INFORMATION MODULE 3

Biodiversity in the value and supply chains

Overview of the challenges

The area of activity — What this is all about

Commercial activity and the other side of the coin, human consumption, always have an impact on ecosystems and biodiversity. This can happen either directly or indirectly and with different levels of impact. The preservation and sustainable use of biodiversity starts on your own doorstep (see Module 2 on Greening company premises), but does not stop there. For many industries and products the real challenges lie outside the factory gates, namely with the origins of the raw materials and primary products. We are talking about the supply chain.

This Information module is based on Module 1 (General introduction).

What are the impacts of production and products on biodiversity? At a local level how do they affect individual species, the soil and other components of the ecosystem? Where and how can environmental degradation threaten the sustainable availability of raw materials? The biodiversity risk imported through the supply chain is in many cases an unknown quantity. When companies manage their environmental footprint, i.e. harmful environmental impacts, this should be integrated with the protection of biodiversity.

Sustainable supply chain design, be it ecological or social, belongs to the toughest nuts of sustainability management: A commodity is often extracted in one country and then traded in numerous stages and further processed. Traceability is often difficult. Not infrequently, a procuring company only has contact with his direct suppliers. For many good reasons responsible companies take the initiative today to screen their value chains more thoroughly and actively. It is important to raise the awareness of crucial employees – from environmental management to purchasing to top company management – to closely examine the supply chain from a biodiversity perspective and to identify where action is needed.

Why act? Utilise opportunities, reduce risks

Studies have shown that those countries where raw materials and goods are extracted and produced for international trade but where they are not consumed are associated with particularly strong loss of biodiversity. Many "biodiversity hotspots"

International trade drives biodiversity threats in developing nations: Among the net importers a total of 44 percent of their biodiversity footprint is linked to imports produced outside their boundaries – developing countries find themselves degrading habitats and threatening biodiversity for the sake of producing exports (M. Lenzen et. al., Nature issue no. 486, 2012)

are found in developing and emerging countries. These are regions characterised by outstanding biodiversity which at the same time is under threat. On the other hand in Germany and Europe we also suffer from the serious consequences of interventions in nature and the landscape, be it through farming or infrastructure projects of all kinds.

To minimise risks and protect biodiversity means having sustainable supply chain management in place. This involves safeguarding the long-term access to raw materials and resources as well as the prevention of image and reputation risks that can arise, for instance, if regulations are breached. Important motives for companies to take action are:

» **Company dependencies on intact ecosystems:** Companies do not want to be victims of the destruction of nature. Often, loss of biodiversity undermines the provision of ecosystem services on which businesses depend – e. g. fertile soil or the supply of basic resources such as water.
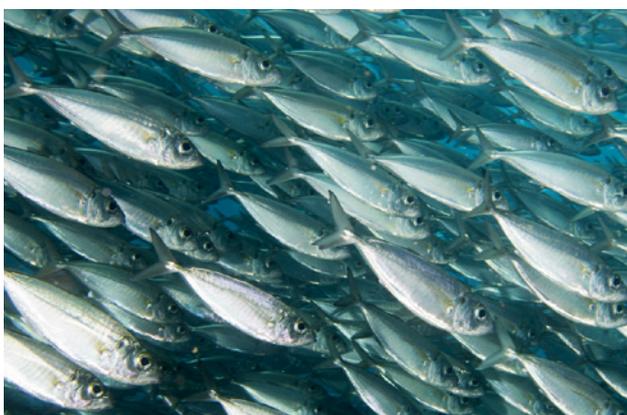
» **The link between biodiversity and other sustainability issues:** Biodiversity is closely linked with the issue of land use. The competition for land for different types of use is increasing worldwide. Biodiversity is tied to locality, which in turn means safeguarding the locality in the long term. That's why the way land is used is important, as is identifying the potential for regeneration. If companies want to seize opportunities then they need to know their risks – both the extent of their direct and indirect land use (ecological footprint) as well as the results of the use (threat of pollution, overexploitation, climate change, erosion, etc.).

