

PARALLEL SESSION #5

15:30-17:15

# GLOBAL RESPONSIBILITY - DECISIONS MADE IN EUROPE AFFECT BIODIVERSITY GLOBALLY



Prof. Ilari Sääksjärvi  
Finnish Nature Panel



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LUT University

#EEAC30  
#CriticalDecade



# Parallel session 5: GLOBAL RESPONSIBILITY – DECISIONS MADE IN EUROPE AFFECT BIODIVERSITY GLOBALLY

*Ilari E. Sääksjärvi*

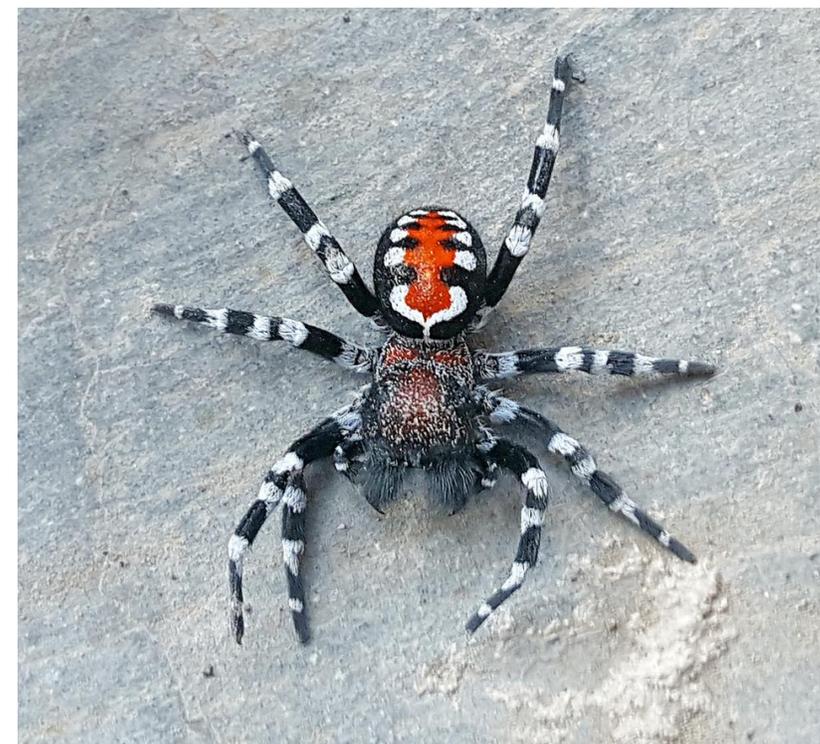
Biodiversity Unit, University of Turku & Finnish Nature Panel

 @ilarisaaksjarvi

# Biodiversity loss is advancing rapidly

## Top 10 Global Risks by Severity

Over the next 10 years



# GLOBAL RESPONSIBILITY – DECISIONS MADE IN EUROPE AFFECT BIODIVERSITY GLOBALLY

- Associate professor Ville Uusitalo (LUT University, Laboratory of Sustainability Change):  
What do we know about global biodiversity impacts of our consumption?
- MSc Henna Rouhiainen (University of Turku, Department of Biology & Biodiversity Unit):  
Education on biodiversity and global responsibility in European schools
- Dr. Ayu Pratiwi (University of Turku, Turku School of Economics):  
Strengthening sustainable small-scale aquaculture and fisheries through proper infrastructure and policy
- Dr. Anne Quarshie (LUT University, The School of Business and Management):  
Global responsibility through nature-respectful business

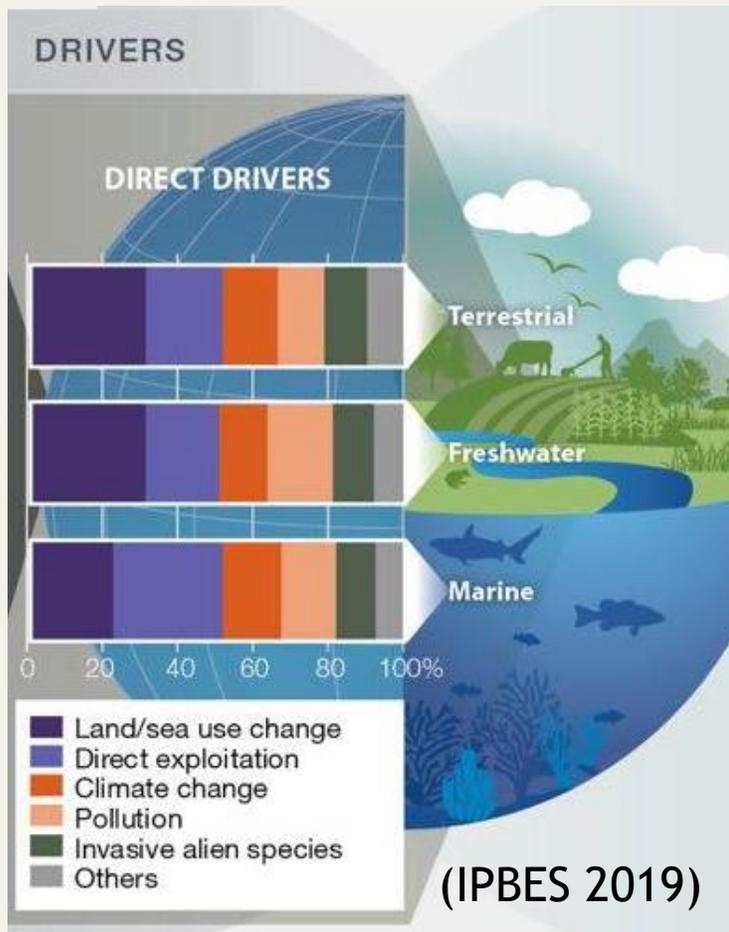
# What do we know about global biodiversity impacts of our consumption?

EEAC 30<sup>th</sup> anniversary conference

Ville Uusitalo  
Associate professor  
Sustainability Science  
LUT University  
[ville.uusitalo@lut.fi](mailto:ville.uusitalo@lut.fi)



