

# Business and biodiversity

## Nature impact management and assessment in value chains

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Bright ideas.  
Sustainable change.

# Agenda

**9:00 FiBS & Introductions**

**9:10 Recap and homework discussion**

**9:30 Biodiversity data needs**

**10.00 Introduction to selected tools**

**10.15 Break**

**10.25 Workshop: Tools to support value chain assessment**

**11.15 Break**

**11.25 Strategic considerations for biodiversity assessment**

**12:00 Event ends**

# Introductions

*Introduce yourself to a person next to you who you don't know*

# Recap and homework discussion

# Recap

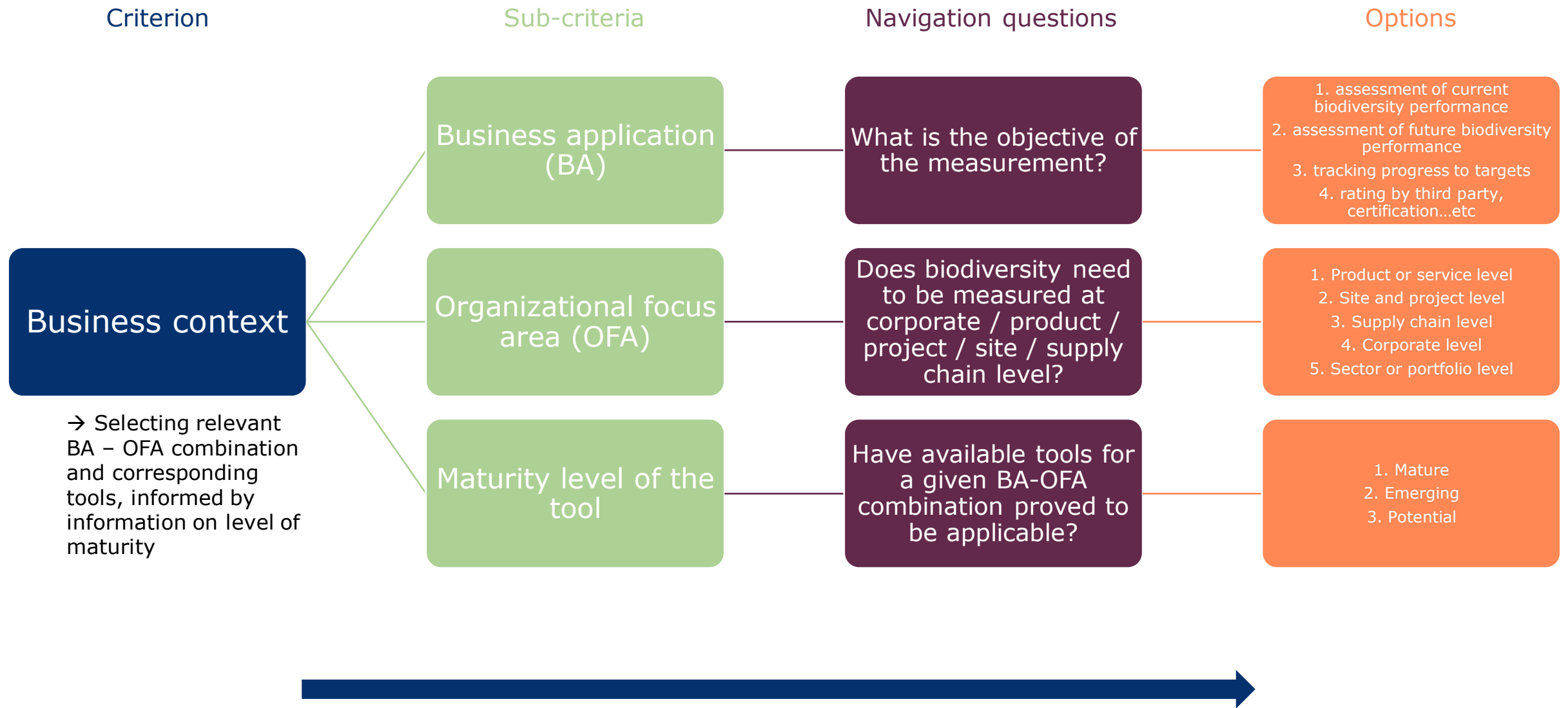
- Why do we need to consider biodiversity?
- The different frameworks
- Science Based Targets for Nature approach
- Finding the right tool – use of the navigation tree

# Biodiversity Measurement Navigation for Businesses

- Based on a report by Lammerant et al. (2021): Assessment of Biodiversity Measurement Approaches for Businesses and Financial Institutions. EU Business @ Biodiversity Platform reports
- Based on six criteria that impact the selection of a measurement approach or tool by a business:
  - **Business Context**
  - **Biodiversity Pressures**
  - **Biodiversity Scope**
  - **Biodiversity Ambitions**
  - **Biodiversity Metrics**
  - **Level of Efforts**
- Navigation questions enabling systematic elimination of approaches that do not fit the business's preferred selection criteria aid decision-making
- Starting from the Business Context is recommended
- Helps in getting started and honing in on the desired approach



Note: this is not a completely exhaustive list of available tools! Different tools are being improved and developed constantly



# Voluntary homework

- Present and discuss the navigation tree results with your colleagues and answer the following questions together.
- Prepare to discuss about these questions in the next event 29.11 and please bring your remarks from the discussion.

Which tools are recommended for your organization?

Which tools are the most interesting?

Do you see these tools are relevant and usable in your organization?

# Biodiversity data needs

What to measure?  
What data do we need?  
Where to find data?

# What to measure at the site and project level



## Good Practice

- Ecosystem extent & condition indicators, or
- Measurement of material impact drivers (at least land use)
- Periodic measurements that start from a baseline and measurements that reflect changes in state resulting from company-specific impacts drivers
- Usually based on **secondary** data



## Best Practice

- Ecosystem extent & condition for individual ecosystem assets
- Species extinction risk indicators
- Periodic measurements that start from a baseline, & measurements that reflect changes in state resulting from site level mitigation measures
- Based on **primary** data on material impact drivers

Align 2022 - UNEP-WCMC, Capitals Coalition, Arcadis, ICF, WCMC Europe (2022) Recommendations for a standard on corporate biodiversity measurement and valuation, Aligning accounting approaches for nature

# What to measure at the supply chain level



## Good Practice

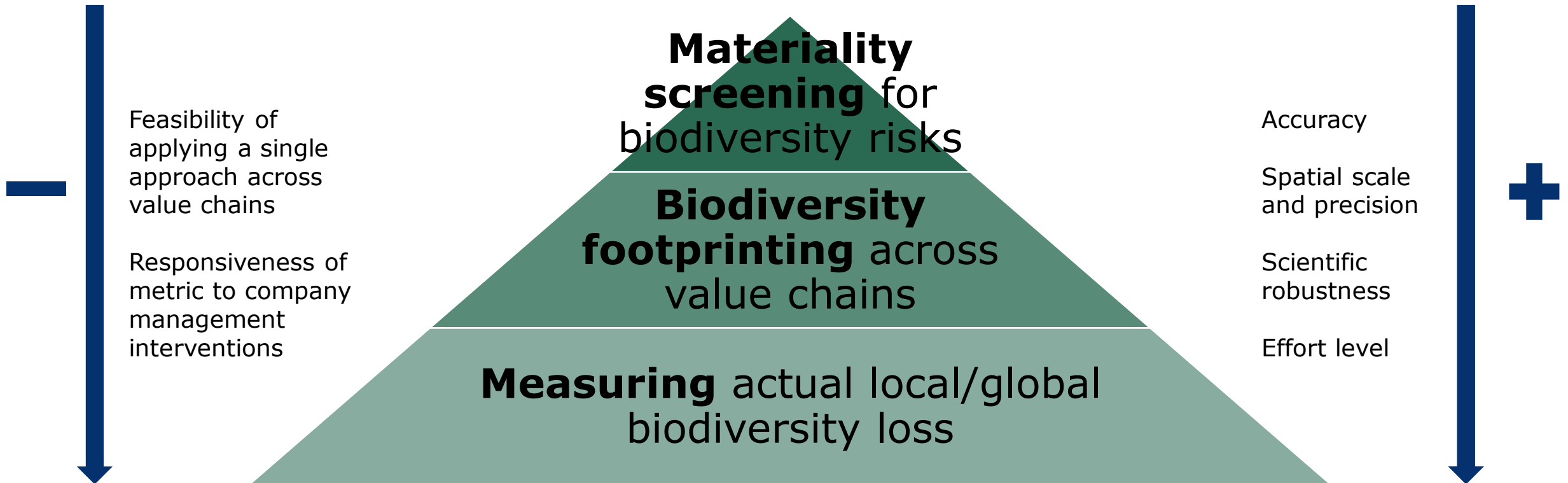
- Potential impacts on ecosystems based on volumes of materials sourced (or revenue) within each country sourced from



