, protection against natural disasters and ensuring that soil remains fertile form the basis of our quality of life, while it is natural resources that provide the basis of industry in many branches of the economy.

Against this background, the concept of ecosystem services assumes that functioning ecosystems provide numerous fundamental services.

The internationally authoritative definition of ecosystem services was compiled as part of the "Millennium Ecosystem Assessment" project (MEA 2005). According to this definition, ecosystem services are goods and services provided by nature that are of benefit or advantage to humans, but that also constitute services essential for survival, such as the provision of food and drinking water of a good quality.

Ecosystem services can normally be divided into the following four categories:

1. Provision services, such as food, genetic resources, water, wood and fibres
2. Regulatory services, such as protection against natural disasters, climate regulation, the securing of water quality, waste removal
3. Cultural services, such as recreation and the enjoyment of nature
4. Support services, such as maintenance of the nutritional cycle and soil formation.

The availability of ecosystem services is a basic requirement for the functioning of industrial processes, services and the economic environment. Thus the preservation of biodiversity is also a subject of prime importance to businesses and their management decisions.

Preserving ecosystem services as an important economic goal

The purpose of introducing the concept of "ecosystem services" is so that ecological services can be taken into account more readily in decision-making processes, thus counteracting the excessive use and degradation of the natural basis of existence that constitutes the economic and ethical basis for human activity. A loss of biodiversity results in the reduction of the quality of the assets and services provided by nature, thus impinging on businesses in almost every branch of industry. As, among other things, businesses are characterised by their purpose-orientated and purposeful guiding principles, major businesses have recognised that it would be inappropriate to consider the preservation and protection of biodiversity to be of secondary importance. For this reason, firm anchoring of the ecosystem service approach within the entrepreneurial goals of a business is an essential prerequisite for ensuring success. This also concerns management decisions that cannot be reversed, which is frequently the case when natural resources are consumed. Such decisions must be particularly carefully weighed up, as they influence the sustainability of a business. Thus there are strategic competitive advantages for businesses that regard a reduction of their negative effects on biodiversity as an important commercial goal.



Appropriate integration in the entrepreneurial target system can, for example, be achieved by the following means:

- The definition of so-called SMART (specific, measurable, attainable, realistic and timely) goals with a view to incorporating ecosystem services into the business's management system
- Investigation of the business risks and opportunities associated with the effects of and dependency on biodiversity and ecosystem services.

The use of management system standards can make an important contribution in this regard.

3.2 Natural capital

The term "natural capital" is increasingly frequently being used in discussions about the preservation of natural resources. In the narrower sense of the term, it can be understood to mean biodiversity (capital stock) and ecosystem services (dividends), which jointly make up the natural capital. In a wider sense, "natural capital" also includes abiotic resources such as oil and minerals. Economically sustainable businesses strive to maintain the capital stock in order to secure their long-term corporate existence (ACCA, KPMG, FFI 2012).

In general, there is a limit to the extent with which natural capital is available, but it is frequently still seen as a freely available public asset. By means of their (indirect) environmental effects, businesses influence so-called "externalities", i.e. the status of nature and its ability to function. Neither the benefits nor the damage, however, are adequately reflected in corporate decision-making and financial accounts, such as the balance sheet or the profit and loss statement. Thus there has been for some time a discussion about the need for businesses to undertake an economic evaluation of this natural capital and the external costs involved. There are already concepts and recommendations relating to how companies can put a value to natural capital (also see www.naturkapitalbilanzierung.de), but as yet there is no standardised method for including natural capital in a corporate balance sheet.

However, it must also be borne in mind that natural capital cannot represent or encompass the social and cultural dimensions or many other biological processes!

3.3 Direct and indirect influences of businesses on biodiversity

In many businesses, it is only once the dependencies and influences on biodiversity have been determined that it becomes clear whether and to what extent there is a reliance on biodiversity. A biodiversity-related audit will demonstrate what effects a business has on biodiversity. Both influences and dependencies may be either direct or indirect. Businesses in the stone and soil processing industries, mining operations and energy providers will have a direct influence on natural habitats, while a car manufacturer, on the other hand, will have an indirect influence (the use of steel, which in turn is derived from ore). Food and beverage manufacturers overwhelmingly have a direct influence on natural resources, while the influence of wholesalers and retailers will tend to be indirect, through product quality requirements and supplier specifications.

The following overview should serve as a rough orientation aid for users of this guideline to help them determine which chapters are of particular relevance to their organisation. The chapter on "Considerations for strategy and management" is particularly relevant (red dot) to businesses in all sectors, as the measures described are aimed at establishing the importance of biodiversity for the organisation. Procurement/delivery chains are also important in most sectors as the choice of resources, materials and services will have numerous indirect effects. Marketing/communication are of particular relevance for sectors that are in direct contact with the end consumer.



Fig. 1 Biodiversity: Which fields are of particular relevance to my sector?

Sector	Examples of industries	Management Strategy	Company premises	Raw materials/ extraction	Procurement/ delivery chain	Production	Transport logistics	Marketing communication
Business active in the primary sector	Building materials, stone, soil	Particularly relevant	See raw materials	Particularly relevant		Relevant	Relevant	Relevant
	Mining	Particularly relevant	See raw materials	Particularly relevant	Relevant	Particularly relevant	Particularly relevant	Relevant
	Food production/ processing	Particularly relevant	Relevant		Particularly relevant	Particularly relevant	Particularly relevant	Relevant
Business active in the secondary sector	Chemistry	Particularly relevant	Relevant		Particularly relevant	Relevant	Relevant	Relevant
	(Metal-) processing industry	Particularly relevant		Particularly relevant	Particularly relevant	Relevant	Relevant	Relevant
	Building trade	Particularly relevant	Particularly relevant	Particularly relevant	Particularly relevant			Relevant
Tertiary sector	Retail	Particularly relevant	Relevant		Particularly relevant		Relevant	Particularly relevant
	Tourism	Particularly relevant	Particularly relevant		Particularly relevant		Relevant	Particularly relevant
	Financial services provider	Particularly relevant			Relevant			Particularly relevant
	Transport/ Logistics	Particularly relevant	Particularly relevant		Particularly relevant		Particularly relevant	Relevant

 Particularly relevant

 Relevant



4 Why should businesses pay any regard to biodiversity?

Numerous studies and publications [PwC (2010), TEEB (2012), Naturkapital Deutschland (2013)] indicate the various risks to businesses associated with a loss of biodiversity, damage to ecosystems and a reduction in ecosystem services. These risks can be divided into various categories. The major risks are listed in Table 1.

Ultimately, all businesses are directly or indirectly affected by the loss of biodiversity over the short or long term. In the food or cosmetics industry, in gravel quarries or in the paper and pulp industry, their effects on biodiversity are particularly evident. The tourism industry also requires intact landscapes

and the preserved natural environment. In the clothing, metal-processing or electronics industries, the decisive effects are often caused by the delivery chain, while it is the use of commodities and extraction of raw materials in the farming and mining sectors that are responsible for the damage. The metallic raw materials such as gold and tantalum used in the production of electronic equipment are primarily mined in countries that have an extensive biodiversity. The list of industries that have some kind of link to biodiversity can be extended almost infinitely. A detailed overview of industry-specific risks is provided in the publication "Are you a Green Leader", published by the UN Environmental Programme and

Table 1: Examples of direct and commercial risks resulting from a loss of biodiversity and the reduced functionality of ecosystems

Operational risks	<ul style="list-style-type: none"> • Limited availability of plant- and animal-based resources • Limited availability of ecosystem-based production factors, such as clean water and fertile soils • Price increases for natural resources as a result of shortages • Lack of innovation – biological systems and the functional principles of nature act as drivers for businesses' new products and processes (bionics)
Risks of loss of reputation	<ul style="list-style-type: none"> • Damage to the image of industries or individual business due to the negative effects of economic activities on biodiversity
Market-related risks	<ul style="list-style-type: none"> • Changes in buying behaviour (end consumer, business to business), with a stronger emphasis on biodiversity criteria • Failure to penetrate new markets
Regulation- and law-related risks	<ul style="list-style-type: none"> • Regulations governing the acquisition and use of natural resources, such as fishing quotas; emission limit values, taxation of resources • Regulations governing access to and the use of genetic resources (access and benefit sharing), the implementation of the Nagoya Protocol in national legislation • Regulations governing interventions in nature, such as compensatory payments/ actions • Restricted access to species-rich (conservation) areas, such as a prohibition on mining in conservation areas
Legal/liability risks	<ul style="list-style-type: none"> • Lawsuits against industries or businesses for causing the loss of biodiversity, for example under the EU Environmental Liability Directive
Financial market risks	<ul style="list-style-type: none"> • Consideration of biodiversity criteria when financial institutions grant credit and make investments • Biodiversity as an assessment criterion in sustainability ratings

the World Conservation Monitoring Centre (UNEP 2010). Nevertheless, many businesses are not yet aware of their dependence on biodiversity, as a PwC study in 2010 showed: according to this study, the vast majority of business owners surveyed in Western Europe are of the opinion that their growth is not related to a reduction in biodiversity (PwC 13th Annual Global CEO Survey 2010 in: TEEB 2011, 10).

Some financial institutions have already integrated biodiversity aspects into their risk analyses and use the results when taking decisions about granting credit or making investments (UNEP FI 2010). At the same time, there are opportunities for corporate success if businesses develop innovative products and services for the sustainable use and preservation of biodiversity at an early stage, thus opening up new business markets.

4.1. The availability and preservation of natural resources

Intact ecosystems provide valuable natural resources, which ultimately every business requires. Biodiversity provides for stable ecosystems, which not only supply food, wood and active substances for medicines, but also clean water, healthy soil and cultural assets, such as the aesthetic features of a landscape. It is now difficult for nature to furnish assets and services at the same rate at which they are being consumed by the economy (also see 3.1. Box: "Preserving ecosystem services as an important economic goal").

For businesses, the associated shortages could mean an increase in prices or the complete non-availability of required resources. A case in point can be seen in the decline of sales and increasing prices of fish species that have been overfished (as was the case for codfish in the 1990s). A survey of corporate decision-makers in global businesses showed that there are expectations that a critical situation will arise in the medium term, especially with regard to the availability of water, food and soil fertility (InnovaStrat 2013).

4.2. Reputation and the growing demand for certified products

Numerous surveys and studies have indicated a gradually yet steadily increasing consumer interest in the subject of biodiversity. According to the Biodiversity Barometer 2015, for 87% of respondents it is important to personally contribute to biodiversity conservation. Biodiversity is essential for 1 out of 2 people interviewed in the 9 countries. Between 2009 and 2015 biodiversity awareness grew from 56% to 64% in Germany, France, UK and USA (UEBT 2015).

The 2013 Nature Awareness survey carried out by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and the German Federal Agency for Nature Conservation indicates, however, that awareness is growing:

- The majority of respondents (86%) regarded nature conservation as an important political task and as a human obligation (95%).
- Some important personal reasons given for conservation were the health-related and recreational functions of nature, the maintenance of a basis of existence for future generations and the independent right of existence of animals and plants.
- Some 76% of those surveyed had already heard the term "biodiversity", but only 40% also knew what it means. Those who had some idea of the meaning of this term mainly equated it with an abundance of species (95% of responses). The diversity of ecosystems and habitats were also more frequently mentioned (70%), while genetic diversity was less often specified (41%). However, compared to 2009, the number of respondents who cited habitats and ecosystems had doubled, while in the case of genetic diversity it had more than tripled. The complex meaning of the term is thus being more widely recognised (BMUB 2014).

4.3 The growing trend among consumers to buy responsibly

The successes of organic and bio products as well as fair trade products and the increase in ecotourism all indicate that there is a greater correlation between the results of surveys and actual consumer behaviour. Meanwhile, the revelation of activities that are treated as scandals and the growing number of consumer protests also speak for themselves. Environmental organisations are increasingly working hand in hand with consumer protection organisations to determine which organisations and products contribute towards the extinction of animal and plant species and destroy ecosystems.

The results of the 2013 Nature Awareness survey (BMUB 2014) show, for example:

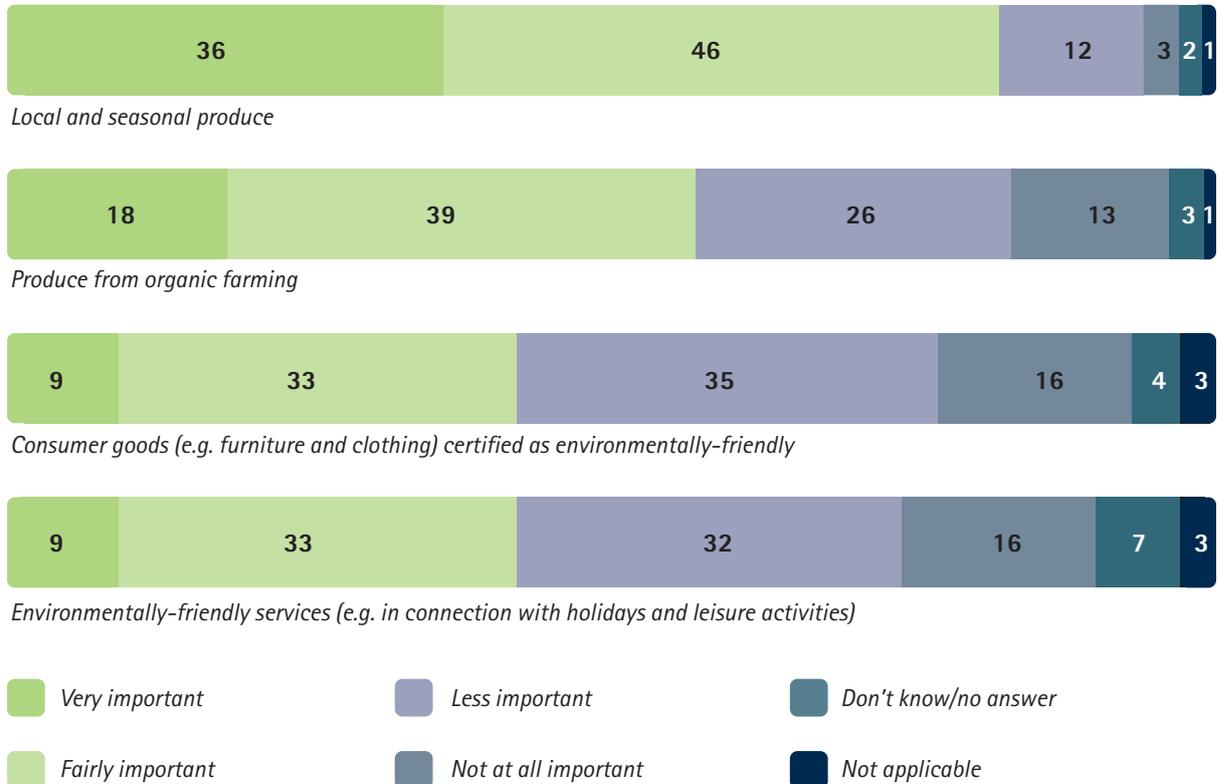
The significance of nature and the willingness to change attitudes in order to protect it can particularly be seen in consumer behaviour. Here it was demonstrated that 82% of respondents regarded regional and seasonal foods as important to very important, while over 57% had the same opinion on organic foods.

Female respondents were more interested in sustainable product characteristics than male respondents and the willingness to buy them increased with their income. As far as regional foods are concerned, interest rises with age, although

Fig. 2: Results of the 2013 Nature Awareness survey (BMUB 2014, 58)

How important is it for you to acquire products with the following characteristics?

Figures in percentages



when it comes to agricultural production in accordance with ecological principles, respondents aged between 30 and 59 years were most interested. The most significant difference with regard to extent of interest shown in the products listed in the table was attributable to level of education. While only 49% of respondents with only lower educational qualifications were interested in ecologically-sourced agricultural products, the corresponding figure was 70% for those with higher educational qualifications

4.4 The obligations of suppliers

In the Business to Business (B2B), sector, producers specify requirements for their suppliers, which have a direct or indirect effect on biodiversity. Thus there are increasing requirements to provide proof of the origin and ecological certification of raw materials and ingredients, both for biotic products such as palm oil and for abiotic products such as aluminium. Unilever, Nestlé and other customers of the Sinar Mas Group have cancelled their contracts with this palm oil producer as a result of the company's illegal destruction of rain forests. The aim of the Aluminium Stewardship Initiative is to develop sustainability standards for the aluminium industry that also explicitly take into account biodiversity and land use (ASI 2013). The members of the German corporate initiative "Biodiversity in Good Company" - included are VW, REWE and Mars - have undertaken to inform their suppliers about the importance they accord to the maintenance of biodiversity. Currently some businesses are carrying out pilot projects to develop "biodiversity-friendly" versions of delivery chains; among these is the REWE Group (Hörmann/Beständig 2012).