# MULTIPLE DRIVERS FOR BIODIVERSITY LOSS



Greenhouse gas emissions and pollution to oceans have global level impacts

Location of emissions is not important

## GLOBAL IMPACTS



Local context is important for majority of the drivers behind biodiversity loss

Location of emissions is important

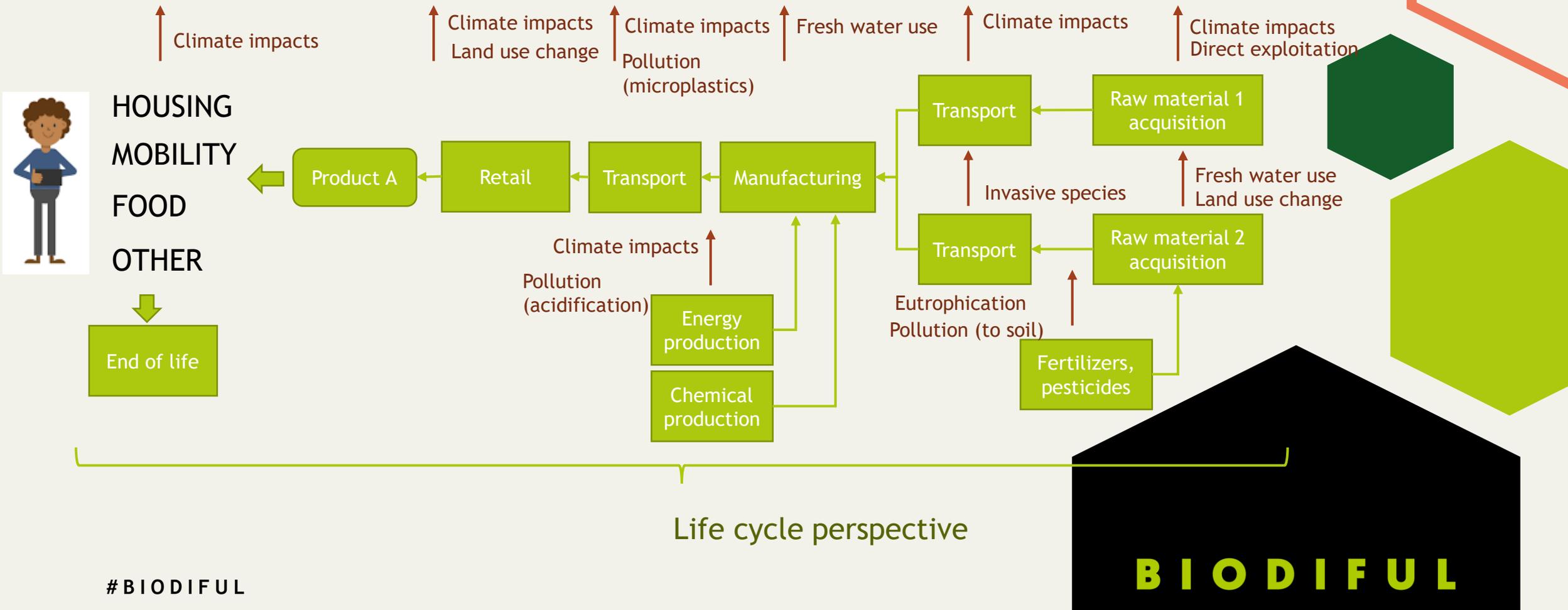
## LOCAL IMPACTS



#BIODIFUL

**BIODIFUL**

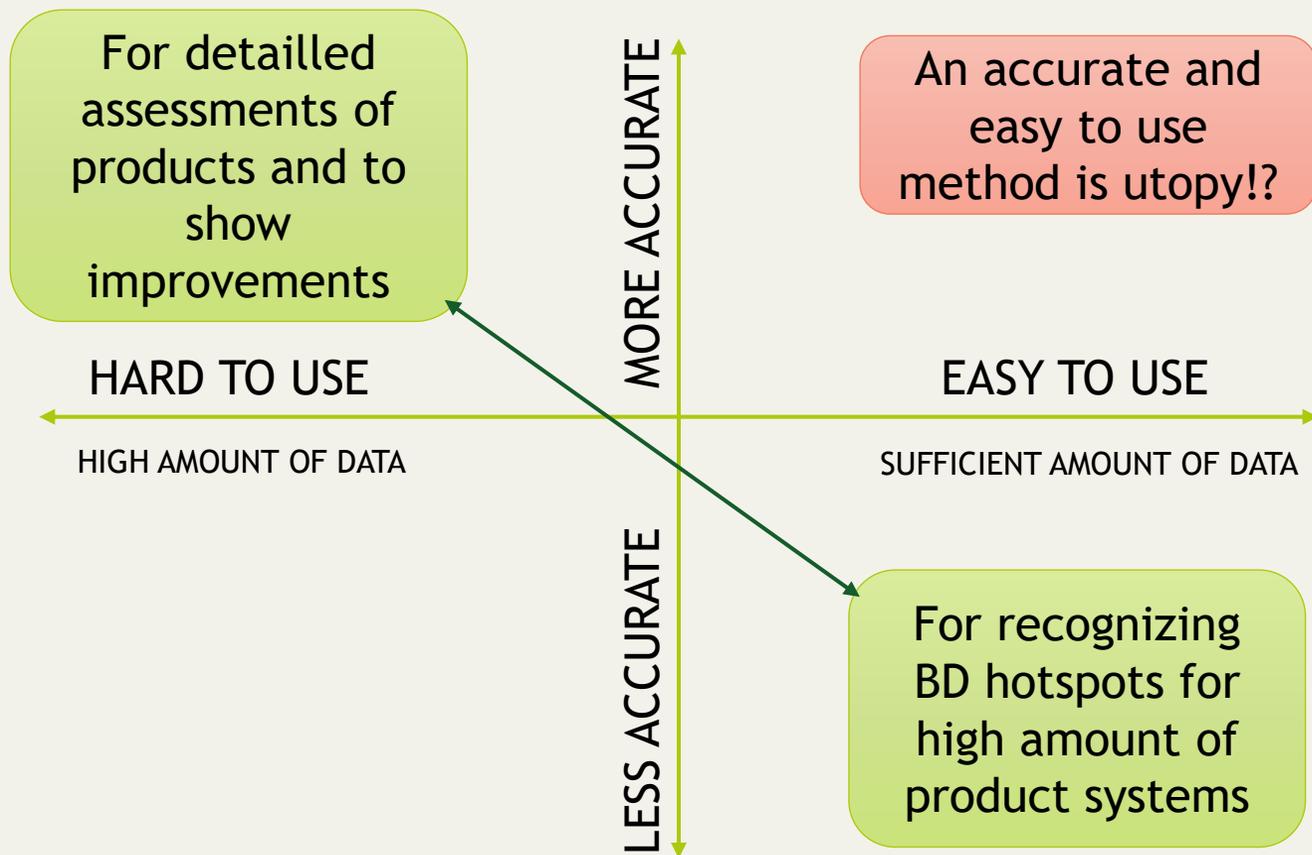
# CONSUMPTION LEADS TO IMPACTS ON BIODIVERSITY



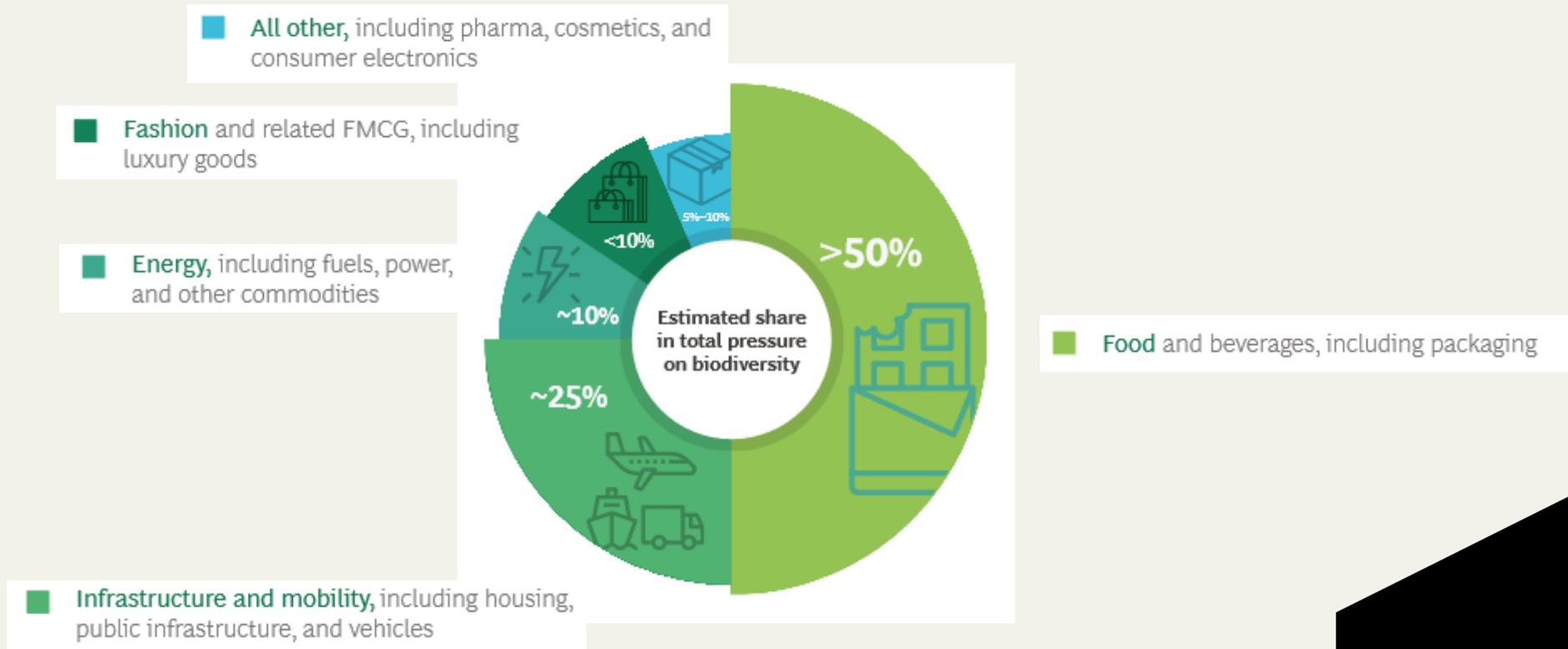
# METHODS TO ASSESS IMPACTS ON BIODIVERSITY ALONG LIFE CYCLES ARE DEVELOPING

- There is a **growing interest** in understanding, measuring and setting goals for biodiversity
- Methodologies, tool and metrics to measure impacts on biodiversity are **rapidly evolving**
- Methods have **differences** in scope, scale, BD loss drivers included, metrics, taxa included etc.
- Focus in these methods is especially on land use