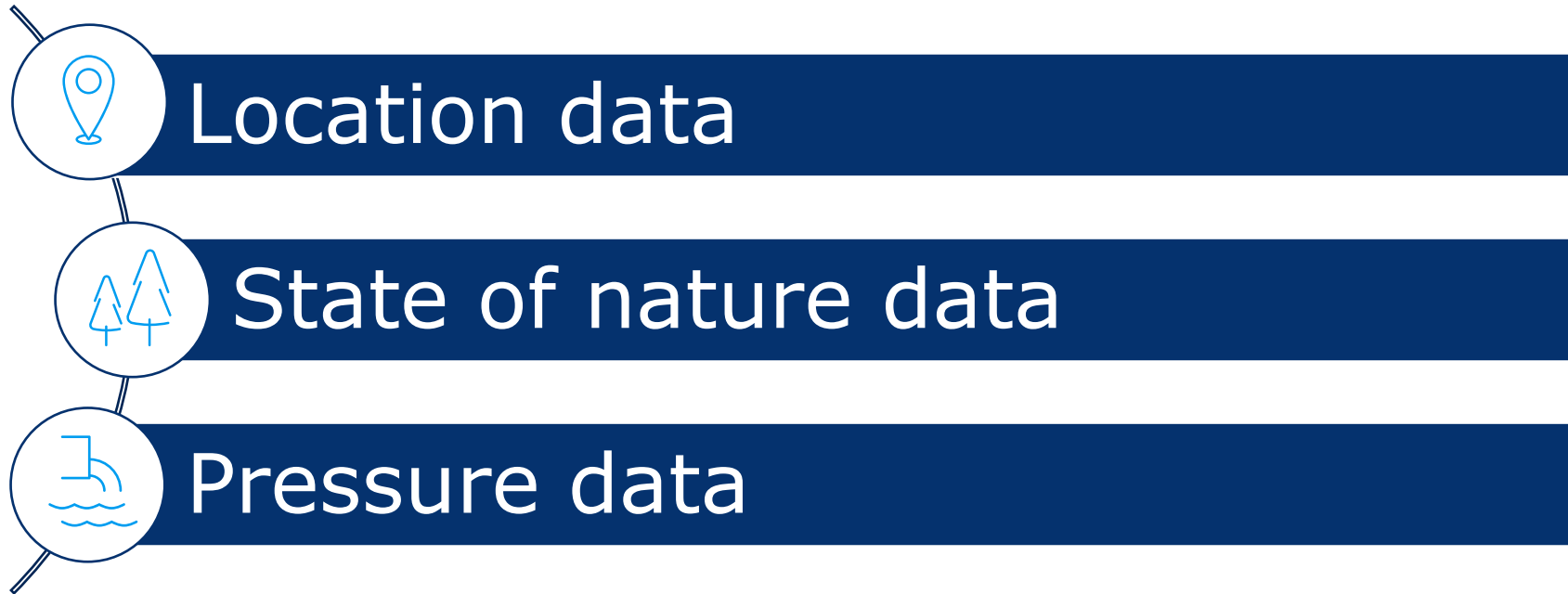
## Best Practice

- Measurement of potential impacts reflects differences in biodiversity between sourcing locations and production processes at sourcing locations
- Measurement of impact driver & state at sampled sites using primary data is used to complement full-supply chain measures

# From materiality screening to measuring actual biodiversity



# What data do we need?



# What data do we need?



## Location data

- Location of direct operations (site coordinates)
- Locations of raw material sourcing (manufacturing and extraction site coordinates or country of origin)
- Locations where purchased goods and services are manufactured or stored
- Transportation routes
- *Primary data* = direct information, coordinates from site
- *Secondary data* = estimated or modelled location based on secondary sources

Keep in mind:

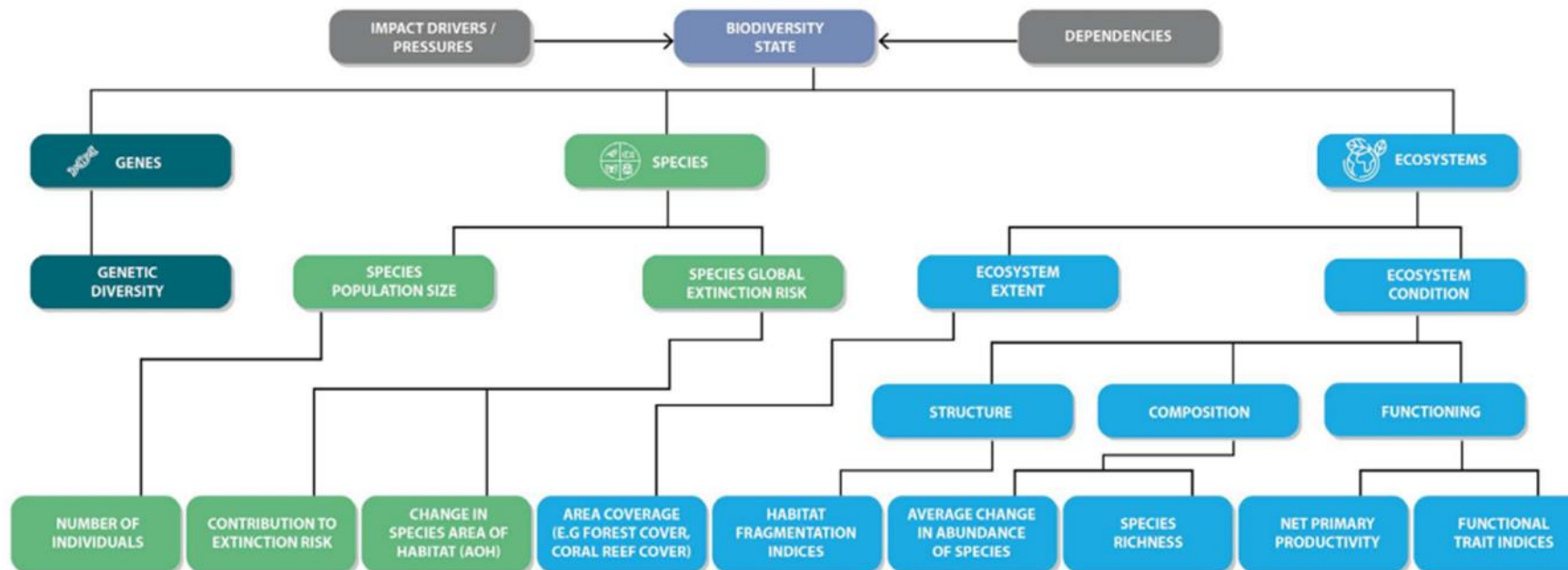
- For the upstream value chain, in most cases, the largest impact on nature happens at the **extraction stage**: you may need to find location data for the extraction stage
- E.g. cultivation of oil palms has higher impacts (land use change, deforestation, habitat loss, water use...) than refining fatty acids from palm oil
- The more refined a raw material is, the more difficult it may be to trace the location of extraction

# What data do we need?



## State of nature data

- Indicators that describe the condition of nature at a given geographic location
- Biodiversity is multi-faceted and difficult to measure with one metric
- Indicators for *ecosystem extent* and *condition* should be at the core of measurements of state
- Measurements for species should focus on material indicator species



