European Commission

Business @ Biodiversity

EU B@B Platform – Webinar series “Measuring biodiversity for business and finance”

Webinar 2: Case studies on product level biodiversity measurement approaches for business

1 October 2020

ICF

ARCADIS Design & Consultancy for natural and built assets

nextgreen connecting green ambitions

Agenda

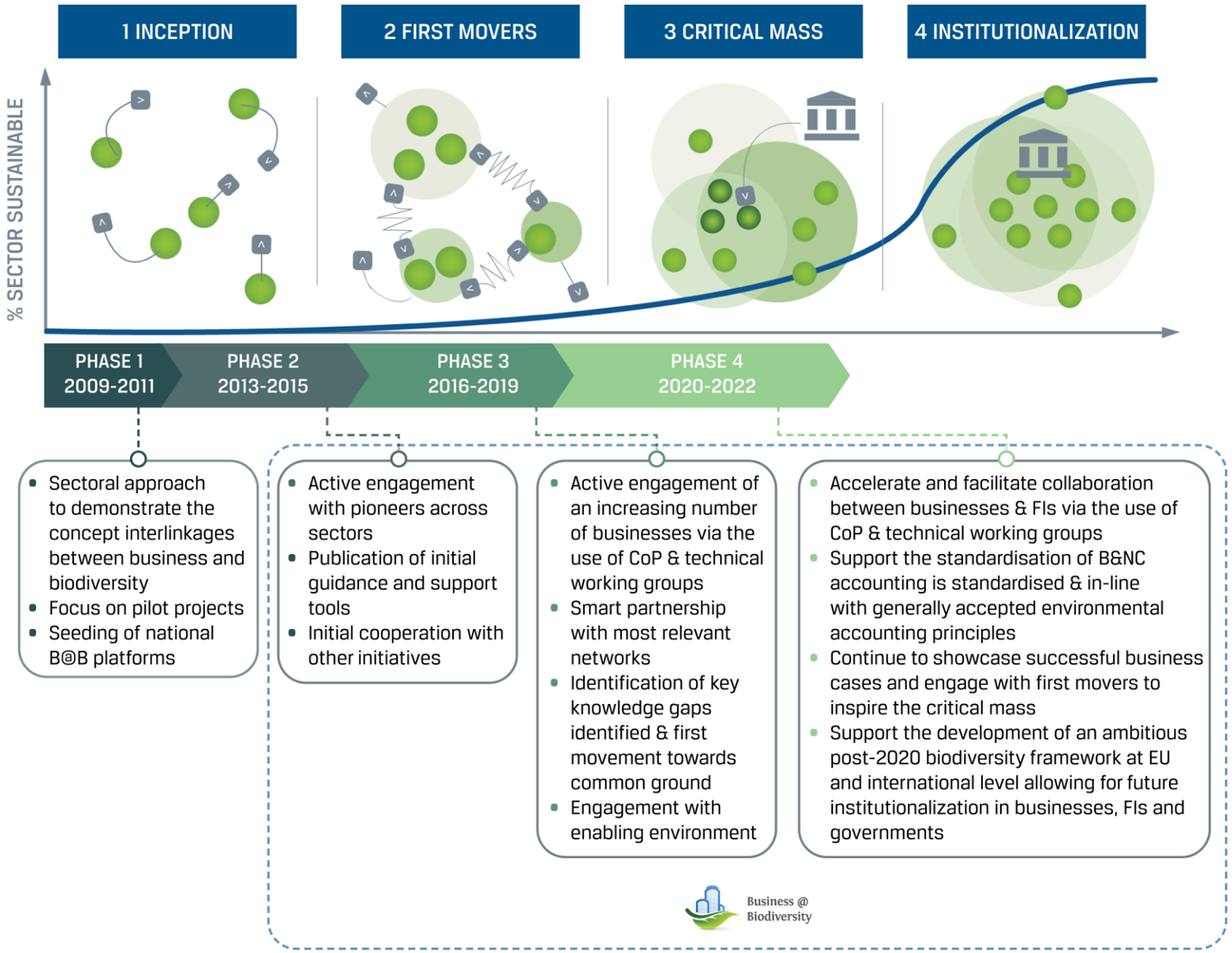
3:30 – 3:40	Introduction
3:40 – 4:00	The Product Biodiversity Footprint (PBF), with case studies on shower gel (L'OREAL) and salmon by Guillaume Neveux (I Care) and Anne Asselin (Sayari)
4:00 – 4:20	The ReCiPe approach with a case study (for the Dutch government) comparing the environmental impact three types of hand drying systems Daniël Kan (Pré)
4:20 – 4:40	The initiative to improve biodiversity coverage in the Biodiversity impacts in life cycle assessment and the current initiatives in support to the Product Environmental Footprint (PEF) by Serenella Sala (JRC)
4:40 – 5:00	Q&A and closing remarks

Welcome & opening

Lars Müller, Policy Officer, DG ENV

Johan Lammerant, Methods Workstream Leader EU Business@Biodiversity Platform, Arcadis

Our mission: reverse nature loss by supporting businesses throughout their biodiversity/NC journey



Giving all Platform WS activities a functional perspective:

WS 1

Methods

- Support the convergence of methodologies towards a certain level of standardisation of B&NC accounting in-line with environmental accounting principles.
- Focus on biodiversity measurement approaches

WS 2

Pioneers

- Facilitate dialogue and cooperation between pioneering financial institutions and businesses to gain deeper understanding from practice, consolidate lessons learned and identify opportunities and solutions for further up-scaling.
- Focus on the CoP Finance@Biodiversity

WS 3

Mainstreaming

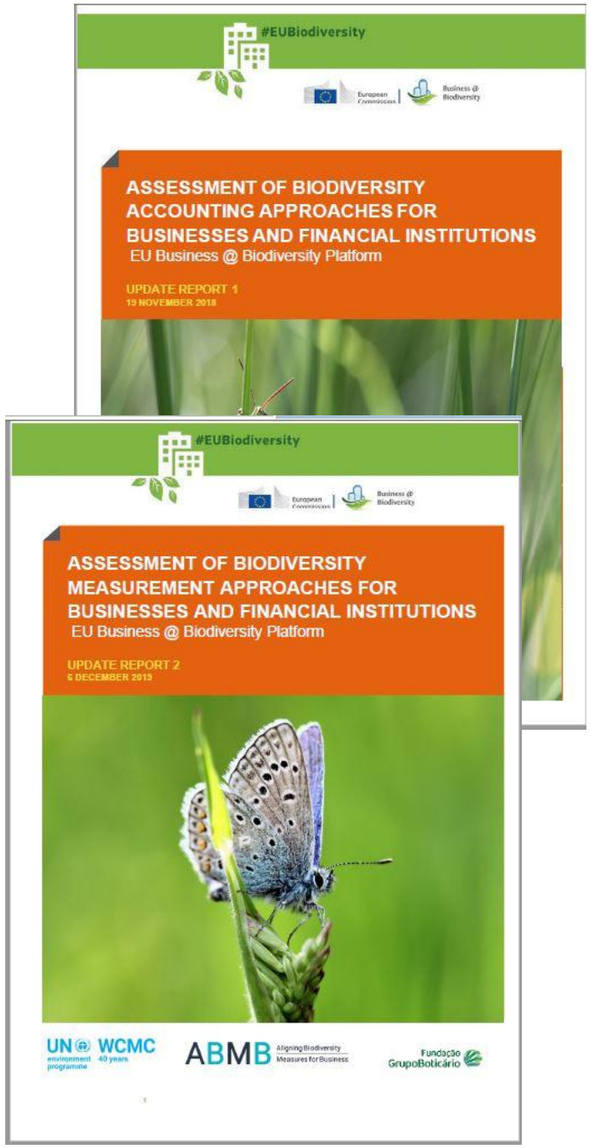
- Mainstream biodiversity across a critical mass of businesses and financial institutions by linking up with other networks, associations and key players for institutionalisation such as policy makers.
- Focus to be defined given the numerous other initiatives.

Measuring your biodiversity footprint

2018 and 2019 EU Business & Biodiversity Platform assessment reports

- **Assessment of 10 to 12 biodiversity measurement approaches for businesses and FIs** which rely on quantitative indicators that provide information on the significance of impacts on biodiversity, and which are not case-specific
- Completely based on information from tool developers
- Assessment elements: type of **business applications** covered by the tool, methodology and metrics, impact drivers, input data and level of detail / real data or modeling, user friendliness, which sectors, development phase and involved stakeholders, etc.
- In-depth discussions on Globio and Recipe
- Many more company specific measurement and valuation approaches, but out of scope for this assessment

Risk of confusion! Need for common ground and independent guidance!



BUSINESS APPLICATIONS SUPPORTED	ORGANISATIONAL FOCUS					
	PRODUCT/ SERVICE	SITE/ PROJECT	SUPPLY CHAIN	CORPORATE	PORTFOLIO/ SECTOR	COUNTRY/ REGION
1.Current performance	ABD PBF	ABD LIFE BIE STAR BD BMS BMT	ABD LIFE BD PBF BIM BMS EPL	BD GBS BIE LIFE BIM BMS EPL	BFFI LIFE GBS	ABD LIFE
2.Future performance	PBF	LIFE STAR BMT	LIFE PBF	GBS LIFE	BFFI LIFE GBS	LIFE
3.Tracking target progress	ABD PBF	ABD BIE BD LIFE STAR	ABD STAR BD LIFE	ABD BIE BD LIFE GBS STAR	ABD LIFE BFFI STAR GBS	ABD STAR
4.Comparing options	ABD PBF	ABD STAR BIE	ABD LIFE BIM EPL	ABD BIM BIE GBS EPL	ABD GBS BFFI LIFE	ABD LIFE
5.Third party assessments/ ratings		LIFE		GBS LIFE	GBS LIFE BFFI	LIFE
6.Third party certification		BD LIFE BMS	BD LIFE BMS	BD LIFE BMS	LIFE	LIFE
7.Risk & opportunity assessment	ABD	ABD BIE BMT	ABD EPL	ABD BIE EPL	ABD	ABD
8. Biodiversity accounting		BD	BD	BD		

Decision tree

- Only initial assessment – much more work to be done
- Dependencies to add
- Company specific approaches or ‘tailored’ approaches to add
- Pilots are necessary

Key

ABD	Agrobiodiversity index	BIE	Biodiversity Indicators for extractives	LIFE	LIFE Impact Index
BFFI	Biodiversity Footprint Financials	BD	Biological Diversity Protocol	PBF	Product Biodiversity Footprint
BIM	Biodiversity Impact Metric	GBS	Global Biodiversity Score	STAR	Species Threat Abatement & Recovery
BMS	Biodiversity Monitoring System for the Food Sector	EPL	Environment Profit & Loss	BPT	Biodiversity performance tool
	Addresses biodiversity		Addresses ecosystem services		Biodiversity & ecosystem services

European Commission

Business @ Biodiversity

Business @ Biodiversity, Webinar on biodiversity metrics

Webinar 2: Case studies on product level biodiversity measurement approaches

Product Biodiversity Footprint

Agenda

- Product Biodiversity Footprint approach in a nutshell
- Case Study 1: shower gel from L'Oréal
- Case Study 2: Salmon, wild vs. farmed

Objective of Product Biodiversity Footprint (PBF): hybridize Biodiversity methodologies & data with LCA methodologies

Biodiversity tools & actors

LCA tool & actors

RED LIST

protectedplanet.net

GLOBIO
Modelling human impacts on biodiversity

ISSG
Invasive Species Specialist Group

Sector ecology reviews

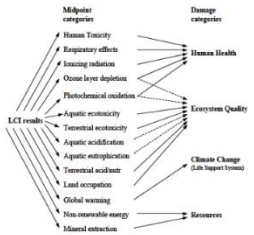
IUCN

pbf
product biodiversity footprint

ecoinvent Centre

LC-IMPACT

Life Cycle Initiative



PBF: An initiative supported by public authorities, academics and companies

Public

French Environment Agency / French Biodiversity Agency

Private

R&D Investment

icare & consult – environnement et stratégie

Initiator and leader of the project

Sayari

Co-developer

1st phase sponsors

L'ORÉAL · Avril · KERING

Scientific committee

UN environment · Life Cycle Initiative · IUCN · MUSÉUM National d'Histoire Naturelle · AgroParisTech · irstea · Solinnen

Expert Panel

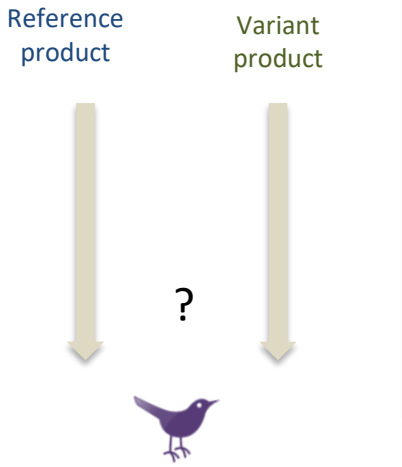
WWF · FAO Fiat Panis · University of Cambridge Institute for Sustainability Leadership · cdc biodiversité · PRé · ETH zürich

PBF output: one simple spider comparative impact on the 5 pressures on Natural Capital

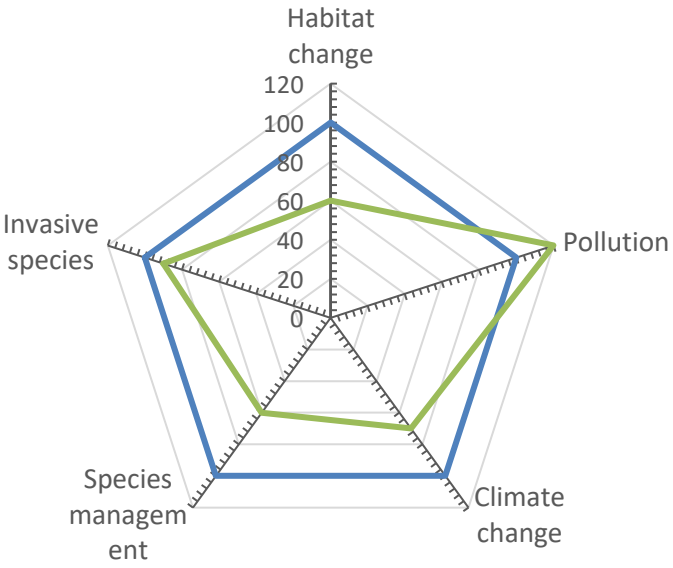
What is the difference in terms of biodiversity impacts between **a reference** and **a variant product** on whole life cycle ?