» **Taking responsibility for damage to biodiversity:** Companies do not want to be associated with the destruction of nature, but rather have an interest in nature-friendly sourcing. If they are not familiar with the countries and regions where they do their procurement, this represents a risk to the reputation of the company.

Innovative companies see the global requirements for the protection of biodiversity and ecosystems in terms of opportunities and the chance for enhancing their good long-term market position. A farsighted sourcing policy for raw materials, products and production methods can significantly contribute to this end.

Areas of activity and measures Get active in the supply chain

TAKE UP THE CHALLENGE OF MEASURING AND CONTROLLING

Companies have to tackle the decisions as to what exactly they want to control, which metrics and indicators to employ and what methods to implement. Biodiversity includes species diversity, habitat diversity and genetic diversity – as part of the dynamics and complexity of nature. Biodiversity cannot be "managed" through simple input-output indicators.

Only in a few cases and industries (e. g. extraction of raw materials) can companies directly measure biodiversity, and often those measurements are a necessary component in permitting procedures and mandated by law for certain interventions. As a rule companies go about measuring biodiversity indirectly, employing proxy indicators and looking at factors known to affect biodiversity.

In a nutshell the focus is on adverse impacts in three areas:

» **Scope and type of land use**

» **Environmental impacts/pollutants**

» **Direct overexploitation of natural resources.**

In some sectors the problem of invasive species represents an area of action. This aspect is not covered in this module.

> **The Otto Group** systematically measures its environmental impacts and quantifies them in the form of costs. This big retailing company has discovered: The biggest impacts on the environment in the value chain are found at the raw materials extraction stage. This is where 56 percent of the impacts occur. The biggest challenges for biodiversity are found in the production of raw materials, for instance cotton fields.

Currently many methodologies are being developed – from impact assessment, through the integration of biodiversity in LCAs to Natural Capital Accounting in the company.

Recording economic data on natural capital along the value chain: Natural Capital Accounting

Under the heading Natural Capital Accounting for several years systematic work has been done on how companies can better integrate the value of nature and the environment in operational decision-making processes. The approaches are often still in their infancy, ranging from qualitative assessments to attempts to fully quantify environmental impacts and costs. The focus of interest is primarily on ecosystem capital: Ecosystems with their biodiversity and their services are indeed renewable, but their resilience is not unlimited.

NATURAL CAPITAL			
Sub-soil assets (geological resources)	**Abiotic flows** (linked to geophysical cycles)	**Ecosystem capital** (linked to ecological systems and processes)	
		⌄	⌄
Minerals, earth elements, fossil fuels, gravel, salts etc.	Solar, wind, hydro, geo-thermal etc.	**Ecosystems as asset** Structure and condition	**Ecosystem service flows** Provisioning · Cultural services Regulation & maintenance
Non-renewable & depletable	Renewable & non-depletable	Renewable & depletable	

