IDENTIFY
dependencies & impacts

STEP 2:

BIODIVERSITY MAINSTREAMING INTO BUSINESS IN SOUTH AFRICA

Key questions to consider

For shareholders:
Do you know the key biodiversity dependencies and impacts inherent to your investment?

For the CEO and the board:
What are the main biodiversity dependencies and impacts of your business and its value chain?

For environmental and sustainability managers:
Have you compiled a comprehensive list of biodiversity impact drivers across the value chain in which your company operates?

For the financial sector:
Has your client identified its key biodiversity impact drivers?

IDENTIFY THE BIODIVERSITY DEPENDENCIES AND IMPACTS OF YOUR BUSINESS

Key:
This icon denotes a weblink for more information

ENDANGERED WILDLIFE TRUST

BDP BIODIVERSITY DISCLOSURE PROJECT

Eskom

Key messages

- Business both depends and impacts on biodiversity;
- Both biodiversity dependencies and impacts lead to changes in biodiversity;
- Changes in biodiversity can be positive or negative;
- Different industries have different biodiversity dependencies and impacts, but all are linked through value chains;
- Biodiversity dependencies and impacts can be direct through controlled activities or operations;
- Biodiversity dependencies and impacts can be indirect through your supply chain or your clients.

After understanding why biodiversity matters to your business (Step 1 of your biodiversity mainstreaming journey[JH1] [AC2]), you should start identifying the biodiversity dependencies and impacts that are material for your business and its stakeholders.

This will involve:
- Firstly, to understand the key concepts underpinning the **biodiversity impact pathway**;
- Secondly, to understand and map the **whole value chain** in which your business operates;
- Thirdly, to identify and classify the **potentially material drivers of changes in biodiversity** across your value chain, including both dependencies and impact drivers;
- Finally, undertake a **materiality assessment process** to determine the most important biodiversity impacts and dependencies for further action.

This step precedes Step 3, which introduces biodiversity measurement, the process of assessing the scale of the biodiversity dependencies and impact of your business across its value chain.

Understanding the biodiversity impact pathway

In line with the Natural Capital Protocol, an impact pathway refers to a process by which a biodiversity impact driver (Figure 2.1), either an input (e.g. biodiversity dependency) or non-product output (e.g. water emissions) of a business, generates changes in biodiversity and how these changes impact the organisation and society.

A biodiversity dependency refers to a business reliance on or use of biodiversity.

This includes:
- Biological resources (e.g. materials, liquids, genetic resources) from both wild (e.g. wild fish) and cultivated (e.g. crops, cattle) species;
- Various services captured from ecosystem processes, such as pollination, water filtration, crop pest and disease control, water flow regulation (e.g. protection against flooding) or recreational services (e.g. ecotourism, hunting).

A biodiversity impact refers to a positive or negative change in biodiversity due to business activities. This typically includes changes in:
- The population and hence viability of species;
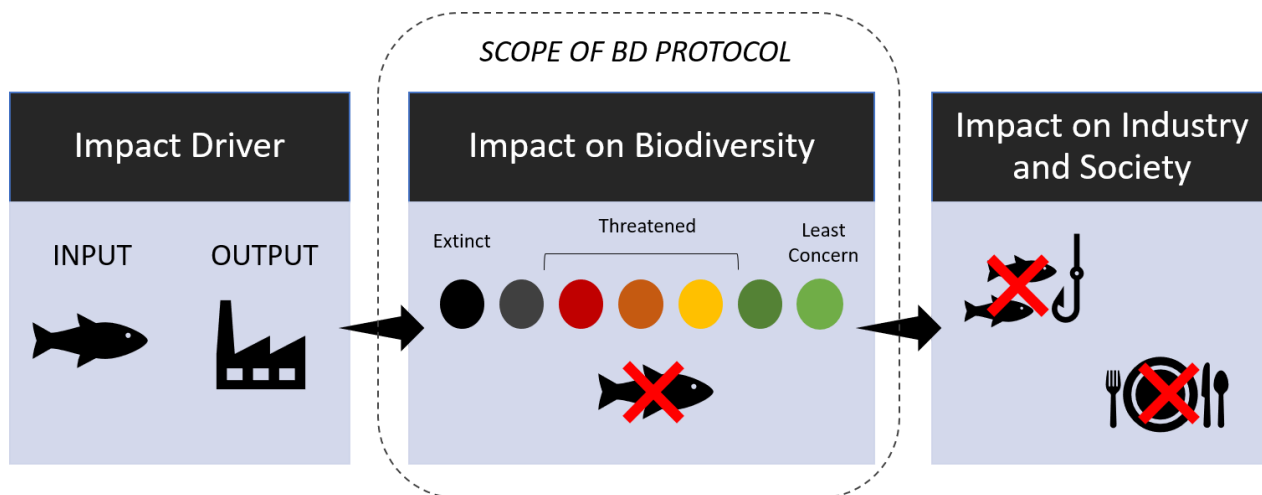- The extent and condition of habitats or ecosystems.