Biodiversity impact is expressed with **5 indicators corresponding to the 5 five main pressure on biodiversity,** and 10 sub-indicators

Spider chart with the 5 main pressures, with focus on difference between reference and variant



- Habitat Change
  - *Land use*
  - *Land transformation*
  - *Water stress*
- Pollution
  - *Acidification*
  - *Eutrophication*
  - *Photochemical oxydation*
  - *Freshwater ecotoxicity*
- Climate change
- Invasive species
- Species management



(100% is the value of the indicator for the reference product)

➢ Calculated on whole life cycle and value chain, absolute Impact on species expressed in **pdf and** in **m2eq pdf**

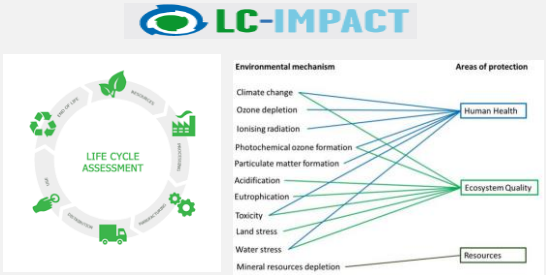
Life cycle assessment and ecological analysis to cover the 5 pressures on biodiversity

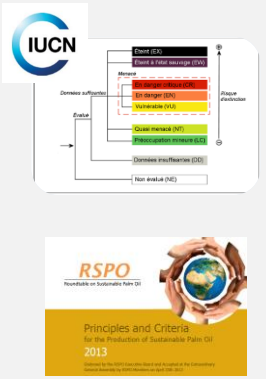
Habitat Change
Land occupation
Land transformation
Water stress

Pollution
Acidification
Eutrophication
Photochemical oxydation
Freshwater ecotoxicity

Climate change

Spatialized and “fine tuned” Life Cycle Assessment





Based on LC – Impact methodology & ecological scientific data per sector

Species management / over exploitation

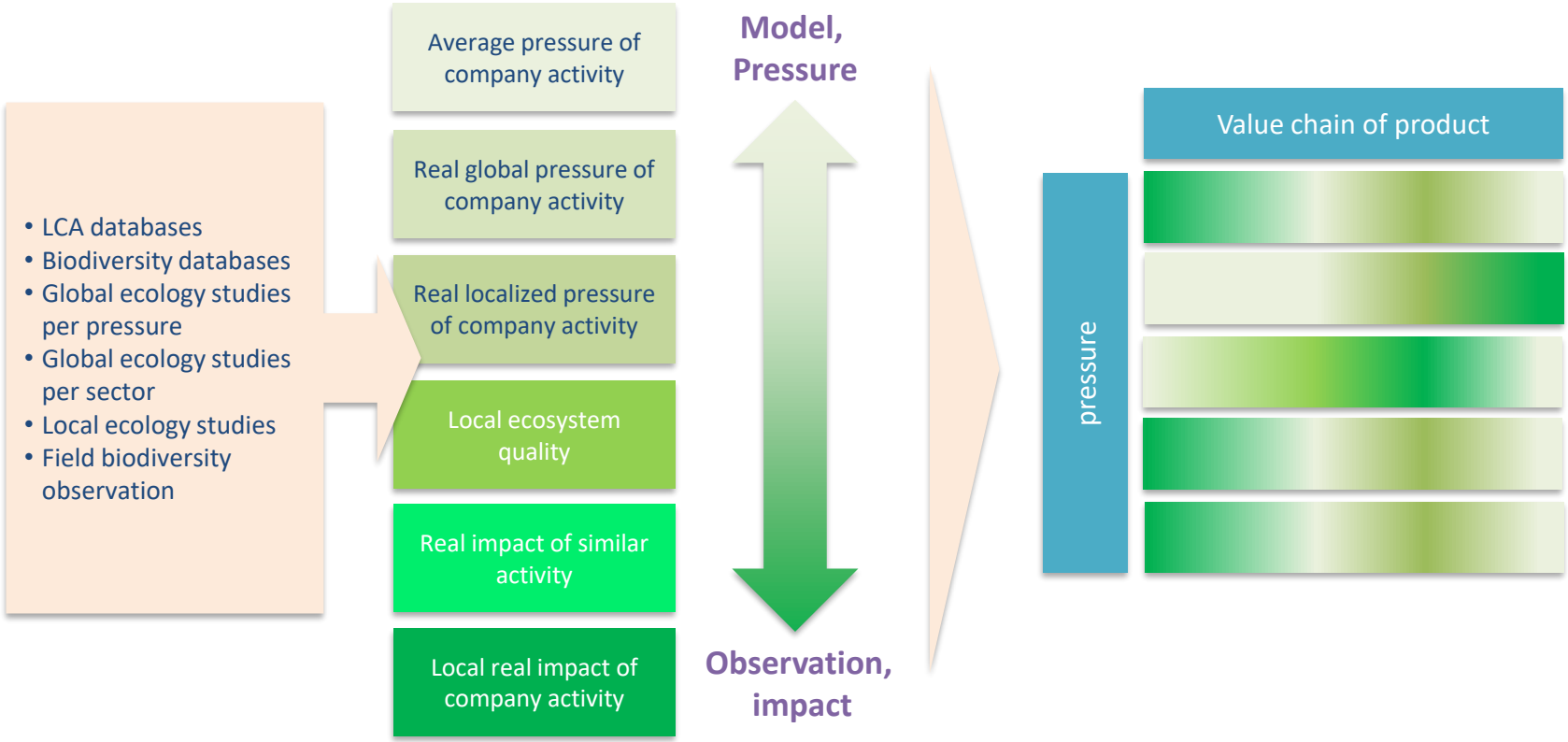
Invasive species

Non LCA analysis

Level of impact		Level of actions		Uncertainty level	
Potential impact or risk of impact (allows to identify hotspots)	Score	Actions already undertaken to diminish the impact or risk of impact (allows to modulate the level of impact)	Score	Underline the level of confidence in the potential impact value. More the subject is studied and the impact scientifically documented, more the level is low	Score
Not concerned	NC	Not concerned	NC	Not concerned	NC
High impact	6	Action potentially negative		No study	5
Moderate impact	5	No action	6	Interne study	4
Low impact	4	Awareness or recommendation	5	Scientific study with contrasted results	3
Minor impact	3	Diagnostic or management plan	4	Scientific study and proven impact (few publications)	2
Little or no impact	2	Obligation without verification	3	Scientific study and proven impact (many publications)	1
Positive impact	1	Obligation with verification	2		
		Positive actions beyond obligations	1		

Standard qualitative analysis grid built by I Care & Sayari (to be adapted per sector)

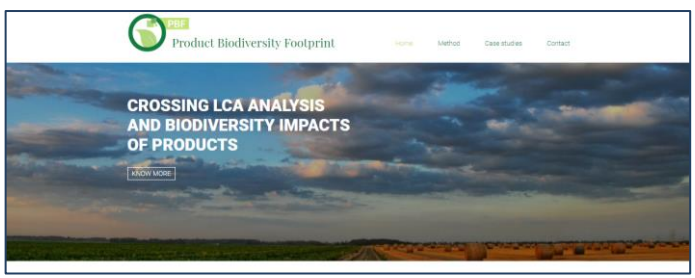
PBF is a « global indicator », based on impact modelization of pressures, but aiming for focused and maximal integration of real impact data



The combination of model and observation is absolutely necessary when evaluating impact at product or corporate level

- Model enables **screening and hotspot** identification
- Observation enables **refining** the model

PBF update



Case studies

- 4 case studies finalized
  - Shower gel
  - Cooking oil
  - Textile
  - Salmon
- 5 on going case studies

Sector coverage

- All sectors with generic approach
- Sector-specific approach developed for
  - Agriculture
  - Food
  - Textile
  - Packaging (ongoing)
  - Electricity (ongoing)

On going Accelerated sector coverage based on synergies with Corporate Biodiversity Footprint Expansion project (with IDL for investors)

Agenda

- Product Biodiversity Footprint approach in a nutshell
- Case Study 1: shower gel from L'Oréal
- Case Study 2: Salmon, wild vs. farmed

PBF case study on a cosmetic product (I)

Objective

- Evaluate the impact of the actions of L'Oreal with its suppliers to reduce impact on biodiversity of ingredients at farming phase
- Integrate Biodiversity impact in eco-design process of L'Oréal

Valorization

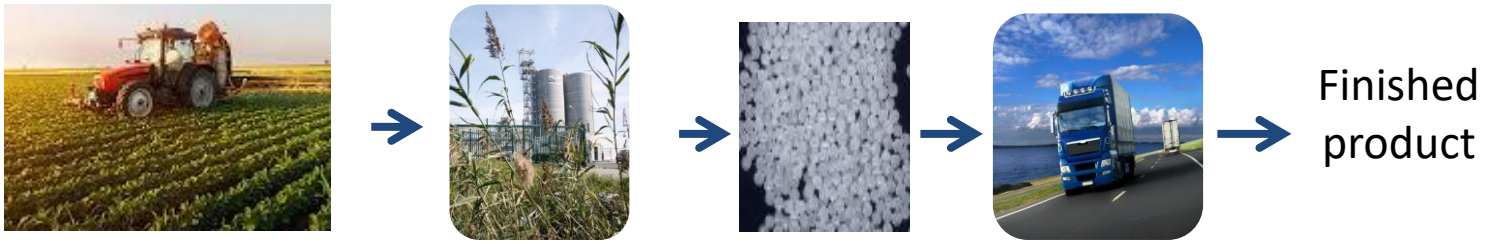
- Analysis conducted over 2018/2019 (littérature analysis, data collection, result analysis)
- Valorization in 2019/2020
  - Internal presentation
  - Posters in scientific LCA conferences and Sustainability conferences
  - Scientific publication in 2019 (Journal of Cleaner Production)

Next steps

- Integration of eco-toxicity pressure and downstream impact analysis
- Roll-out to other products

PBF case study on a cosmetic product (II)

1 finished product, cradle to gate perimeter



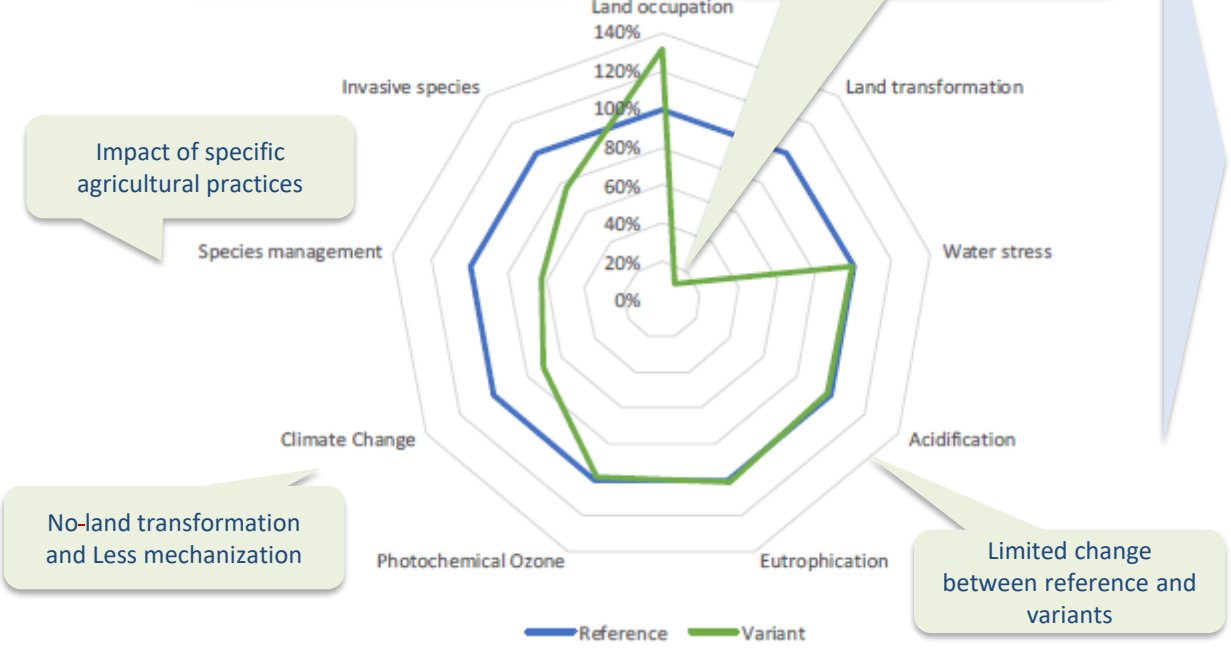
- Illustration: Test and evaluate the specific impact of sustainable practices at agricultural phase
  - ✓ **Reference :** standard culture
  - ✓ **Variant :** Sustainable culture

PBF case study on a cosmetic product (III)

Results

Lower yields, partially compensated by less biodiversity impact intensity

No land transformation on field according to LCA standards (> 20 years)



Impact of specific agricultural practices

No-land transformation and Less mechanization

Limited change between reference and variants

Reference and variant systems evaluated with the PBF methodology (cradle-to-gate perimeter)

Conclusions

Relative to the results of the simulation

- ✓ The **different drivers on biodiversity** have to be covered to capture all impacts
- ✓ **Strong effect of the yield** on results

Relative to the methodology

- ✓ Useful to compare in a **quantitative way** the potential benefit for Natural Capital of a sustainable variant scenario
- ✓ **First step** to embed this method in company innovation process