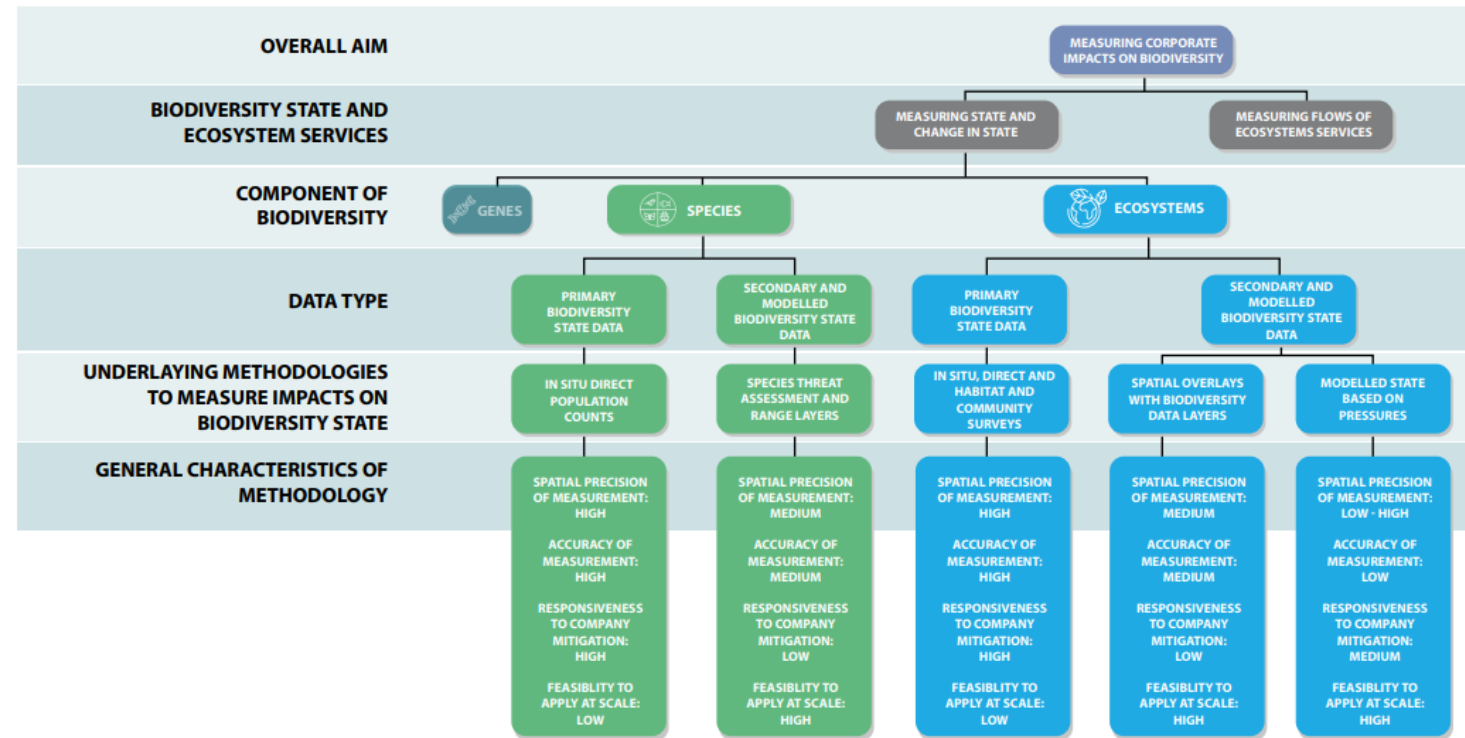
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# What data do we need?



## State of nature data

- *Primary data* = direct measurements, e.g. species count at a site
- *Secondary data* = estimated or modelled from secondary sources
- “Footprinting” approaches are useful for screening biodiversity risks across value chains, but they lack the accuracy of indicators based on direct measurements from surveys and spatial data layers



# What data do we need?

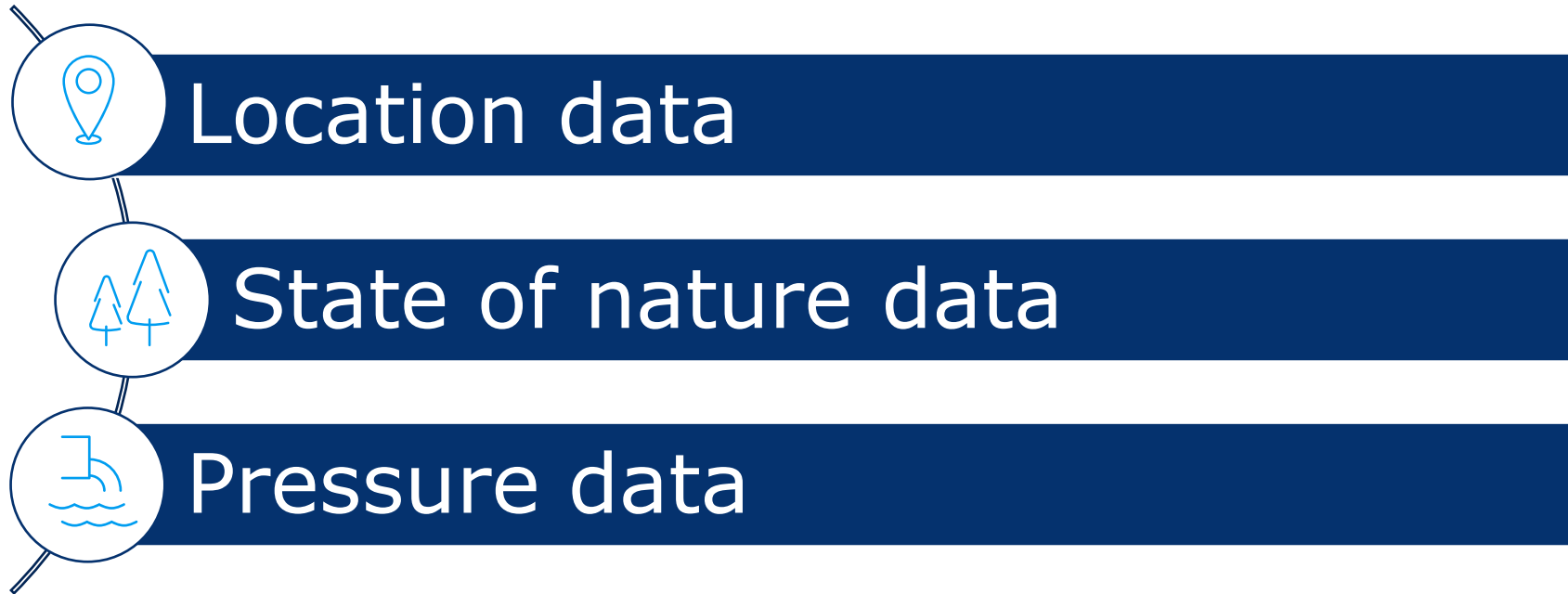


## Pressure data

- Measurements or estimates of the magnitude of pressures on nature
- Different indicators for different drivers of biodiversity loss
- *Primary data* = direct measurements, e.g. m3 of water used
- *Secondary data* = estimated or modelled from secondary sources, e.g. country-level or region-level averages

| Impact drivers (IPBES drivers of change)   | Example indicator                                                                           |
|--------------------------------------------|---------------------------------------------------------------------------------------------|
| Land and sea use change                    | Annual land use change (ha, km <sup>2</sup> , m <sup>2</sup> )                              |
| Green House Gas Emissions (Climate change) | Greenhouse gas emissions (Tons of CO <sub>2e</sub> )                                        |
| Pollution                                  | Ecotoxic emissions (µg/l or parts per million)                                              |
|                                            | Nitrogen and phosphorous released to water (mg/l)                                           |
|                                            | Organophosphate pesticide discharged to soil (kg/ha)                                        |
| Natural resource use and exploitation      | Quantity of individuals of a species harvested annually (e.g. Tons of fish harvested/year), |
| Introduction of invasive alien species     | Extent of surface covered by introduced invasive alien species. (Ha)                        |