Based on MAES Analytical Framework, European Commission 2013. For more information on ecosystem services see: > Information module 1 in the Basic knowledge series
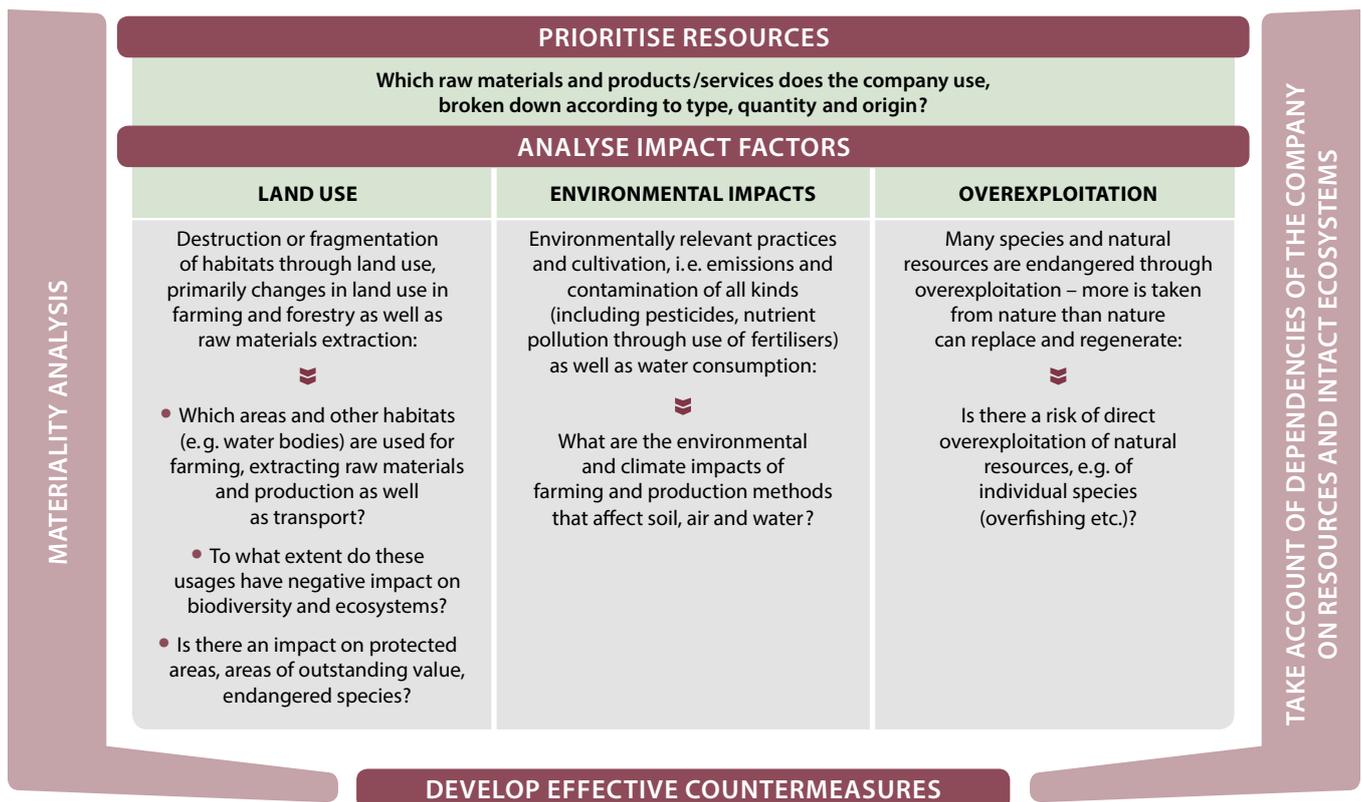
SETTING THE AGENDA

Where is the greatest need? Initially the main question concerns the decisive and significant impacts of a company's activities. Materiality analysis determines the biodiversity aspects that really matter. Ideally a management system is employed for a comprehensive analysis of the entire value chain. This can be time-consuming and not every company can and will do this. Sometimes it is possible to determine qualitatively and quantitatively relevant or critical resources and other aspects by means of a simple analysis of purchasing data. One can then focus on these findings in the first step. This is how smaller companies can get started.

The entire value chain comprises more than the company's own supply chain, for instance, the customer utilisation phase is also a component. Nevertheless in terms of biodiversity the focus on where raw materials come from is particularly relevant.

There are many classifications, analytical tools and advisory services available to enable companies to proceed. As a rule the following steps and aspects are particularly relevant:

PRIORITISE RESOURCES
Which raw materials and products/services does the company use, broken down according to type, quantity and origin?