Agenda

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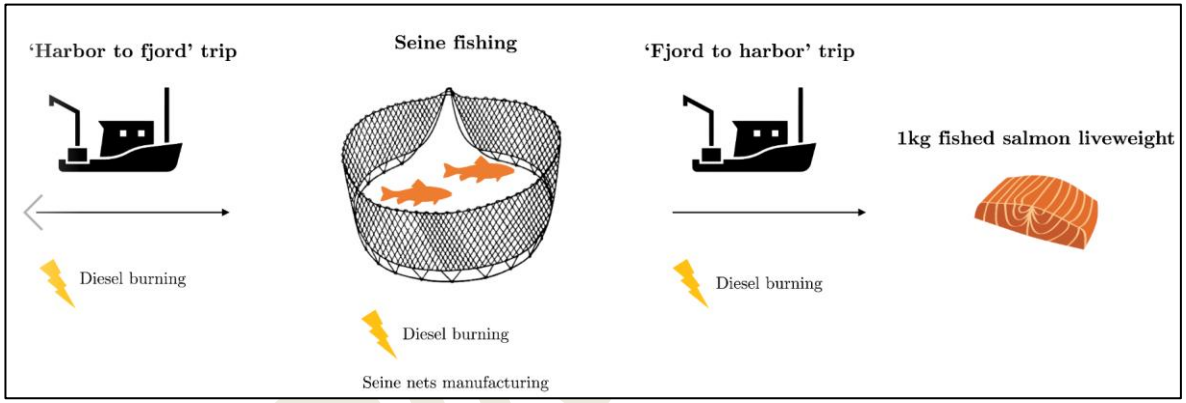
- Case Study 2: Salmon, wild vs. farmed

Goal and Scope : cradle-to-harbor-gate Norway salmon

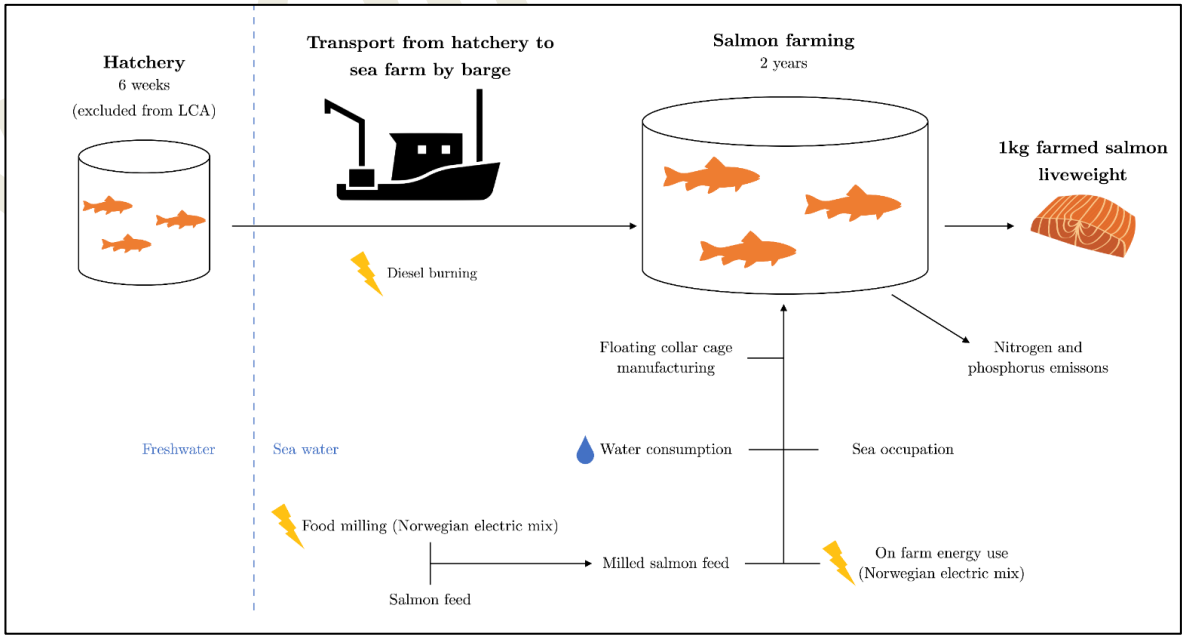
Reference

Wild-caught salmon

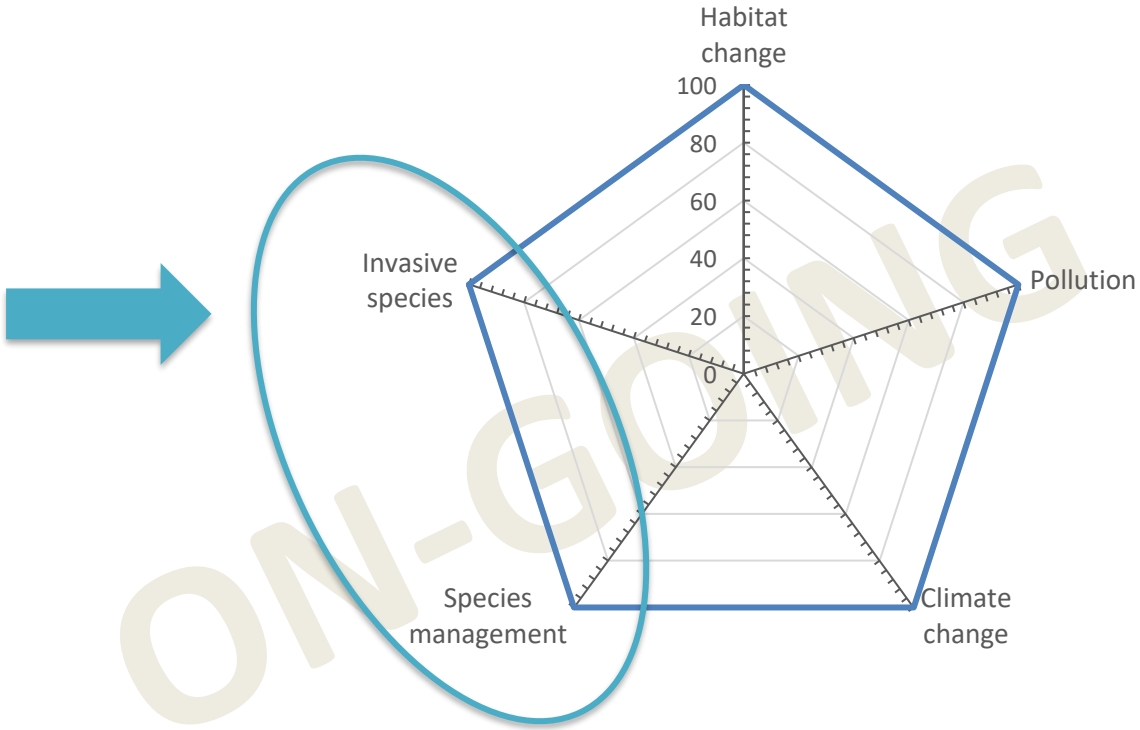


Variant

Farmed salmon



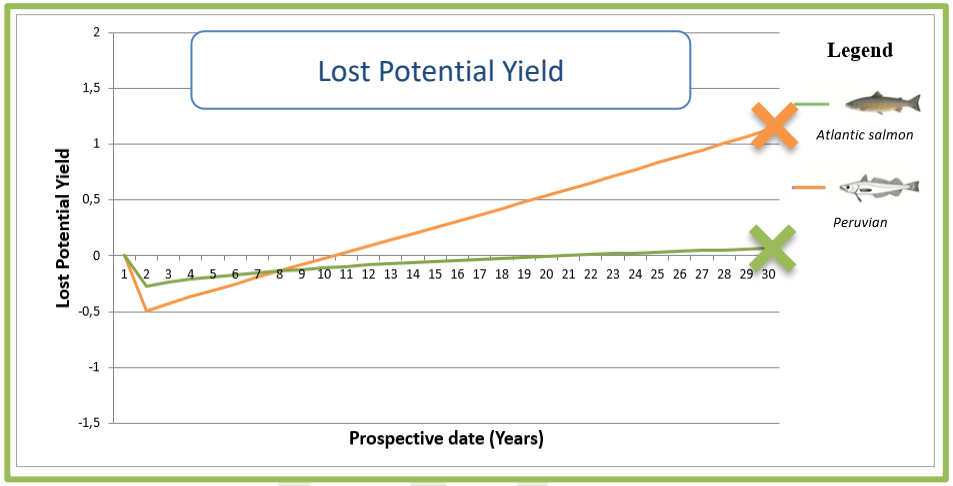
Case study on Salmon: a need for improvement of the methodology on 2 indicators



Development of additional features of PBF to better assess
- Species management – overexploitation
- Invasive species

Cas study on Salmon: Focus on overexploitation

Proposed quantification
Emanuelsson et al 2014



Reference	VS	Variant
Wild caught salmon		Farmed salmon
- Wild salmon fishing **is sustainable** : wild stocks of salmon are stable over the years - Annual fishing quantities are **limited** : they have reached the **Maximum Sustainable Yield** - Norway regulation has reached its purpose		- Farmed salmon is needed to cover consumption needs - For now, farming is **depleting Peruvian anchovies' stocks** ➔ **Need to improve salmon feed in ecodesign approach**

Upcoming publication…

Cas study on Salmon: Focus on Invasive Species

Criticity (C)		Behavior								
		-27	-9	-3	0	3	9	27	81	243
Effect	16	-432	-144	-48	0	48	144	432	1296	3888
	8	-216	-72	-24		24	72	216	648	1944
	4	-108	-36	-12		12	36	108	324	972
	2	-54	-18	-6		6	18	54	162	486

Criticity scale		
Positive	-432	-1
Minor	0	36
Serious	37	144
Major	145	486
Disastrous	487	3888

Wild-Caught

Farmed
Invasive species = farmed salmon

Reference	VS	Variant
Wild caught salmon		Farmed salmon

- No impact		- Different pathways :
		  - Competition for territory
		  - Predation
		  - Parasitism (sea lice)
		- Farmed salmon has a **low impact**

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Measuring biodiversity for busines and finance: building up understanding through case study analysis

Biodiversity Footprinting using ReCiPe:

A case study on hand drying systems

Daniël Kan
LCA Consultant

PRé


In 1990 we developed the first version of SimaPro with the goal of making sustainability more fact-based.
That is still our driving value.

About me

DANIËL KAN

Consultant @ PRé

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Universiteit Leiden
Institute of Political Science

INDUSTRIAL ECOLOGY
INNOVATIVE BY NATURE

PRé

Life Cycle Assessment studies

Biodiversity Footprint for Financial Institutions

LCA and **SimaPro Training**

I will answer the following questions

- What is an impact assessment method?
- How does ReCiPe work?
- How did we use ReCiPe in our case study:
  a comparison of hand drying systems

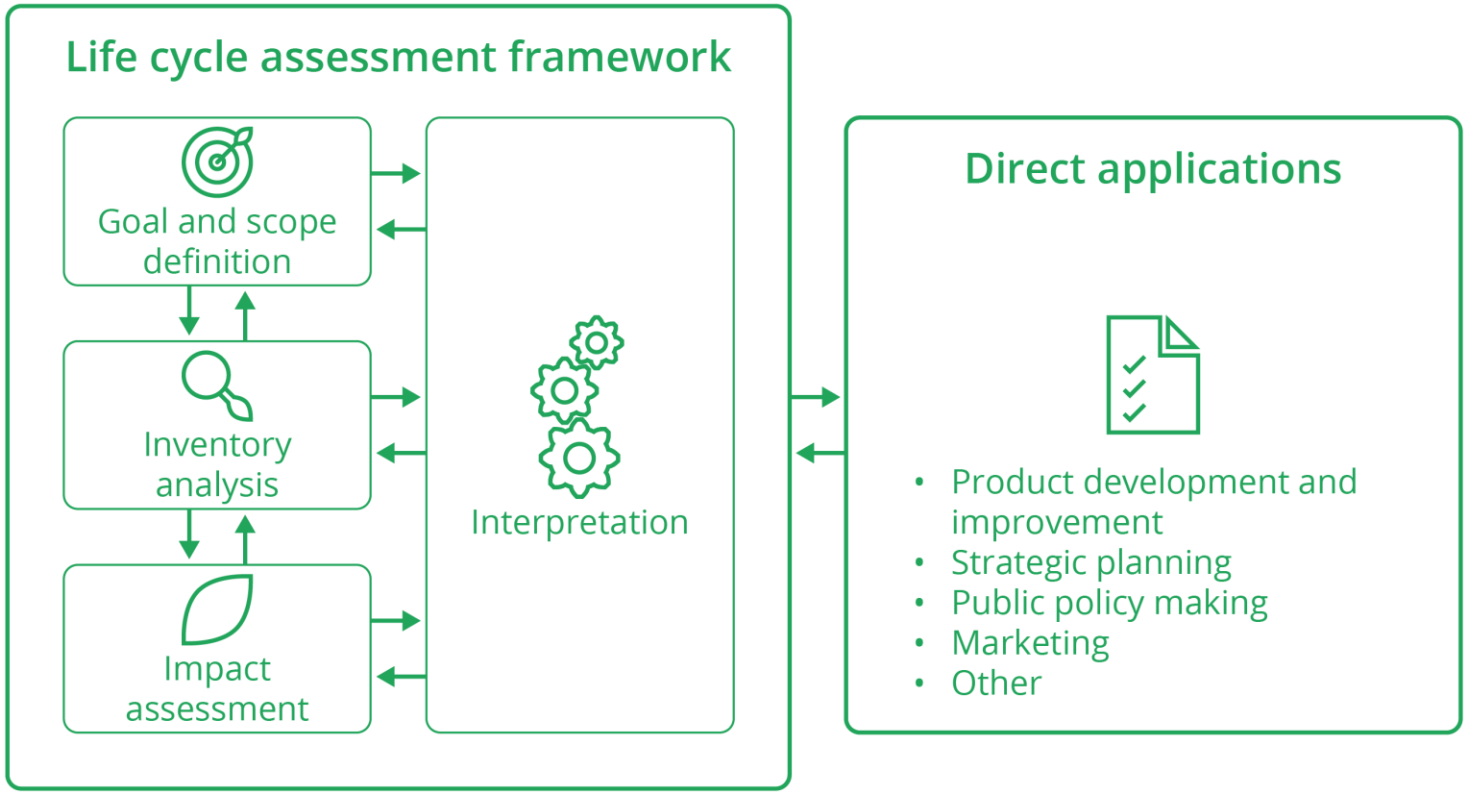
What is life cycle assessment?

Life cycle assessment (LCA) is a science-based methodology used to evaluate the environmental and social impacts associated with a product or service from cradle to grave.

The LCA methodology is a standardized, which ensures its reliability and transparency.