# ACCURACY VS. USABILITY



# FOOD HAS A KEY ROLE IN BD IMPACTS OF OUR CONSUMPTION



# CONSUMPTION IN EUROPE LEADS TO IMPACTS GLOBALLY

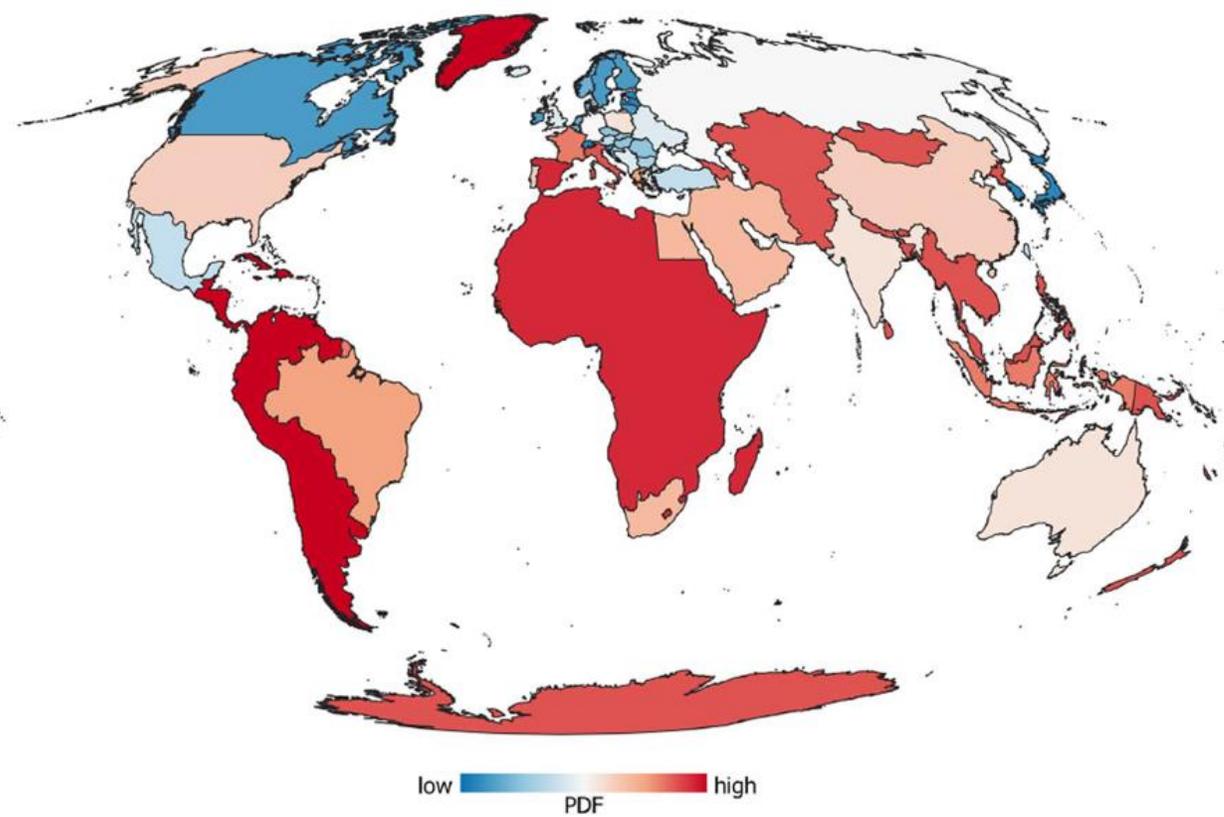
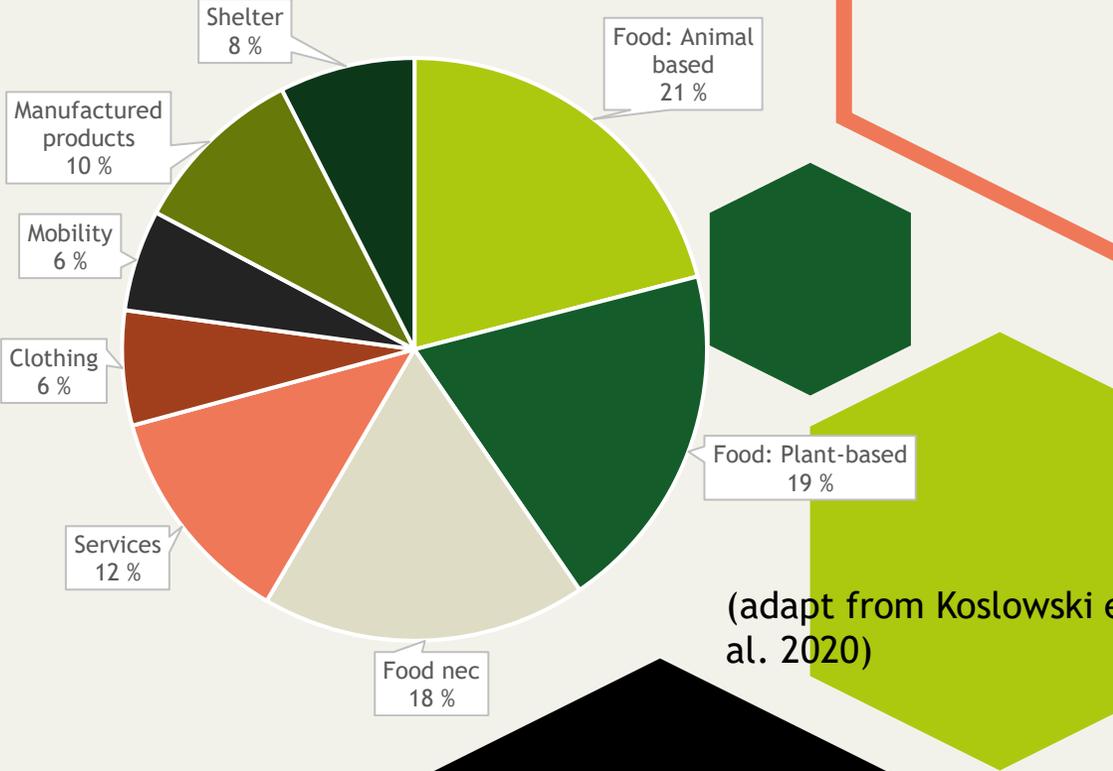
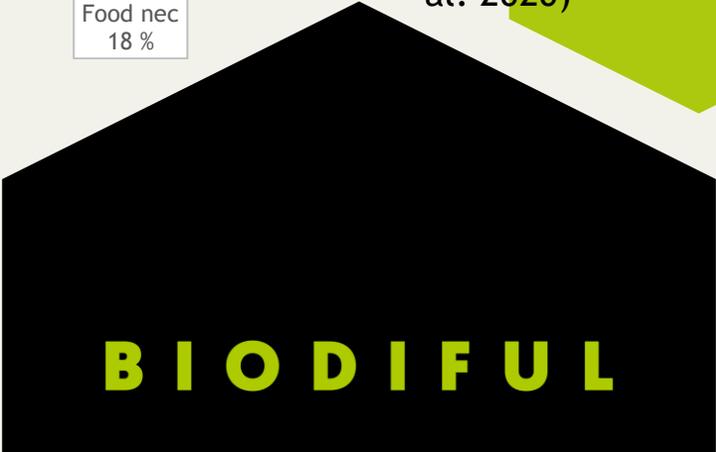


Fig. 2. Total global biodiversity losses due to European household consumption in 2010, measured in PDF.

(Kosłowski et al. 2020)



(adapt from Kosłowski et al. 2020)