4.5 New challenges for the financial sector

Banks, insurance companies and investors are increasingly realising that a scarcity of natural resources and a loss of biodiversity is not associated with considerable risks but also in major financial opportunities. Financial institutions have begun to take account of biodiversity in their strategic considerations and business models to an increasing extent (UNEP FI 2010).

At an international level, 45 financial institutions, including UniCredit, have signed the Natural Capital Declaration (NCD) (by August 2013). By signing it, these financial institutions have committed themselves to taking into account the conservation of natural capital when designing their financial products and services. The process is being initiated and monitored by a financial branch of the United Nations, UNEP FI, under the auspices of which internationally applicable methods for biodiversity and ecosystem services audits and their integration into private economic decision-making processes and corporate reporting have been developed (Mulder et al. 2013).

This voluntary instrument is supplemented by organisations' internal guidelines and the specifications of numerous banks. In addition, the biodiversity performance of organisations is increasingly being monitored by rating agencies such as oekom research and indices such as the Dow Jones Sustainability Index (for selected industries).

In Germany, the Association for Environmental Management and Sustainability in Financial Institutes (VfU) has developed biodiversity principles for the financial sector. The document is accompanied by guidelines for the assessment of biodiversity risks and opportunities (VfU Forum on Biodiversity 2011a; 2011 b).

If these principles are increasingly taken into account by the financial and insurance industry in future, this means that the effects of organisations on biodiversity and especially the risks posed to biodiversity will be incorporated into the assessment carried out when it comes to granting credits or taking out insurance policies.

4.5.1 Policy and legislation – what can businesses expect?

The preservation of biodiversity is already anchored in nature conservation legislation in Germany and at the European level – see Chapter 16 Legal Compliance. In order to achieve the ambitious goals set by the International Convention for Biological Diversity (CBD), additional statutory regulations at national and European level are currently in the process of being drafted.

In 2014, the EU Commission carried out a stakeholder survey on the subject of no net loss of biodiversity. Further steps on the EU No-Net-Loss Initiative are expected by 2016.

4.5.2 German compensation legislation (BKompV)

The objective of the current draft ordinance is to make the legal situation with regard to nature conservation more transparent and effective (BMUB 2013). The aim is to formulate and standardise the existing statutory obligations for avoidance of and the offsetting of adverse effects on natural environments and landscapes at the federal level in Germany. The idea is to streamline the current immense number of legal and statutory standards, administrative regulations, ordinances and guidelines at the regional and municipal levels.

Clarification and standardisation at the federal level will enable the ordinance to make a significant contribution towards improving the conditions for investment, accelerating administrative procedures, providing better transparency of decisions taken by the authorities and ensuring that both private and public projects conform to legal requirements at all stages. This is also in the interests of nature conservation and landscape preservation, as an improved basis for decision-making will ensure a higher level of acceptance and more consistent implementation of the corresponding measures. Moreover, the ordinance is also designed to standardise the existing statutory regulations that apply to respecting nature and monitoring requirements when it comes to the use of agricultural land and forests so as to ensure that appropriate offsetting and restoration occur.

4.5.3 Access and benefit sharing

One of the main aims of the UN Convention on Biological Diversity (CBD) is to ensure the fair distribution of the benefits resulting from the use of genetic resources, while it also provides rules for access to genetic resources (access and benefit sharing, ABS). The CBD emphasises the rights of states and local population groups with regard to their ownership of their genetic resources and the associated traditional knowledge of indigenous communities. Under the terms of the CBD, persons or organisations that wish to obtain access to genetic resources may only do so with the prior informed consent (PIC) of the party that makes these resources available. In addition to prior consent to access, the fair participation in the benefits resulting from the use of genetic

resources by those who provide them is to be regulated by means of mutually agreed terms (MAT).

The rules for access and benefit sharing were specified in the Nagoya Protocol (NP), which was signed in 2010 (CBD 2011) and entered into force in 2014. Thus, for example, cosmetics companies that make use of genetic resources and the associated knowledge during research and the development of new cosmetic ingredients will now have to provide proof that their activities meet the requirements of the CBD and the Nagoya Protocol. In concrete terms, this means that businesses will need to take the following measures:

- Comply with the requirements of the UN Convention on Biological Diversity (CBD) with regard to the fair sharing for benefits accrued during preliminary bioprospecting activities.
- Identify the providers of a genetic resource (the relevant government authorities or local/indigenous groups that hold the corresponding ownership rights)
- Obtain the consent of the providers of genetic resources to access to genetic resources and the type of use made of them before carrying out any research and development work (prior informed consent)
- Make mutually approved agreements about access and the fair sharing of benefits between the providers and users of a genetic resource (ABS – access and benefit sharing)

Even organisations whose business model is not based on the use of genetic resources can make use of the principles of access and benefit sharing as a guideline to what conduct can be considered fair towards the countries of origin of their natural resources (for example by early consultation of local stakeholder groups when planning projects or by supporting local environmental and social projects).

4.5.4 Integrated reporting

Since the sports item manufacturer Puma published the first ecological profit and loss account in 2011, the non-disclosure of costs that arise as a result of the adverse effects of a business on the environment and natural capital has once again become a hot topic. The environmental costs of the

group's operations and procurement chain – measured using the main environmental indicators greenhouse gas emissions, water consumption, land use, air pollution and waste – were equivalent to €145 million in 2010. Puma's parent company Kering (formerly PPR) announced that it would publish group-wide ecological profit and loss accounts for its luxury and sports lifestyle brands to 2015 (PUMA 2011).

The International Integrated Reporting Committee (IIRC) was established in 2010. The aim of the IIRC is to create a generally accepted framework concept for a sustainability balance sheet by combining financial, environmental social and state information in an "integrated" format.

At the end of 2013, the IIRC published an international framework concept for integrated reporting (IR). Among other things, this concept includes reporting on natural capital, explicitly mentioning biodiversity and ecosystem services: "Natural capital: All renewable and non-renewable environmental resources and processes that provide goods or services that support the past, current or future prosperity of an organization. It includes air, water, land, minerals and forest and biodiversity and ecosystem health" (IIRC 2013, 12).

In its EU Strategy (2011–2014) for corporate social responsibility (CSR), the EU Commission emphasises the following: "The integrated financial and non-financial reporting constitutes an important medium- to long-term goal and the Commission is monitoring the activities of the 'International Integrated Reporting Committee' with interest." (European Commission 2011a, 14).

In addition to mere reporting, the European Commission suggests in its Communication on a Roadmap to a Resource Efficient Europe that the actual costs for the consumption of raw materials should be paid by the market participants, explicitly referring to the conservation of biodiversity and ecosystems. It states: "The focus of measures to improve resource efficiency and to strengthen overall economic competitiveness must be placed more on appropriate pricing and price transparency for the consumer, so that, for example with regard to transport, energy and water, the total costs of resource use to society, including the costs of environmental

pollution and adverse health effects, are included in the price calculations and counter-productive price incentives are avoided." (European Commission 2011b).

Directive 2014/95/EU on the disclosure of non-financial and diversity information by certain large undertakings and groups is designed to amend Directive 2013/34/EU and imposes more stringent reporting requirements on large organisations with regard to the disclosure of social- and environment-related information. Consultations have shown that, within the EU, only a limited number of large corporations regularly disclose non-financial information and that the quality of the information disclosed varies a great deal, making it difficult for investors and stakeholders to comprehend and compare the situation and business results of the companies (European Commission 2011a, 14 f.).

This ensures that the same rules apply throughout the EU. In addition to a balanced analysis of their business operations and results, major corporations and groups should also publish non-financial reports, disclosing at least information on their environmental, social and personnel-related activities, respect for human rights and measures employed to combat bribery and corruption. Among other things, the EU Commission makes reference to ISO 26000 as well as to the criteria of the Global Reporting Initiative; both contain extensive references to biodiversity (European Commission 2011a, 8, 16).

5 In which ISO management systems can biodiversity protection concepts be integrated?

There is a tendency to regard biodiversity-related activities as part of environmental or sustainability management. However, biodiversity-related activities can also be managed through energy management systems while these also provide appropriate correlations. The international standard ISO 26000 Guidance on Social Responsibility covers all the major aspects of biodiversity and emphasises the significance of this field when it comes to maintaining the reputation of a business.

- ISO 14001 Environmental Management
- ISO 50001 Energy Management
- ISO 26000 Guidance on Social Responsibility
- ISO series 37000 Management system standards for the "Sustainable development of communities".

5.1 Biodiversity and ISO 14001 Environmental management systems

ISO 14001: 2004 refers to biodiversity and its content deals with the identification of "environmental aspects" (see Chapter 4.3.1 therein). Corresponding information is provided in the Annex (A 3.1 Environmental aspects) with, for example, references to "wildlife and biodiversity".

The version of ISO/DIS 14001:2014 refers to biodiversity:

- In its introduction (non-normative)
- In a note on the definition of the term "environment" (explanatory)
- In a note about potential aspects of environmental policy (example)
- And twice in the annex (informative).

In comparison with EMAS III, where biodiversity is used as a performance indicator (see Chapter 6 of this guideline, "Biodiversity and the EMAS management system"), ISO 14001 is generalised and unspecific. Whether and to what extent a business decides to act with regard to the conservation of biodiversity depends on whether the business and its external consultants regard wildlife and biodiversity as relevant and strive for continuous improvement in this field.

As a management instrument, ISO 14001 is eminently suitable for continuously improving a company's biodiversity performance. All the management measures specified by ISO 14001 can be employed within the fields of activity related to the preservation of biodiversity. Once the relevance of the biodiversity aspect has been established (see Chapter 8 "Considerations for strategy and management"), the business must define its current related status (environmental audit). There are aids that will help with this, such as this guideline and the sector-specific Biodiversity Check, developed as part of the European Business and Biodiversity Campaign.

Based on the results of the environmental audit, concrete – and where possible quantifiable – goals need to be defined, along with the measures required to achieve them. At the beginning of the process, most businesses will find out during their environmental audit that they know very little about the relevance of biodiversity to their business and the effects of their business on biodiversity. The logical next step is then to develop goals and measures mostly to close the information loopholes, so that correct priorities can then be set. This guideline contains recommendations that should help with filling in the information gaps and for making concrete improvements. However, these recommendations need to be adapted to each particular sector and appropriately extended. The revised ISO 14001 was published in October 2015 and includes various references to the loss of ecosystem services and biodiversity as well as to natural resources. Organizations need to determine the significance of biodiversity and/or ecosystem services and put in place management objectives and measures, if these environmental aspects are relevant for the organisation. The certification authority, too, will have a basis to ask specific questions and to determine progress.

As the revised version does not contain more than the terms themselves, it will be by no means evident for either side what activities are to be undertaken and which aspects should be taken into account. This guideline is intended to help businesses with an ISO 14001 environmental management

system integrate biodiversity-relevant activities in their management operations.



Further points of reference for biodiversity-related aspects can be found in the standard ISO 14031:2013 "Environmental Management – Environmental Performance Evaluation – Guidelines". This makes direct reference to the term "biodiversity" and the indicators suggested in the second part are also relevant to biodiversity-related measures.

5.2 Biodiversity and ISO 50001 Energy management systems

The standard ISO 50001 rapidly became an internationally used reference framework for energy management shortly after its publication. By the end of 2011, 459 certifications had already been reported in the ISO Survey, while by 2012 this figure had risen to 1981 (ISO Survey 2012, 1).

The normative text portion of ISO 50001 does not contain any direct reference to the aspect of biodiversity. However, there are certain points of reference in this regard.

The standard requires that the structure and maintenance of a systematic energy management system should be such that there is reduction of the environmental effects associated with a business's energy consumption. It should here be pointed out that the aim is not only to reduce greenhouse gas emissions but to ensure that "other environmental effects" are taken into account (see ISO 50001:2011 "Energy management systems – requirements with instructions for application" (; p. 4) This is of particular relevance in view of the fact that a large proportion of energy is obtained from fossil fuels and that the use of fossil fuels can have negative impacts on biodiversity. Potential examples would be damage to plants caused by sulphur dioxide emissions and disruption of a landscape due to the extraction of energy resources such as coal, oil and gas.

Environmental and energy management systems that require certification are now such that is obligatory for them to review the direct and indirect environmental effects when evaluating the significance of environmental factors, i.e. they must take into account the environmental compatibility of energies used.

The following is an example relating to energy management. When making practical use of a systematic energy management system as required by ISO 50001, it is in principle possible also to include biodiversity aspects in a related key indicator system. Thus key energy indicators can be employed to determine the use of sources of energy (e.g. more use of renewable energies in comparison with fossil fuels). Where, for example, a business is in the process of gradually reducing its procurement of sources of energy that have adverse effects on biodiversity, this could be documented and demonstrated by recording transparent key energy indicators with indirect information about the energy sources. Thus not only the use of fossil fuels should be registered in the form of key indicators; the same should be the case for the use of renewable energies. Here it is important to bear in mind that even renewable energies have an impact on nature and land use. Renewable energy projects can have negative effects on biodiversity (windparks biofuels).

A great deal of information is now available on the subject of "biodiversity and energy generation". The Energy and Biodiversity Initiative (EBI) – a joint project involving the energy companies BP, Chevron, Shell and Statoil and five international nature conservation associations – has developed various guidelines to improve the way that the management standards of mining and energy companies take biodiversity-relevant factors into account. To view the Energy and Biodiversity Initiative guidelines, go to www.theebi.org.



Positive Example

In a joint venture with solarcomplex AG, the Lake Constance Foundation is managing the "Bodensee Bio-Energy Region" with the aim of ensuring the sustainable development of bio-energy. An interdisciplinary work group consisting of experts from the agricultural, energy, tourism and nature conservation sectors has drafted a list of criteria for the sustainable and environmentally compatible use of biomass. See:

<http://www.bodensee-stiftung.org/projekte/bioenergieregion-bodensee>

Discourse: Biomass - a new potential source of energy?

The use of biomass to generate energy is frequently regarded as an environmentally-friendly alternative to the dwindling oil reserves and as a secure source of energy. However, there are several reasons why this view needs to be revised. On the one hand, biomass competes with food and fodder when it comes to land use and thus increases the costs of renting land and food prices. Hence, when the use of energy from biomass is considered, potential conflicts of this kind must be taken into account. Moreover, when it comes to biomass production, the focus tends to be on yield and rather than on quality so that there is the risk of excessive use of fertilisers and pesticides.

At the same time, as space is at a premium in most industrialised countries, land in developing countries is often used for biomass cultivation. This can result in the

proliferation of monocultures of sugar cane, soya beans, oil palms or eucalyptus, which is in turn associated with ecological damage and a reduction in nature conservation. In addition, a shift of biomass production to countries with poor health and safety requirements and a lack of social security can be seen as problematic from the ethical point of view. All this indicates a need for systematic record-keeping and consideration, especially with regard to the use of standards to certify this form of energy. In recent years, there has been significant progress in the use of certification systems based on criteria to which the aspect of sustainability has been added. However, there have only been a few attempts to produce systematic evaluation procedures aimed at taking social aspects into account in addition to the ecological criteria.

5.3 Biodiversity and ISO 26000 Guidance on Social Responsibility

ISO 26000 is not a management standard. This international standard has not been designed for certification purposes and therefore also does not stipulate specific requirements. However, countries such as Austria, Spain, Denmark, Brazil and Canada have issued national standards based on ISO 26000 relating to certification or are currently developing them. The ISO 26000 guidelines contain comprehensive references to biodiversity, including those in Field of activity 4 (ISO 26000:2011, see Chapter 6.5.6 Environment – Field of activity 4: environmental conservation, diversity of species and the restoration of natural habitats, p. 71 therein)

The description of Field of activity 4 refers to the substantial and frequently irreversible loss of habitats and the reduction in the diversity of species as a result of human activities. ISO 26000 emphasises environmental conservation and the restoration of natural habitats and ecosystem services as an

important aspect of the social responsibilities of an organisation. Among other things ISO 26000 points out the need to make greater use of products provided by suppliers who employ more sustainable technologies and processes.