# Where to find data?



# Where to find data?



## Location data

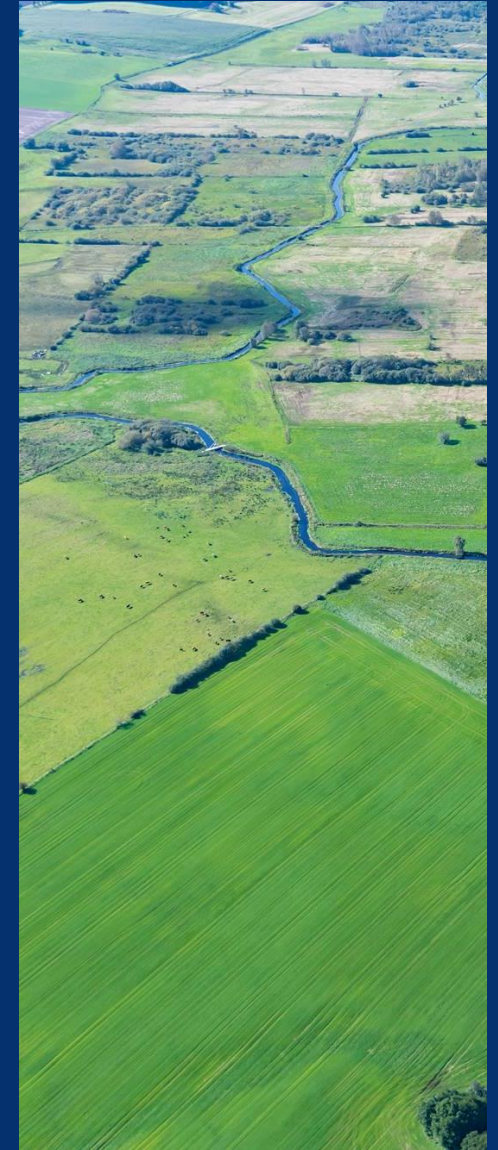
### Primary data:

- Coordinates of sites may be available within the company
- Supplier questionnaires

### Secondary data:

If location data is not available, the location can be estimated or modelled

- Trase
- FAOSTAT
- LCA inventories (ecoinvent, Eora, EXIOBASE)
- Environmentally-Extended Input-Output data (EEIO)



# Where to find data?



## State of nature data

### Primary data:

- In situ direct population counts
- In situ direct habitat and community surveys
  - Ask around: city, municipality, local authorities, NGOs. ELY-center in Finland
  - Commission surveys
  - Scientific literature
- Open-source GIS data
  - FAO datasets: tree cover, land cover, water resources...
  - Birdlife International
  - In Finland: SYKE, Luke, Metsäkeskus, Suomen Lajitietokeskus, Metsähallitus, EU LIFE-programmes

### Secondary data:

- Species threat assessment and range layers or spatial overlays with biodiversity data layers
  - IBAT
  - GLOBIO (Mean Species Abundance)
  - Key Biodiversity Areas
  - WWF Risk Filter Suite
- Modelled state from pressure data



# Where to find data?



## Pressure data

### Primary data:

- Direct measurements at sites
  - Check for data available within company, e.g. collected for climate targets, water use
- Supplier questionnaires

### Secondary data:

- LCA: may already be available within company
- LCIA (within LCA software: e.g. ReCiPe2016, Environmental Footprint)
- FAOSTAT
- EarthStat

| Impact drivers (IPBES drivers of change)   | Example indicator                                                                           |
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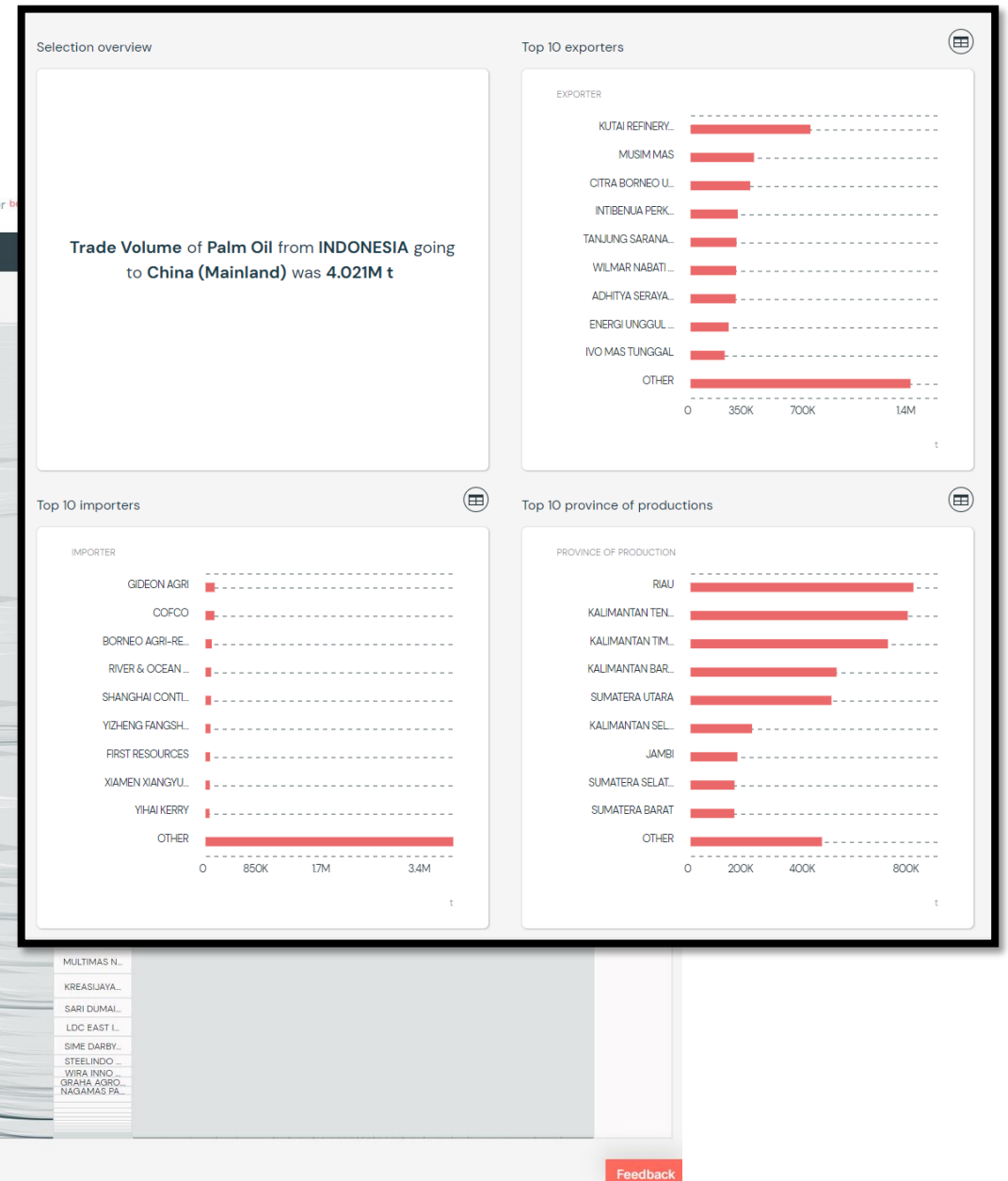
# What's next?