ANALYSE IMPACT FACTORS

MATERIALITY ANALYSIS

TAKE ACCOUNT OF DEPENDENCIES OF THE COMPANY ON RESOURCES AND INTACT ECOSYSTEMS

LAND USE	ENVIRONMENTAL IMPACTS	OVEREXPLOITATION
Destruction or fragmentation of habitats through land use, primarily changes in land use in farming and forestry as well as raw materials extraction:	Environmentally relevant practices and cultivation, i.e. emissions and contamination of all kinds (including pesticides, nutrient pollution through use of fertilisers) as well as water consumption:	Many species and natural resources are endangered through overexploitation – more is taken from nature than nature can replace and regenerate:
⌄	⌄	⌄
• Which areas and other habitats (e.g. water bodies) are used for farming, extracting raw materials and production as well as transport?	What are the environmental and climate impacts of farming and production methods that affect soil, air and water?	Is there a risk of direct overexploitation of natural resources, e.g. of individual species (overfishing etc.)?
• To what extent do these usages have negative impact on biodiversity and ecosystems?		
• Is there an impact on protected areas, areas of outstanding value, endangered species?		

DEVELOP EFFECTIVE COUNTERMEASURES

GATHER NECESSARY INFORMATION

As a basis for making decisions information is key. Biodiversity is localised and is characterised by the flora and fauna of certain habitats. When gathering information along the supply chain, it is import to understand that the entities delivering the business services in the primary sector are those at the start of the supply chain and are active locally: agriculture and forestry, fishing and extractive industries etc.

The purchasers of raw materials and goods at the end of the chain are separated from the origins of the raw materials by multiple processing and trading stages. Only rarely do they command or have the opportunity for becoming experts in biodiversity. Rather, they rely on information, data and recommendations others provide. We are talking about:

» Nature conservation information on biodiversity, in other words on status, threats and trends of species populations, ecosystems, genetic diversity

» General knowledge of basic factors affecting the loss of biodiversity.

Note: Information is not always needed at the same depth, because every resource and every commodity is different. The impacts of their use on biodiversity are as individual as the procurement channels.

Advice on the acquisition of information

» **When detailed knowledge is needed:** If individual resources are the cornerstones of the whole business model or sensitive in other ways, then having a good overview of the situation is essential. This is especially true for influential multinational companies, who can assume a responsible role in tracking information sources to the first link in the supply chain, engage with biodiversity issues in the countries of origin of the resources and perform audits of the suppliers of the raw materials.

» **When a little information goes a long way:** Sometime just a little information is sufficient for putting a few simple measures in place, such as when there are feasible alternative procurement options (e.g. certified domestic wood is better than timber of questionable origin). As another example, when sourcing paper, companies can switch to recycled paper or certified fresh fibre paper or when purchasing fish for large canteens, it is possible to take the sustainability of the fishing practices or fish production into proper account.

» **Labels, standards and certificates as tools:** Companies can use intermediaries, namely organisations and initiatives that focus on the origin and supply chains of essential resources, and develop criteria for labels, standards and certificates. This saves transaction costs. However, corporate commitment is required to develop and promote these tools.

» **Access to knowledge and expertise:** Conservation organisations and a broad range of advisory services, including the relevant business associations are good sources of information. With a little research it is possible to find good contact points.

» **Asking suppliers and service providers directly:** Let your suppliers know that you regard biodiversity as an important criterion for your sourcing decisions, and ask them for information.

IMPLEMENTING EFFECTIVE MEASURES

Once the most important aspects and priorities have been decided, in the second step the company should consider where it can best leverage its size and structure. What are the effective measures that work in the field under the pressure of competition? Where are the biggest levers? An analysis of the company's opportunities includes seeking information on alternative sourcing channels/raw materials, on the dependence on suppliers and alternatives if raw materials become scarce.

The impact of the decisions made by the company on the market and conservation outcomes is subject to strong variation. But there is a bundle of possible measures at different levels available to companies, even small firms with little influence on the market, so they can maximise the opportunities available to them:

STRATEGIES FOR EFFECTIVE MEASURES:

Resource efficiency and effectiveness: Maximise the inherent potential in resource efficiencies and reducing material input; promote recycling and closed loop systems.