With reference to Human rights – Field of activity 7: Economic, social and cultural rights, ISO 26000 makes direct recommendations with regard to the CBD “access and benefit sharing (ABS)” concept. The rules on access to genetic resources and the fair sharing of benefits (access and benefit sharing, ABS) form one of the three basic pillars of the agreement on biodiversity (CBD) (also see Chapter 4.5.3 Access and benefit sharing).



5.4 Biodiversity and the ISO Series 37000 Sustainable development of communities

International and national working groups are currently developing recommendations for the standardisation of topics relevant to "sustainable development in cities and communities". The publication of a number of corresponding international standards in the ISO 37000 series was initiated in 2014.

With regard to biodiversity, two standards currently being compiled – ISO 37101 and ISO 37120 – are of particular interest here.

The standard ISO 37101 "Sustainable development of communities – Management systems – Requirements with guidance for resilience and smartness" stipulates the basic principles and requirements for all communities. Its publication is expected by end of 2015.

The conservation of biodiversity is an important aspect of sustainable development. The term "resilience" in the title refers to the integrating approach of the standard when it comes to maintaining the natural spaces within cities and communities to reinforce the natural resilience of a system.

On the one hand, communities can influence the general conditions for fostering biodiversity within their sphere of responsibility by planning and compiling regulations. On the other hand, they also have to fulfil statutory requirements and can also play an active role in the conservation of biodiversity. In this case strategic and long-term planning is a requirement for sustainable, efficient and effective protection of local biodiversity. In the following are several examples of potential activities.

By preserving the natural design and cultivation of municipal spaces, the outdoor areas of administrative buildings, schools and nursery schools, municipal parks and green spaces, communities can make an important contribution to local biodiversity. A large range of activities can be carried out in communal forests that will rapidly have a positive effect on biological diversity. Any dead wood remaining in the forest

and all remaining biotope trees provide a habitat for a variety of animal and plant species.

In Germany, it is not the responsibility of the local authorities to designate nature conservation areas. Nevertheless, they can facilitate the processes that will result in such a designation. Statutes and various planning instruments (such as building regulations and green space planning) can directly influence the way that biodiversity is dealt with and shift some of the responsibility onto private investors.

Communities are important customers (estimated volume of public contracts issued in Germany in 2011: €478 billion; source: EU Commission) and are increasingly being required to take into account the conservation of biodiversity and ecosystem services as a criterion within the concept of green public procurement when awarding contracts. Moreover, communities control their own municipal activities, which – like those of private companies – have direct and indirect effects on biodiversity. However, biodiversity has rarely been a factor in operational management, even for local authority organisations.

The ISO 37120:2014 standard bears the title "Sustainable Development in Communities – Indicators for City Services and Quality of Life". The aim of this international standard is to standardise a system consisting of 102 indicators (47 core and 55 supporting indicators) to evaluate the long-term development of and quality of life in urban areas.

In the section on urban planning, ISO 37120 contains indicators for all the aforementioned fields of activity. In addition, the following specific biodiversity indicators are included.

- Annual number of trees planted
- Percentage change in number of native species

The standards also refer to the guidelines User's Manual for the City Biodiversity Index (CBD 2012).

6 Biodiversity and the EMAS management system

EMAS stands for "Eco-Management and Audit Scheme". It is the first environmental management system that can be certified that explicitly identifies biodiversity as an environmental aspect to be taken into account (EMAS 2013). In addition, biodiversity is among the key indicators that must be taken into account as part of the reporting process specified above. Thus all organisations that put in place or maintain a management system in accordance with EMAS must investigate its negative effects on biodiversity. This also applies to businesses. If it is established that biodiversity is among the "significant" environmental aspects (see Chapter 8 Considerations for strategy and management), the business must identify the most quantifiable goals possible and include these as part of its environmental policy. The environmental programme must define the activities required to reach these goals. In this case, EMAS-validated organisations that use biodiversity as a "key indicator" must document this by at least reporting on the development of their land use.

The feedback obtained from 574 EMAS-validated organisations in Germany was evaluated in the "EMAS in Germany – Evaluation 2012" study. When asked about the practicality of the key indicators, 49% of respondents saw the biodiversity indicator as "less good" or "poor" (UBA/BMUB 2013, 49).

This may be because land use is not an important aspect for most businesses and the negative effects on biodiversity are in other areas (such as raw materials, delivery chain). Of course, EMAS does not prevent organisations from identifying further indicators that would be more suitable for defining major negative effects on biodiversity. This guideline provides EMAS-validated companies with information and incentives to help them appropriately incorporate activities relevant to biodiversity in their EMAS management system.



7 Initial approaches to the management of biodiversity-related aspects

To "increase consideration of biodiversity in environmental management and certification systems and to improve communication" is a clearly defined aim of the National Biodiversity Strategy (BMUB 2007, p. 44). Environmental management systems are relevant to traditionally important drivers of climate change, such as energy consumption and transport, as well as the area of pollution/emissions. This is the reason why this guideline is primarily concerned with counteracting the effects of the degradation and destruction of ecosystems, the excessive exploitation of natural resources and the proliferation of invasive alien species.

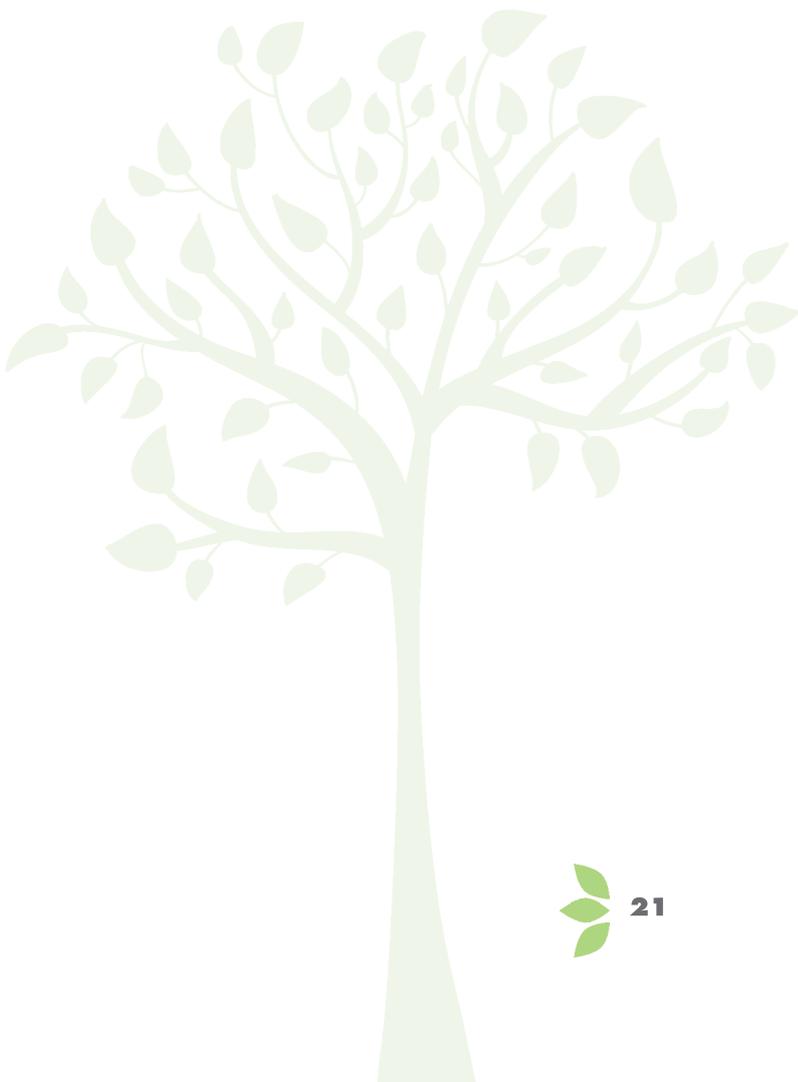
For the environmental management coordinator, however, it is important to be aware of the interactions between these aspects. Measures for climate protection taken by a business will also promote the conservation of biodiversity. Adherence to national or European standards at international level in order to avoid polluting the air, water or soil, is another important contribution that will stop the loss of biodiversity. Management decisions that cannot be reversed must be taken with particular care. When in doubt, it always best to err on the side of precaution.

The key indicators specified in the following chapters should be regarded as examples. They were defined during the European Business and Biodiversity campaign in consultation with various groups and are applicable to all business sectors. These process or performance key indicators should be considered merely as a start-up aid and should be supplemented by sector-specific key figures and key performance indicators. For some industries, such as the food industry, specific key indicators are already available. Where these are publicly accessible, we refer to them in this guideline.

Many other key figures and indicators are currently in the process of being defined. It is thus advisable to review on-going progress at regular intervals so that these can be taken into account in decision-making and the planning of measures.

This guideline focuses on

- The avoidance and reduction of negative effects on biodiversity
- Direct and indirect effects
- The various divisions within businesses
- The main reasons for the loss of biodiversity: The degradation / destruction of ecosystems, the excessive exploitation of natural resources, proliferation of invasive alien species
- A number of key indicators that are relevant to all business sectors.

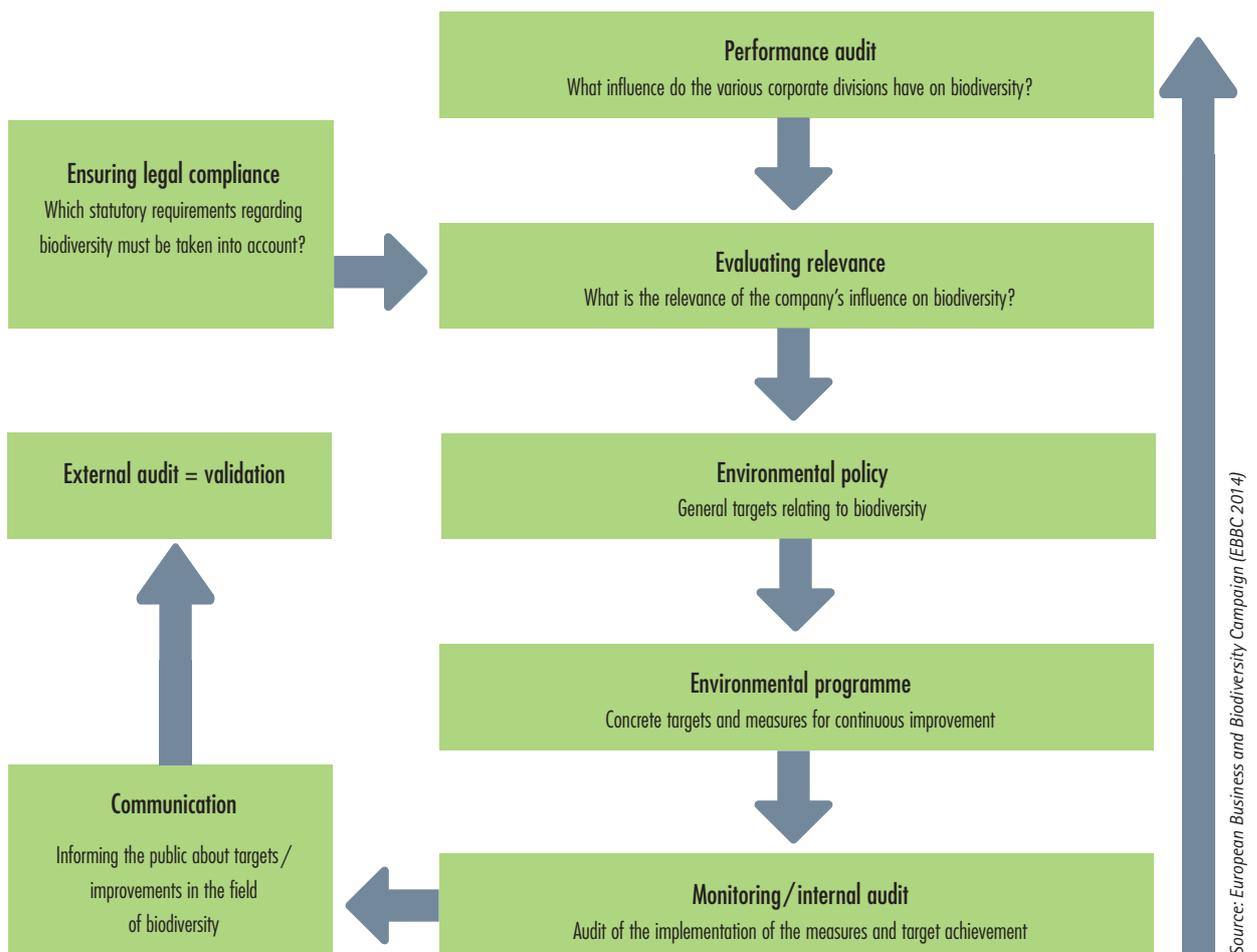


8 Inclusion in strategy and management concepts

It is the management of a business that sets the course for a continuous improvement in performance with regard to biodiversity. Due to the complex interactions and challenges, especially when it comes to reducing negative effects due to indirect influences, it is necessary to take a structured and continuous approach to preserving biodiversity.

It is not advisable to introduce a separate biodiversity management system in parallel with other management systems; instead, the factors relevant to biodiversity should be integrated into a management system that is already in place. EMAS III and ISO 14001 are eminently suitable as environmental management systems, but there are also links to other (ISO) management systems (see Chapter – 5.1. and Chapter – 6).

Fig. 3 Taking biodiversity into account in an environmental management system



8.1. Determining the baseline situation

The following questions should only be answered with "yes" or "no" or "in preparation" and thus do not serve as indicators. Even a "no" does not say anything about the quality of the strategy or measure. Nevertheless this exploration is an important initial step and will provide insight into the position of the business when it comes to biodiversity and the fields in which action is required.

Questions for corporate management:

- Is the environmental aspect of biodiversity being taken into account within the environmental management system or other management systems (such as energy or sustainability management systems)?
- Have the direct and indirect effects of the business on biodiversity been systematically investigated?
- Does the business make use of the mitigation hierarchy (avoidance, reduction, restoration, compensation) in order to reduce its negative effects on biodiversity?
- Does the environmental or sustainability programme include goals and measures designed to preserve biodiversity?
- Are the goals and measures quantifiable and auditable?
- Have meaningful key figures and indicators been defined for monitoring purposes?
- Does the advanced training programme for employees incorporate aspects of biodiversity?
- Does the business participate in a national, European or international business and biodiversity initiative?
- Does the business have a strategy or programme to ensure fair and equitable sharing of the benefits of using genetic resources?
- Does the business take biodiversity into account when making investments or buying shares in other companies?

8.2. Determining the relevance of biodiversity to a business

All environmental management systems that require certification stipulate that a business must determine the relevance or significance of all environmental aspects. How

can this be achieved for the aspect of biodiversity without having to carry out detailed studies?

Below is a proposed method that can be used to determine the degree of significance that involves a few relevant and non-sector-specific questions and a simple assessment of the responses to determine the degree of relevance. The suggested questions can (and should) be supplemented with sector-specific questions.

As explained in Chapter 2 "Scope", this guideline deliberately excludes the aspects of climate change and pollution/emissions, as it can be assumed that continuous reduction of the relevant factors is already being implemented under an environmental management system. They are thus not here taken into account for the purposes of determining the relevance of biodiversity to a business although they play a major role when it comes to the loss of biodiversity.

It would undoubtedly be of benefit to a business to commission environmental officers to determine the relevance of biodiversity to it and to include the divisional heads of all corporate sectors and relevant external stakeholders (research institutions, nature conservation authorities and environmental conservation organisations) in this process. This could take the form of an open dialogue or a comparison of the various evaluation results.

Even a risk assessment can contribute towards determining the relevance of biodiversity to a business. A great deal of work is currently being carried out in this field. However, there has thus far been no longer-term, practical experience with the various instruments available to businesses (also see Chapter 17 "Practical instruments"). It is to be expected that considerable progress will be made with risk assessment with regard to biodiversity by businesses. It is therefore advisable to regularly keep up to date; for example, information can be obtained from the websites of the European Business and Biodiversity Campaign or Biodiversity in Good Company.