In each life cycle stage there is the potential to reduce resource consumption and improve the performance of products.

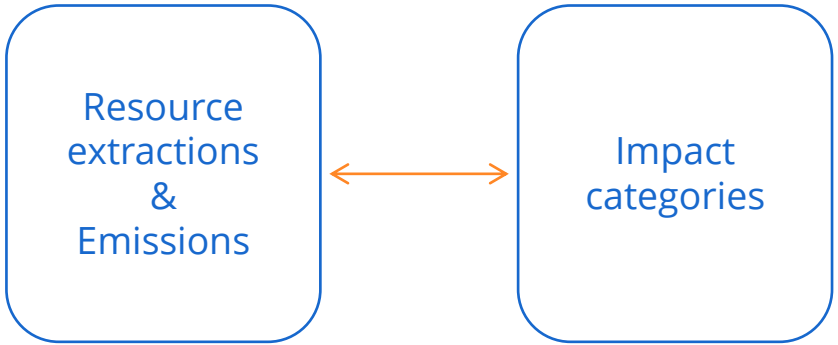
There are four steps of a life cycle assessment



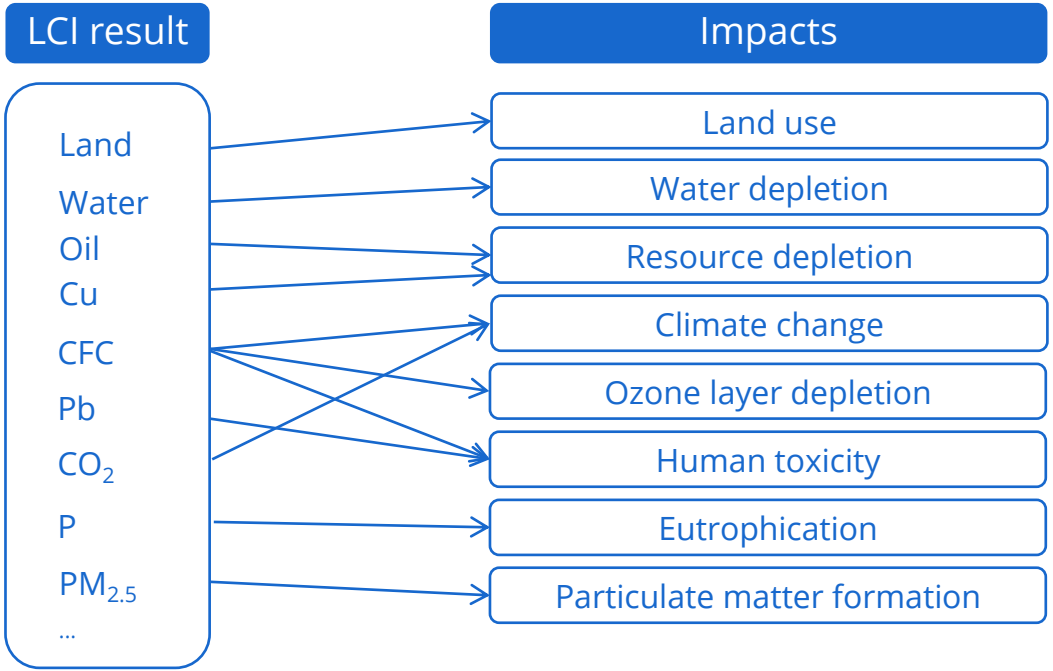
Steps of LCIA

1. Classification

- Identifying the connections between types of environmental pollution and impact
- Sorting the interventions into classes according to the effect they have on the environment



1. Classification



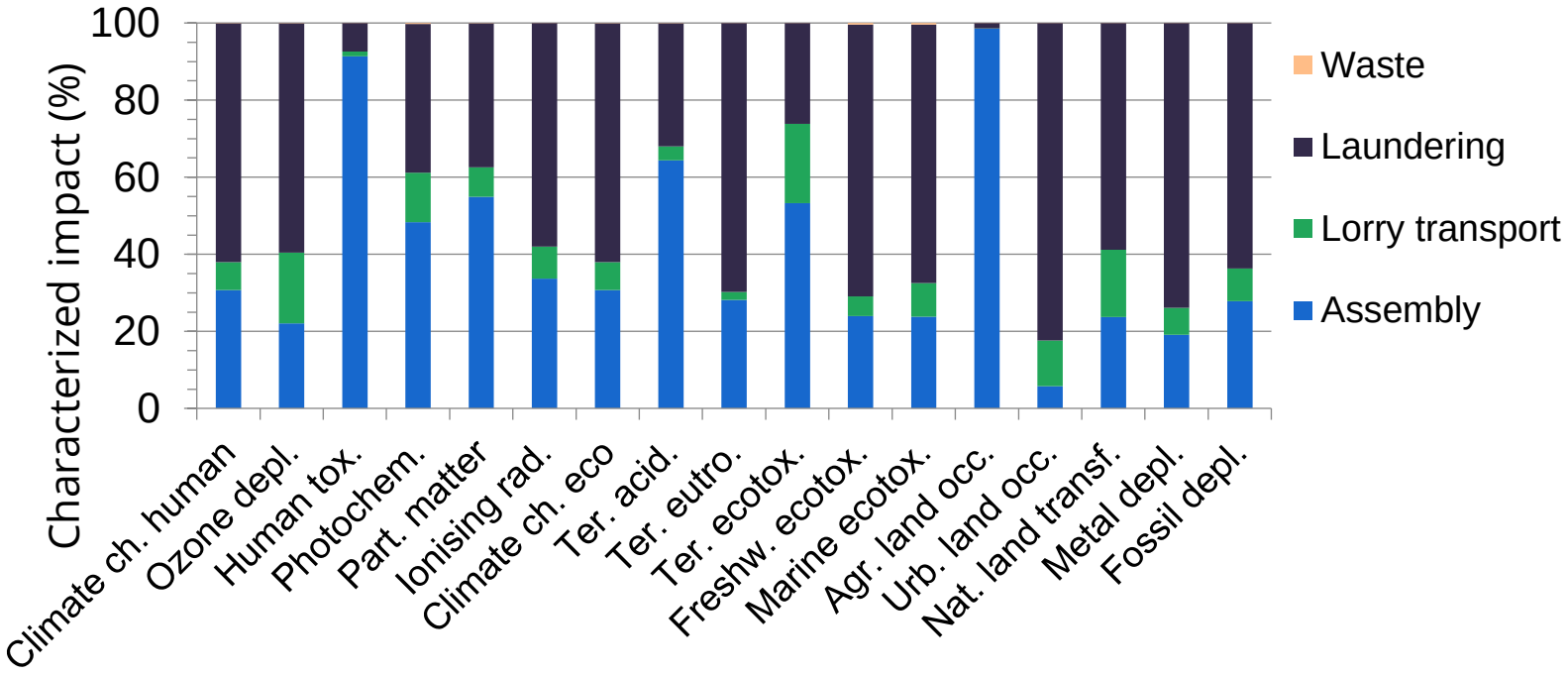
2. Characterization

- Next step is to quantify how much impact a product or service has in each impact category
- All interventions are multiplied by a factor **(characterization factor)** which reflects their relative contribution to the environmental impact

2. Characterization

LCI results		Climate change		Acidification		Particulate matter	
1000 g	CO_2	x 1	= 1000				
10 g	SO_2			x 1.31	= 13.1	x 0.061	= 0.61
5 g	NO_x			x 0.74	= 3.7	x 0.007	= 0.036
5 g	N_2O	x 298	= 1490				
4 g	$PM_{2.5}$					x 1	= 4
		+		+		+	
Characterized results		**2.49**	kg CO_2-eq.	**0.0168**	mol H^+-eq.	**0.0046**	kg $PM_{2.5}$-eq.

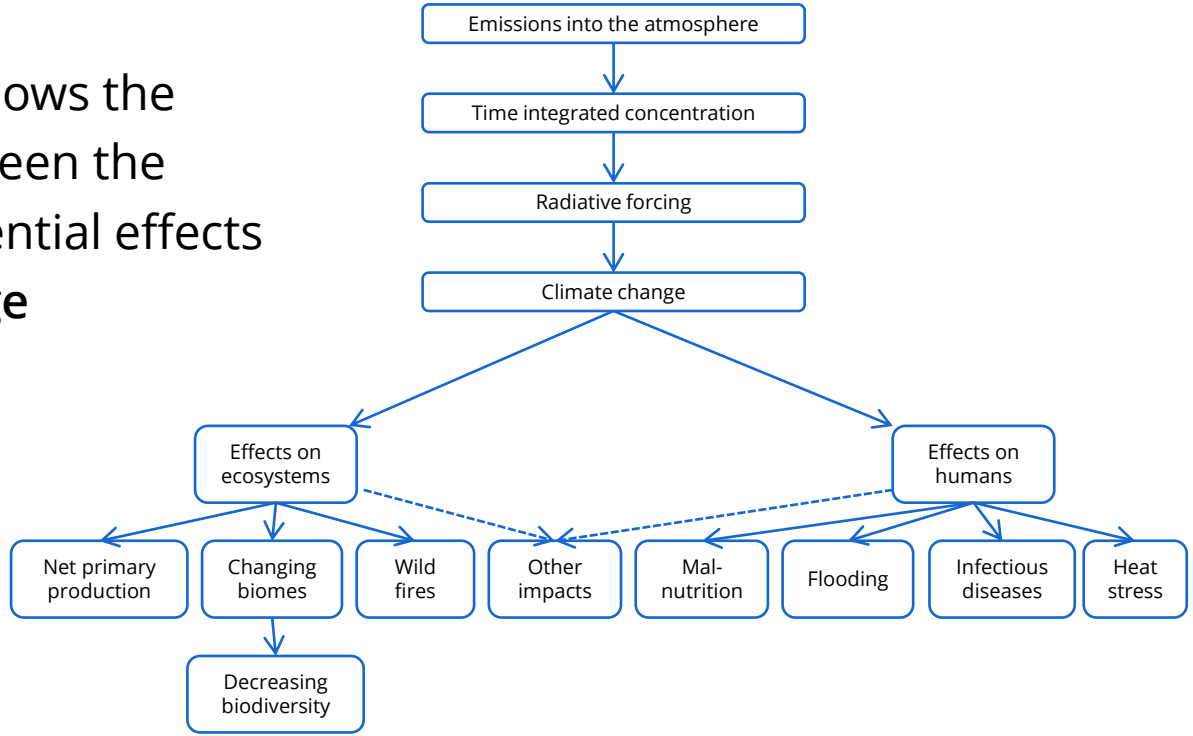
2. Characterization: Analyzing 1 product



2. Characterization factors are based on cause-effect pathways

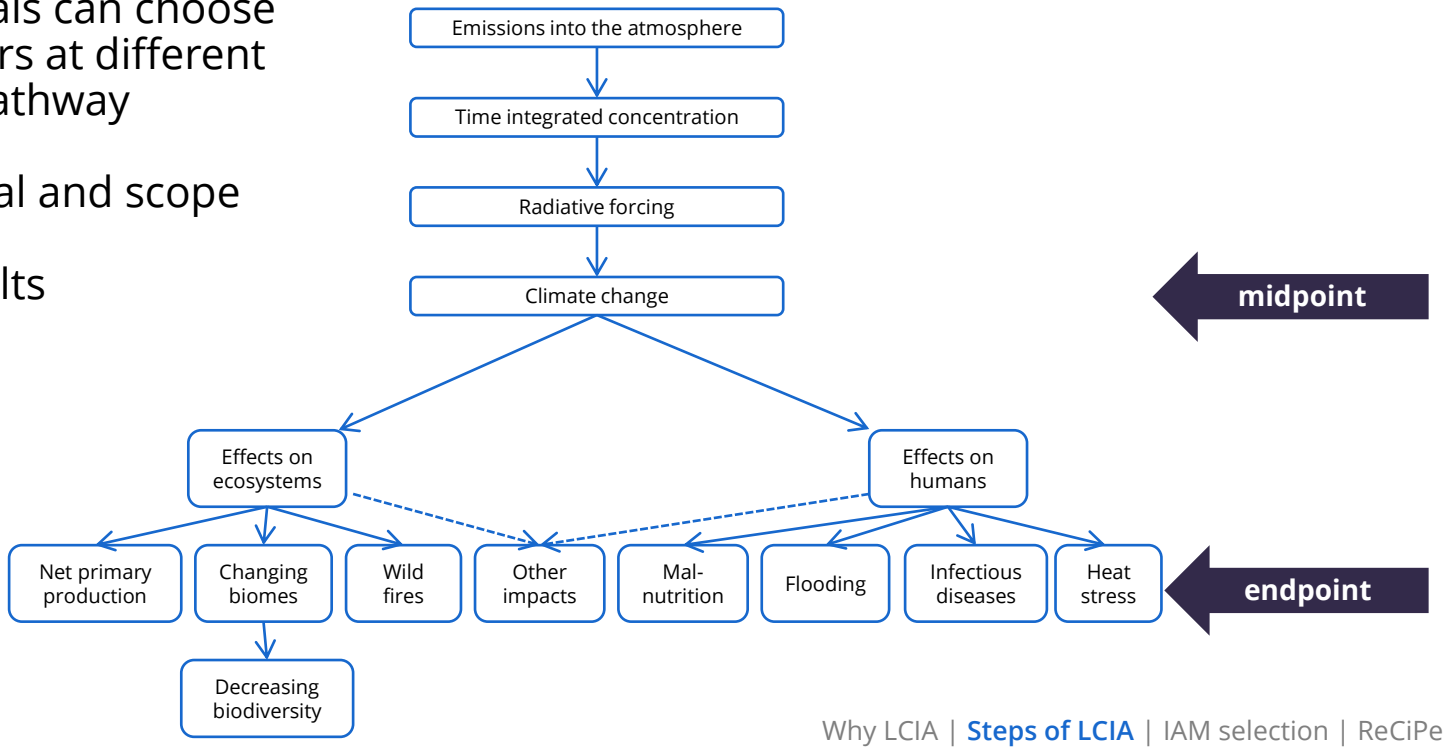
Cause-effect pathway shows the causal relationship between the intervention and its potential effects