# BD IMPACTS OF FINNISH CROP SUPPLY

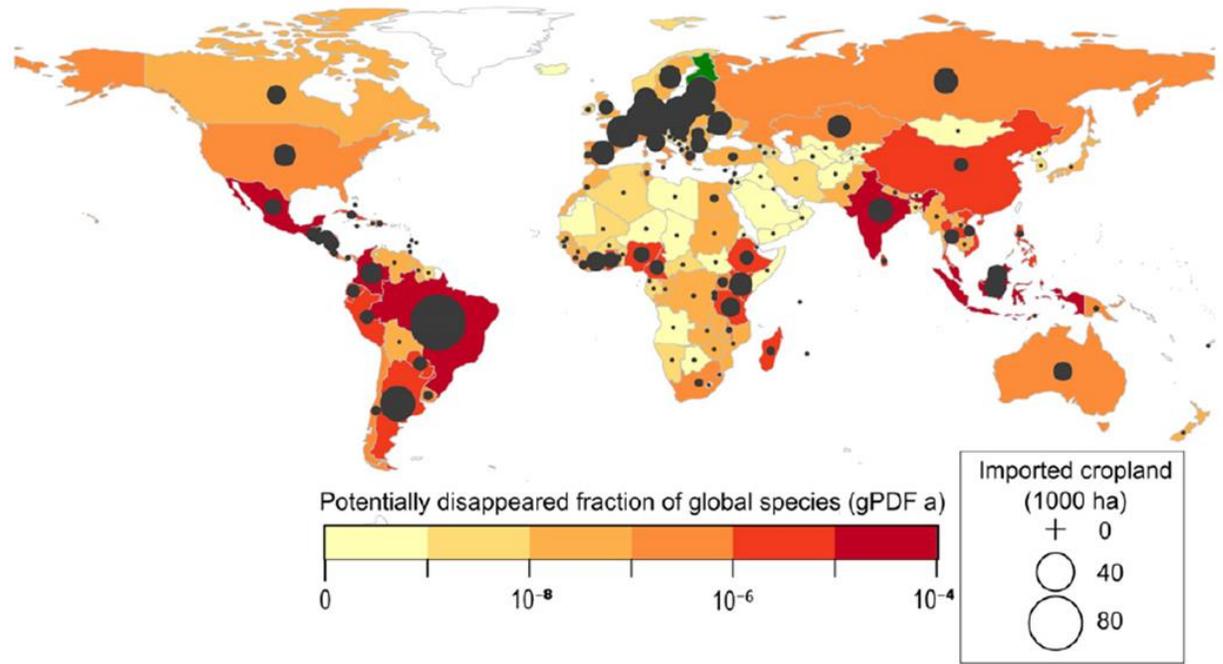


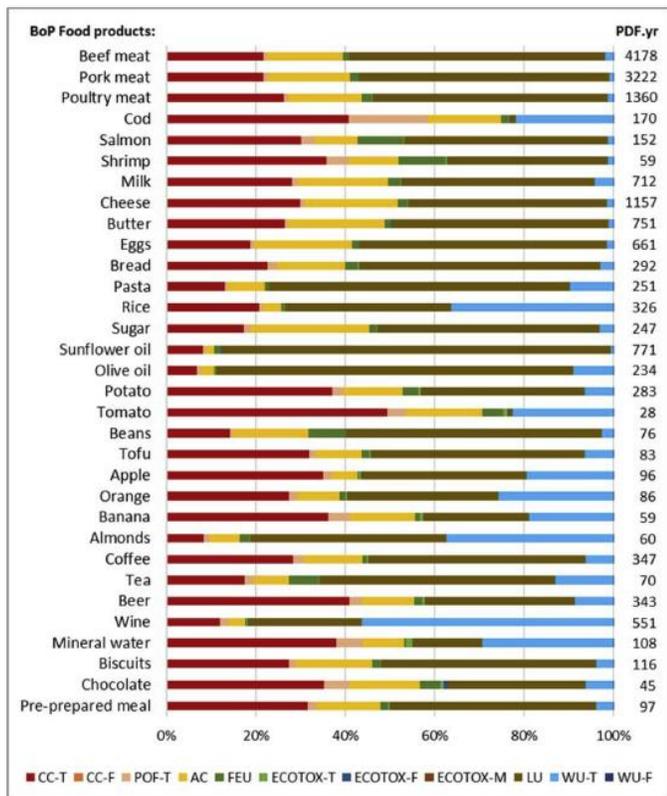
Fig. 3. Imported cropland and the impacts on global biodiversity in 2010. Bubbles represent the "imported" cropland and the color of the countries represents biodiversity impacts caused by land use (values presented as three-year means of 2009–2011).

(Sandström et al. 2017)

- Focus was on land use for crops
- Coffee, cocoa, sugar, rubber and soybeans had highest BD impacts

# BD IMPACTS DUE TO FOOD CONSUMPTION IN EU

Climate change, terrestrial acidification, land use and water consumption have high importance



Meat and cheese production have highest biodiversity impacts (60%)

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

(Crenna et al. 2019)

**BIODIFUL**

Fig. 4. Contribution of the midpoint impact categories to the impacts on biodiversity by product, applying ReCiPe 2016. Absolute results in terms of species lost per year are reported on top of each impact category.

# SUMMARY

- ▶ Our consumption leads to biodiversity impacts globally
- ▶ Food consumption in Finland has BD impacts e.g. in South America, Africa and Asia
- ▶ Methods for BD impact assessment are being constantly developed
- ▶ Changes in consumption and production systems have many opportunities for reducing negative BD impacts
- ▶ More research is needed related to BD impacts of our consumption and to possibilities for reducing these impacts



# References

Crenna., E., Sinkko, T., Sala, S. 2019. Biodiversity impacts due to food consumption in Europe. Journal of Cleaner Production 227, 378-391.

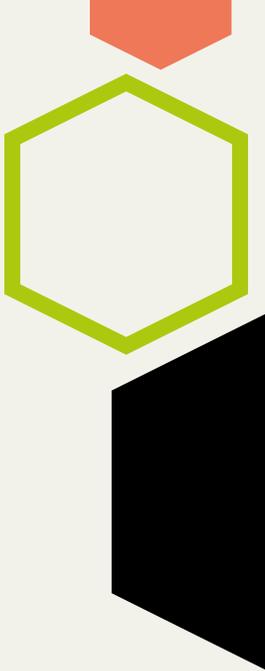
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# Education on biodiversity and global responsibility in European schools

Henna Rouhiainen

EEAC 14th Oct 2022

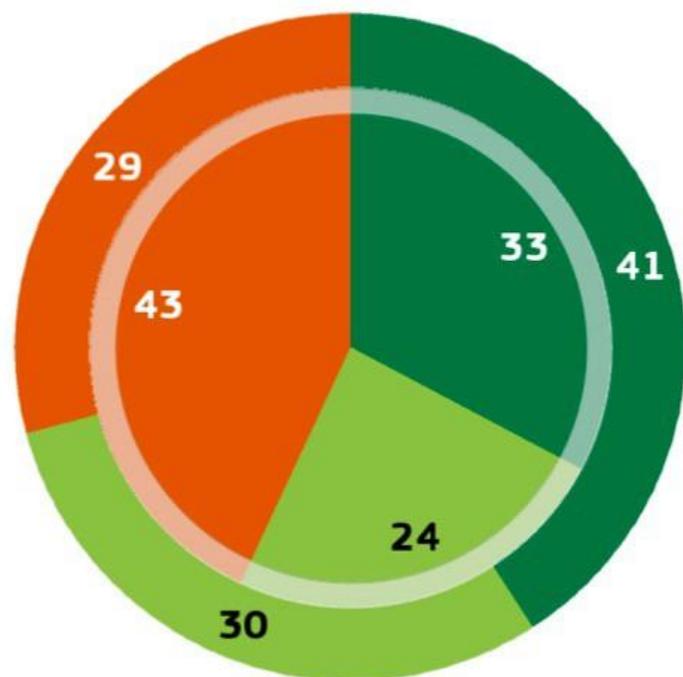


# Education on the environment and sustainability

- ▶ A need for a profound, long-term change in thinking and values regarding nature and biodiversity – Education is key!
- ▶ 1960s → 'Environmental education' (EE)
- ▶ 1990s → 'Education for sustainable development' (ESD)
- ▶ 2000s → 'Climate change education' (CCE)
- ▶ Bubbling under: 'Biodiversity education'

# Biodiversity awareness in Europe

**QA1** Have you ever heard of the term "biodiversity"?  
(%)



EU28 Outer pie      FI Inner pie

- You have heard of it and you know what it means
- You have heard of it but you do not know what it means
- You have never heard of it
- Don't know

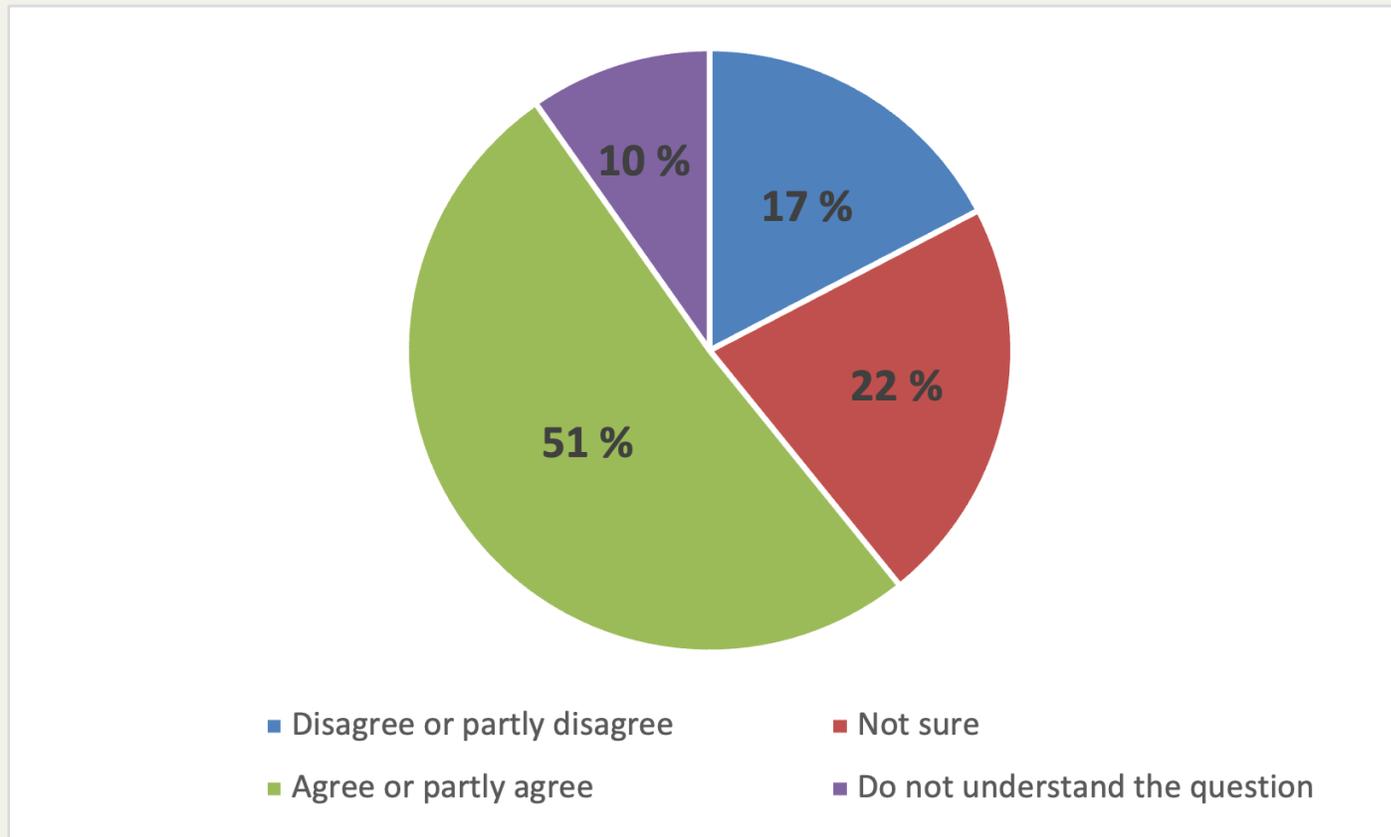
EU28		FI	
2018	2018-2015	2018	2018-2015
41	+ 11	33	+ 8
30	=	24	- 2
29	- 10	43	- 6
0	- 1	0	=