Table 2: Determining the relevance of biodiversity to a business

Effect on	Business activities
Ecosystems/ biodiversity	Do the activities of the business involve land use? No = 0 points. To a minor extent = 1 point. Substantially = 3 points.
	Does the business or its direct suppliers operate in conservation areas or near conservation areas or in non-conservation areas with a high biodiversity value? No = 0 points. Yes = 3 points. Don't know: 3 points.
	Do the activities of the business directly or indirectly depend on ecosystem services? No = 0 points. Directly or indirectly = 3 points. No information = 3 points.
	Does the business process mineral resources or intermediate products derived from them? No = 0 points. To a minor extent: 1 point. An essential basis for production: 3 points.
	Does the business process animal raw materials or intermediate products derived from them? No = 0 points. To a minor extent: 1 point. An essential basis for production: 3 points.
	Does the business deal in protected species or parts thereof (i.e. those listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora [CITES], also known as the Washington Convention). No = 0 points. Yes = 3 points.
	Does the business make use of genetic modification techniques or process the corresponding products? No = 0 points. Yes = 3 points.
	Does the business and/or its first-tier suppliers, i.e. direct suppliers to the producer, have premises/properties with outdoor areas? No outdoor areas = 0 points. Small outdoor areas = 1 point. Larger outdoor areas = 2 points. Large outdoor areas = 3 points.
	Do the business premises or properties include green spaces or other ecologically valuable areas (biotopes)? None = 0 points. One biotope = 2 points. Several biotopes = 3 points.
	Has the business restored habitats and/or created outdoor areas to compensate for its effects on nature and the environment? Not relevant, as no related effects = 0 points. Yes = 1 point. No = 3 points.
Excessive exploitation of natural resources	Does the business process plant or animal raw materials or intermediate products derived from them? No = 0 points. To a minor extent = 1 point. An essential basis for production = 3 points.
	Is water important to the production activities of the business or its suppliers? To a minor extent = 1 point. Substantially = 2 points. Very substantially = 3 points.
	Does the business or do its suppliers operate in regions in which water is in short supply? No = 0 points. Yes = 3 points. Don't know: 3 points.
Invasive alien species	Does the business make international goods deliveries or commission them? No = 0 points. To a minor extent = 1 point. To a major extent = 2 points.
	Is the business aware of the proliferation of alien invasive species on its own premises/properties? No, no proliferation = 0 points. Yes, there are invasive alien species = 1 point. Don't know = 1 point.

0–8 points = not relevant; 9–13 points = average relevance; More than 13 points = extremely relevant

8.3. Coordination

Biodiversity is complex, as are the various effects of businesses. And businesses differ with regard to the level of specialist knowledge available to them. Businesses in the food industry or (agro-)chemical industry often have entire divisions dealing with this topic. In other businesses, there is only an environmental or sustainability officer who is supposed to coordinate the biodiversity-relevant activities. This represents a major problem.

To be effective, biodiversity management requires appropriate knowledge at both the local and global levels. It may thus be advisable to consult with the relevant experts. Nature conservation authorities and environmental organisations are usually familiar with the situation and can provide important input for the analysis of the current situation and the identification of goals and measures (see Chapter 15 "Multisectoral: the involvement of stakeholders in decision-making"). Among other things, national business and biodiversity initiatives arrange for an exchange of views between businesses and provide an overview of relevant studies, positive examples, etc.

8.4. The environmental and sustainability policy of a business

The environmental and sustainability policy of a business should deal with the effects of the business on biodiversity and clearly indicate the priorities for improvements. Among other things, it is important to use the internationally recognised terminology. Where separate definitions for certain biodiversity aspects are required, these must be clearly and comprehensively explained.



Relevance of uniform definitions:

In 2011, the World Conservation Monitoring Centre (UNEP-WCMC 2011) published the results of an analysis of how biodiversity was specified in 36 standards from eight different business sectors. Among the findings of the WCMC was the fact that the standards make use of different terms and definitions and rarely adhere to

internationally recognised ones (for example conservation areas, endangered species, biodiversity hotspots). Inconsistent terms and missing cross-references are a problem, as they do not constitute a clear reference framework and may result in different interpretations.

Internationally recognised definitions can be found at: www.biodiversitya-z.org/themes/terms

8.5. The support of expert consultants

The conservation of biodiversity and ecosystem services is a new field of activity in connection with (environmental) management systems that can be certified.

Most organisations lack the corresponding experience for implementation. In view of this, external support will represent a useful tool when it comes to the successful incorporation of biodiversity aspects in the management system. It is advisable, for this reason, to contact an external expert, such as an experienced management system consultant or a person authorised to issue certifications (EMAS environmental expert). EMAS is the first certification-enabled environmental management system that explicitly makes use of the concept of biodiversity as an environmental aspect. In this case, biodiversity is among the key indicators that must be taken into account as part of the reporting process specified above. As the accredited environmental expert has the task of investigating whether the environmental management system they are auditing complies with EMAS requirements, they will thus also review biodiversity-relevant aspects, in as far as these are of relevance to the company.

Apart from practical certification experience, the consultant should have some knowledge of the incorporation of nature conservation measures in management processes. It is essential to ensure avoidance of possible conflicts of interest. This means that persons authorised to issue certificates who are acting as consultants to an organisation should not carry out the actual certification or validation activities within this company.

The list below provides an overview of example questions that need to be considered when establishing a management system for certification that takes appropriate account of biodiversity-relevant aspects. These and any comparable questions need to be answered during the course of the validation process (EMAS). The following questions can be used to determine, if the business under review does consider biodiversity in an appropriate manner:

- What effects do the various corporate divisions have on biodiversity?
- What effects do the organisation's activities have on biodiversity within the context of the sector-related value-creation chain?
- Which general biodiversity-relevant objectives have been stipulated in the environmental policy?
- If biodiversity is a significant environmental aspect, what concrete targets and measures have been specified to preserve biodiversity?
- Which raw materials or other materials are purchased from upstream suppliers?
- What effects does their use have on biodiversity?
- In what form do the activities of the business influence biodiversity?

It has been pointed out that the use of competent consultants who will focus on biodiversity-related reference points can be of great help in this regard. Moreover, it is the task of an expert consultant to inform the management about the significance of ecosystem services in relation to the business-specific performance process. It can be assumed that in many businesses there is an interactive relationship between the exploitation of ecosystem services on the one hand and the adverse effect of economic activities on the other hand. Thus a knowledge of this relationship will help the company to develop measures to maintain biodiversity. An overview of the relevance of biodiversity in various business sectors is provided in the following.

8.6. Examples of commercial sectors and their relevance to biodiversity and ecosystem preservation

The oil and gas industry

Significant biodiversity-related environmental effects

- Intervention in the ecosystem as a result of exploration and resource utilisation. Increasing demand has led to exploitation in ecologically sensitive regions (extraction of oil sand and deep-sea deposits)

Ecosystem services of importance to this sector

- Natural deposits of oil and gas form the "natural capital" of the sector. When issuing oil and gas mining permits, in particular, the authorities are increasingly concerned with the preservation of the natural environment.

Raw material extraction and mining

Significant biodiversity-related environmental effects

- Intervention in the ecosystem as a result of exploration and resource utilisation. Raw material extraction is usually associated with large-scale land use and intervention in ecosystems (e.g. deforestation). As mining activities also consume large volumes of water, underground water reserves may also be exhausted, especially in arid regions.

Ecosystem services of importance to this sector

- Naturally occurring raw materials are the "natural capital" of this sector.

Cosmetics and pharmaceutical/medicinal plants

Significant biodiversity-related environmental effects

- Worldwide, more than 25,000 types of plants are used for medicinal purposes. However, their use can also promote species extinction. In Western Europe, over 150 plant species are threatened with extinction due to over-extensive harvesting.

Ecosystem services of importance to this sector

- A large variety of plants are used for medicinal purposes in industrialised countries. Naturally occurring plants provide in many instances the basis for the manufacture of active pharmaceutical substances.

Tourism*Significant biodiversity-related environmental effects*

- Tourism poses a threat to biodiversity by: habitat destruction (land use), over-use of ecosystems (water, energy), pollution (waste water, waste, emissions), interference in sensitive ecosystems caused by sports activities.

Ecosystem services of importance to this sector

- The natural environment is a major asset of tourism. Landscapes, mountains, coastlines, beaches, dunes, moors, lakes, forests and meadows, flora and fauna (i.e. biodiversity) provide for recreation and leisure activities.

The fishing and fish-processing industry*Significant biodiversity-related environmental effects*

- Overfishing has resulted in drastic reductions in the fish stocks. It is estimated that the fish population has been reduced by more than 80% since the introduction of industrialised fishing techniques (drag nets). (Climate) changes to the ecosystem of the oceans affect both the regional supply and quality of the fish supply. This results in adverse effects on the fish-processing industry.

Ecosystem services of importance to this sector

- The fish population has always been one of the main sources of food for humans and provides work and economic benefits to those working in the fishing industry. The preservation of an intact ocean ecosystem is a requirement for maintaining this ecosystem service for the fishing industry.

Forestry and the furniture, wood and building material industry*Significant biodiversity-related environmental effects*

- Logging at rates that exceed the natural tree regrowth rate put the continuance of forests at risk. Rapid deforestation adversely affects biodiversity; ecosystem services such as the protection of catchment areas and soil protection disappear; this results in losses and lower quality in the timber, furniture and building material industry. It should be noted that even natural oriented, sustainable forestry with alien tree species provides major services, such as CO₂ storage, wood, water formation/purification and air filtration.

Ecosystem services of importance to this sector

- As the forestry industry depends entirely on natural resources, natural forest growth provides a major service to the furniture, timber and building material industry. Moreover, an intact forestry ecosystem provides additional ecosystem services such as CO₂ storage, water protection, the provision of genetic material and recreational value in the case of both natural forests and plantations.

As part of the European Business and Biodiversity Campaign, so-called Biodiversity Fact Sheets were developed for the tourism industry, golf courses, leisure parks, the cosmetics industry, the extractive industry (dry and wet mining and quarrying) and the food and beverage industries. These provide businesses with an initial overview of their relationship with biodiversity, as well as with information on meaningful targets and measures in this field. Other Biodiversity Fact Sheets are in the process of being prepared (see <http://www.business-biodiversity.eu/knowledge>).

9 Business premises and property

9.1. Why is action needed?

In a densely populated country like Germany, there are only a few remaining refuges for plants and animals. Most nature conservation areas are islands in a sea of transport infrastructures, settlement areas and monocultures. Businesses often have land that they can make available for nature conservation which, with only a few simple measures – can become valuable habitats for animal and plant species, and stepping stones within biotope corridors.

Nature oriented landscapes also make economic sense:

- flowering meadows are easier to maintain than grassed lawns.
- Nature oriented rainwater management systems can reduce outgoings in cities and communities by reducing the cost of dealing with waste water.
- The adoption of green roof and façade systems reduces the consumption of energy for heating and cooling.
- Nature oriented landscapes further a sense of well-being, creativity and the performance of employees.

Employees can also get involved in designing and monitoring the environment, which can serve to further the corporate identity of a company. It is not necessary to work through the rather long Red List of the IUCN in order to verify the effect of such activities. The recommendation is to select one or two key species in cooperation with the nature conservation authorities or local environmental conservation organisation that would be suitable for the long-term monitoring of changes to biodiversity in such areas. Local NGOs usually also have the specialised skills that will enable them to review developments.

Another important contribution is the provision of offsets for built-over areas in excess of the business's statutory obligations. One way this can be done is by assuming the costs of landscape restoration and the maintenance of ecosystems or by supporting species protection programmes.

9.2. Challenges

Business are often concerned that the introduction of protected species could result in restrictions on the future use of the business premises (see Section 12ff. of the Habitats Directive; Section 5 of the Birds Directive; Art. 30 Par. 2 of the German Federal Nature Conservation Act).

Potential conflicts can be avoided by careful planning. Valuable biotopes should be created only in places where they can develop over the long term. Resettlement of certain species is possible with expert support. Regular monitoring serves to inform the business about the development of animal and plant species on the site and enables the business to respond in good time to ensure that it can both conserve biodiversity and achieve its targets.

To achieve a nature oriented effect it is also necessary to avoid unnecessary active intervention. Visitors and employees may thus see some nature oriented environments as 'neglected'. However, if the business provides information about its aims and the progress made, on species that have been attracted to the premises and deals appropriately with common anxieties (such as that of the risk of being stung by bees or having a pond turn into a breeding ground for mosquitoes), critics often turn into supporters.

Various studies have demonstrated that there is a positive correlation between intact nature and health. Experience has shown that a business site that is designed to be nature oriented can also have a positive influence on the work atmosphere and the productivity of employees (e.g. Krämer 2008, 73ff.). There are as yet no studies – or at least not in Germany – that provide empirical evidence in support of these observations.

Under the "Nature oriented Design of Company Premises" project promoted by the German Federal Ministry for the Environment and the German Environmental Protection Agency, many businesses of various sizes and sectors have already obtained advice on designing their premises or real estate in a nature oriented way. Additional information about the form and scope of studies and contact details of persons who can provide initial advice can be found at <http://www.naturnahefirmengelaende.de>.

9.3. Feasible targets and measures

The aim should be to create a nature oriented environment on the largest possible part of the premises. Nature conservation authorities and environmental associations can provide support when it comes to selecting the appropriate course of action.

Various biotope-promoting elements that can be used on business premises:

- Indigenous shrubs and trees (traditional orchards, hedges, groves)
- Unfertilised flower or herb meadow, flower borders, grassland
- Sparsely vegetated areas such as gravel and marl surfaces, fallow areas
- Dry walls, heaps of stones, piles of wood and branches, dead wood structures
- Nature oriented standing or running water, (alternating) wetlands
- Façades with traditional vegetation (not "living walls" that require a great deal of water and fertiliser)
- Biodiversity-friendly green roof spaces
- Thoroughfares (roads, paths, parking spaces) with permeable soil coverings and without drainage channels (test soil properties first)
- Insect-friendly outdoor lighting
- Nesting aids, insect boxes
- Use of biological pest control methods



9.4. Example key indicators

The following constitute important starting points when it comes to achieving greater biodiversity on corporate sites and properties. The key indicators make it possible to quantify the goals and to monitor developments.

Table 3: Example key indicators: corporate premises and properties

Relevant issues	Key indicator
<p>Does your business own, lease or manage sites or properties in the immediate proximity of conservation areas or areas with high biodiversity?</p> <p>Yes → see key indicator No</p>	<p>Proportion of areas cultivated in accordance with a nature conservation management plan:</p> <p><i>Size of areas subject to nature conservation management plan (m² or ha) and their percentage of the corresponding total area (as %)</i></p>
<p>Does your business have a management plan for the nature oriented design of the corporate site/properties owned, leased or managed?</p> <p>Yes → see key indicator No</p>	<p>Proportion of areas with biodiversity-friendly management:</p> <p><i>Size of areas subject to nature oriented design management plan (m² or ha) and their percentage of the corresponding total area (as %)</i></p>
<p>Do the buildings have green roofs and/or green façades?</p> <p>Yes → see key indicator No</p>	<p>Proportion of roofs and/or façades with vegetation:</p> <p><i>Size of green areas (m²) and their percentage of the corresponding total area (as %)</i></p>
<p>Are there restored habitats and/or areas to offset business-related interference in natural and landscaped environments that exceed the statutory obligations?</p> <p>Yes → see key indicator No</p>	<p>Total proportion of habitats and/or areas of offset in excess of the statutory obligations as a percentage of the total area used by the company (ha)</p> <p><i>Size of areas of offset (m² or ha) and proportion of these spaces as a percentage of the total surface area used by the business (as %)</i></p>

10 Purchasing and supply chains

10.1. Why is action needed?

Worldwide, approximately 60 billion tonnes of raw materials are consumed per year, i.e. almost 50% more than 30 years ago. There are no signs of a reversal of this trend. However, the provision of raw materials not only results in a high rate of consumption of natural resources but also in the production of emissions and waste, which also pose a threat to nature. This is also documented by the results of a study published in the journal *Nature*, which concludes that Germany's biodiversity footprint is mainly created abroad, as a result of the country's international trade. The study specified several hundred species that had been lost as a direct result of Germany's foreign trade (Lenzen et al. 2012). The actual number may actually far exceed that cited in the study.

With the exception of businesses in the primary sector, the main negative effects on biodiversity caused by most business are usually associated with their delivery chains. This may take the form of deforestation to obtain agricultural land, mining to extract raw minerals, the construction of a hotel in a conservation area, the planting of monoculture forests for paper and furniture production or the harvesting of wild plants from their natural habitats to obtain medical active substances: almost all raw materials and (intermediate) products procured by the purchasing department of a business are in some way associated with biodiversity-related environmental effects.