Figure 2.1:
The biodiversity impact pathway: impact drivers, impacts on/changes in biodiversity and impacts on industry and society.

Understanding impact drivers

A biodiversity impact is different from an impact driver. An impact driver is defined as a measurable quantity of an input to (e.g. volume of water and surface are used for agricultural production) or non-product output from (e.g. litres of water emissions released into a river by a manufacturing facility) a business activity. This means that both dependencies and impact drivers can lead to positive or negative changes in biodiversity (i.e. actual impacts).

This further implies that:
- An impact driver may be related to a biodiversity dependency of a business: (e.g. a fishing business relies on wild fish stocks, which may impact negatively the latter and cause further damages to underwater ecosystems due to the use of destructive fishing gears);

- A single impact driver (e.g. land use change) may be associated with multiple biodiversity impacts (e.g. loss of a species and decrease in the extent and condition of an ecosystem).
- A change in biodiversity (e.g. decrease in the population of a species) may be caused by several interacting impact drivers (e.g. land use change, increase in density of invasive alien species, water emissions).

Mapping your value chain

After understanding the biodiversity impact pathway, you should map the whole value chain in which your company operates. The Biological Diversity Protocol (BD Protocol) first recognises three major parts of the value chain:
- Scope 1: Direct operations (gate-to-gate), which covers activities over which your business holds ownership or control.

- Scope 2: Upstream (cradle-to-gate), which covers the activities of suppliers;
- Scope 3: Downstream (gate-to-grave), which covers activities linked to the purchase, use, re-use, recovery, recycling, and final disposal of your business' products and services.

What is material biodiversity dependency or impact?

The BD Protocol defines an impact on biodiversity as material if consideration of its importance to internal and/or external stakeholders, as part of the set of information used for decision making, has the potential to alter that decision. A materiality assessment is the process that involves identifying what is (or is potentially) material in relation to the objective of providing a relevant, complete, consistent, transparent and accurate account of the biodiversity impacts of your company to its target stakeholders. Materiality does not necessarily equate to the legal concept of materiality which applies to formal corporate reporting in many jurisdictions. If you have concerns about the potential interpretation of biodiversity impact disclosures you plan to make, you are advised to seek independent legal advice relevant to your industry and jurisdiction.

Identifying and classifying drivers of biodiversity change across your value chain

While there are others (e.g. dust emissions), the main drivers of biodiversity loss include:
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- Land use change, directly by land intensive sectors (e.g. agriculture, real estate/property development, infrastructure, mining) and indirectly by service industries (e.g. banking, insurance) and sectors further down the value chains (e.g. manufacturing, retail);
- Invasive alien species, introduced or mismanaged, intentionally or not;
- Water use and emissions by various industries, such as energy, mining, foods and beverages, textiles;
- Greenhouse gas emissions, which concern mainly energy-intensive industries, leading to climate change and hence changes in the distributions of species; and
- Biological resource extraction, such as fishing, plant harvesting and hunting.

Table 2.1: Examples of causal relationships between a selection of impact drivers and impacts on biodiversity across the value chain of manufactured consumer goods

Business	Impact Driver	Relative magnitude of impact on biodiversity for manufactured consumer goods		
		Scope 1 (Direct operations)	Scope 2 (Suppliers)	Scope 3 (Clients)
Inputs	Energy	○	●	○
	Land use	●	○	○
	Materials	○	●	○
	Water use	●	○	○
	Disturbances	○	○	○
	GHG emissions	○	○	○
Outputs	Solid waste	○	○	●
	Soil emissions	●	○	○
	Water emissions	●	○	○

Key	
●	Large
○	Medium
○	Minimal (if any)

Biodiversity impact drivers vary across industries and their value chains. However, given the inter-connected nature of the economy, all businesses play a role in globalised supply chains.

For instance, the banking and insurance industries both enable those industries primarily responsible for land use changes, such as agriculture, property development and mining. As such, these hold indirect responsibilities in driving biodiversity loss.

Examples of key drivers of biodiversity change in tourism

The expected primary drivers of biodiversity change in tourism include:
- Buildings and infrastructure development leading to land use change;
- Water use and emissions of tourism facilities;
- Access to tourism assets or destinations (e.g. uncontrolled access or excessive use);
- The management of land assets, including alien invasive species (e.g. vegetation and mammal management activities).