Example: climate change

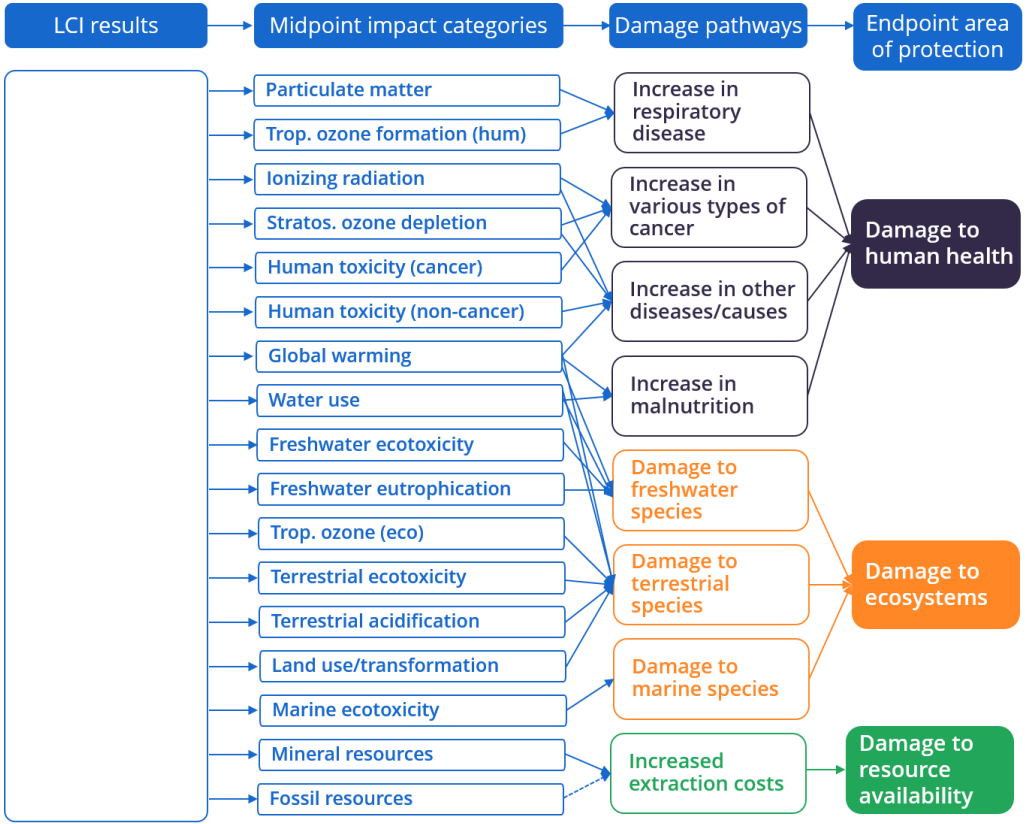


2. Characterization can be done at midpoint and endpoint

- LCA professionals can choose impact indicators at different stages in this pathway
- Depends on goal and scope
  - Audience
  - Use of results



Mid-point and end-point modelling in ReCiPe



ReCiPe2016 developers:

Radboud University

NTNU – Trondheim
Norwegian University of Science and Technology

PRé

Rijksinstituut voor Volksgezondheid en Milieu
Ministerie van Volksgezondheid, Welzijn en Sport

What does PFD.m2.yr mean?

PDF = Potentially Disappeared Fraction of species

10 PDF.m2.yr, can be interpreted as:

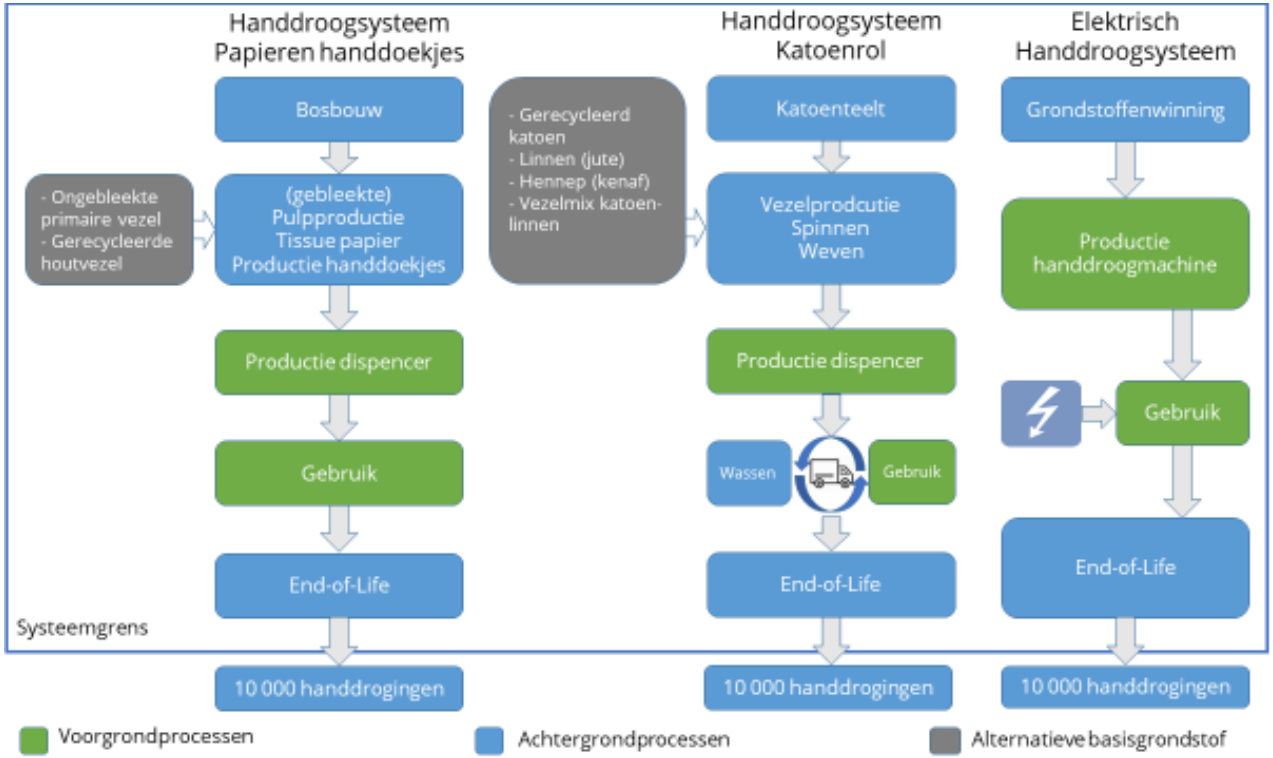
- 10 m2 has lost all its species during a year
- 100 m2 has lost 10% of its species during a year
- 10 m2 has lost 10% of its species during 10 years