A business's procurement division is thus an importance corporate interface at which measures to improve environmental biodiversity performance can be introduced. But not only the reduction of negative effects will contribute to this. Wherever the existence of natural habitats and ecosystems is threatened, for example, as a result of overexploitation due to a lack of alternative income sources for local population groups, it has been shown that the sustainable use of biodiversity can create strong incentives to maintain such environments. This is particularly true when local population groups appropriately share in the corresponding value-creation processes used to obtain raw materials. With regard to the use of genetic resources, there are statutory international specifications that require the consent and

involvement of local groups in the use of such resources (UN CBD – Nagoya Protocol). However, these specifications only apply to countries that have ratified this protocol.

10.2. Challenges

The main challenges are to know the supply chain, to understand its effects on biodiversity and to take effective steps to reduce such effects. The point of departure for any form of biodiversity management by the purchasing division is thus to obtain relevant information about the potential effects of the raw materials, products or services obtained. Various sources of information can be used for this purpose.

The first step should be for the purchasing division to obtain a detailed overview of the type and volume of the resource input required to provide the business's services and the information needed to assess their relevance to biodiversity. Where a certain input is an unprocessed biological or mineral raw material, the immediate next step can be to determine the geographical origin of the raw materials used. In the case of more complex intermediate products, their composition would need to be checked, with screening for the presence of potentially critical raw materials.

Apart from the type and volume of the input used, the most detailed information available about the most important actual local production conditions should be obtained. It would be possible to avoid overly complex processes by falling back on the relevant standards and certification schemes, assuming these are available.

The "biodiversity environment" itself plays an important role, in addition to the aspect of volume, production conditions and place of origin. The greater the variety of species and ecosystems in the region of origin of a certain raw material, the higher the risk of negative effects emanating from raw material production will be. Global or regional overview maps of species diversity can serve as an aid during an initial evaluation. Another important question is whether biological raw materials are being obtained from regions with a water shortage or high levels of soil erosion.

Many concepts have been developed by nature conservation organisations in cooperation with research institutions to evaluate the wealth of biodiversity in certain areas and regions that do not necessarily have protected status. Some well-known concepts are that of the High Conservation Value Area (HCVA; Forest Stewardship Council) and the Key Biodiversity Area (KBA; International Union for the Conservation of Nature – IUCN). More detailed information and additional classification concepts can be obtained through the A–Z Areas of Biodiversity Importance portal (www.biodiversitya-z.org) and the IBAT for Business (www.ibatforbusiness.org) fee-based website. Another option is to contact national and international nature conservation agencies. Once the sites of origin have been identified, it can be verified whether they are located within or in the proximity of conservation areas. The corresponding information can be obtained from national environmental authorities and environmental organisations and from relevant web portals such as www.protectedplanet.net.

Such analyses may be very expensive, especially if a business relies on a high number of resource inputs in order to render its services. In this case, it may be advisable to first concentrate on the biodiversity-related sustainability hotspots within the delivery chain. Any corresponding priority areas should be defined on the basis of clear and transparent criteria. External stakeholders with the relevant knowledge can be involved in such processes.

An example of this is the cooperation between the flavouring and fragrance producer Symrise AG and the Union for Ethical Biotrade (UEBT), the services of which include assistance in the evaluation of raw material portfolios.



Positive Example

As a member of UEBT, the Symrise Group has undertaken to ensure that its procurement practices progressively promote species protection, respect traditional knowledge and guarantee fair sharing of any benefits obtained. Source: Symrise AG 2012 Sustainability Report.

10.3. Feasible targets and measures

The purchasing division is not only responsible for obtaining information, but can make a substantial contribution to a business's biodiversity performance by promoting the informed selection of production factors and effective cooperation with suppliers.

Apart from quality or commercial viability aspects, the purchasing division should thus make use of binding sustainability criteria when it comes to biodiversity, necessitating close cooperation with strategic management and the corresponding legitimisation.

With regard to cooperation with suppliers, the following steps can be gradually introduced:

- All suppliers should be informed that the protection of biodiversity is a priority of the business
- Biodiversity-related sustainability criteria can be incorporated in procurement guidelines and supply contracts
- Suppliers can be asked what activities, instruments and systems they use for the protection of the environment and biodiversity, for example by drawing up corresponding questionnaires
- Supplier optimisation, for example, by means of training



- Auditing (if necessary externally) of "risk suppliers", listing of strengths and weaknesses and identification of potential for improvement
- Performance monitoring on the basis of corresponding indicators (see below).

Of course, labels and standards that provide for a certain predefined environmental performance with regard to energy, water, waste or cleaning also make a contribution towards the conservation of biodiversity, as such certified products and services are particularly resource-saving and climate-friendly. This is the reason why the indicator "percentage of certified suppliers/products" is also relevant to the topic of preservation of biodiversity. The medium-term goal should be to incorporate biodiversity-related criteria in the business's own purchasing and supplier specifications.

Unfortunately, no comprehensive check list has to date been drawn up that could be used by procurement or the product manager in order to exclude negative effects on biological diversity. Very few labels and standards have defined criteria for the protection of biodiversity, although there are the MSC seal for fish, the Fair Trade Standards and, to some degree, the FSC for wood. There is (as yet) no general, cross-sectoral biodiversity seal or industry-specific standard.

In 2014, 20 standards that applied to the foodstuffs sector were analysed to determine their relevance to biodiversity and recommendations were prepared in order to improve the extent to which standards and labelling protect biological diversity. The findings are of particular relevance to the foodstuffs sector. The project was supported by the REWE Group and financed by the Federal Agency for Nature Conservation. The baseline report and recommendations are available online at: <http://lebensmittelstandards.business-biodiversity.eu>.

Also investigated was the extent to which labelling and competitions within the tourism industry could help protect biodiversity and recommendations designed to enhance biodiversity performance were developed. The recommended biodiversity-relevant criteria applicable to hotels, tour operators and destinations can be downloaded at: www.business-biodiversity.eu/default.asp?Menu=226

Where the corresponding standards do not guarantee the desired sustainability in the field of biodiversity, businesses may find other ways of positioning themselves in a competitive market. A case in point is the sustainability strategy of the Round Table on Sustainable Palm Oil, which has attracted considerable criticism. This is regarded as an inadequate compromise solution by many organisations. Werner und Mertz GmbH, manufacturers of the Frosch brand of cleaning agents, is thus attempting to replace palm kernel oil-based surfactants with alternative products:



Positive Example

Werner und Mertz GmbH – "Frosch" brand

The project "Surfactants derived from European plants" is intended to set new standards even beyond our sector. Instead of using palm kernel oil-based detergents as an alternative to mineral oil-based surfactants, plant-derived surfactants of European origin will be increasingly used. This is an important contribution towards the protection of tropical regions and valuable resources. Source: www.frosch.de

Voluntary commitments and membership of initiatives aimed at the preservation and sustainable use of biodiversity can be used by suppliers to provide buyers with information about their responsible attitude towards and readiness to cooperate on the subject of biodiversity. Apart from cross-sectoral initiatives for the preservation of biodiversity, such as "Biodiversity in Good Company" and the European Business and Biodiversity Campaign, there are also sustainability projects initiated by corporate associations that explicitly define biodiversity targets. When implementing voluntary undertakings, organisations should ensure that these strictly conform to the requirements of the 'mitigation hierarchy' (avoidance rather than minimisation, restoration or offsetting). An overview of relevant initiatives can be found here: <http://www.business-biodiversity.eu/default.asp?Menu=71>

10.4. Sample key indicators

The following table identifies important courses of action that can be implemented in the sector discussed in this chapter. The key indicators make it possible to quantify the goals and to monitor developments.

Table 4: Example key indicators: procurement and the delivery chain

Relevant issues	Key indicator
<p>Are there risk analyses of the most frequently used or the most important raw materials and natural resources of the business with regard to the potential effects of cultivation and extraction on biodiversity?</p> <p>Yes → see key indicator No</p>	<p>Number of raw materials/products/services investigated with regard to their effects on biodiversity</p> <p><i>Total number</i> <i>Percentage of total number</i></p>
<p>Are the suppliers/service providers involved in biodiversity management, for example by means of regular communications or on-site information?</p> <p>Yes → see key indicator No</p>	<p>Number of suppliers informed of the relevance to the business of its biodiversity management programme.</p> <p><i>Total number</i> <i>Percentage of total suppliers</i></p>
<p>Are suppliers trained in biodiversity-relevant aspects?</p> <p>Yes → see key indicator No</p>	<p>Regular training Yes/No Suppliers/service providers who have participated in advanced training programmes in biodiversity-relevant aspects.</p> <p><i>Total number</i> <i>Percentage of total number</i></p>
<p>Do the business's procurement guidelines include criteria applicable to biodiversity?</p> <p>Yes → see key indicator No</p>	<p>Number of products/services for which there are procurement specifications with biodiversity criteria</p> <p><i>Total number</i> <i>Percentage of total number</i></p>



11 Raw materials

11.1. Why is action needed?

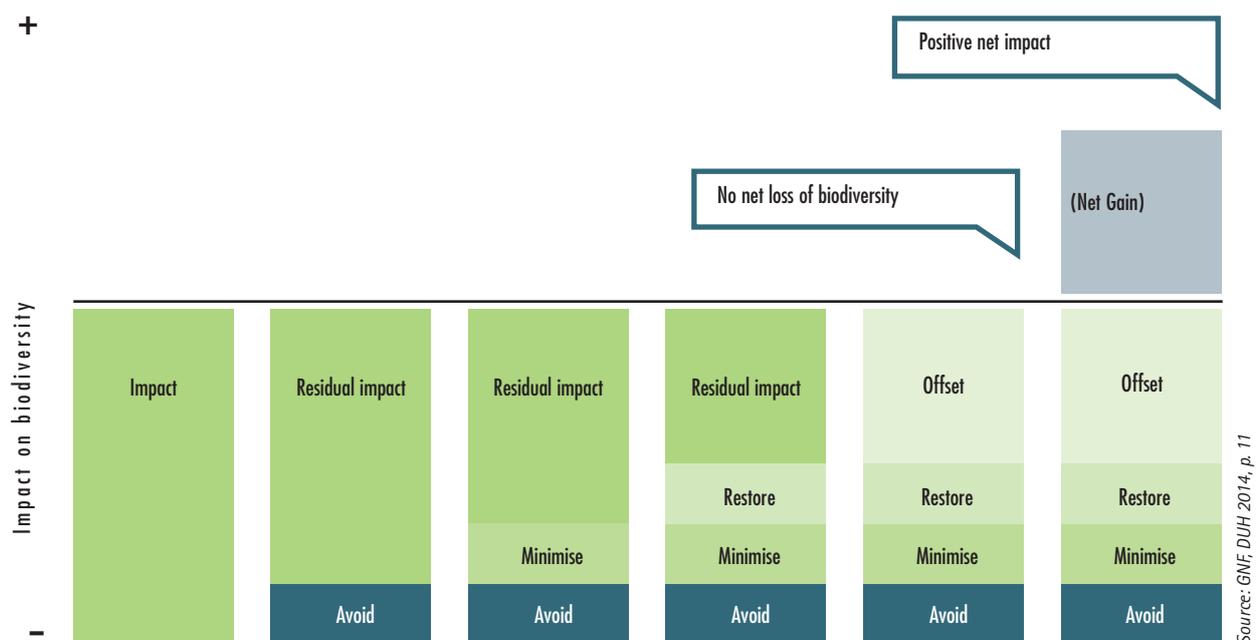
The extractive industry is of key importance to a modern society. Almost all sectors depend on the acquisition of industrially mined metals, minerals, earths and gravels. However, it is not only ores and building materials that constitute valuable resources; the natural environments from which these materials are obtained have an equal potential. Sustainable resources and fuels (coal, oil and gas) will not be explicitly covered in this chapter.

In a densely populated country like Germany, careful planning is required when opening, expanding and restoring extraction sites. Minerals and ores also often occur in very biologically diverse regions outside Germany. The World Resources Institute assumes that some 20% of all existing and planned mining sites are located within or on the perimeters of conservation areas (WRI 2003). Responsible mining activities must be combined with efficient restoration and regeneration

at extraction sites in order to ensure the protection and promotion of biodiversity. The course for biodiversity management needs to be charted at an early stage, when planning the raw material yields.

Apart from so-called no-go areas, in which raw material mining will be completely prohibited – irrespective of whether this is a legal requirement or not – it should be the aim to ensure that all operations conform to the avoidance and mitigation hierarchy (see figure). The purpose of the avoidance and mitigation hierarchy is to ensure that interference with nature and the environment is averted, reduced and reversed as far as possible and that any remaining adverse effects are offset or replaced by something that is similar or of equal value. The Business and Biodiversity Offset Programme (BBOP) has developed a comprehensive set of standards and guidelines in this respect, and these are applied worldwide: <http://bbop.forest-trends.org/pages/Leitfaden>

Fig. 3: Diagram of the mitigation hierarchy



11.2. Challenges

The worldwide rise in the demand for raw materials makes it probable that the pressure to mine new areas will continue to increase. Conflicts between nature conservation and mining arise in particular in connection with the questions of whether mining in a biologically diverse area would be sustainable or whether certain regions should be protected against incursion of all kinds. Within this context, various companies in the mining industry have already agreed to exclude the possibility of any raw material mining at UNESCO world heritage sites. Within the EU, raw material extraction in Natura-2000 conservation areas remains a contentious issue. The industry itself believes that it should be permitted to carry out mining if it observes certain requirements designed to ensure the conservation of valuable ecosystems. Nature conservation associations, on the other hand, are calling for a complete prohibition on raw material mining in Natura-2000 areas, as these areas make an important contribution to the maintenance of biodiversity in the EU.

The raw material industry emphasizes that it makes nature conservation a priority during the extraction phase and subsequent use of mining sites and that former sites represent valuable biotopes and havens for animal and plant species threatened with extinction. It should be noted, however that although restoration may produce high-quality new habitats, the subsequent biodiversity here may no longer match that which was on the site originally, which may also have been extensive. Moreover, restored landscapes often no longer meet the former "residents" requirements – they would undoubtedly prefer to move back into their original 'homes'.

Because of this, businesses need to aim at achieving a net increase in biodiversity when they cease operations on a certain site (BBOP 2012).



Positive Example

The Industrieverband Steine und Erden Baden-Württemberg (ISTE)

The ISTE and its more than 600 member businesses – mainly small and medium-sized companies – have been very active in the preservation of biodiversity for some time and have set themselves ambitious goals. Thus ISTE and the NABU State Association for Baden-Württemberg have been issuing joint statements on raw material mining since 2000. The ISTE is currently joining forces with external consultants to compile fact sheets that propose measures to increase biodiversity during and following various types of mining, such as quarrying and both wet and dry gravel mining. The fact sheets may be downloaded from <http://www.business-biodiversity.eu/default.asp?Lang=DEU&Menuue=236>

In addition, an internal guideline on biodiversity management at mining sites is being prepared, which is scheduled to be published at the end of 2015.

The ISTE has also developed a biodiversity database in which the data obtained from the monitoring of extraction sites will be entered on a regular basis (ISTE 2011). In combination with information about any conservation areas or biotope corridors, the database may also make a major contribution to the improvement of biodiversity management systems during mining and to improved restoration of the site once extraction has been completed. The data are also used to monitor the effectiveness of the measures implemented, i.e. whether gains in biodiversity have been achieved or not.

By using systematic and long-term monitoring, business in the stone and soil industry can make a positive contribution towards the preservation of biodiversity and also secure their commercial base. This includes advantages when applying for mining permits, an improved reputation and the support of the local population in the mining region. At present, public bodies are not adequately taking biodiversity factors into account when awarding tenders. Like other environmental aspects, the conservation of biodiversity should be a criterion for municipalities and authorities when it comes to awarding tenders. To date, the inclusion of the corresponding criteria in the Green Public Procurement Criteria of the EU has been thwarted by the lack of a label or standard to document biodiversity-friendly mining. It will be up to the EU member states and the industry as a whole to create this. A recognised standard or certified environmental management system focusing on biodiversity would make it possible for those responsible for tenders in municipalities and authorities to give priority to obtaining raw materials from businesses committed to the preservation of biodiversity.

11.3. Feasible targets and measures

Every business should develop a biodiversity strategy and pursue it over the long term. The strategy and goals should be aimed at defining those locations in which the business will not carry out extraction activities (no-go areas). In the case of globally active organisations, UNESCO world heritage sites and high conservation value areas should be included in the no-go areas. In order to determine whether existing and proposed sites are located in ecologically valuable regions, the IBAT database of the World Conservation Monitoring Centre may be a useful instrument at a global level. It contains extensive map material and provides information about the conservation status and ecological value of the areas www.ibatforbusiness.org. As a further aim, businesses should commit themselves to providing for a net increase in biodiversity and the compulsory use of the avoidance and mitigation hierarchy at all extraction sites.