In the end, you should strive to identify and map, across the value chain of your business, both drivers of biodiversity change:
- The main dependencies or uses of biodiversity (e.g. harvested biological resources, key ecosystem services supplied by biological processes); and
- The main impact drivers linked to business inputs (e.g. land use and water abstraction) and outputs (e.g. water emissions).

Examples of key drivers of biodiversity change in mining

The expected primary drivers of biodiversity change in mining include:
- Mining infrastructure development leading to land use change and habitat fragmentation;
- Water use and emissions, including heavy metals;
- Dust emissions impacted vegetation;·
- Alien invasive species, introduced or mismanaged, intentionally or not.

Undertaking a materiality assessment to determine the most important biodiversity dependencies and impacts

An impact or dependency on biodiversity can be considered as material if consideration of its importance to internal and/or external stakeholders, as part of the set of information used for decision making, has the potential to alter that decision. A materiality[1] assessment is the process that involves identifying what is (or is potentially) material in relation to the objective of providing a relevant, complete, consistent, transparent and accurate account of the biodiversity dependencies and impacts of your company to its target stakeholders.

Most companies have experience with at least one materiality assessment approach through their risk, governance, finance or strategy functions. This process may have involved using qualitative, quantitative or monetary information, or a combination of these.

[1] Materiality here does not necessarily equate to the legal concept of materiality which applies to formal corporate reporting in many jurisdictions. If you have concerns about the potential interpretation of biodiversity impact disclosures you plan to make, you are advised to seek independent legal advice relevant to your industry and jurisdiction.

There are several criteria worth considering in order to determine whether a biodiversity impact or dependency should be selected as material, including whether:

- The effective management (or lack thereof) of the concerned biodiversity elements generate significant financial revenues/ receivables (e.g. fishing and wood harvesting revenues) and/or expenses/ liabilities (e.g. costs of impact mitigation measures as per environmental permitting requirements);
- The concerned biodiversity elements, species and/or habitats, play significant economic and/or cultural roles for your business and/or its stakeholders (i.e. important ecosystem services, such as the pollination services of wild insects and the water purification services of wetlands).
- The biodiversity elements are legally protected, according to local, national and international laws and conventions (e.g. species listed by the Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITIES);
- The species or habitat is recognised as threatened at a local, national or international level (e.g. species listed on an IUCN red list);

Examples of key drivers of biodiversity change in agriculture

The expected primary drivers of biodiversity change in agriculture include:
- Clearing of habitat and its fragmentation due to the planting of crops;
- The management of grazing lands (e.g. over-stocking);
- Water use and emissions;
- Alien invasive species, introduced or mismanaged, intentionally or not.

- Your business impacts on the biodiversity elements are likely to result in a change in their overall conservation status;
- The concerned species play critical roles in the ecosystem, and can thus be defined as a keystone[2], umbrella[3] or engineer[4] species.

[2] Keystone species constitute species that help define an entire ecosystem. Keystone species have low functional redundancy. This means that, if the species were to disappear from the ecosystem, no other species would be able to fill its ecological niche (e.g. elephants, apex predators). The ecosystem would be forced to radically change, allowing new species to populate the habitat and shape ecosystem processes in a different manner.
[3] Umbrella species are species selected for making conservation-related decisions, typically because protecting these species indirectly protects the many other species that make up the ecological community of its habitat.
[4] An ecosystem engineer is any species that creates, significantly modifies, maintains or destroys a habitat. These can have a large impact on the species richness and landscape-level heterogeneity of an area.

When you do not have adequate knowledge or access to the relevant information, making use of specialist advice may be helpful.

Besides, biodiversity-related information is often available within companies but either forgotten (e.g. old environmental impact assessments) or not shared with management.

This highlights the importance of effective data management. Once materiality assessment has been completed, you should be able to compile:
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- The list of material biodiversity dependencies, impact drivers and impacts across the value chain of your business; and
- All the evidence used to select your business' material issues, including reasons for excluding some biodiversity aspects.

National Biodiversity and Business Network

The National Biodiversity and Business Network (NBBN) recognises the importance of biodiversity to business and builds the capacity of business to act as a positive force for the conservation of biodiversity in South Africa. The natural environment plays an important role in the value chain of any business. We work with innovative business leaders to identify and manage the business risks and opportunities that result from their interactions with the natural world.

We provide a platform for businesses to proactively engage with each other and discover solutions that lead to sustainable business growth and many exciting business opportunities such as new sources of revenue and the opportunity to reduce production costs.

We achieve this through the following projects:
- Biodiversity Disclosure Project
- Biological Diversity Protocol
- Mainstreaming Biodiversity into Business Toolkit