Source: Special Eurobarometer 481 (2018)

**B I O D I F U L**

# Adolescents' biodiversity awareness in Finland

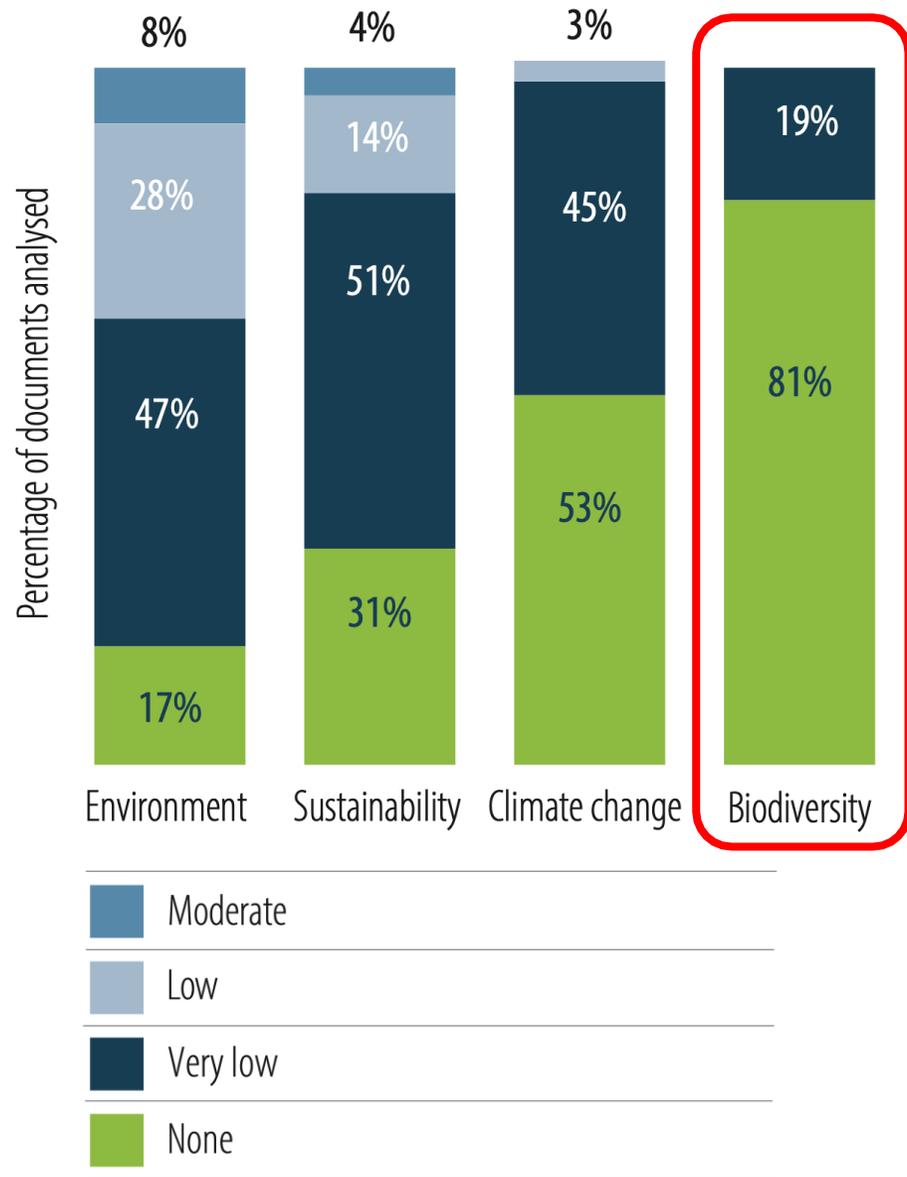
'I know what biodiversity means.'



Source: LNYK survey (2019)

- ▶ N=329 students
- ▶ grades 7-9

**BIODIFUL**

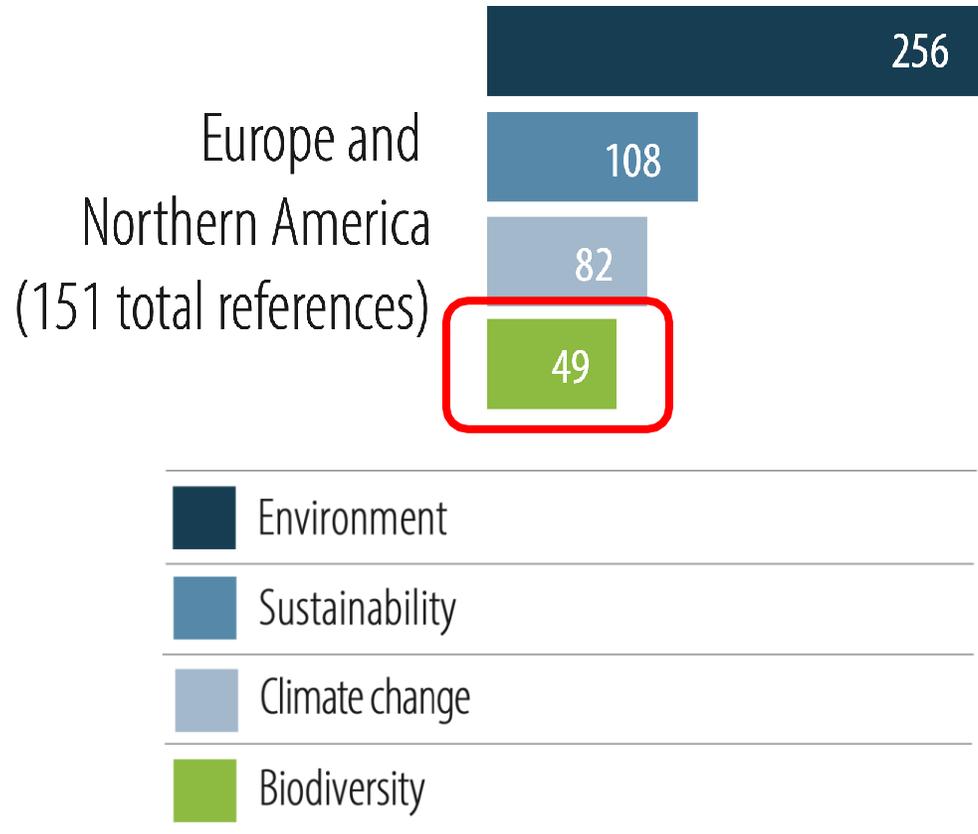


Source: UNESCO (2021)