Conservation of biodiversity must always be a location-based programme. If raw material suppliers collaborate with local

authorities, nature conservationists and biodiversity projection groups in mining areas, they can profit from the experiences of their cooperation partners and obtain their assistance in conserving and supporting locally specific ecosystems. These partners will also help them develop a biodiversity management plan with a concrete action plan for a particular site.

There are many opportunities for creating new habitats at former mining sites, thus promoting biodiversity. The following are important goals:

- The creation of conditions for the spontaneous settlement of animal and plant species
- The promotion of natural development processes
- The reduction of planting and cultivation

The training and involvement of the employees of a business are important for ensuring the success of nature conservation programmes.

Long-term monitoring of the environment helps to analyse the effects of the actions taken so they can be modified where necessary.

Further information: Biodiversity fact sheets for wet and dry mines and quarries. Download from: <http://www.business-biodiversity.eu/default.asp?Menu=236>



Positive example

HeidelbergCement has been developing biodiversity management plans (BMPs) for all its extraction sites in Europe located within or in the proximity of Natural-2000 areas since 2009.

Source: <http://www.quarrylifeaward.co.uk/biodiversity-quarries/biodiversity-management-heidelbergcement/biodiversity-management-plans>

11.4. Sample key indicators

The following table identifies important courses of action that can be implemented in the sector discussed in this chapter. The key indicators make it possible to quantify the goals and to monitor developments.

Table 5: Examples of relevant questions on and key indicators related to raw materials

Relevant issues	Key indicator
Has the business defined no-go areas? <i>Yes/No</i>	-----
Has the business undertaken to achieve a net increase in biodiversity at the end of its active operations (net positive impact)? <i>Yes/No</i>	-----
Does the business make use of the avoidance and mitigation hierarchy? <i>Yes/No</i>	-----
Has the business investigated its extraction sites with regard to their location in or near valuable ecosystems? <i>Yes → see key indicator</i> <i>No</i>	Number of extraction sites in or near valuable ecosystems as a percentage of the total number of mining sites.
Has the business developed a biodiversity management plan and action plans for its extraction sites? <i>Yes → see key indicator</i> <i>No</i>	Number of extraction sites with a biodiversity management plan as a percentage of the total number of sites.
Is implementation of the activities stipulated in the management plan and their effects being regularly audited and are the results published? <i>Yes/No</i>	-----
Has the business set up a monitoring system? <i>Yes → see key indicator</i> <i>No</i>	Number of species at the site in comparison with areas outside the site (at a distance of 500 m)
Has an advanced training programme in biodiversity been set up for employees? <i>Yes → see key indicator</i> <i>No</i>	Regular advanced training <i>Yes/No</i> Number of employees receiving advanced training <i>Total number</i> <i>Percentage in comparison with the total number of employees</i>
Is there an information programme for the local population about biodiversity at the site? <i>Yes → see key indicator</i> <i>No</i>	Type of programme (open day, guided tours) <i>Total number of participants</i>



12 Product development

12.1. Why is action needed?

Product design and development are strategic instruments (see the Chapter: Strategy) and form the point of departure for new value creation processes. From the very beginning, product development controls the complete life cycle of a product, together with its effects on biodiversity, e.g. through the materials and composition, the production techniques, the utilisation and waste disposal profiles etc.. At this stage, there are numerous opportunities to control many environmental aspects relevant to biodiversity. Product development decisions have an effect on:

- The procurement of raw materials (see the Chapter: Raw materials)
- Emissions during the product life cycle
- The creation of waste and its disposal.

It is essential to incorporate indicators of the various specific influences on biodiversity in the various stages of the product development process.

General recommendations in this regard are provided in the ISO TR 14062:11/2002 technical report on "Environmental management – integrating environmental aspects into product design and development".

The traditional instrument for the incorporation of environmental aspects into product development is the ecological balance sheet. This method provides the option of recording selected environmental effects of all the processes involved over the entire life cycle of a product and displaying them as indicators. The "acidification" and "eutrophication" indicators that are clearly of relevance to biodiversity are already widely used. Their regional relevance and those indicators that have a direct influence on biodiversity are currently the subject of specialised debate.

In general, our industrial system procures all its mineral and fossil fuels by extracting them from the earth, while biotic energy is obtained by means of forestry and water management, agriculture and, less extensively, from wind and water. Their provision goes hand in hand with land use, which often exceeds that required for the processing systems. Thus

each product development process must carefully monitor the material and geographical characteristics of its raw materials. It is equally important to estimate the trade-offs that can be achieved by increasing efficiency.

An example would be the way in which production systems with increasingly intensive land use have dramatic consequences for biodiversity, e.g. the destruction of primary ecosystems, the overuse and pollution of water bodies and soils and the import of invasive species. Moreover, they result in genetic erosion of agrobiodiversity in the agricultural sector. The intensification and specialisation of European agriculture have resulted in a restructuring of the agrarian landscape and a loss of habitat and biosphere, in comparison with the earlier, more extensive, forms of farming. Both the diversity of species and the diversity of the types and breeds within a species are steadily decreasing among both crop plants and domestic animals. Ninety percent of the calories provided by the worldwide food industry are generated from only 15 types of plants and 7 types of animals (Fairtrade Germany 2014).

12.2. Challenges

Due to the far-reaching effects of product design and development within businesses and their interaction with many other activities (e.g. procurement, transport, disposal), there is considerable need for early and internal coordination in order to resolve potential conflicts between economic and ecological goals.

Among the goals of ecological design are material efficiency (e.g. light construction), material-appropriate design (e.g. giving priority to sustainable materials), energy efficiency (reduction in consumption, giving priority to sustainable energies), low levels of pollutants, recyclability (reduction of waste and material diversity) and degradability (biologically degradable materials).

Consistently taking these goals into account in product design usually also benefits biodiversity, in accordance with the general principle of "less is more". This rule applies unreservedly to the use of power from the German grid, which is linked to open-cast mining of lignite, among other things. At the same time, however, there may be conflicting biodiversity targets, for example a stronger emphasis on the principle of "giving priority to sustainable fuels" may not take into account agricultural principles and trigger an increase in the demand for monocultures of certain energy plants, thus resulting in the corresponding consequences of soil overuse. The necessary adjustments required for the provision of raw materials in the delivery chain were discussed in the chapter 11. Smaller businesses are often not able to influence their upstream suppliers. For these businesses, most of which are in the processing sector, the major challenges are the

- Development of innovative procedures and processes to improve resource efficiency or to avoid and reduce waste
- Safe handling of hazardous materials or genetically modified organisms and the prevention of environmentally relevant incidents
- Development of processes and technologies for the substitution of critical raw and other materials.

The latter could, for example, apply to a particular biomolecule that serves as a raw material for a cleaning or cosmetics product and that has thus far not been produced from sustainably produced organic raw materials or that has been produced from a harvested plant that is now threatened with extinction. By means of the introduction of an innovative process, it could become possible to use an alternative to this biomolecule. This means that there are sometimes close links to research and development activities in this field, as well as to product design and supply chain management.

Does natural necessarily also mean sustainable?

The skin-soothing substance alpha-bisabolol is an active ingredient of many cosmetics products. It is a natural product obtained from the wood of the candeia tree (*Eremanthus erythropappus*), which is indigenous to the Brazilian Mata Atlantica rainforest (a biodiversity hotspot). The candeia tree is exposed to two threats – on the one hand it is threatened by the increasing loss of the Atlantic rain forest and on the other hand by overuse of the wood by the cosmetics industry. According to the fragrance and flavouring supplier Symrise, 20,000 cubic metres of wood are required annually to meet the worldwide demand for candeia oils.

This resulted in the company taking the following decision in September 2011: "Symrise has decided to terminate the production of natural bisabolol from the candeia tree that grows in the Brazilian rain forest. As a sustainable raw material supply with candeia oil can no longer be ensured, the company will in future focus on producing highly purified, near-natural bisabolol" (Symrise 2011).

When this is viewed from the perspective of a mining or agricultural company, to the question of ecologically compatible cultivation and extraction conditions are added the aspects of resource efficiency, with the general conditions being determined by the ecological context of the region of origin.



12.3. Feasible targets and measures

For processing companies, it is relatively easy to incorporate biodiversity-relevant factors in standard environmental management programmes.

In the case of those producing mineral raw materials, such as gravel and sand; the following rule should be followed: the more sensitive the ecological environment being used, the greater the motivation should be to strictly adhere to environmental and nature conservation specifications or even to exceed them.

Most industrialised countries have the corresponding legal, administrative and planning tools based on environmental and nature conservation legislation. It is thus possible to determine what operations are involved and how these impinge on the environment. In Europe, such tools may include EIA assessments, draft EIA assessments, Habitat and SPA assessments and – in Germany – planning permission or mining and reclamation plans. Environmental incursions that have an adverse effect on biodiversity can, for example, be offset by implementing the specified activities in the areas in question. Another option is qualitative or quantitative replacement by means of a similar offset project with a positive effect. Appropriate offset projects in Germany would, for example, be landscaping plans approved by the planning authorities or, in the case of large-scale activities, usually a mining and reclamation plan as part of a planning procedure or regional planning.

Those processing agricultural or forestry products not only need to take protection and promotion of biodiversity in the proximity of the cultivation and extraction locations in account but also the biodiversity on the actual production site.

Businesses should give preference to raw materials sourced from agricultural operations whose biodiversity performance has been certified to meet a recognised requirement: for example, the conservation of primary and semi-natural

ecosystems, a minimum size of ecological structures (biotope corridors) and a minimum quality of biodiversity-promoting activities, no use of pesticides with a negative effect on biodiversity, optimised fertiliser management, activities to maintain soil fertility, no genetically modified plants, promotion of the diversity of species, sustainable use of water sources, no propagation of alien species and long-term monitoring based on indicator species.

Currently, various standards for the food sector are improving their biodiversity criteria according to the recommendations of Lake Constance Foundation and Global Nature Fund. These recommendations are also valid for businesses with own specifications for suppliers. For download:

<http://www.business-biodiversity.eu/default.asp?Menu=229>



12.4. Sample key indicators

The following table identifies important courses of action that can be implemented in the sector discussed in this chapter. The key indicators make it possible to quantify the goals and to monitor developments.

Table 6: Example key indicators and specifications: product development and production

Relevant issues	Measures/key indicators
<p>Ecological environment/the biodiversity-related context of production (per the Global Reporting Initiative (GRI): Is a cultivation or extraction area or production site located within or in the proximity of conservation areas or non-conservation areas with a high biodiversity value?</p>	<p>See GRI EN 11</p>
<p>Ecological environment: Is a cultivation or extraction area or production site located within or in the proximity of a water conservation area or in areas where water is in short supply?</p>	<p>The business has a management system for the sustainable use of water resources or promotes the establishment of a corresponding management system by the relevant authorities.</p> <p>Fresh water consumption per product (in cubic metres)</p> <p>Fresh water consumption per sale (in cubic metres)</p> <p>The sustainable use of water sources (ground water, surface water) is being regularly audited, where possible by a neutral organisation.</p>
<p>Product development division with influence on the delivery chain</p>	<p>The business has made a general commitment or has specifications for product development (environmental policy, sustainability report) to ensure that core goals of the CBD are taken into account during product development.</p> <p>Percentage of suppliers who deliver in compliance with biodiversity-related criteria</p>
<p>Indirect effects of production or processing on biodiversity (e.g. the intermediate product wood does not come from a certified timber company or gravel comes from a quarry that has no restoration programme)</p>	<p>Framework for the investigation of the direct and indirect effects of the production process</p> <p>A knowledge of relevant certification systems</p> <p>Total number of products analysed</p> <p>Number of products analysed as a percentage of the total number of products (in %)</p>
<p>Emissions that affect biodiversity (e.g. acidification, eutrophication, water consumption, land use)</p>	<p>The use of ecological balance sheets for businesses</p> <p>Indicators of the environmental programme or environmental management system</p>
<p>The use of sensitive locations</p>	<p>The restoration and/or offsetting of land in excess of what is legally required</p> <p>The size of the restored land and/or offset areas in excess of what is legally required (in hectares)</p> <p>The size of restored and/or offset areas in excess of that is legally required as a percentage of the land area controlled by the company (in %)</p>

13 Transport and logistics

13.1. Why is action needed?

Transport processes are very energy- and resource-intensive. Negative effects such as the emission of CO₂ or other greenhouse gases and the fragmentation of habitats have been ignored for a long time. Experts agree that the current level of mobility of goods, services, information and persons is ecologically not sustainable.

Like all EU countries, Germany has also set itself the goal of reducing its level of material transport (tonnes-kilometre/GDP ratio). However, the various German governments in power since 1999 have been nowhere near achieving this goal.

This chapter covers the transport of goods by rail and road. Some of the negative effects described also apply to the shipping and air freight industries.

To ensure better comprehensibility, the effects of physical movements (transport) and supportive and strategic processes (logistics) will be separately discussed below.

Potentially negative effects of transport:

- **Pollution:** Emission of various substances (including fine dust, ozone, carbon monoxide, volatile organic compounds, nitrogen oxides, greenhouse gases, sulphur, rubber particles, road salt, waste, de-icing liquids, unburned hydrocarbons) other forms of pollution (including light, noise, heat, vibration) impair the environment for animals. They make areas infertile for vegetation (see eutrophication) or at least change competitive relationships and they significantly contribute towards climate change by releasing greenhouse gases.
- **Land use:** The construction and use of infrastructure with sealing of surface areas can result in a total loss of the natural soil properties (soil fertility, oxygen production, habitat, decomposition), as well as in a partial loss of habitats in the adjoining areas (the marginal effect or "road effect" zone).
- **Collision and mortality:** In the past, death by collision was the most common cause of the death of otters, stone martens, wild cats and other animals and was thus the main reason for their inclusion in the Red List species at

risk of extinction. Several variables such as movement speed, time of day at which activity takes place, noise sensitivity, proliferation, type of population control or activity ranges influence whether "only" individuals or an entire species is at risk of mortality due to the risk of collisions.

- **Fragmentation and separation:** The access of species, among other things to resources, (seasonal) habitats and partners is rendered more difficult by the infrastructure and its use. Mortality is the worst direct consequence. Shrinking genetic variability results in lower adaptability, with inbreeding being the worst long-term effect. This also affects plants, as spores and seeds are often disseminated by hooves or fur. In many cases, hydrological systems can also be disrupted, resulting in changes to downstream ecosystems.
- **Invasive alien species:** These are semi-intentionally introduced through lack of vigilance, but can also be unintentionally spread by transport.
- **Erosion:** Both unnaturally and naturally occurring substances may, for example, be loosened from roads by rain, vehicles or wind and moved (desertification) or subsequently deposited elsewhere (sedimentation). This can have particularly negative effects on sensitive ecosystems such as particle-absorbing water bodies.
- **Life cycle effects:** These are the effects attributable to infrastructure and vehicles and caused by the user, the consequences of which are felt elsewhere, such as resource and energy consumption, recycling and devaluation.

The potentially negative effects of complementary logistics:

- Energy consumption (technology, lighting, temperature control)
- Pollution (emissions and other forms)
- Land use
- Life cycle effects of machines, buildings and packaging materials (resources, energy, recycling)

13.2. Challenges

The negative effects on biodiversity can at first be directly influenced by individual businesses to only a very limited degree. This is partly because transport activities are frequently contracted out, but also because even environmentally compatible modes of transport will adversely affect ecosystems in an irreversible manner from a certain volume onwards. Apart from the options to reduce environmental effects, the most effective strategy – and at the same time the greatest challenge – is to reduce transport distances.

This is not a easy matter, as it results in a series of elementary structural conflicts, both for businesses and for the national economy. Regionalisation equates to local cooperation with a limited turnover and is in conflict with existing market economy goals such as the growth of business, external trade and national economic performance and the implicit hedging or expansion of capital assets.

- To avoid collisions, traffic signs and speed limits would need to be carefully observed, especially at certain times of the day.
- Upstream suppliers and downstream hauliers should be informed by the business that it considers the preservation of biodiversity to be an important priority. They should be asked about the measures they use to conserve biodiversity.
- Suppliers and hauliers with an ecolabel and/or a certified environmental management system should be given preference or their use should be specified.
- Before and after undertaking long-distance journeys, vehicles should be cleaned so as to prevent the transport and spreading of non-indigenous plants.
- Like all buildings, new warehouses should be built on brown-field rather than green-field sites and should be highly energy-efficient.
- Employees in the transport and logistics divisions should receive biodiversity training.