- Data collection is often a re-iterating process
- Keep in mind: state of nature data and pressure data should have a matching spatial extent (country, region or global level?)
- When data is collected, impacts can be calculated in different ways
  - Simply put:  $\text{Impact} = \text{state of nature indicator} \times \text{pressure indicator}$
  - Environmental authorities, organizations and authorities have developed local and global models for calculating specific pressures, e.g. water use in a specific river basin
- Depending on the chosen framework:
  - **SBTN**: state of nature and pressure indicators are multiplied to prioritize sites for setting science-based targets, and targets are set based on local or global models
  - **IUCN Guidelines for planning and monitoring corporate biodiversity performance**: developing a set of linked indicators that are monitored over time to assess biodiversity performance
  - **Natural Capital Protocol / Biodiversity Protocol**: biodiversity accounting, where  $\text{total impact} = \text{positive impacts} + \text{negative impacts}$
- Consistent monitoring is required to track progress

# Introducing selected tools

**Trase** allows tracking trade flows from specific countries of selected commodities in the agriculture/aquaculture sector

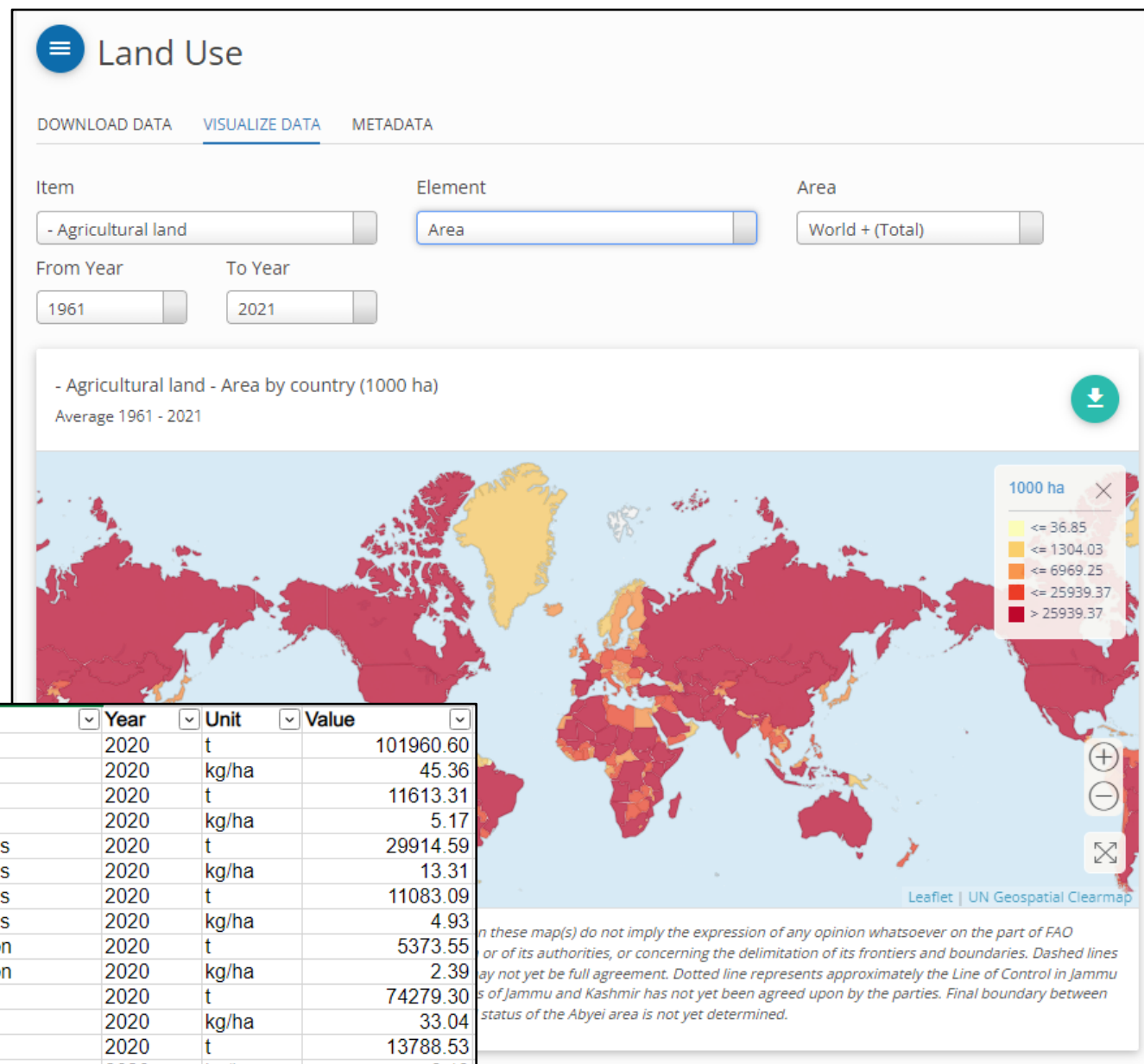
- Data-driven approach, uses the trade and customs information, logistics of trading companies, production and taxation among other data sets
- Sorting by trade flow
- Biggest importers and import countries



# FAOSTAT

Data only for agricultural/forest products

- Land use
- Land use change
- Water use change
- GHG emissions
- Soil pollutants (fertilizer use/ha)