Substitution: Where feasible and possible, replace critical raw materials and primary products as well as other services (e.g. transport/logistics) with those that are more sustainable.

Intervening in the supply chain: Integrate relevant sustainability criteria for protecting biodiversity in procurement policy and supplier requirements. Collaborate with suppliers to improve processes.

Certifying through labels and standards: Use the offers open on the market that have already integrated sustainability criteria for conserving biodiversity.

Cooperation and communication: Often the leverage of a single company is minimal, and effective traction is only possible if many stakeholders along the value chain are involved and work together. Companies of all sizes can participate in trade alliances, through their associations, by making compliance with standards more thorough and by pursuing effective corporate communications.

Examples of actions
From simple to ambitious

There are countless examples of action that can be taken along the supply chain, particularly in the field of low threshold measures. And let's not forget: Entire industries, such as producing and trading organic foods, are associated with the idea of doing business in harmony with nature and biodiversity. Examples from the portfolio of the 'Biodiversity in Good Company' Initiative only render a small idea of the range of the different possible actions.

GIZ: responsible purchasing for corporate operations

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) as an internationally active federal enterprise plays an exemplary role. When purchasing for its own consumption GIZ uses labels and standards as a basis for what to buy: Thus GIZ not only buys fairtrade and certified organic coffee for its conference service and coffee machines, but also sources sustainable office supplies not to mention FSC certified office furniture, building materials and paper as well as recycled paper – measures that can be implemented relatively easily in any business, though they are not always cost-neutral.

Bionade: on the ginger trail

Bionade applied TABS (Tool for Assessing Biodiversity in the Supply Chain) to assess the supply chain for its BIONADE Ginger and Orange drink. Nowhere along the ginger chain, which starts in Mexico, were risks to Bionade or biodiversity found. Risks considered are those risks that can be influenced, while risks that are outside the influence of the company are not considered, such as the risk of climate change affecting rainfall. However, opportunities for taking positive action to improve biodiversity were identified, such as reforestation and collaborating with environmental organisations.

Weleda: sustainable collection of Arnica from the wild

Arnica is an important medicinal plant. Strong human intervention can easily disturb it. For instance, arnica is sensitive to excessive harvesting. The consequence: arnica stocks disappear. The natural cosmetics company Weleda sources dried Arnica flowers from certified wild collection in Romania. In collaboration with the WWF and landscape ecologists the firm developed reliable collection and conservation methods that safeguard arnica in the wild in the long term.

Mars: strategy against deforestation

Mars is committed to tackling the serious threats to forests posed in its supply chains for beef, palm oil, paper, pulp and soy. At the start of 2011 the foodstuffs manufacturer pledged to meet concrete sustainability targets for certain raw materials. For instance, at the latest by 2017 Mars intends to buy Brazilian beef and soy only from suppliers who comply with the Brazil Forest Code. Logging primary Amazon forest must be ruled out. By 2020 paper and pulp must come completely from certified, audited or recycled sources. From 2018 Brazilian soy must be certified by a credible third party.

REWE Group: driving standards forward for its broad product range

In dialogue with non-governmental organisations (NGOs) the REWE Group identifies risky raw materials and develops guidelines to establish ecological and social standards with a positive impact on the entire product range. Through PRO PLANET, REWE's in-house sustainability label for its own brand products, the Group offers consumers additional guidance to promote the consumption of more sustainable products – biodiversity is one criterion.