13.3. Feasible targets and measures

- The most difficult, but also by far the most effective strategy is to reduce transport distances, for example by adapting product ranges and journeys, optimising loads or introducing more regional sourcing and selling.
- The use of more environmentally-friendly modes of transport should generally be preferred and, as this is a time-related aspect, the production planning and purchasing divisions need to be involved.
- To reduce the consumption of pollutants and fuels, it may prove effective to replace the vehicle fleet, taking its service life balance sheet into account.
- When it comes to land use and especially to a reduction in the fragmentation and separation effect, roads that are area- and landscape-efficient, i.e. those with light and heavy traffic, are to be preferred, thus contributing to the concentration of traffic on transport routes that incorporate solutions such as green bridges.

13.4. Example key indicators

The following table identifies important courses of action that can be implemented in the sector discussed in this chapter. The key indicators make it possible to quantify the goals and to monitor developments.

Table 7: Example key indicators: transport and logistics

Relevant issues	Key indicator
Has the business analysed the ecological effects of transport processes? Yes/No	- - -
Did this analysis go beyond CO ₂ -emissions? Yes/No	- - -
Are there corporate key indicators for the comparability of product transport distances, adapted to various modes of transport? Yes/No	- - -
Has accident risk assessment been undertaken by frequency and degree/type of risk? Yes/No	- - -
Is there a management plan to reduce accidents resulting in environmental damage? Yes → see key indicator No	<i>e.g.: Accidents involving environmental damage</i> <i>- Absolute number</i> <i>- Percentage of the total number of transports</i> <i>- Irreversible/severe environmental damage as a percentage of the total amount of environmental damage</i>
Does the company aim to procure more of its products and services regionally (50 km radius)? Ja → siehe Kennzahl Nein	Percentage of regional/local suppliers <i>Absolute number</i> <i>Percentage of total number of suppliers</i>
Are transport and logistics services providers actively involved in achieving the aim of protecting biodiversity? Yes → see key indicator No	Regular information Yes/No Transport and logistics service providers who have been informed about the aim of the business to protect biodiversity <i>Absolute number</i> <i>Percentage of total number of transport and logistics service providers</i>
Does the business require suppliers, hauliers and logistic service providers to have a certified environmental management system? Yes → see key indicator No	Upstream suppliers and downstream hauliers and logistic service providers with a certified environmental management system <i>Absolute number</i> <i>Percentage of total number of suppliers, hauliers and logistic service providers</i>
Are employees in the Transport/Logistics divisions informed/trained in biodiversity-related aspects? Yes → see key indicator No	Employees in the Transport/Logistics divisions who have been trained in biodiversity-related aspects <i>Absolute number</i> <i>Percentage of total number of employees in this sector</i> Quality/results of training: <i>Results from feedback sheets/surveys</i>

14 Marketing and communication

14.1. Why is action needed?

14.1.1. The consumer target group

In the chapter "Why should businesses pay any regard to biodiversity?", reference is made to the slowly but steadily increasing interest of consumers in the subject of biodiversity. Meeting the increasing demand for information on the part of clients helps to improve a business's image – provided that the business's communications are adequate and credible.

Another important reason for communicating aspects of biodiversity is the potential effect that a wrongly used or disposed product may have on biodiversity. There are numerous examples of this, most of which are due to negligence or a lack of information on the part of the consumer, resulting in negative effects, e.g. incorrect use of pesticides or insecticides in the garden.

14.1.2. The stakeholder target group

Environmental or sustainability reports are usually compiled for the representatives of stakeholder groups. Information on aspects of biodiversity has either been excluded or mentioned only in passing in such reports to date.

In the IÖW/Future Ranking of Sustainability Reports 2011 can be found the following:

- "Small and medium-sized companies have little influence on the delivery chain, as they are frequently themselves only (a small) part of this chain. Nevertheless they procure raw materials, operating materials or services and are thus required to demonstrate their social and ecological procurement standards and employ a supplier selection and evaluation system that will further their implementation. It is this latter aspect that the reports to date show is rarely handled well."
- The following is stated with regard to major corporations: "Reporting on corporate environmental conservation has become somewhat better over the years. None of the companies have failed to describe their approach to climate protection and energy management. One field of activity that promises to be comparably comprehensively dealt with in the future is water management. Thus far,

however, only pioneering companies that differentiate on a regional basis between their own corporate concerns and risks and develop targeted programmes to counteract them have been active in this regard. At the same time, these companies usually also express the wish to make an additional contribution to meeting Millennium Development Goal 7, especially with regard to the safeguarding of a sustainable drinking water supply and waste removal. Usually there is only basic information about other environmental aspects."

- "Important aspects such as the use and efficiency of resources, logistics or biodiversity are often treated as marginal."

The detailed report may be downloaded at:

www.ranking-nachhaltigkeitsberichte.de

The Global Reporting Initiative (GRI) has specified indicators for biodiversity as a worldwide standard for reporting. Over 5000 businesses, associations and organisations from more than 70 countries are currently making use of these specifications that are designed to help standardise corporate reporting. The established standard for sustainability reporting (GRI) is continuously under development. The GRI 3 criteria valid to the end of 2015 will be replaced by those of GRI 4, which was published in May 2013.

The GRI guidelines outline the standard requirements and reporting principles as well as recommendations for the implementation of the various aspects. Business are only required to report on indicators that have been identified as relevant. The recommendations show how the various aspects may be of relevance to a business, how to undertake data collection and where the information required for reporting can be found.

Businesses that publish a sustainability report in accordance with the GRI directive can select their own degree of transparency. While self-classification for GRI 3 purposes is based on a three-tier system (beginner, advanced and experience reporters correspond to levels C, B and A), GRI 4 only differentiates between a core option and a comprehensive option, differing in terms of the number of indicators to be

taken into account. To ensure overall compliance with the regulations, reports must provide all the general standard information, as well as data on all indicators for aspects regarded as relevant. When it comes to the core option, the report must make reference to at least one indicator for each aspect and 34 of the 58 standard disclosures.

The standard disclosures are relevant to all organisations. Information on these is required in the case of both options (more details in the case of the comprehensive option). The standard disclosures are to be selected by relevance; in other words, only the most important aspects must be disclosed.

Four indicators have been developed related to biodiversity:

- Operational sites owned or leased, managed in or adjacent to protected areas and areas of high biodiversity value outside protected areas
- A description of the significant impacts of activities, products and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas
- Habitats protected or restored
- Total number of ICUN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk

Various groups and conformity assessment bodies provide sustainability audits and external reviews of the reports required by the GRI guidelines.

See: <https://www.globalreporting.org>

14.2. Challenges

Although studies such as the UEBT Biodiversity Barometer 2015 show that an increasing number of consumers are familiar with the concept of biodiversity (e.g. 64% in Germany, France, UK and USA), the risk to biodiversity are still not as well known as the challenges of climate change (UEBT 2015). Communication is required in order to anchor biodiversity in the minds of society and also businesses have the responsibility to contribute with communication on biodiversity.

Biodiversity is a complex interaction between ecosystems, species and genes and cannot be explained in one or two sentences. This argument is often used by those responsible for marketing/communications as a reason to avoid biodiversity as a topic, but there are numerous examples to demonstrate that such complex interactions are well understood by consumers. Information about biodiversity has the advantage that it is emotive, colourful, varied and attractive, i.e. that it has the characteristics one would wish for in successful communication.

However, communication on the subject of biodiversity must be credible, as is the case with all other environmental and social subjects. Where this is not the case, a business might find itself accused of 'greenwashing'.

The risk of being accused of greenwashing can be avoided by making communication transparent and factual and by getting the balance right between the core business and the activity that is being communicated. This is particularly important when it comes to the communication of projects managed by environmental organisations or other not-for-profit organisations supported by the business. There are as yet no recommendations on how to ensure that credible communications can be differentiated from greenwashing. The "Unternehmen Biologische Vielfalt 2020" group is currently working on this in Germany.

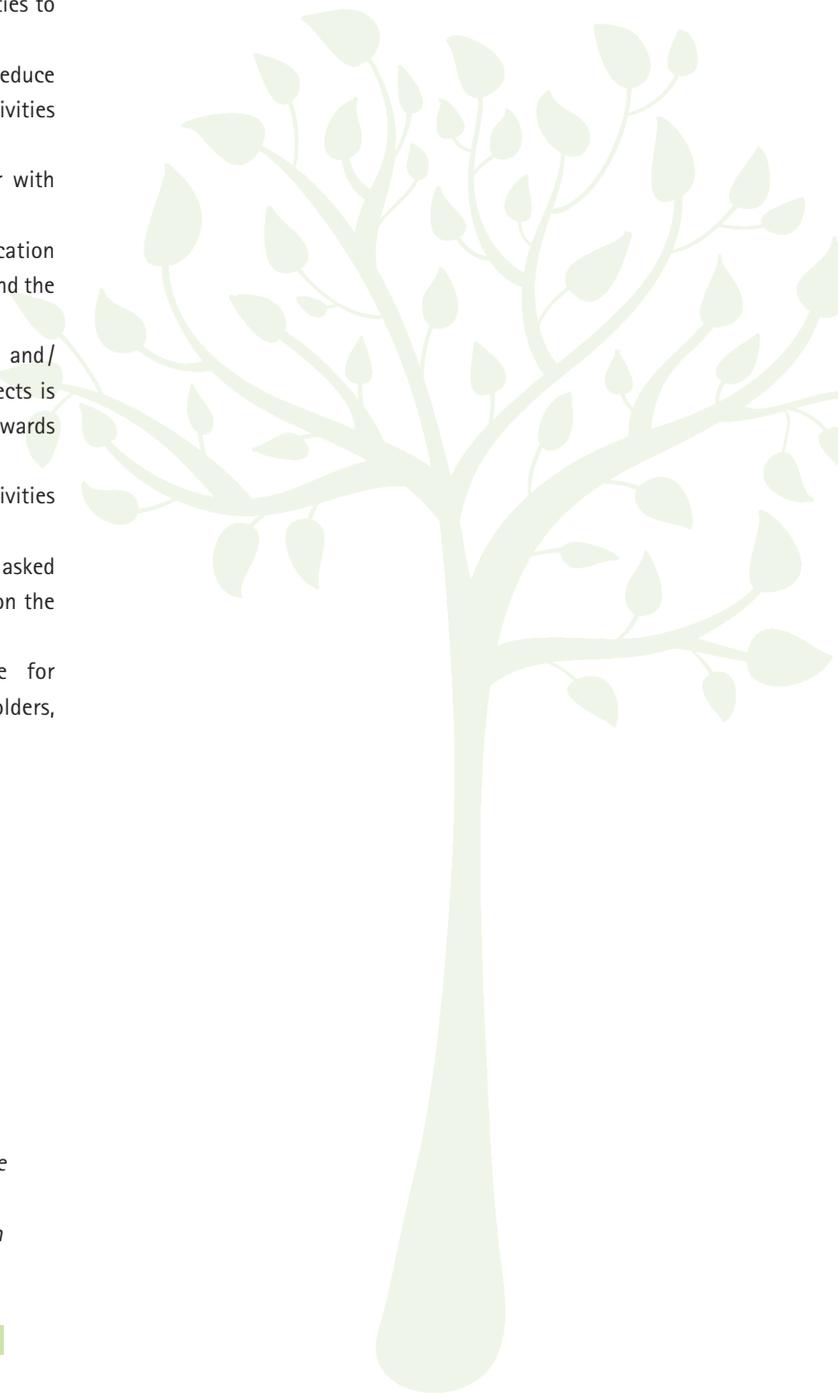
14.3. Feasible targets and measures

- Customers, stakeholders and the general public need to be given substantial information on a business's activities to promote biodiversity.
 - A business should report on measures taken to reduce negative effects (obligatory) and about its CSR activities (optional).
 - Positive news should be communicated together with mistakes and unsolved issues.
 - Businesses can make use of their communication channels to explain the relevance of biodiversity and the threats it faces.
 - Collaboration with environmental organisations and/or research institutions with skills in certain aspects is advisable as these will and can contribute towards content and appropriate communication.
 - The GRI criteria for reporting on biodiversity activities must be met.
 - Stakeholders and customers should be regularly asked how they evaluate a business's communications on the subject of biodiversity.
- Businesses can appoint a person responsible for processing the feedback received from stakeholders, customers and the public.

**Positive example**

For years, the Swiss food group Coop has been fully committed to marketing regional products, to promoting rare cultivated plants and domestic animal species and supporting organic farming. During the course of the UNO Year of Biodiversity 2010, for example, Coop made the wider public aware of the importance of the diversity of species and ecosystems. This includes the Coop wild flower campaign and Pro Natura, which has resulted in the rescue of 280,000 square metres of dry meadows rich in species. In addition, it has organised an open day for organic farms, the TV ad featuring the rapper Stress and other activities.

<http://www.coop.ch/pb/site/nachhaltigkeit/node/64228477/Lde/index.html>



14.4. Sample key indicators

The following table identifies important courses of action that can be implemented in the sector discussed in this chapter. The key indicators make it possible to quantify the goals and to monitor developments.

Table 8: Examples of key indicators: marketing and communication

Relevant issues	Key indicator
<p>The corporate sustainability report is GRI-certified</p> <p>Yes → see key indicator No</p>	<p>Number of GRI criteria relevant to biodiversity that are taken into account (GRI EN11 to EN14)</p> <p><i>Number (total)</i></p>
<p>Stakeholder mapping has been carried out. All relevant stakeholders are included in the reporting /communication on the subject of biodiversity.</p> <p>Yes → see key indicator No</p>	<p>Number of stakeholders actively involved</p> <p><i>Number (total)</i></p> <p><i>Percentage of total number from stakeholder mapping</i></p>
<p>Customers and the general public receive information about the subject of biodiversity (production, utilisation, disposal of the product)</p> <p>Yes → see key indicator No</p>	<p>Number of customers/persons being reached</p> <p><i>Number (total)</i></p> <p><i>Print run of journals that have published an article/advertisement</i></p> <p><i>Visitors to the website</i></p> <p><i>Qualitative: Results of a survey</i></p>
<p>Product information contains notes for end customers about the possible effects on biodiversity of using and disposing of the product</p> <p>Yes → see key indicator No</p>	<p>Number of products providing information.</p> <p><i>Number (total)</i></p> <p><i>Total percentage of products</i></p>
<p>Stakeholders, customers and the public are regularly asked about the content and quality of information.</p> <p>Yes → see key indicator No</p>	<p>Number of stakeholders, customers, persons positively evaluating the information</p> <p><i>Number as a percentage of total persons surveyed</i></p>

15 Multi-sectoral: the involvement of stakeholders in decision-making

15.1. Why is action needed?

Biodiversity is a complex field and the concept of ecosystem services does not simplify the challenge for businesses, which is to analyse and deal with the initial situation and the various influences. A business may obtain technical support from research institutions, nature conservation authorities or environmental and nature conservation groups when it comes to determining the relevance of biodiversity, defining targets and activities and monitoring the business's development in this field.

The Handbook of the World Business Council for Sustainable Development (WBCSD) lists external stakeholders, including NGOs, among the important target groups for the process of ecosystem assessments (WBCSD 2011). The WBCSD explicitly invites business to enter into creative partnerships, for example with governments, NGOs and research institutions, for this purpose.

Continuous improvement of environmental performance in the field of biodiversity protection is a corporate responsibility of businesses. Businesses can also undertake to conserve biodiversity by supporting corresponding projects and other activities. However, such commitments will always only supplement its statutory obligations.

Strategic partnerships with NGOs

The relationship between NGOs and businesses has changed in recent years. While intermittent cooperation and simple sponsoring were once the rule, both parties are now much more prepared to engage in dialogue and increasingly make use of cooperative strategies to avoid a confrontational approach (Rieth/Göbel 2005: 258). Businesses – and especially those active on a global scale – increasingly choose topics, projects and project partners that have a link to their own activities. Conversely NGOs actively approach businesses interested in solving certain problems, either because they have a related commercial interest or because of public pressure.