We only know the combined effect

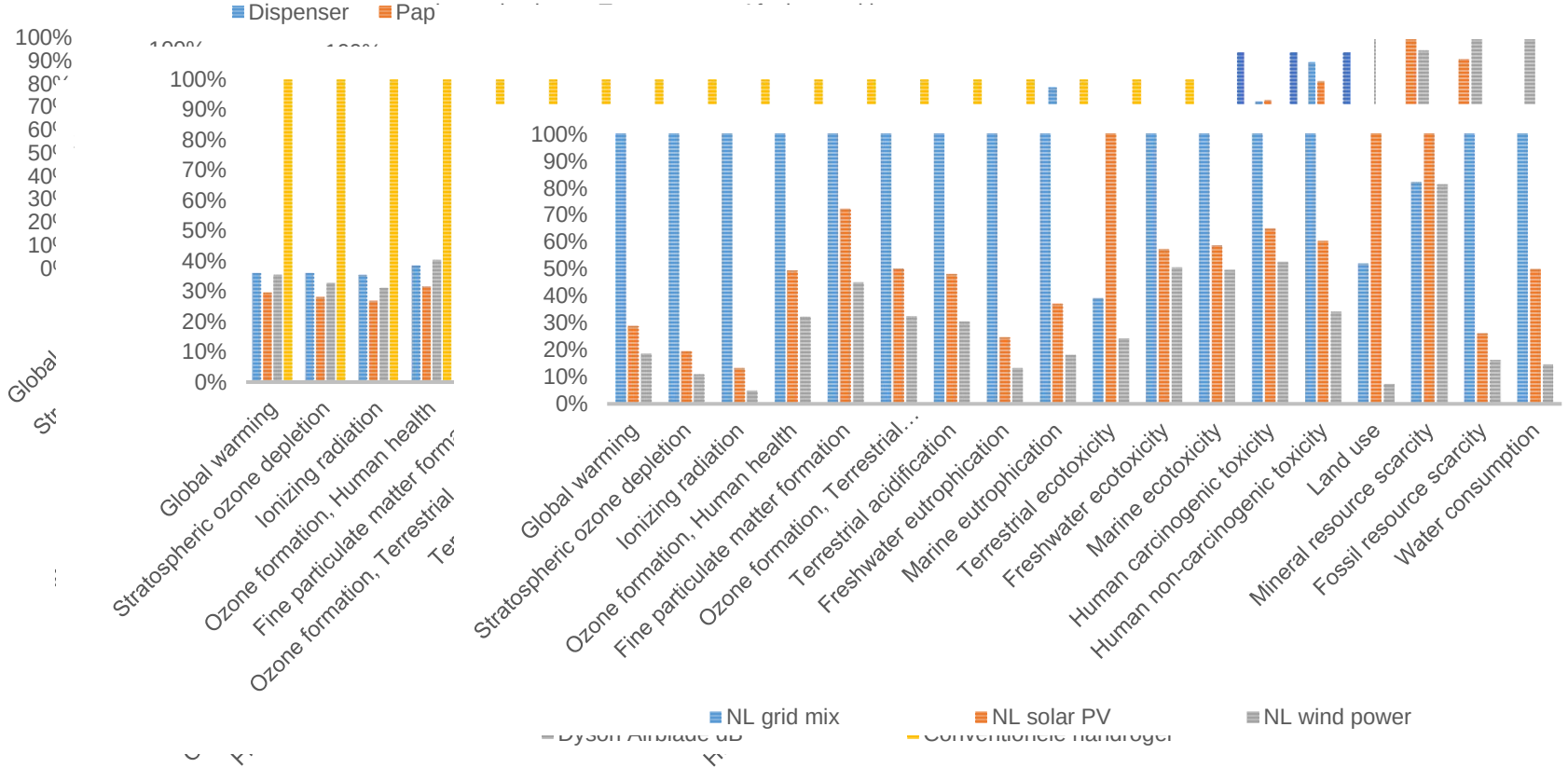
PDF = 1

PDF = 0

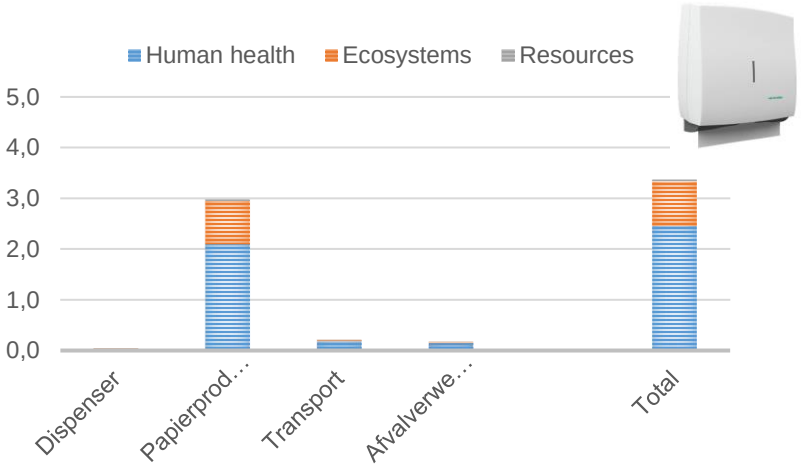
Goal and Scope of our case study

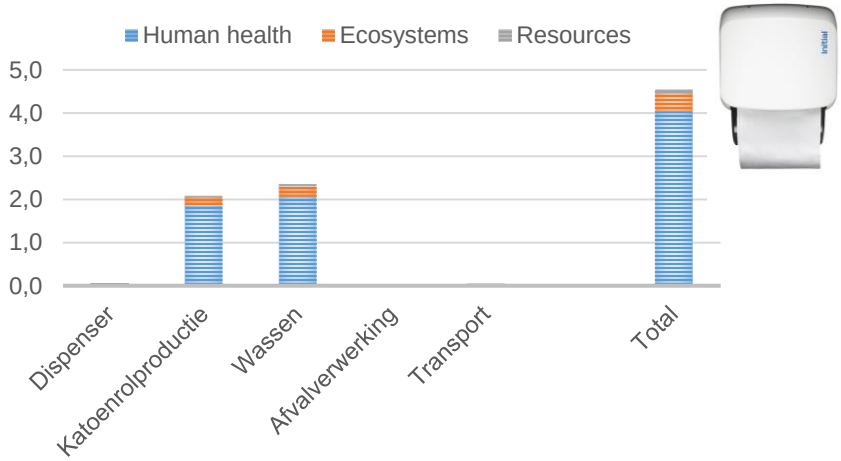


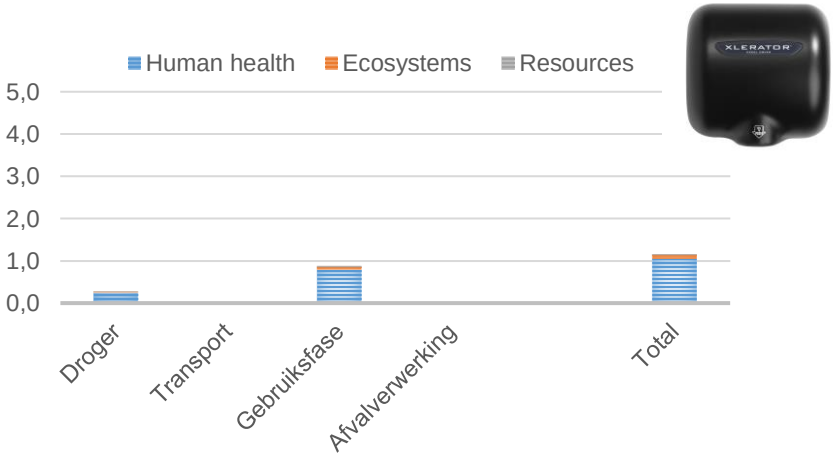
Results can be overwhelming



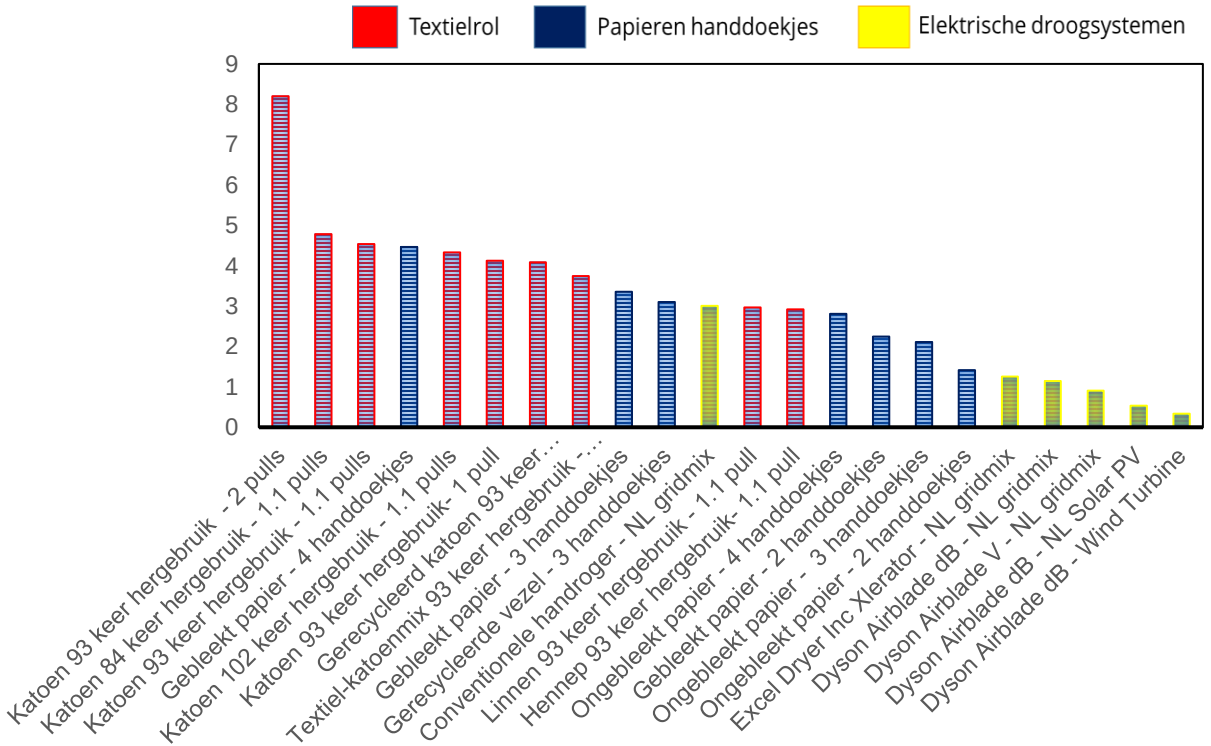
Sometimes we prefer end-point modelling







Or even single score results



The initiative to improve biodiversity coverage in the Product Environmental Footprint (PEF)

Serenella Sala

Case studies on product level biodiversity measurement approaches for business– 01st October 2020

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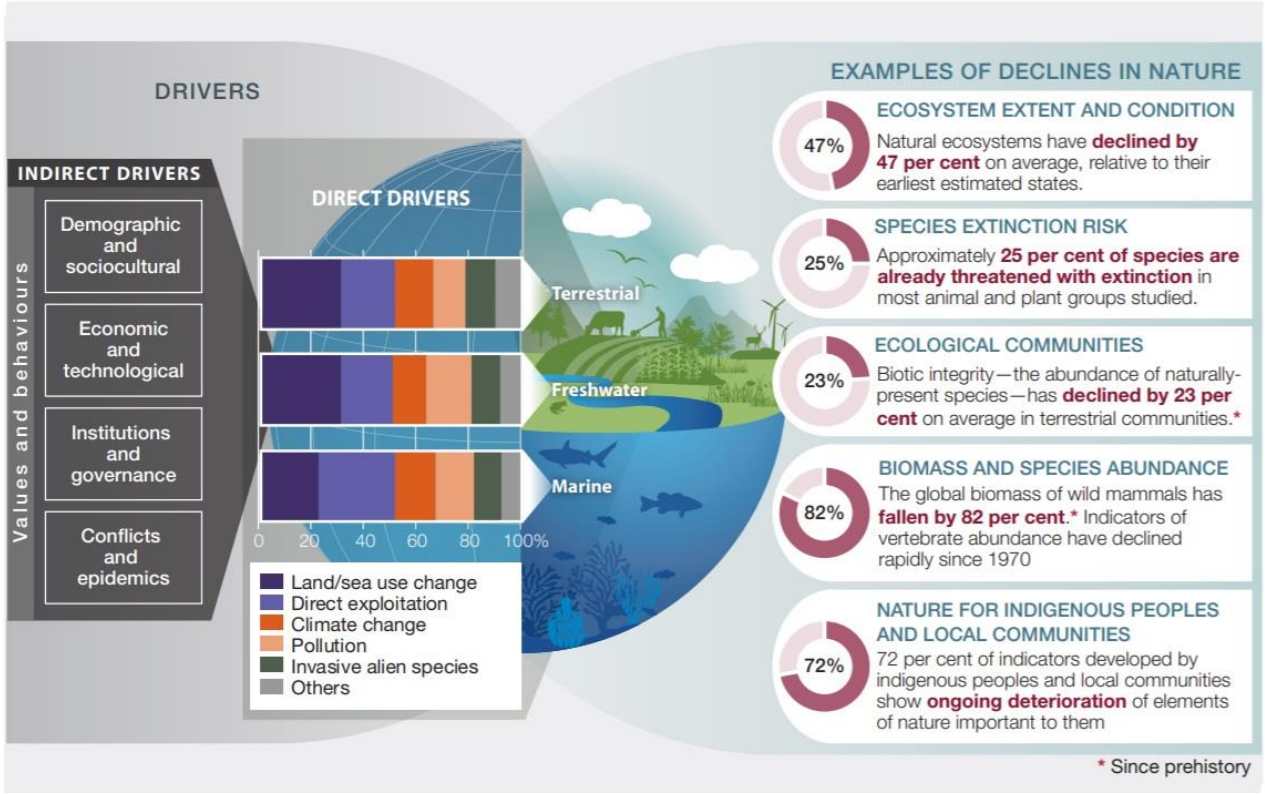
- Biodiversity in the PEF and synergies with other initiatives
- Review of existing biodiversity models and metrics in LCA
- Case study: Biodiversity impacts of consumption in EU
- Possible way forward

Main drivers of biodiversity loss

Recently, the IPBES Global Assessment, confirmed the main drivers of biodiversity loss and ecosystem degradation:

- Land/sea use change
- Direct exploitation of resources/ecosystems
- Climate change
- Pollution
- Invasive alien species



From IPBES (2019)

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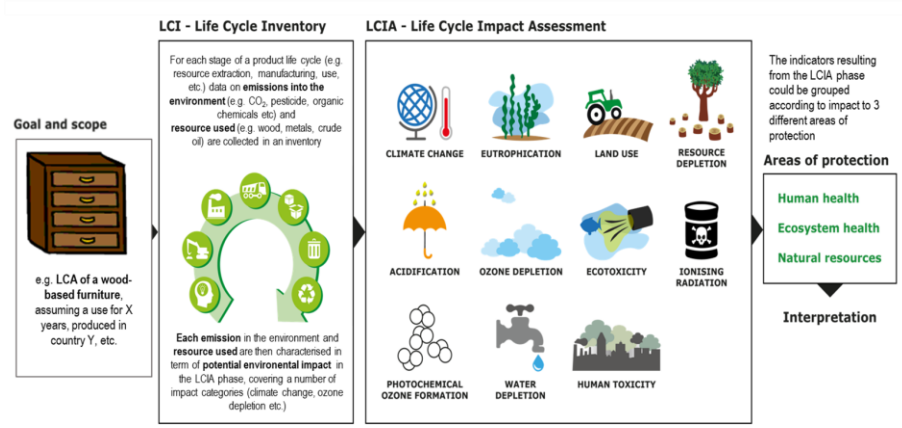
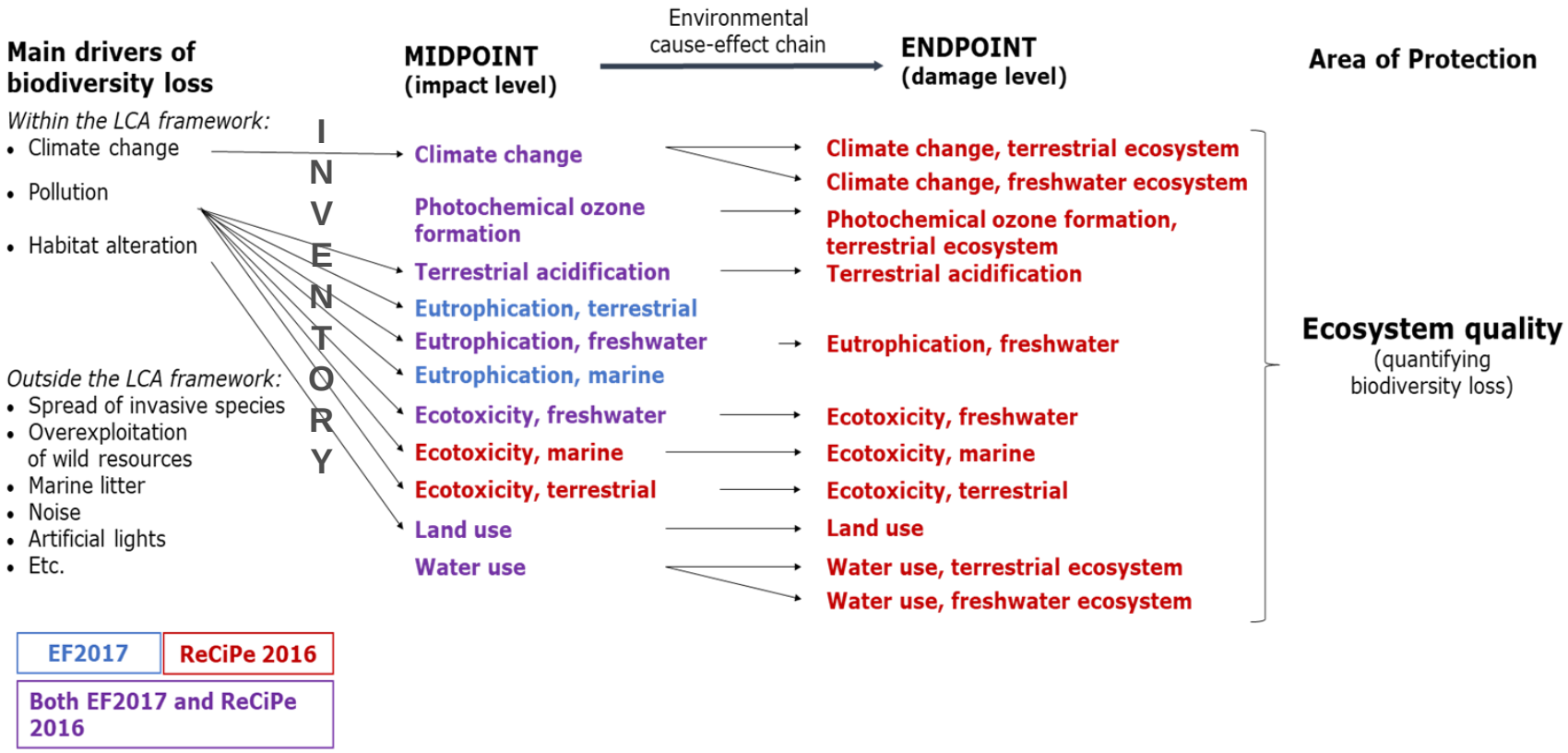
Biodiversity in Life Cycle Assessment (LCA)



- Production and consumption patterns are critical drivers of biodiversity loss
- LCA is pivotal to understand the contribution of different stages along the supply chain to biodiversity loss
- LCA help to systematically addressing drivers of biodiversity loss, pressures (emissions and resource use), related environmental impacts and their implications to biodiversity loss

Biodiversity in Life Cycle Assessment (LCA)



Current LCIA methods use **species richness** to quantify potential impacts on biodiversity → **Potentially Disappearing Fraction of species (PDFs)**

Biodiversity impacts in LCA are usually assessed at the **endpoint level**. Currently **EF** is a**ddressing impacts which ultimately may lead to biodiversity loss**, such as climate change, ecotoxicity, land use etc

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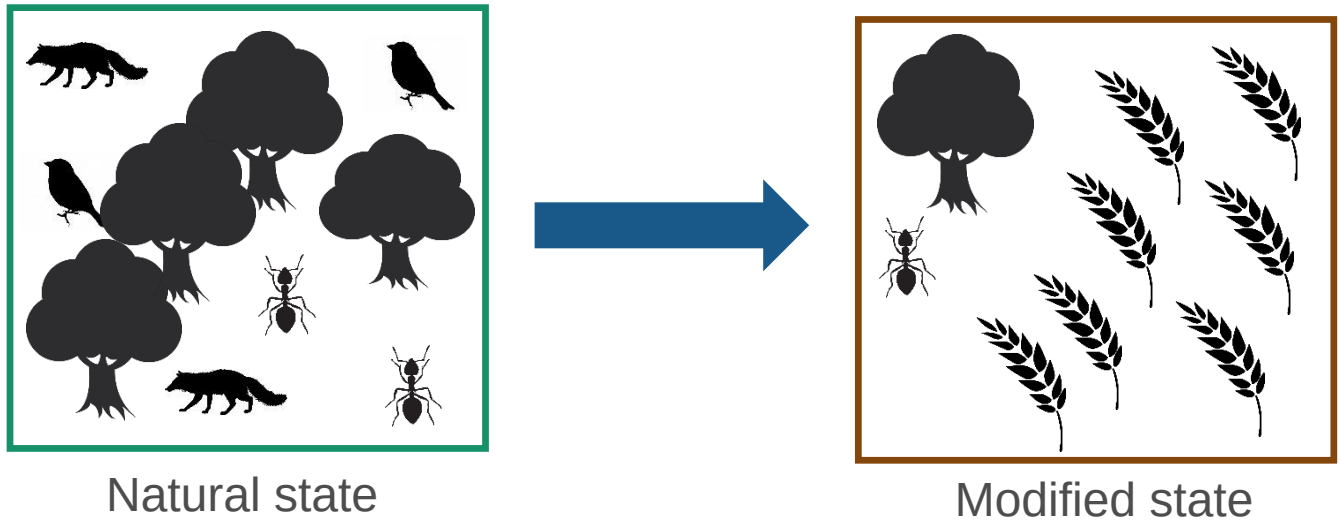
Potentially Disappearing Fraction of Species (PDFs)

- The endpoint unit used to assess the impacts on biodiversity in operational LCIA methods is PDF(potentially disappearing fraction of species).
- PDF accounts for **a fraction of species richness that may be potentially lost due to an environmental pressure** (land use, ecotoxicity, climate change, eutrophication). The underlying environmental mechanism depends on the pressure being assessed.