Getting in deeper: INFOPOOL
Sources, tools, cooperation partners
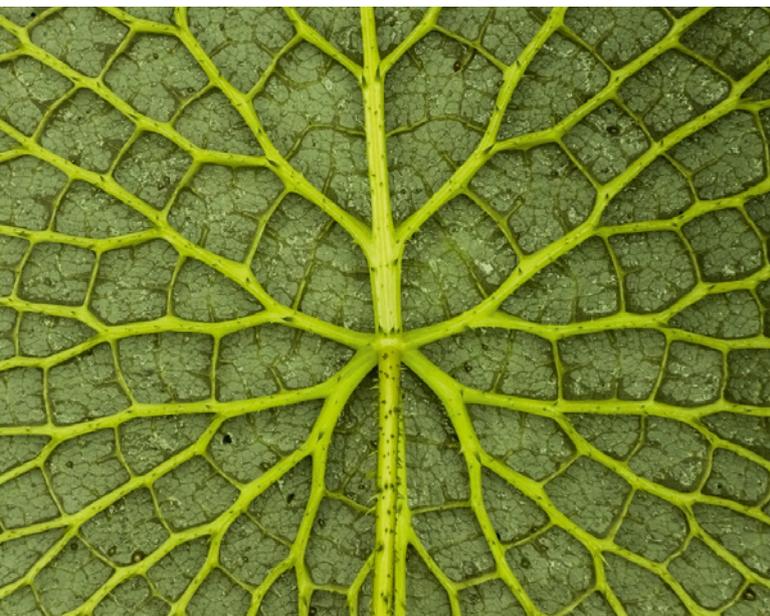
For many commodities (agricultural commodities of all kinds, wood, fish, mineral raw materials) a lot of detailed knowledge, projects and literature on environmental impacts and approaches for sustainable procurement is available even if biodiversity is not always the explicit focus. The pooled information in this Infopool is limited to a small selection of higher-level sources on the management of biodiversity in the supply chain.

GENERAL POINTS OF CONTACT AND NETWORKS

See the list of important networks in Module 1 (General introduction) as well as the respective comprehensive information portals

SCIENTIFIC DATA, MAPS

IUCN Red List
(International Union for Conservation of Nature) IUCN publishes the global **IUCN Red List of Threatened Species**. http://www.iucnredlist.org

IUCN Red List of Ecosystems is a compilation of information on the state of the world's ecosystems at different geographic scales. Its central objective is to assess the risk of ecosystem collapse. http://www.iucnredlistofecosystems.org/

Protected Planet
Comprehensive interactive world map of protected areas worldwide maintained by UNEP – WCMC (United Nations Environment Programme – World Conservation Monitoring Centre) and draws on data from national governments, NGOs and many partners. www.protectedplanet.net

### a–z Areas of Biodiversity Importance
Provides summaries of globally relevant systems to identify areas of importance for biodiversity. www.biodiversitya-z.org/areas/22

HCV High Conservation Value Resource Network
Network of many partners who developed the concept of High Conservation Value. Against the background of high land use pressures, the aim is to identify areas with high conservation value. www.hcvnetwork.org