# Biodiversity in educational policy documents - worldwide

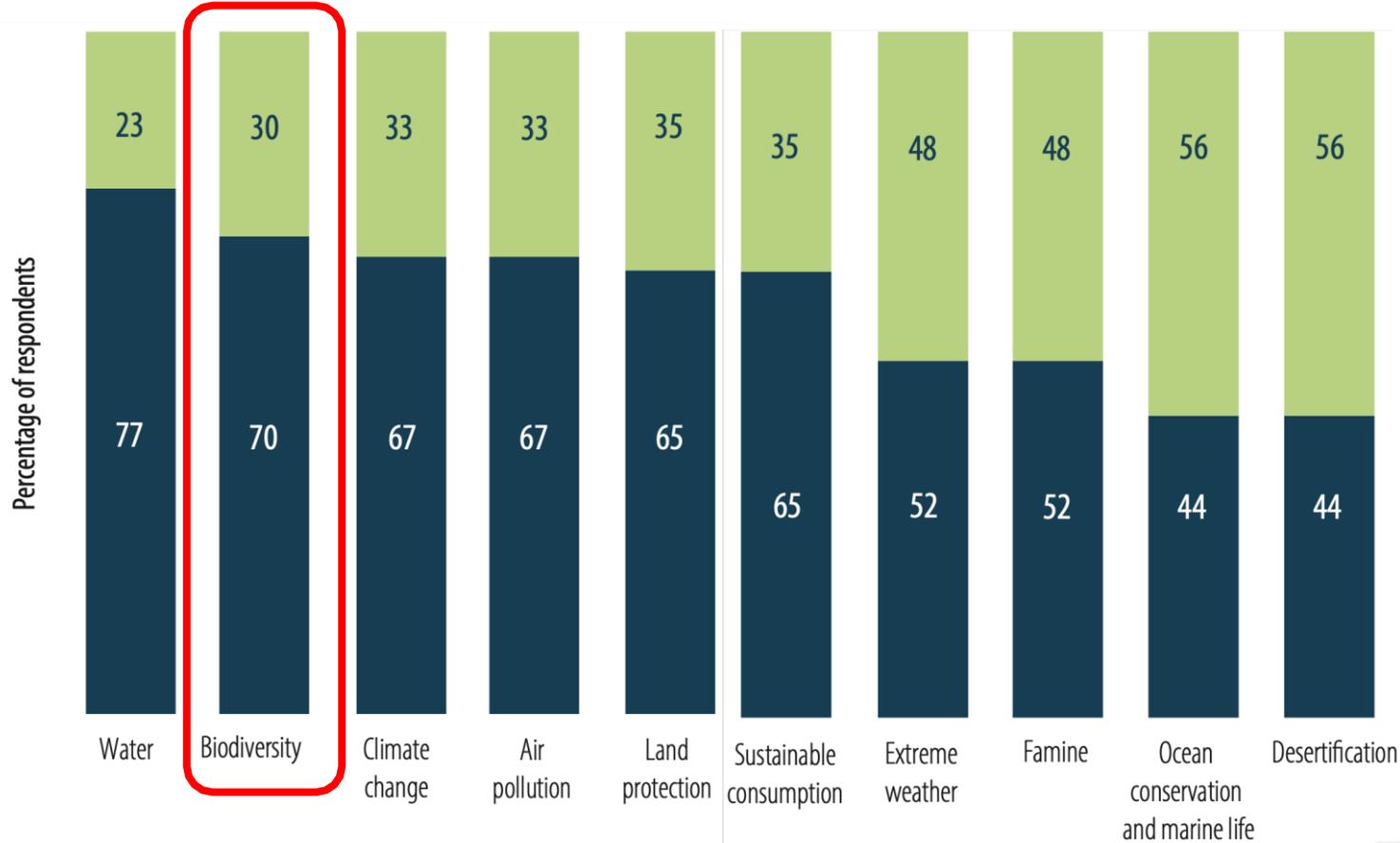
- ▶ 'Biodiversity' present in only 19 % of educational policy documents and curricula worldwide

# Biodiversity in educational policy documents - Europe and North America



- ▶ Comparatively more references of biodiversity than elsewhere in the world
- ▶ However, no targeted focus (biodiversity part of environment, sustainability, climate change)

# Biodiversity integration in schools



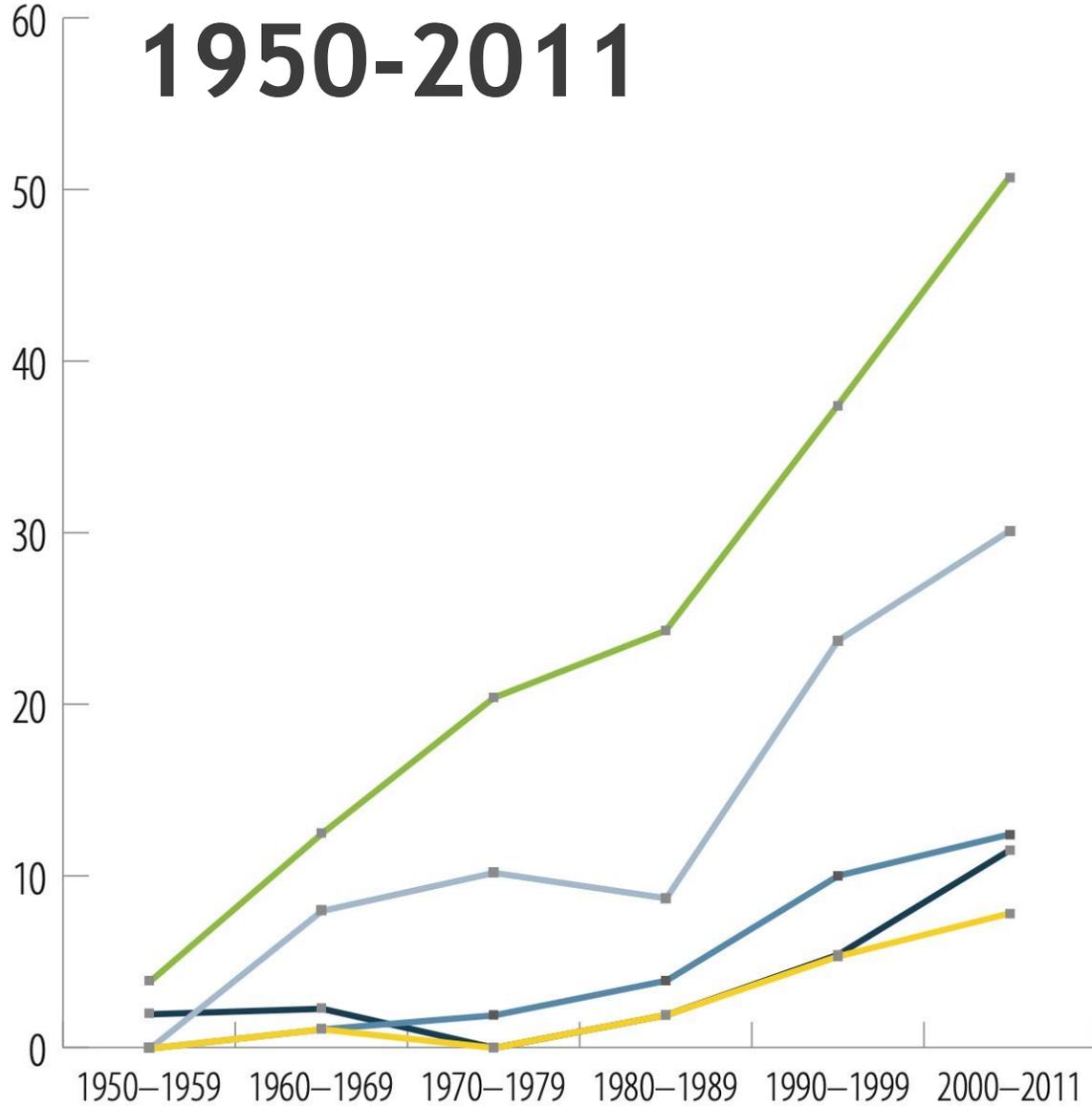
- ▶ 70 % education stakeholders worldwide say that biodiversity is “well integrated” or “partially integrated” in schools

Minimally or not integrated

Well or partly integrated

%

# Global environmental themes in textbooks 1950-2011



- ▶ Coverage of general environmental issues has grown dramatically
- ▶ Coverage of environmental rights remains low

— Global environmental movement

— Environmental movement

— Global environmental issues

— Environment rights

— Environmental protection or damage

# Biodiversity and global responsibility in school teaching

- ▶ Theoretical research on biodiversity education is plentiful
- ▶ Evidence on educational content harder to find
- ▶ French-speaking Switzerland:
  - ▶ consumption/production + biodiversity addressed in curricula of natural sciences and the humanities/social sciences (grades 1-11) (Audrin 2022)
- ▶ Finland:
  - ▶ Biodiversity and global responsibility addressed in biology and geography curricula and text books (elementary school + high school).
  - ▶ In schools, environmental sustainability is not comprehensively addressed (Mykrä 2021).