Natural state

Modified state

Potential number of species in natural state: 4

Potential number of species in the modified state: 2

Potential disappeared fraction of species: 2/4 = 0.5

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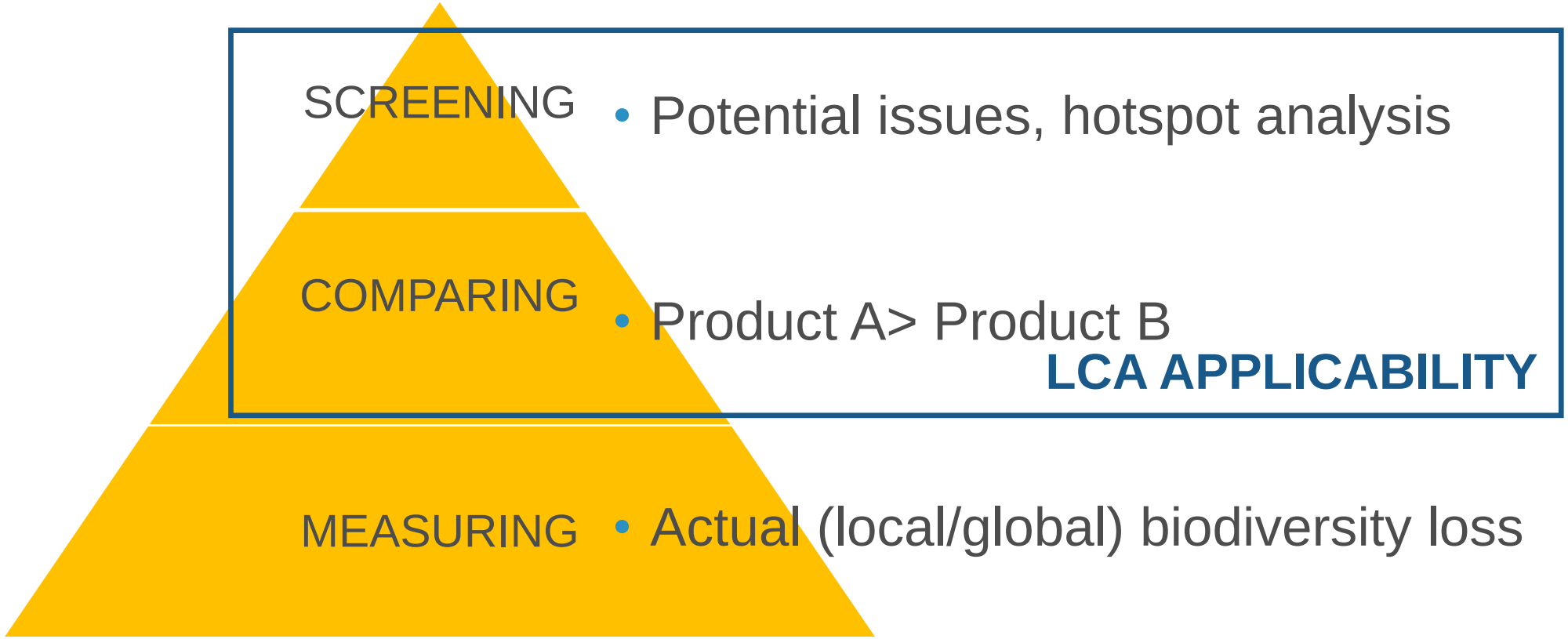
Hierarchy of complexity in measuring biodiversity impacts



Biodiversity in the PEF
Current initiatives and possible synergies

JRC
- Review and comparison of approaches to quantify biodiversity impacts
- Establishing a connection with Natural Capital Accounting and the Mapping and Assessment of Ecosystem Services

Biodiversity Strategy COM/2020/380 final

Farm to Fork Strategy COM/2020/381

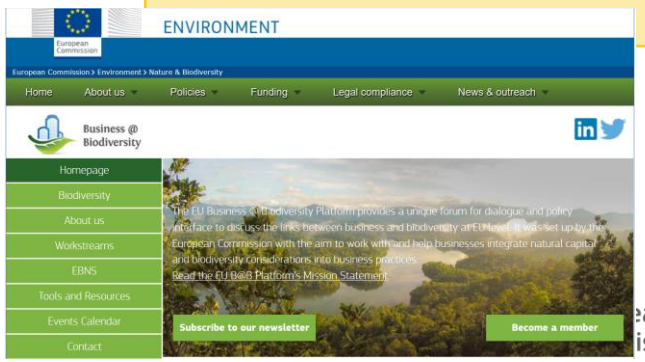
UNEP-WCMC
- Form a common view on the measurement, monitoring and disclosure of corporate biodiversity impacts and dependencies

Biodiversity footprint in PEF

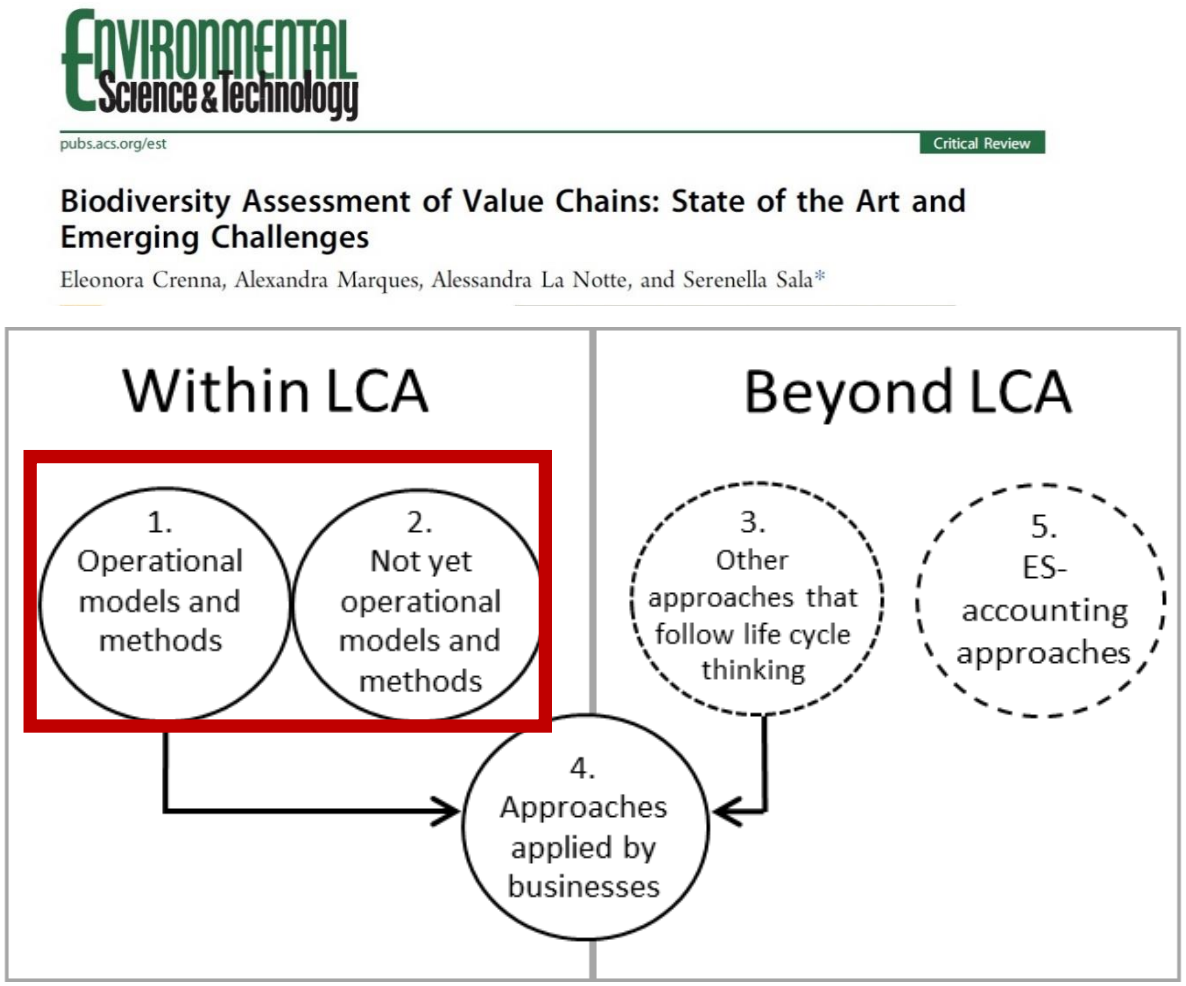
Business @ Biodiversity
- DG ENV platform an approaches and metrics for biodiversity assessment

UNEP- GLAM initiative
- Global Guidance on Environmental Life Cycle Impact Assessment Indicators for biodiversity, ecosystem services and natural resources

- **Specific sub-group of AWG on biodiversity**
- **Provide guidelines to include biodiversity in PEF**



Review of existing biodiversity methods in LCA



Crenna et al. (2020)

- **"Operational models* and methods[1]"** include all 'endpoint' models and methods available in LCA software or recently developed with the aim of being operational for LCA practitioners.
- **"Not yet operational models and methods"** refer mainly to models available in literature but still not widely used/implemented.

* Models refer to the approaches used to determine environmental impacts (e.g. Chaudhary et al. 2015, IPCC, etc)

[1] Methods are groups of models (e.g. Recipe, LC-Impact, EF)

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Elements assessed in existing methods/models

Recipe 2016
LC-Impact
Impact World +
Stepwise
Ecological Scarcity 2013

- Impact categories covered
- Spatial resolution
- Biodiversity metrics (the most used metric is PDF*)

The review focuses on most recent ones, which were capitalising on older methods, such as Ecoindicator 99, Recipe 2008, Impact 2002 etc.

* Stepwise uses another metric: biodiversity adjusted hectare year (BAHY) that corresponds to 10.000 PDF m^2 year, Ecological Scarcity is a distance to target method that uses ecopoints.

Operational methods

impact categories and spatial resolution

	Climate change	Photochemical Ozone Formation	Acidification			Euthrophication			Toxicity			Land use	Water use	Ionizing radiation
			Ter	Fres	Mar	Ter	Fres	Mar	Ter	Fres.	Mar			
Recipe 2016	G	G [SE]	G [SE]				G [SE]	G	G	G	G	G	C [SE]	
LC-Impact	G	R	SE				FE	R, ME	R	R	R	TE	SE	
Impact World +	G		SE	SE	G		SE	SE	Ce	Ce	Ce	B, L	W	G
Stepwise	G	G	G			G	G		G	G		G		
Ecological Scarcity 2013												G		

Yes

Interim

No

Not existent

G – Global, not regionalized
C – Country
R – Regions
SE – Spatially explicit/GRID
FE – Freshwater ecoregions

R – River basins
ME – Marine ecosystems
TE – Terrestrial ecoregions
Ce – Continental
B – Biomes

L – Holdridge lifezones
W – Watershed
NR – Not regionalized

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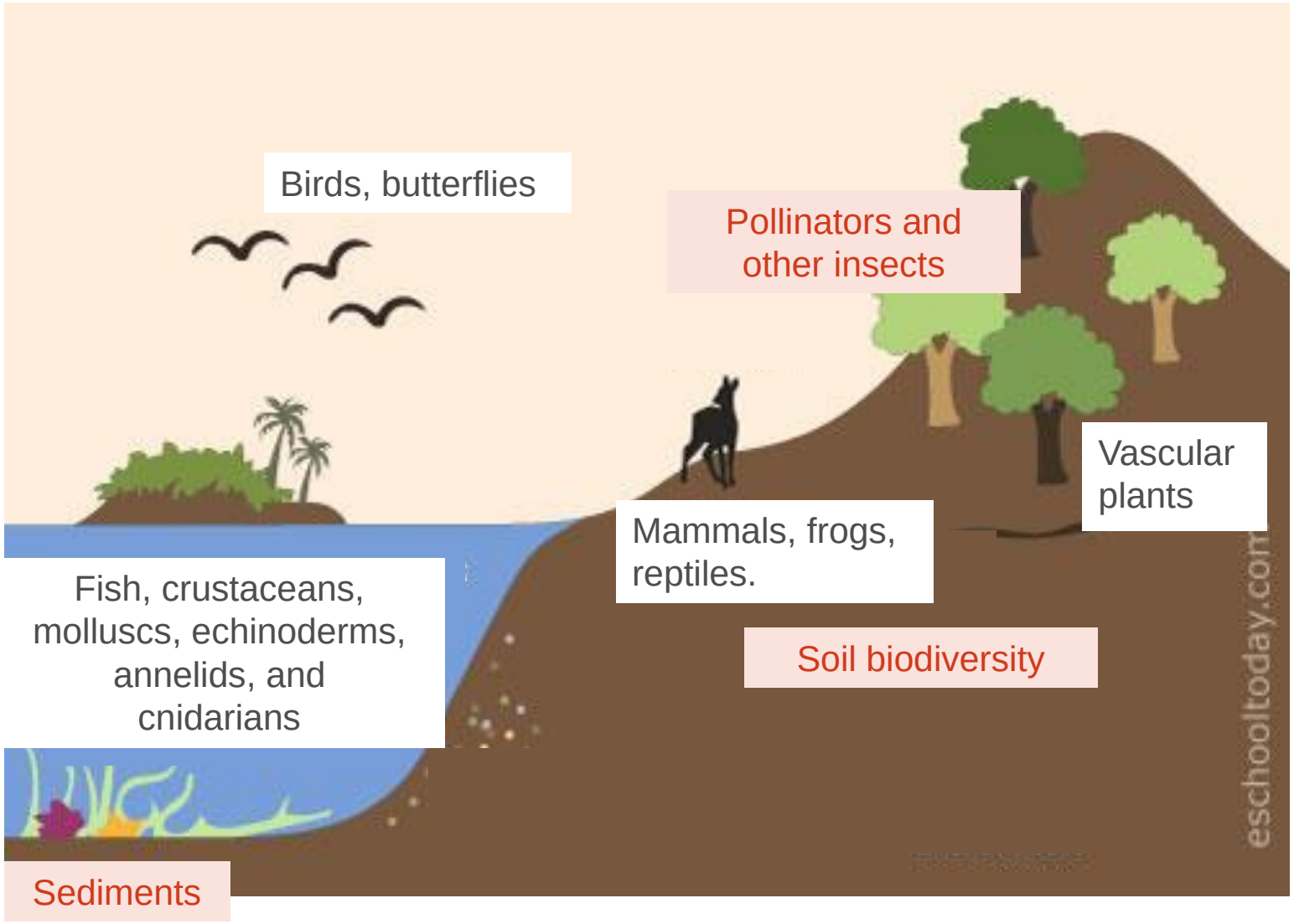
Operational methods *Taxonomic coverage*