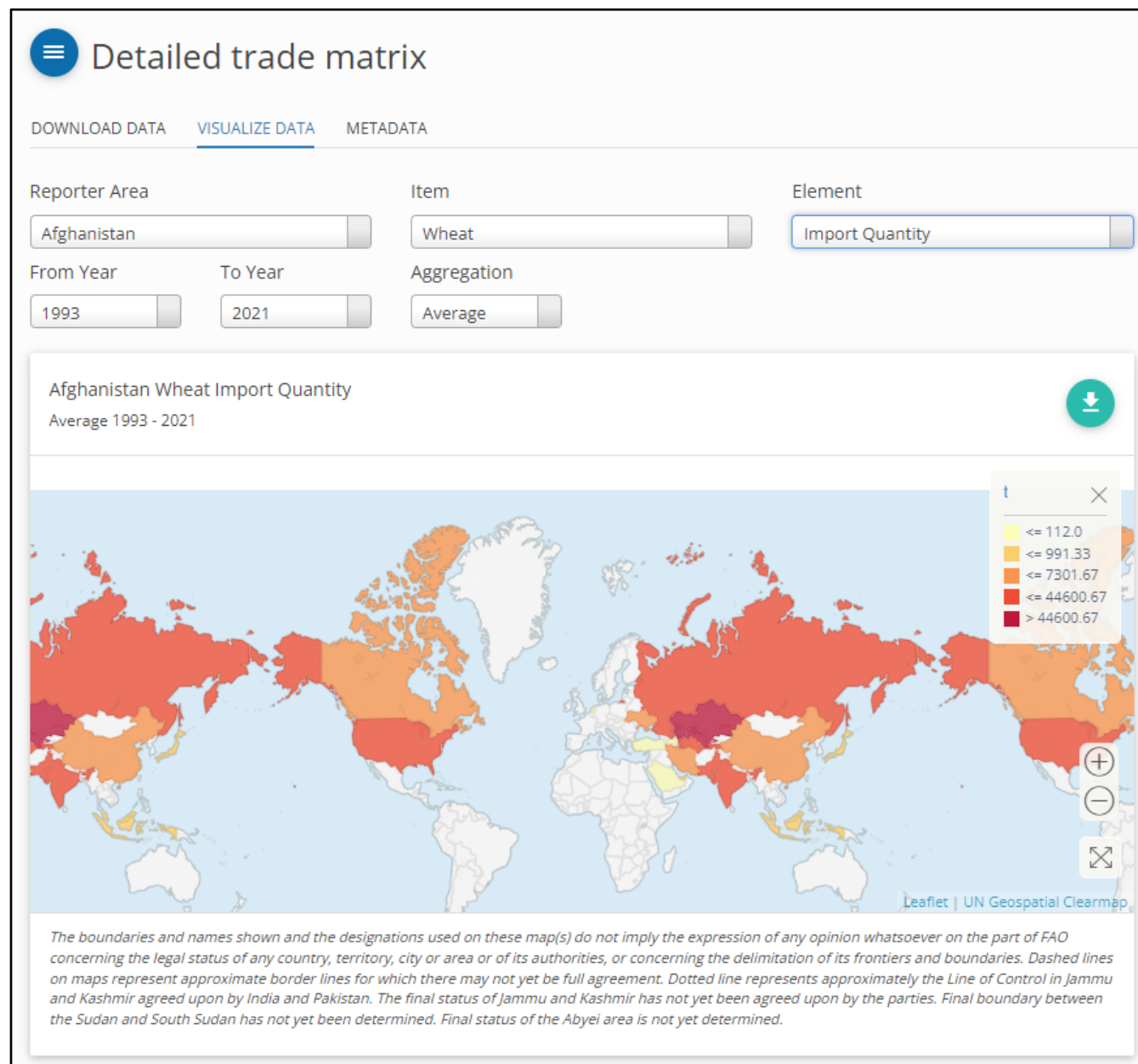


| Domain                | Area    | Element                           | Item                    | Year | Unit  | Value     |
|-----------------------|---------|-----------------------------------|-------------------------|------|-------|-----------|
| Cropland Nutrient Bud | Finland | Cropland nitrogen                 | Synthetic Fertilizers   | 2020 | t     | 101960.60 |
| Cropland Nutrient Bud | Finland | Cropland nitrogen per unit area   | Synthetic Fertilizers   | 2020 | kg/ha | 45.36     |
| Cropland Nutrient Bud | Finland | Cropland phosphorus               | Synthetic Fertilizers   | 2020 | t     | 11613.31  |
| Cropland Nutrient Bud | Finland | Cropland phosphorus per unit area | Synthetic Fertilizers   | 2020 | kg/ha | 5.17      |
| Cropland Nutrient Bud | Finland | Cropland nitrogen                 | Manure applied to Soils | 2020 | t     | 29914.59  |
| Cropland Nutrient Bud | Finland | Cropland nitrogen per unit area   | Manure applied to Soils | 2020 | kg/ha | 13.31     |
| Cropland Nutrient Bud | Finland | Cropland phosphorus               | Manure applied to Soils | 2020 | t     | 11083.09  |
| Cropland Nutrient Bud | Finland | Cropland phosphorus per unit area | Manure applied to Soils | 2020 | kg/ha | 4.93      |
| Cropland Nutrient Bud | Finland | Cropland nitrogen                 | Atmospheric Deposition  | 2020 | t     | 5373.55   |
| Cropland Nutrient Bud | Finland | Cropland nitrogen per unit area   | Atmospheric Deposition  | 2020 | kg/ha | 2.39      |
| Cropland Nutrient Bud | Finland | Cropland nitrogen                 | Crop Removal            | 2020 | t     | 74279.30  |
| Cropland Nutrient Bud | Finland | Cropland nitrogen per unit area   | Crop Removal            | 2020 | kg/ha | 33.04     |
| Cropland Nutrient Bud | Finland | Cropland phosphorus               | Crop Removal            | 2020 | t     | 13788.53  |
| Cropland Nutrient Bud | Finland | Cropland phosphorus per unit area | Crop Removal            | 2020 | kg/ha | 6.13      |



# FAOSTAT

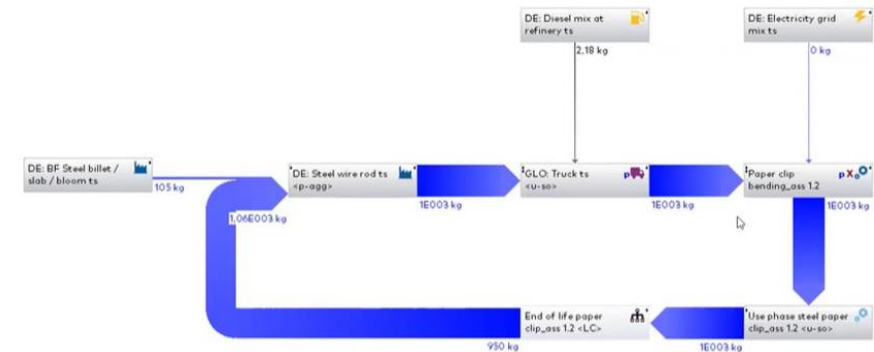
- Import and export quantities: estimate the most probable source location (country-level)



# LCA & LCIA

- LCA inventories: ecoinvent, EXIOBASE, Eora...
- LCA software with datasets: GABi, Simapro...
- LCA produces measurements close to the pressure (e.g.: kg CO2 eq)
- LCIA produces indicators that describe the impact on these pressures on nature (damage/unit of stressor)
- Cautionary use for collecting location data: uncertainty increases with backtracking

Life cycle steel paper clip\_ass 1.2  
Process paper Mills (kg)  
The names of the base processes are shown.



| Search for an activity...<br>aluminium drilling        |                                                              |      |                   |        |                       |
|--------------------------------------------------------|--------------------------------------------------------------|------|-------------------|--------|-----------------------|
| Activity name                                          | Reference product                                            | Unit | Geography         | Sector | Activity type         |
| aluminium drilling, conventional                       | aluminium removed by drilling, conventional                  | kg   | RER Europe        | Metals | Transforming activity |
| aluminium drilling, conventional                       | aluminium removed by drilling, conventional                  | kg   | RoW Rest-of-World | Metals | Transforming activity |
| aluminium drilling, computer numerical controlled      | aluminium removed by drilling, computer numerical controlled | kg   | RoW Rest-of-World | Metals | Transforming activity |
| aluminium drilling, computer numerical controlled      | aluminium removed by drilling, computer numerical controlled | kg   | RER Europe        | Metals | Transforming activity |
| market for aluminium removed by drilling, conventional | aluminium removed by drilling, conventional                  | kg   | GLO Global        | Metals | Market activity       |

Items per page 5 439 total results



# Integrated Biodiversity Assessment Tool (IBAT)

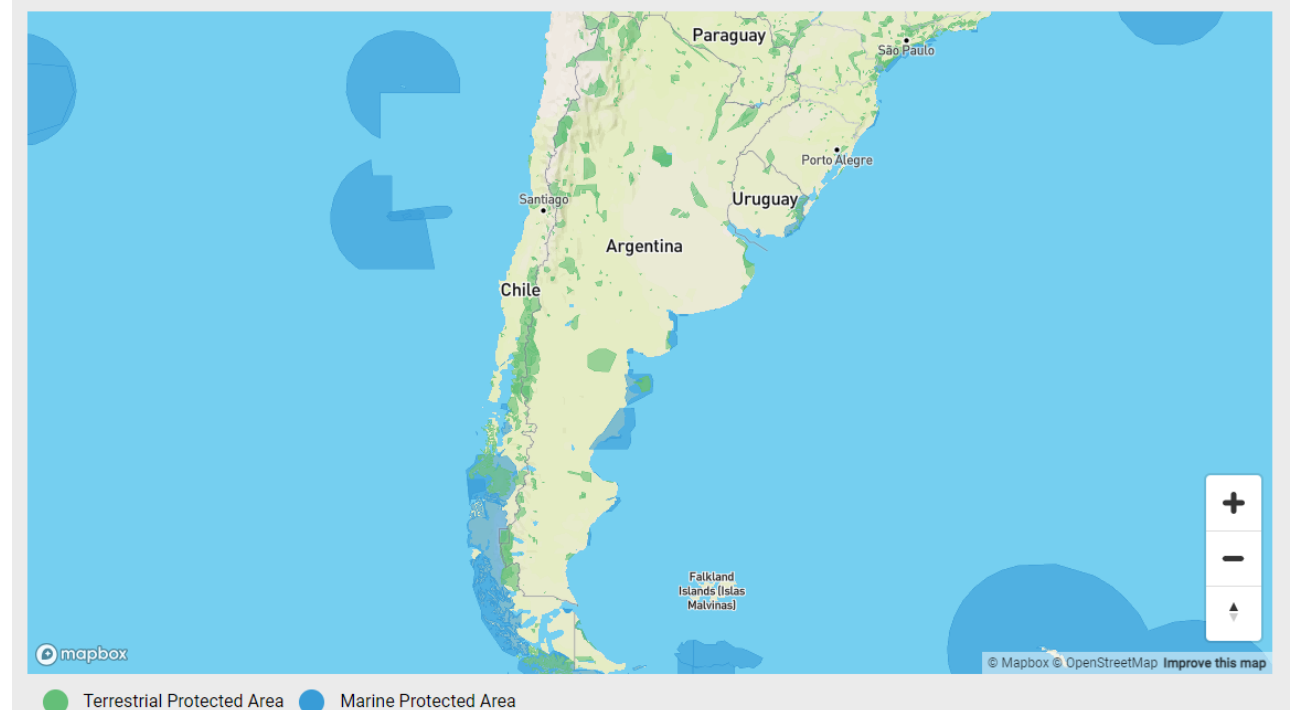


- Contains three sets of biodiversity data: IUCN Red List of Threatened Species, world database on Protected Areas, world database of Key Biodiversity Areas
- Visual country profiles available for free, data downloads need to be purchased
- Key Biodiversity Areas online map also available here:

<https://www.keybiodiversityareas.org/>



Figure 3. Map showing Marine and Terrestrial Protected Areas



# WWF Risk Filter Suite

- Web-based corporate- and portfolio-level screening and prioritization tool for biodiversity-related risks
- Builds on the Water Risk Filter, launched in 2012

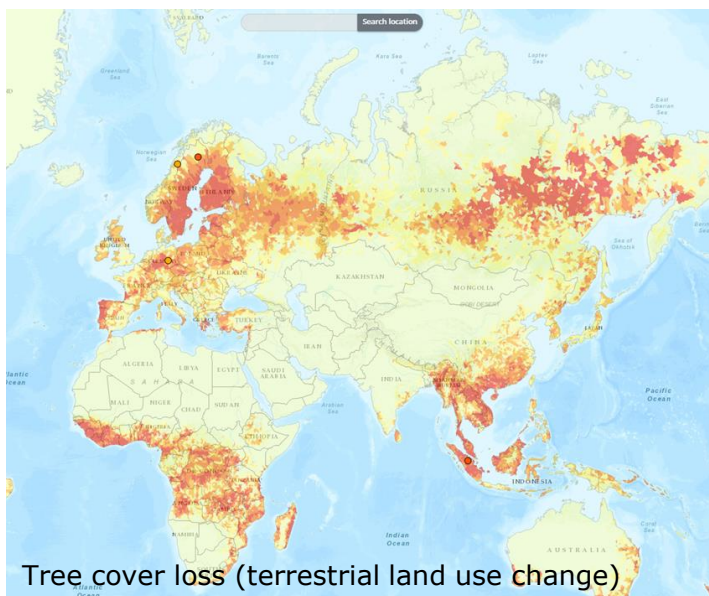
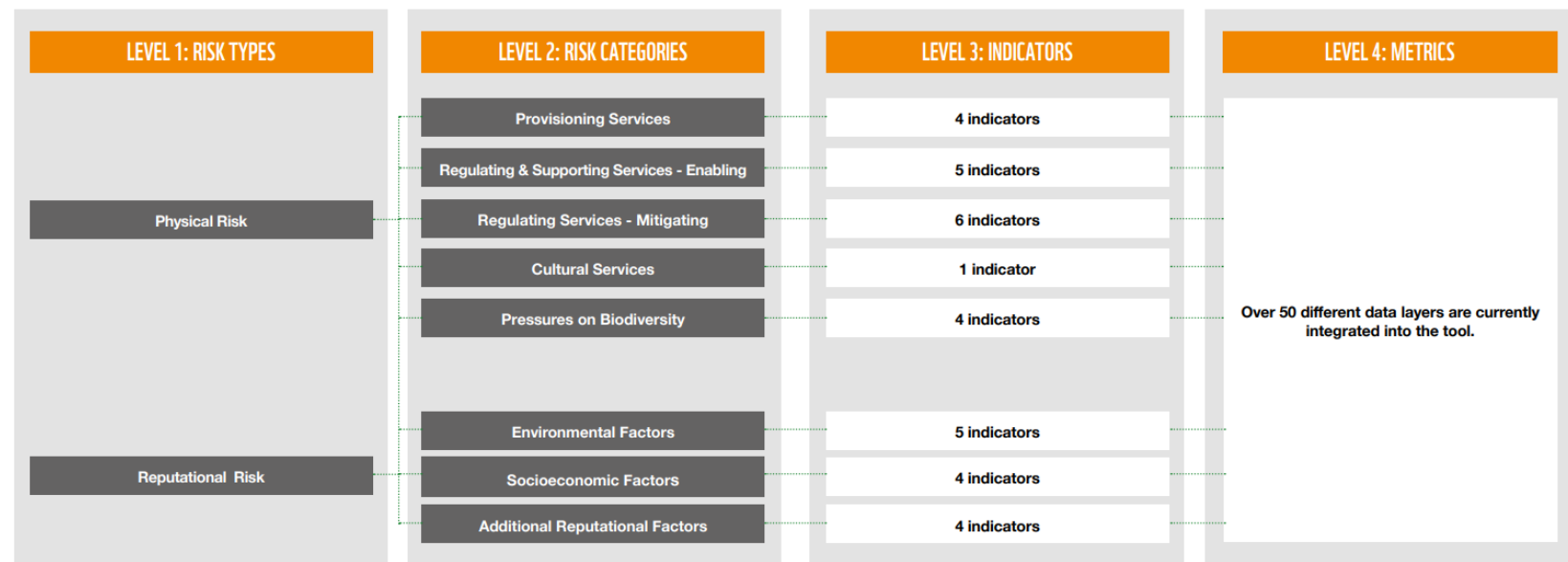


Figure 4: WWF BRF risk hierarchy



| WWF-RFS indicators translated to the required State of Nature variables |              |           | SBTN Pressure-sensitive State of Nature Indicators (SoNp) |                     |                                |                    |                 |                       |                  |             |                      |                |
|-------------------------------------------------------------------------|--------------|-----------|-----------------------------------------------------------|---------------------|--------------------------------|--------------------|-----------------|-----------------------|------------------|-------------|----------------------|----------------|
|                                                                         |              |           | Terrestrial ecosystem land use change                     |                     | Terrestrial ecosystem land use | Water use          | GHG emissions   |                       |                  |             | Freshwater pollution | Soil pollution |
|                                                                         |              |           | 5.1 Land, Freshwater and Sea Use Change                   | 5.2 Tree Cover Loss | 2.4 Ecosystem Condition        | 1.1 Water Scarcity | 3.2 Fire Hazard | 3.6 Tropical Cyclones | 3.5 Extreme Heat | 2. Flooding | 4. Water Quality     | 5.4 Pollution  |
| Site ID                                                                 | Company Name | Site Name | 1                                                         | 4                   | 1,76                           | 1,2                | 1               | 1                     | 1                | 1,1         | 1                    | 1,5            |
|                                                                         |              |           | 1,5                                                       | 5                   | 2,5                            | 1,2                | 1               | 2                     | 4                | 3,95        | 3                    | 3              |
|                                                                         |              |           | 3                                                         | 3                   | 3,76                           | 2,7                | 3               | 1                     | 2                | 2,95        | 5                    | 3,5            |
|                                                                         |              |           | 2                                                         | 3                   | 2,76                           | 1                  | 1               | 1                     | 1                | 1,05        | 1                    | 2              |



# Questions?

Break 10 min



# Workshop: Tools to support value chain assessment

# Workshop: tools to support value chain assessment

## The aim of this workshop is to test some web-based tools for collecting biodiversity data

- Demo of the WWF risk filter suite
  - Add a site from your direct operations (or an imaginary site)
  - Add a site from your upstream value chain (or an imaginary site)
  - Explore maps and export a table of state of nature variables
- Other tools to click through
  - FAOSTAT
  - Trase
  - EarthStat
  - IBAT
- Questions? Are the tools applicable to your business? Was this demo useful?