# Towards holistic education on biodiversity?

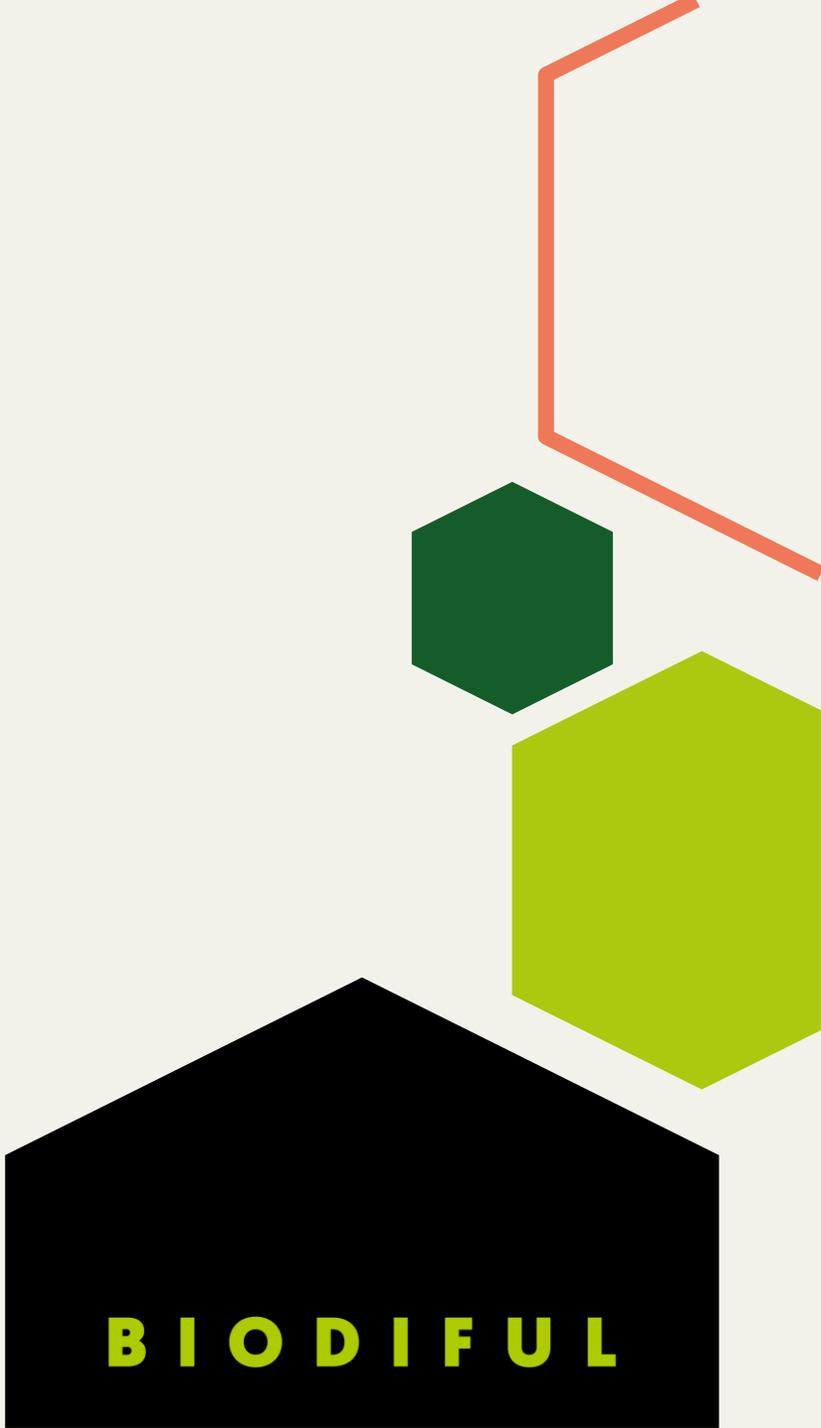


- ▶ Local, regional and global scale
- ▶ Economic, social and cultural aspects
- ▶ More socio-emotional and action-oriented learning
- ▶ Leadership in schools needed!

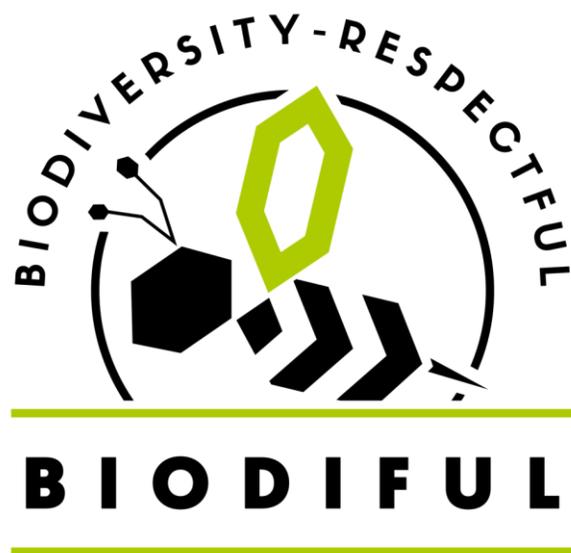
**BIODIFUL**

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- ▶ Audrin, C. (2022). How is biodiversity understood in compulsory education textbooks? A lexicographic analysis of teaching programs in the French-speaking part of Switzerland. *Environmental Education Research*, 1-16.
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**B I O D I F U L**



# Thank You!

[biodiful.fi](http://biodiful.fi)



# Strengthening sustainable small-scale fisheries and aquaculture through proper policy and infrastructure

**Ayu Pratiwi**

**Turku School of Economics**

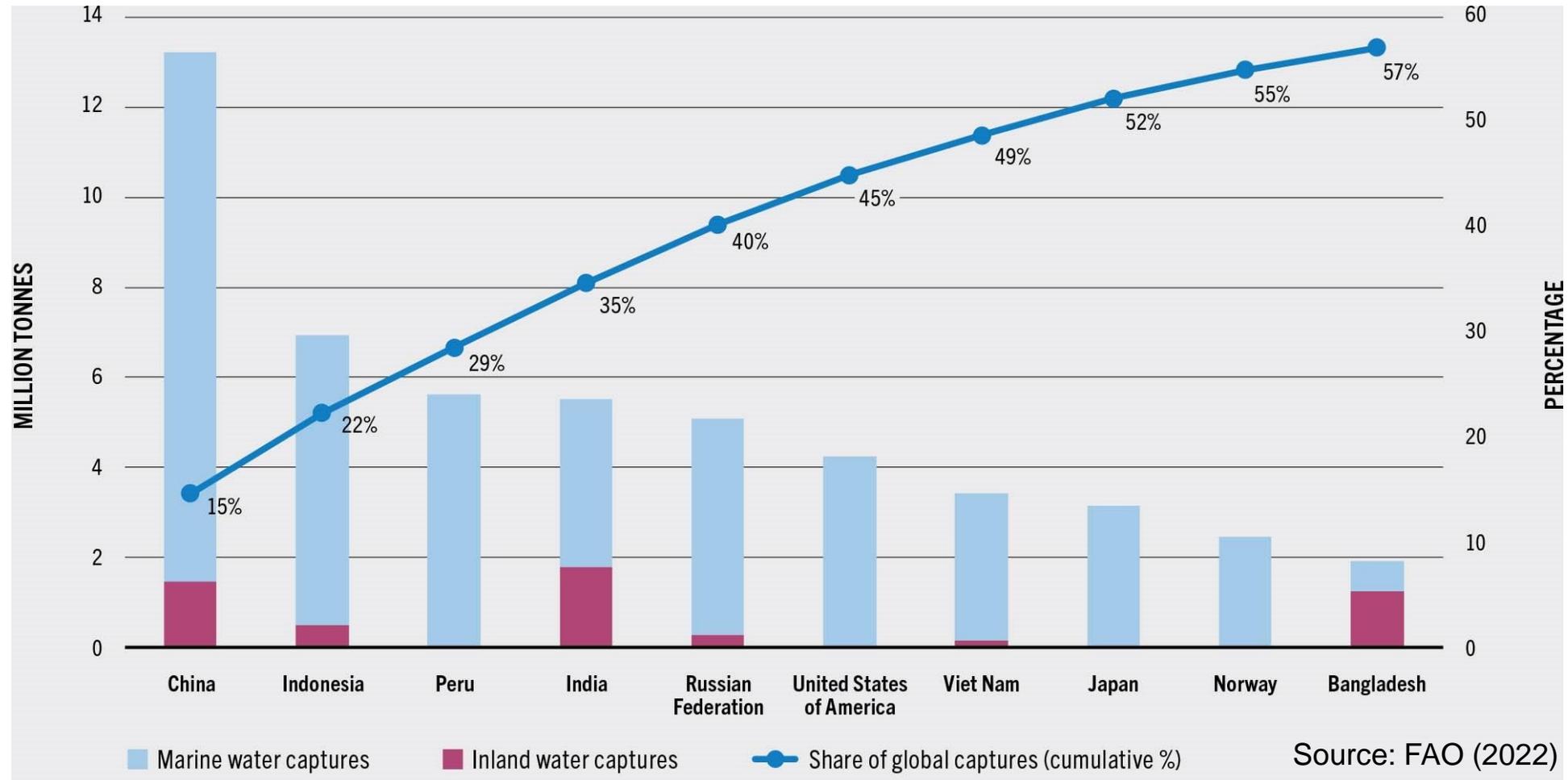
30th European Environment and Sustainable Development Advisory Councils (EEAC)  
Annual Conference