Considered depending on IC

Not considered

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Not yet operational models and methods

At midpoint level, focusing on aspects related with biodiversity:

Biotic resource use

- Fisheries-related (Langlois et al. (2014), Hélias et al. (2018), Emanuelsson et al. (2014), Langlois et al. (2015))
- General framework for natural occuring biotic resources (Crenna et al. (2018), Beylot et al. (2020))

Hemeroby indicator degree of ‘naturalness’ of a landscape (Geyer et al. 2010)

Functional diversity indicator middle point between the impact on biodiversity and the damage caused to ecosystem quality, in terms of functions lost (de Souza et al., 2013)

Although these studies bring new dimensions of biodiversity to LCA, the driver of biodiversity loss covered is **land use only**.

Not yet operational models and methods

At endpoint level:

Land-use intensity 3 intensity levels (minimal, light and intense use) (Chaudhary and Brooks 2018)

Land fragmentation for bird species and forest ecoregions (Larrey-Lassalle et al., 2018)

Species richness and habitat evenness biodiversity impact potential (Geyer et al. 2010)

Invasive species Introduction of exotic fish species related to the transport of goods (Hanafiah et al. 2013)

Effect factor for marine macroplastic entanglement impact for marine species (Woods et al., 2019)

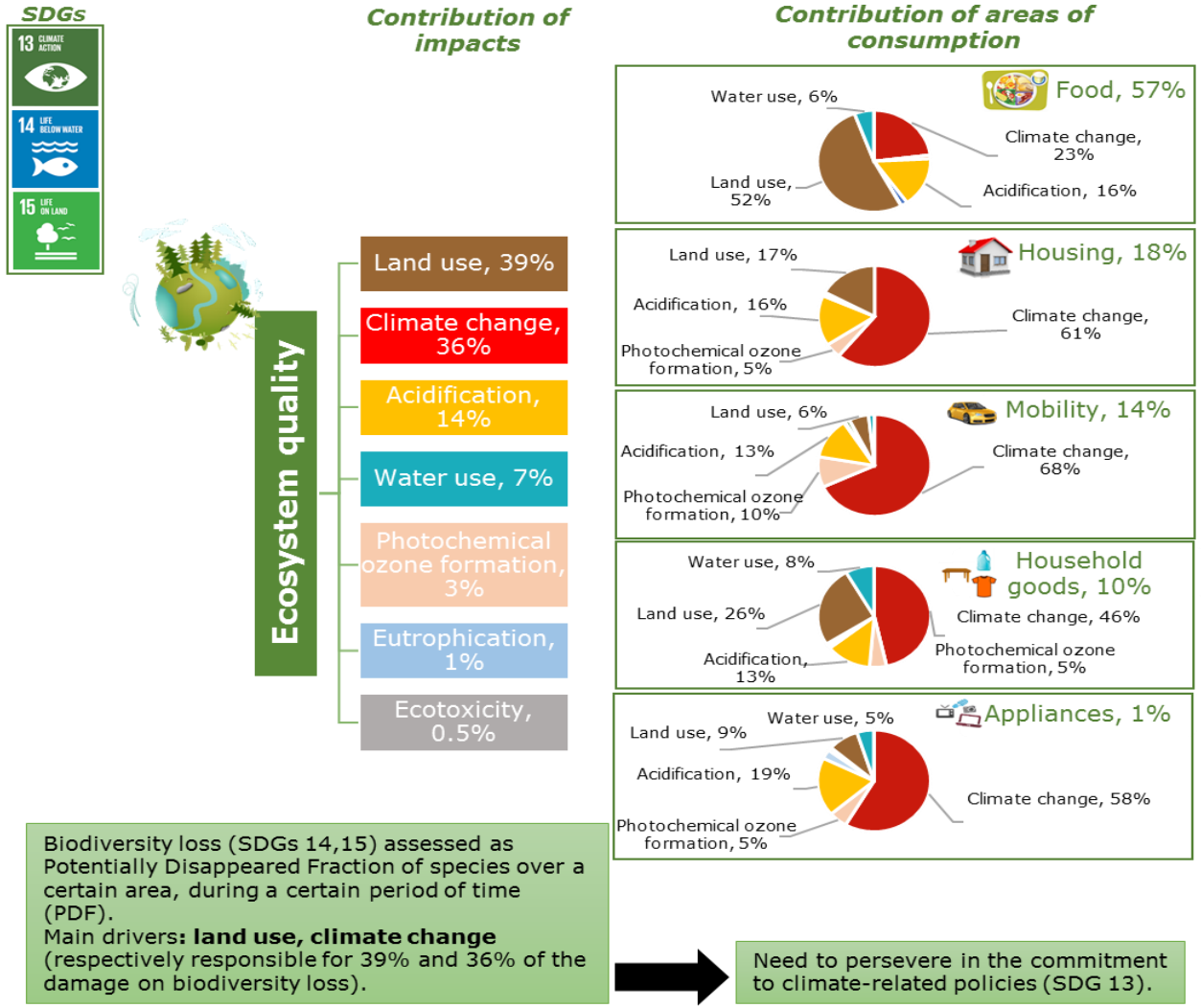
At the endpoint level, there are advancements in the amount of drivers of biodiversity loss covered as well refinement in current approaches (e.g. Land use intensity).

Review of existing biodiversity metrics in LCA

Covering **existing or additional impacts** (such as overexploitation of resources, invasive species) or **different aspects of ecological concern** (functional diversity, landscape fragmentation)

AREA	METRIC	RELATION TO ESSENTIAL BIODIVERSITY VARIABLES (EBVs)
1. Operational models and methods	PDFs, Biodiversity Adjusted Hectare Year (BAHY)	**Community composition**
2. Not yet operational models and methods – midpoint	Average renewal time, Lost potential yield, Depleted stock fraction, Functional Diversity Index, Free net primary production in primary carbon equivalent, Hemeroby	**Ecosystem function, Species populations, Ecosystem structure, Species traits**
2. Not yet operational models and methods - endpoint	PDFs, Potentially Affected Fraction of Species (PAFs)	**Community composition**

Case study
Biodiversity impacts of consumption in EU



Biodiversity loss (SDGs 14,15) assessed as Potentially Disappeared Fraction of species over a certain area, during a certain period of time (PDF).
Main drivers: **land use, climate change** (respectively responsible for 39% and 36% of the damage on biodiversity loss).

→ Need to persevere in the commitment to climate-related policies (SDG 13).

1. Determine typical baskets of products for the average EU citizen in 5 areas of consumption.
2. Perform for each a LCA
3. Assessment of the impacts on the area of protection Ecosystem quality (biodiversity loss in terms of PDFs) – RECIPE 2016

Sala S., Beylot A., Corrado S., Crenna E., Sanyé-Mengual E, Secchi M. (2019) **Indicators and Assessment of the environmental impact of EU consumption. Consumption and Consumer Footprint for assessing and monitoring EU policies with Life Cycle Assessment**. Science for policy report. Publications Office of the European Union.

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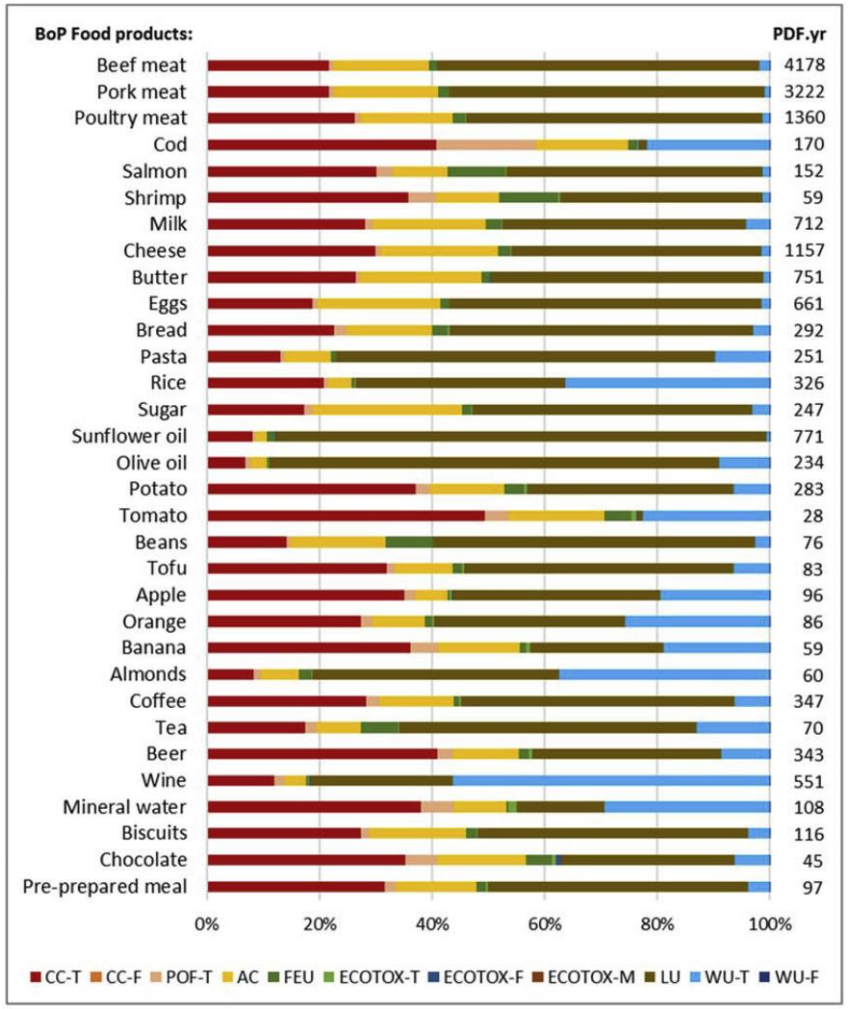
Case study
Biodiversity impacts of food consumption in EU



CC-T: Global warming, Terrestrial ecosystems; CC-F: Global warming, Freshwater ecosystems; POF-T: Ozone formation, Terrestrial ecosystems; AC: Terrestrial acidification; FEU: Freshwater eutrophication; ECOTOX-T: Terrestrial ecotoxicity; ECOTOX-F: Freshwater ecotoxicity; ECOTOX-M: Marine ecotoxicity; LU: Land use; WU-T: Water consumption, Terrestrial ecosystem; WU-F: Water consumption, Aquatic ecosystems

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Biodiversity impacts due to food consumption in Europe

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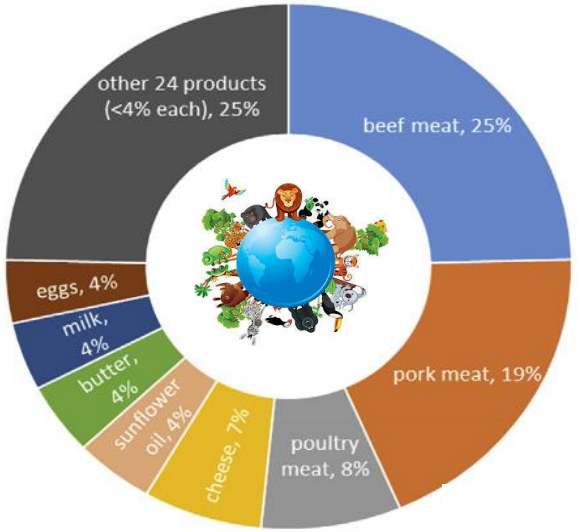

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Comparative assessment of products – PEF

- Product environmental footprint current set of models is already capturing the main environmental drivers, pressures, and impacts leading to biodiversity loss
- Need of explicit biodiversity footprinting was expressed by policy makers and stakeholders
- Green claims policy initiative aiming at adopting a structured approach to product comparison based on LCA.
- Dedicated working group on biodiversity has been established

https://ec.europa.eu/environment/eussd/smgp/ef_pilots.htm

Possible ways forward

- Mutual exchange and cross fertilization between LCA and biodiversity experts is needed
- Identification of commonalities and complementarities among existing approaches
- Building common case studies with B@B, comparing results/ ranking/ hotspots

Relationship between LCA and other approaches to biodiversity loss assessment

LCA Systematic approach to address Drivers, Pressure and Impacts

Elements modelled of production/consumption system (energy, transport, manufacturing, mining etc)

Life cycle Inventory

Other approaches

Life cycle Impact Assessment

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Thank you

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Q&A and closing remarks

Johan Lammerant, Methods Workstream Leader EU Business@Biodiversity Platform, Arcadis

The next webinars in the series will be:

- Webinar 3 (8 October): Supply chain level approaches

- Webinar 4 (15 October): Corporate and sector level approaches

- Webinar 5 (22 October): Approaches for the financial sector

Each webinar takes place from **3:30 – 5:00pm**

https://ec.europa.eu/environment/biodiversity/business/index_en.htm