IBAT
Where businesses can buy up-to-date information on biodiversity at specific sites to provide a basis from a biodiversity perspective for making investment decisions and introducing measures. IBAT is a collaboration of BirdLife International, Conservation International, IUCN and UNEP World Conservation Monitoring Centre. www.ibatforbusiness.org
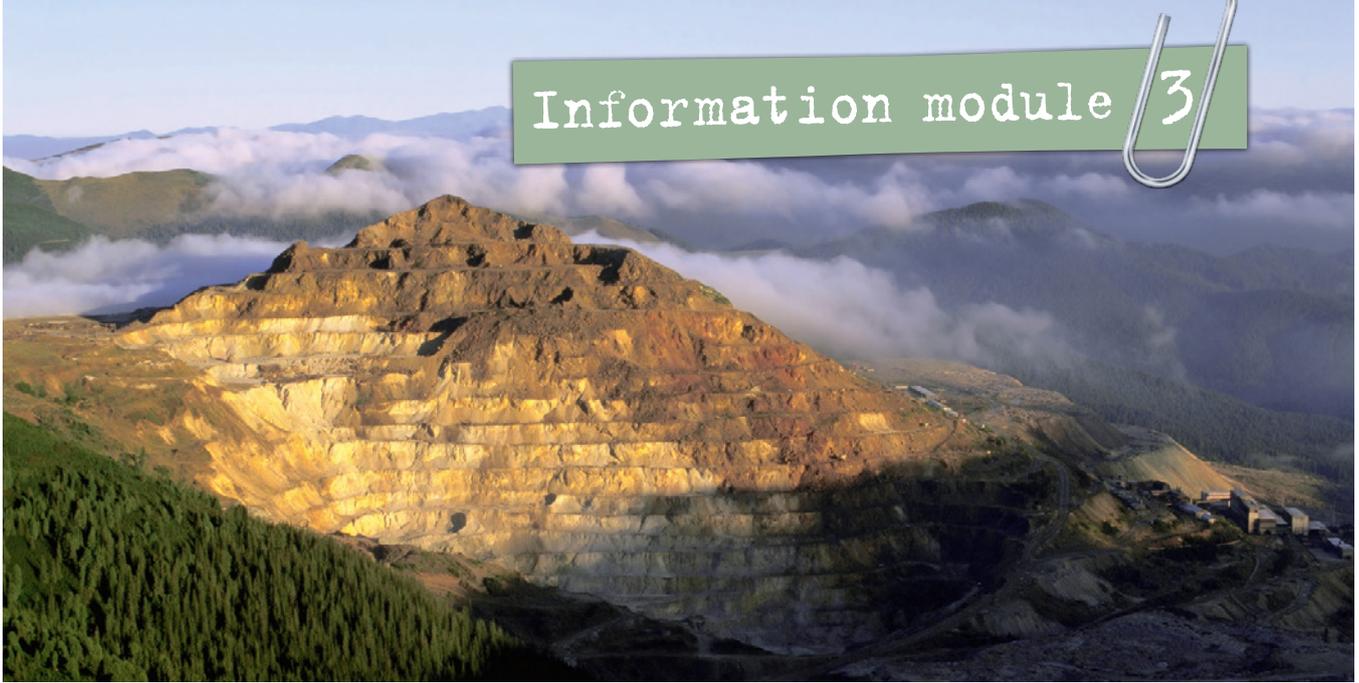
MANAGEMENT APPROACHES, INCLUDING NATURAL CAPITAL ACCOUNTING

Tobias Hartmann (April 2014):
How business values natural capital – Taking Stock and Looking For-ward, published by Global Nature Fund
The German Federal Environmental Agency and the German Federal Ministry for the Environment funded this publication under the project "Economic valuation of natural capital from a business perspective – An instrument to internalize corporate environmental impact".
It is available for downloading at
http://www.naturalcapitalmarkets.org/uploads/media/
GNF_-__How_Companies_value_natural_capital.pdf

Workstream Natural Capital Accounting of the European Commission's EU Business @ Biodiversity Platform
http://ec.europa.eu/environment/biodiversity/business/
workstreams/Workstream1-Natural-Capital-Accounting/
index_en.html

UN Global Compact/BSR (2014):
A Guide to Traceability – A Practical Approach to Advance Sustainability in Global Supply Chains
Overview of approaches for assuring traceability of raw materials in the framework of supply chain management
https://www.unglobalcompact.org/docs/issues_doc/
supply_chain/Traceability/Guide_to_Traceability.pdf

STANDARDS AND LABELS

UNEP-WCMC (2011): Review of the Biodiversity Requirements of Standards and Certification Schemes: A snapshot of current practices. Secretariat of the Convention on Biological Diversity, Montréal, Canada. Technical Series No. 63
Publication on biodiversity aspects in 36 standards
http://www.cbd.int/doc/publications/cbd-ts-63-en.pdf

Biodiversity Criteria in Standards and Quality Labels for the Food Industry
A project (2013 to 2015) to develop criteria and recommendations for action carried out by the Lake Constance Foundation and the Global Nature Fund with the participation of the REWE Group.
Available for downloading e.g. at
http://www.globalnature.org/34687/Themes-Projects/
Business-Biodiversity/Food-Industry/resindex.aspx