50 min



Demo &  
independent  
working time  
40min



Questions &  
discussion 10 min

# To start

- Go to <https://riskfilter.org/>
- Create a password-protected portfolio. Go to portfolio manager
- Add company
  - Your company for direct operations
  - Manufacturer/supplier for raw materials
- Add site: single site or multiple sites via spreadsheet upload
  - Industry: choose **Other**
- Analyse biodiversity/analyse water for single sites, companies or groups
- Export excel
- For SBTN: conversion table available

## Links:

- WWF risk filter suite: <https://riskfilter.org/>
- Trase: <https://www.trase.earth>
- FAOSTAT: <https://www.fao.org/faostat/en/#home>
- EarthStat: <http://www.earthstat.org/>
- IBAT: <https://www.ibat-alliance.org/>

Break 10 min



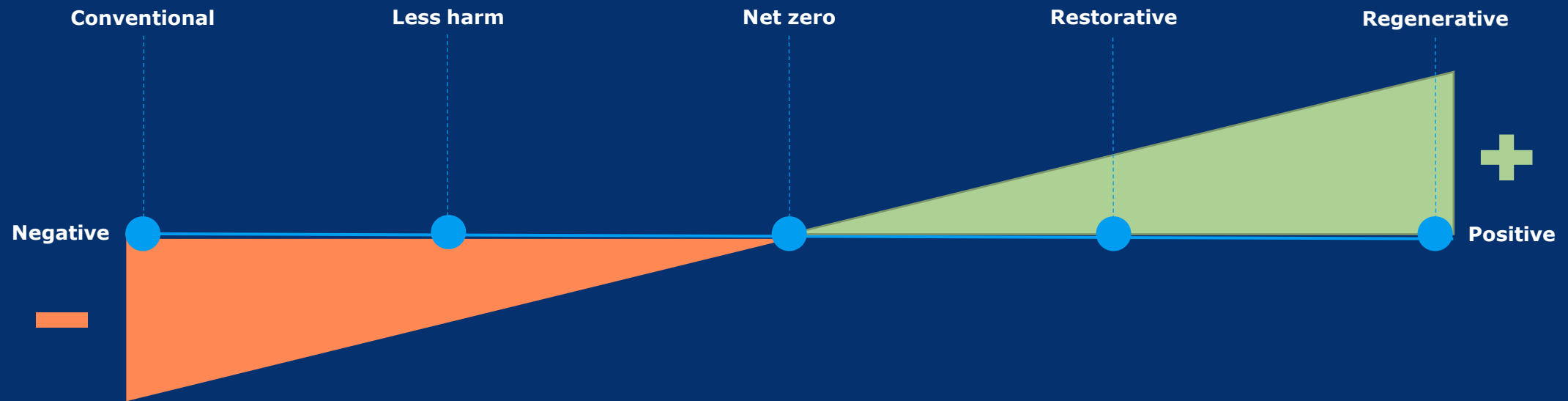
# Strategic considerations for biodiversity assessment

# Strategic considerations for biodiversity assessment

Lauri Larvus

29.11.2023

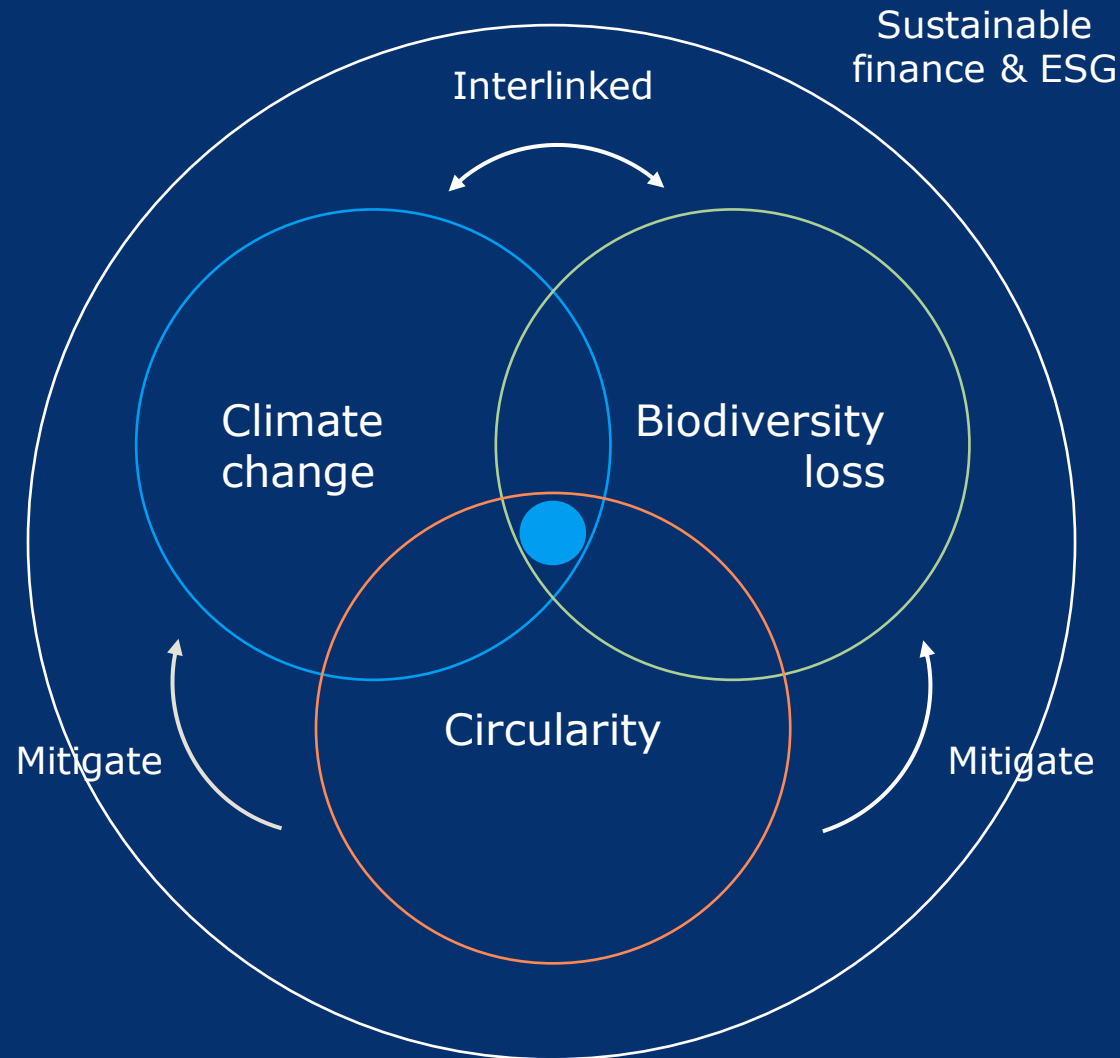
**Closing the gap** to sustainable future and net positive business requires strategic perspective and organizational transformation



# Pioneering companies strategize, operate and grow their business in the sweet spot of decarbonization, nature positivity and circularity

**Climate change** is a better known sustainability driver for business. It is highly interlinked to biodiversity loss and linear economic models.

**Circularity** is an important sustainable business opportunity and means to tackle both climate change and biodiversity loss.



**Biodiversity loss** is an increasingly important sustainability driver for business. It is highly interlinked with climate change and depletion of natural resources.

Integration into business processes and related metrics is the key to enter the sweet spot and unlock business opportunities that are driven by **sustainable finance**.

# From dependencies to opportunities

**Anticipate  
regulatory changes**



**Build resilience in  
supply chain**

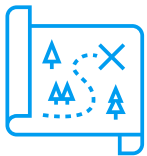


**Engage  
stakeholders**



**Stand out in  
competition**

**Reach  
strategic  
goals**



**Ensure  
access to  
finance**

**Opportunities**

# Integration of sustainability metrics into business processes and management



## Key prerequisites

1. Identify key processes and engage stakeholders
2. Build on existing business frameworks and metrics
3. Utilize key metrics from sustainability frameworks
4. Identify and utilize best available data and tools
5. Ensure budget, commitment and continuity

## Innovation as an example

*What are the key sustainability metrics for DVF innovation framework?*

And prepare for the future in short- and long-term



# How to move forward with strategic considerations around nature positivity

## **Embrace long-term strategic perspective and move faster than competition**

*Change does not happen overnight. Green transition needs to be guided by the best available data and strong vision that is shared across company.*

## **Explore and communicate interlinkages between sustainability business drivers**

*Sustainability drivers need to be considered as a whole and related frameworks utilized in more streamlined manner to ensure efficiency and meaningful business focus.*

## **Combine sustainability metrics with business metrics**

*Established frameworks and science form foundations for measuring sustainability performance as equal part of core business processes and metrics, which will lead to integrated activities with greater impact.*

## **Invest in capability building and gradual transformation**

*Incremental improvements are not enough to capture full benefits of green transition, but more fundamental change opportunities need to be identified, financed and executed gradually.*

# Questions?

# Contact information



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Bright  
ideas.  
Sustainable  
change.

RAMBOLL