Examples of strategic partnerships:

- The Marine Stewardship Council (MSC) Initiative, an organisation established by the Unilever Group and the World Wildlife Fund (WWF) in 1997. The organisation awards a quality seal for sustainable fishing and has thus far certified compliance with the MSC standard in the case of some 100 fishing businesses. The aim of long-term cooperation is to protect the fish stock against overfishing and thus to protect the oceans and species (www.msc.org).
- The NABU State Association in Baden-Württemberg, the Industrial Association for Stone and Soil in Baden-Württemberg (ISTE) and the Industrial Trade Union for Construction, Farming and the Environment have issued a joint statement on "Sustainable use of raw materials in Baden-Württemberg" (NABU / ISTE / IG BAU 2012).
- In the Lake Constance region, Pro Planet-Äpfel vom Bodensee, a joint venture between the producer association Obst vom Bodensee, the REWE Group and the Bodensee Foundation, has made significant improvements to the conservation of species diversity in the intensive fruit-growing industry. Birdlife Germany/NABU is the joint venture partner for an extension of the project into other fruit-growing regions (www.proplanet-label.com).

In view of the dramatic loss of biodiversity and the ever scarcer financial resources for nature and biodiversity conservation, straightforward sponsoring projects also make a valuable contribution. In addition to NGOs, municipalities are now also looking for sponsors to maintain conservation areas or to support projects for species conservation (e.g. the "111-Artenkorb" project of the State of Baden-Württemberg, <http://www.naturschutz.landbw.de/servlet/is/67646/>).

15.2. Challenges

The conservation of biodiversity must be anchored both at meta-level and locally, i.e. businesses must identify and involve relevant stakeholders at both levels.

Not all challenges can be solved in a management cycle that lasts an average of three years. Biodiversity management is a long-term task. Businesses should thus also plan and implement the involvement of or cooperation with stakeholders.

If the involvement of stakeholders is to be constructive for both parties, transparency and clear rules are required – both generally and with respect to biodiversity: there should be a clear allocation of responsibilities within the business, an adequate process to make critical/constructive involvement possible and feedback from the business on what is being done with such input or criticism.

The restoration of habitats or the protection of species usually requires long-term activities, i.e. corporate sponsorships should have a long-term focus.

Appropriate communication will avoid the accusation of "greenwashing" (see Chapter 14 "Marketing and Communication" of this guideline in this regard).

15.3. Feasible targets and measures

- Stakeholder mapping: Analysis of the relevant stakeholders and their potential contribution to furthering the business's preservation of biodiversity
- Establishment of transparent structures for stakeholder dialogue or the involvement of stakeholder groups
- Strategic cooperation with international, national and local organisations in the field of biodiversity
- Involvement of stakeholders in environmental or sustainability reporting activities
- Involvement of stakeholders in the training of employees and suppliers
- Realisation of corporate volunteering projects in cooperation with NGOs or nature conservation authorities
- Promotion of projects in the field of nature conservation/ biodiversity protection
- Realisation of a voluntary pay-back system, i.e. voluntary payments for ecosystem services used

15.4. Sample key indicators

The following table identifies important courses of action that can be implemented in the sector discussed in this chapter. The key indicators make it possible to quantify the goals and to monitor developments.

Table 9: Example key indicators: the involvement of stakeholders

Relevant issues	Key indicator
Has the business identified relevant stakeholders at local, national and international levels (stakeholder mapping)? Yes → see key indicator No	Number of stakeholders <i>Absolute number</i>
Has the business set up a structure for participation and created transparent rules? Yes → see key indicator No	Qualitative: Results of surveys of the evaluation of the participation structure and process by the stakeholders
Does the business sponsor projects to protect biodiversity? Yes → see key indicator No	Number of projects and percentage of goals achieved <i>Size of restored ecosystems (hectares)</i>

The number of organisations or projects says nothing about the quality of participation, dialogues or projects. To assess the quality, qualitative indicators such as the degree of target achievement in projects or the degree of implementation of stakeholder recommendations should be used.



Positive Example

REWE Stakeholder Dialogue Forum: Out of the niche – fauna and flora

In August 2013, the REWE Group organised a dialogue forum under the title of "Raus aus der Nische" (Out of the niche) on the subject of animal and plant conservation; more than 200 parties in industry, the public sector and NGOs participated. Biodiversity was one of the four workshop topics. The aspects of the communication of biodiversity to stakeholders and customers were discussed, as was biodiversity as a criterion for labels and standards in the food industry. The Lake Constance Foundation and GNF profiled their projects for improved integration of biodiversity aspects in labels and standards as an important regulatory mechanism for the industry. As part of the project sponsored by the Federal Agency for Nature Conservation and the REWE Group, 20 standards were analysed to determine their relevance to biodiversity. The results and conclusions have been published in a baseline report – see <http://lebensmittelstandards.business-biodiversity.eu/>



16 Legal compliance and voluntary obligations – legislation and ordinances

16.1. European and German biodiversity legislation

The most important laws regarding biodiversity in the European Union and in Germany are the following:

The Habitats Directive and Birds Directive:

in 1992, the European Union decided to protect the habitats and species of European significance and to ensure the long-term survival of their populations. Among other things, it was decided to establish a conservation area network (Natura 2000) to conserve wildlife and wild plants and to support their natural habitats. The Natura 2000 network consists of the areas specified in the Habitats Directive (dated 21 May 1992, 92/43/EEC) and the Birds Directive (dated 2 April 1979, 79/409/EEC).

The Habitats Directive also requires the designation of Special Areas of Conservation (SAC). Bird reserves are known as Special Protection Areas (SPA). They are selected according to uniform EU standards and afforded protection. Various appendices to these directives list species and habitat types that are particularly worthy of protection and the preservation of which is to be ensured by this conservation area system. Both the Habitats and Bird Directive place a significantly greater focus on species conservation than the conservation area network.

www.fauna-flora-habitatrichtlinie.de

German Federal Nature Conservation Act (BNatSchG)

The Federal Nature Conservation Act constitutes the legal basis for the protection of the natural environment and landscapes to ensure that biodiversity, the performance and functionality of ecosystems and the diversity, uniqueness, beauty and recreational value of the natural environment and landscapes are secured over the long term. For this purpose, the Act specifies the aims of nature conservation and landscape maintenance, describes possible ways of achieving these aims and allocates the various responsibilities, tasks and responsibilities.

The German Environmental Damage Act (USchadG)

The Environmental Damage Act regulates the protection and restoration of soils, standing water, protected species and their habitats. All species and habitats listed in Annexes I, II and IV of the Habitats Directive or in Appendix I of the Birds Directive are deemed to be protected, as are all species of migratory birds. Where there is a potential threat or actual environmental damage as a result of commercial activities, the party responsible bears the cost of any measures required to contain the damage and to restore original status. Apart from setting out liability, the Act is also aimed at prevention, as it obliges the responsible parties to take measures to avoid imminent environmental damage.

The German Genetic Engineering Act (GenTG)

The Genetic Engineering Act is aimed at protecting humans, animals and the environment against the harmful effects of genetic engineering procedures and products and to prevent the occurrence of such risks. It also forms the legal framework for research, development and promotion of genetic engineering and ensures that conventional, ecological and genetically engineered agriculture can co-exist.

The German Environmental Impact Assessment Act (UVPG)

The UVPG ensures that the effects of certain public and private projects, plans and programmes on the environment are defined, described and comprehensively evaluated at an early stage by carrying out environmental audits. The results of such environmental audits need to be taken into account in all public sector decision-making about the reliability of projects and when compiling or amending plans and programmes.

Legislative texts and an overview of the most important statutory regulations in Germany with a direct or indirect link to biodiversity: www.business-biodiversity.eu/default.asp?Lang=DEU&Menue=212

More detailed information about nature conservation and environmental laws that are relevant to nature conservation:

www.bfn.de/0320_recht.html

Legislative texts and an overview of the most important laws in Europe with a direct or indirect link to biodiversity:

www.business-biodiversity.eu/default.asp?Menu=187

16.2. International conventions

The **Convention on Biodiversity (CBD)** was signed at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. The CBD is an international legal agreement between sovereign states. This agreement has to date been signed by 168 members (status: September 2014). The member states have set themselves the goal of protecting and maintaining the diversity of life on earth and of organising its sustainable use in such a way that as many people as possible will be able to live from it, both today and in future. The three main goals of the CBD are as follows:

- The maintenance of biodiversity
- The sustainable use of its components
- Fair sharing of the benefits arising from the use of genetic resources (access and benefit sharing – ABS)

The CBD has resulted in the issue of two protocols: the Nagoya Protocol on Access and Benefit Sharing and the Cartagena Protocol to ensure an appropriate level of protection for the safe transfer, handling and use of genetically engineered, living organisms that might have adverse effects on the conservation and long-term use of biodiversity (www.cbd.int).

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) is both an agreement and an international organisation that has the aim of controlling the international trade in wild animals and plants to such an extent that the survival of wildlife and wild plant species is not threatened (www.cites.org).

The **Ramsar Convention** (an agreement on the protection of wetlands, especially as a habitat for water and wading birds of international significance) that originally focussed on water and wading birds has recently been extended to provide the overall protection of the habitats and the related species. A total of 160 states have signed the convention (status: November 2010), who have listed a total of 1904 wetland areas of international significance, with a total surface area of approximately 186.5 million hectares (www.ramsar.org).

The **Bonn CMS** (Convention on the Conservation of Migratory Species of Wild Animals) is designed for the worldwide protection and conservation of migratory animal species, including their sustainable utilisation (www.cms.int).



17 Practical instruments

At the latest since the publication of the TEEB study (The Economics of Ecosystems and Biodiversity), numerous organisations have been working on the development of tools aimed at helping business to avoid or reduce negative effects on biodiversity. Some of these tools have been practically applied and refined in recent years, while others have been added.

17.1. Methods and instruments with which the impact and dependency on biodiversity and ecosystems can be evaluated

As yet, there are no instruments that provide uniform, cross-sectoral, quantifiable and comparable results about the effects that businesses have on biodiversity. Most of these tools provide businesses with assistance in documenting effects and identifying potential risks and opportunities related to the use of natural resources and ecosystems.

In its publication "Eco4Biz" (WBCSD 2013), the World Business Council for Sustainable Development (WBCSD) has compiled a comprehensive document listing tools that will help businesses document and evaluate ecosystem services. This is an overview of freely accessible tools. The overview is structured according to target groups and provides answers to the following questions:

- Which instruments will help my business to document our effects on biodiversity and our dependency on biodiversity?
- Which tools can be used to assess or quantify effects and dependency?
- Which tools provide regional and area maps?
- Which businesses have already made use of the instruments?
- Who developed the instruments?

The most widely used of these instruments in German-speaking countries is the **Biodiversity Check** of the European Business and Biodiversity Campaign. It was developed as a tool that helps businesses evaluate the effects that their various functional divisions have on biodiversity. It takes the form of an environmental audit and makes recommendations for goals and activities, as well as key indicators with which these can be quantified. It thus provides a good starting point for businesses intending to integrate biodiversity-related activities into their corporate (environmental) management system.

More than 30 businesses have already carried out this 'check'. This includes companies from a variety of industries and of various sizes, such as the Daimler car manufacturer, the TUI travel company, the FRAPORT airport operating company, the chemical group Evonik, the pasta manufacturer Albgold and the producer of outdoor equipment VAUDE. For more information, go to: www.business-biodiversity.eu.

The **Manual for Biodiversity Management** published by the Biodiversity in Good Company Initiative (BMU 2010) and the **Manual for the Corporate Ecosystem Valuation** (econsense 2012) provide further practical advice to businesses.

On a worldwide basis, numerous online platforms provide information about existing methods and tools. The most important from the point of view of German-speaking countries are:

The European Business and Biodiversity Campaign (EBBC): established by a consortium of European companies and non-governmental organisations (NGOs) under the auspices of the environmental foundation Global Nature Fund (GNF). This campaign supports businesses by providing practical tools such as the Biodiversity Check and information about current developments in the field of business and biodiversity on its website www.business-biodiversity.eu

Biodiversity in Good Company: an alliance of companies promoting the conservation of biodiversity. This cross-sectoral group includes small, medium-sized and large companies, both in Germany and beyond its borders. They have prepared a mission statement and a leadership declaration and have thus committed themselves to integrating the conservation of biodiversity into their sustainability strategy and operating management. For more detailed information, go to www.business-and-biodiversity.de/

"Unternehmen Biologische Vielfalt 2020" (Enterprise Biological Diversity 2020) is a dialogue and action platform established by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) together with other ministries, authorities, business associations and nature conservation organisations as a long-term project designed to counteract the trend towards the loss of biodiversity. They offer stakeholders a joint forum to introduce and exchange their views and to initiate and raise awareness of relevant activities.

www.biologischevielfalt.de/ubi_plattform.html

18 Terminology

● Access and benefit sharing

An objective defined within the UN Convention on Biological Diversity designed to bring about the fair distribution of the benefits resulting from the use of genetic resources.

● Biodiversity hotspot

Areas of high biodiversity and a high percentage of endemic (only occurring in these regions) animal and plant species that are particularly endangered and the protection of which is thus a priority. To be regarded as a biodiversity hotspot, a region must be home to at least 1500 endemic plant species (= 0.5% of all plant species on earth) and have lost more than 70% of its original surface area (definitions per Conservation International).

● Biodiversity

The diversity of life, diversity within and between species, genetic diversity and the diversity of ecosystems (definition per CBD).

● Conservation area

A geographically defined area that is demarcated, regulated or managed with a view to realising certain conservation targets (definition per CBD)

● Ecosystem

A dynamic complex of communities made up of plants, animals and micro-organisms and their non-living environment, which interacts with them as a functional unit (definition per CBD)

● Environmental performance

The measurable result of managing environmental aspects within an organisation (EN ISO 14031:2012-01, Term 3.9)

● Genetic resources

Genetic material of actual or potential value

● High conservation value area

A natural region with a high landscape, diversity or ecological value

● Indicator

A quantitative or qualitative parameter for evaluating a criterion (EN 162141:201211, Term 2.45)

● Invasive species

An alien species that has undesirable effects on other species, symbiotic communities or biotopes (German Federal Agency for Nature Conservation: www.bfn.de/0302_neobiota.html)

● Key indicator

A quantifiable parameter representing the status of services, management or conditions (EN ISO 14031: 2012-01, Term 3.15).

● Key performance indicator

A critical performance factor represented by key indicators, on the basis of which progress with regard to major objectives or critical performance factors within an organisation can be assessed.

● Logistics

Logistics is the term applied to the organisation, control and optimisation of goods and information flows within and between businesses. The three main logistical services in goods management are transport, storage and handling, together with associated activities such as packaging and commissioning.



- **Resilience**

The ability of a system to recover from changes resulting from exogenous intervention and to return to its original state.

- **Sustainable use**

The use of aspects of biodiversity in a manner and to an extent that will not result in a long-term reduction in biodiversity, hence preserving its potential and meeting the needs and wishes of current and future generations (definition per CBD)

- **Transport**

Transport is the intentional or unintentional spatial movement of items, during which the items are usually only expected to undergo insignificant changes in their characteristics. Generally speaking, these items may take the form of goods, information, animals or people. These are moved by carriers or transmitters such as people, animals or vehicles (means or modes of transport) once the structural or technological conditions (infrastructure) are in place: transport can occur by air, through space, through pipelines, via cables, rails, roads or water, as well as along paths, overland or along other routes.

- **UN Convention on Biological Diversity**

This UN Convention (CBD) has been signed by more than 165 states and constitutes the main international legal framework on biodiversity. The convention primarily focuses on three aspects to which it affords equal importance: 1. Protection of biodiversity, 2. Sustainable use of its components 3. Fair sharing of benefits resulting from the use of genetic resources, combined with access regulations (access and benefit sharing).

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20 Links

• Conservation zones – regions with high biodiversity

Map material showing conservation zones throughout the world: www.protectedplanet.net

Map material showing conservation zones, key biodiversity areas and others on the IBAT website (charge for access): www.ibatforbusiness.org

Overview of the concept of high conservation value areas: <http://www.hcvnetwork.org/resources>

Overview of the concept of key biodiversity areas: <http://www.biodiversitya-z.org/areas/22>

• Endangered species

Red List of endangered animal and plant species according to the International Union for Conservation of Nature (IUCN); Red List: www.iucnredlist.org

German national Red List:
http://www.bfn.de/0322_rote_liste.html

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
http://www.bfn.de/0305_cites.html

• Business and biodiversity groups

European business and biodiversity campaign (EBBC):
<http://www.business-biodiversity.eu/>

Biodiversity in Good Company: www.business-and-biodiversity.de

EU Business @ Biodiversity Platform:
http://ec.europa.eu/environment/biodiversity/business/index_en.htm