Helsinki, 14 – 15 September 2022



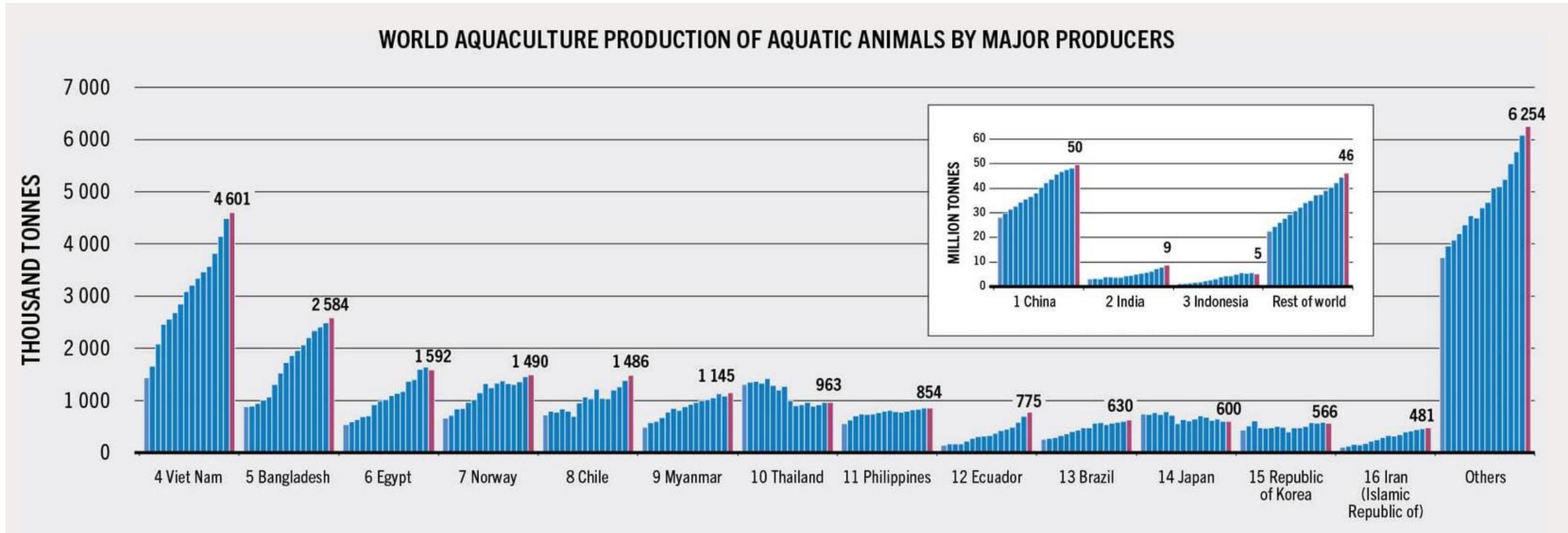
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# Why captured-fisheries?



Majority of the top ten global capture-fish producers come from global south countries...

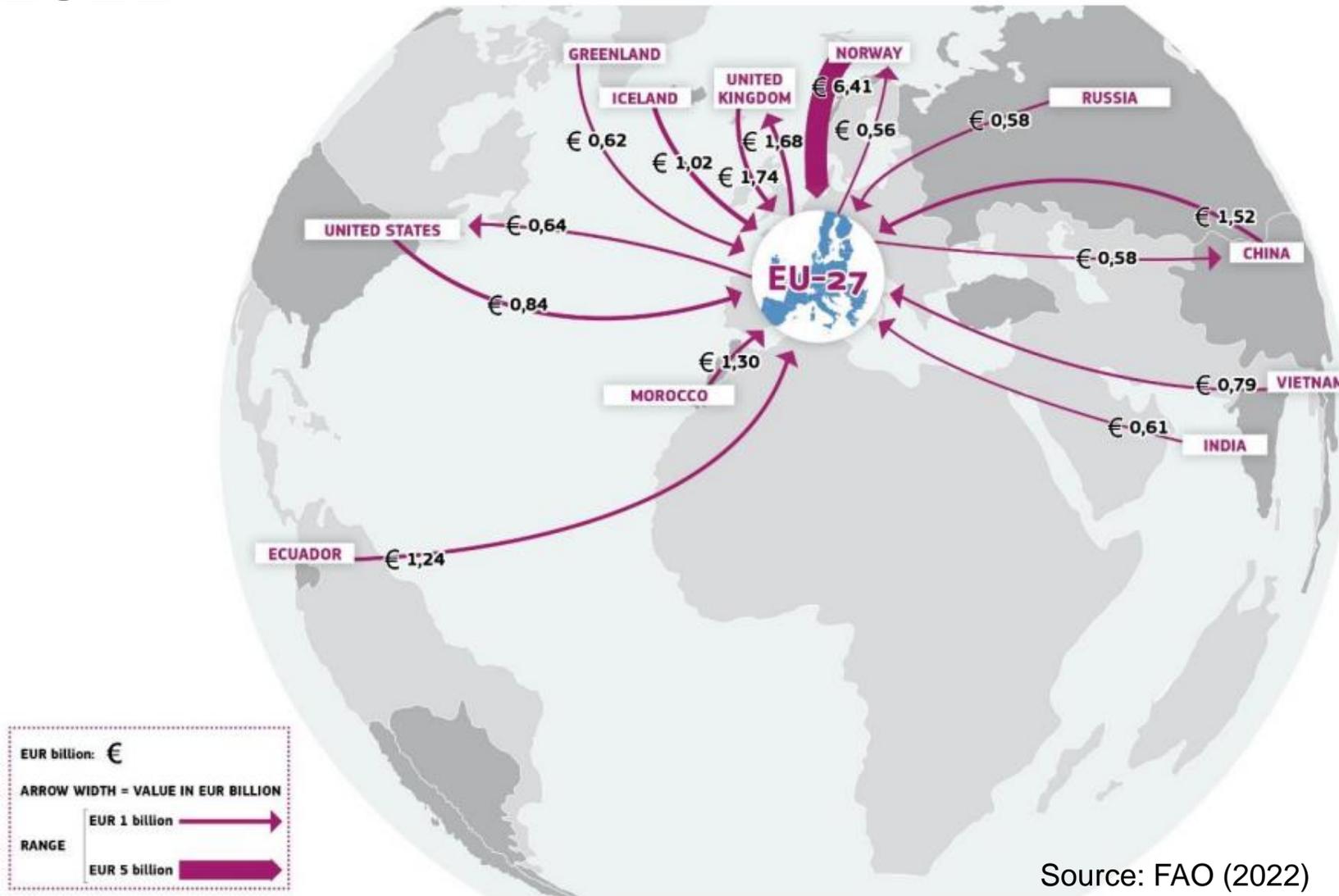
# Why aquaculture?



Source: FAO (2022)

Same trends for aquaculture....

# Extra-EU trade flows in fishery and aquaculture in 2021



Source: FAO (2022)

# The importance of small scale fisheries and aquaculture (FAO, 2022)

- 50 % of global catch is taken by small-scale fishers
  - 492 million people directly or partly employed in small scale fishing and farming (90% in Asia)
  - More than half the catch in developing countries is taken by small scale fishers
  - Around 40% of these are women
  - 90 to 95% of small scale catch is destined for human consumption

# Challenges facing Small-scale fisheries and aquaculture

- **BUT**, small scale actors are unable to participate effectively and beneficially in value chain activities, and small scale fisheries are under-protected and unsustainable, due to:
  1. Lack of **infrastructure** and **technical capacities** impeding the smallholders in all stages in value chain
  2. Lack of **sustainable environmental planning**, causing ecologically harmful practices
  3. **Barriers to fish consumption** limiting opportunities for nutrition and food securities

# Challenge #1: infrastructure and technical capacity



- Significant **post-harvest losses** in all stages of value chains
- Low **bargaining power** over traders
- Fish cultivation requires significant upfront **investment**
- Internationally-recognized **sustainability tools** are difficult to attain for smallholders

# Challenge #2: Lack of sustainable environmental planning

- **Inappropriate** use of technology: the use of chemical and inorganic fertilizer to save crops from temperature changes
- The effects of wastewater industrial **pollution**
- Cultivation of **foreign species** as opposed to the endemic species due to market demand e.g. black tiger shrimp vs vannamei shrimp



# Challenge #3: Barriers to fish consumption

- Low **consumer demand** for aquatic products
- Limited awareness of fish as a **protein source**
- Concern of quality, safety, and sustainability
- Less-developed **food safety standards**



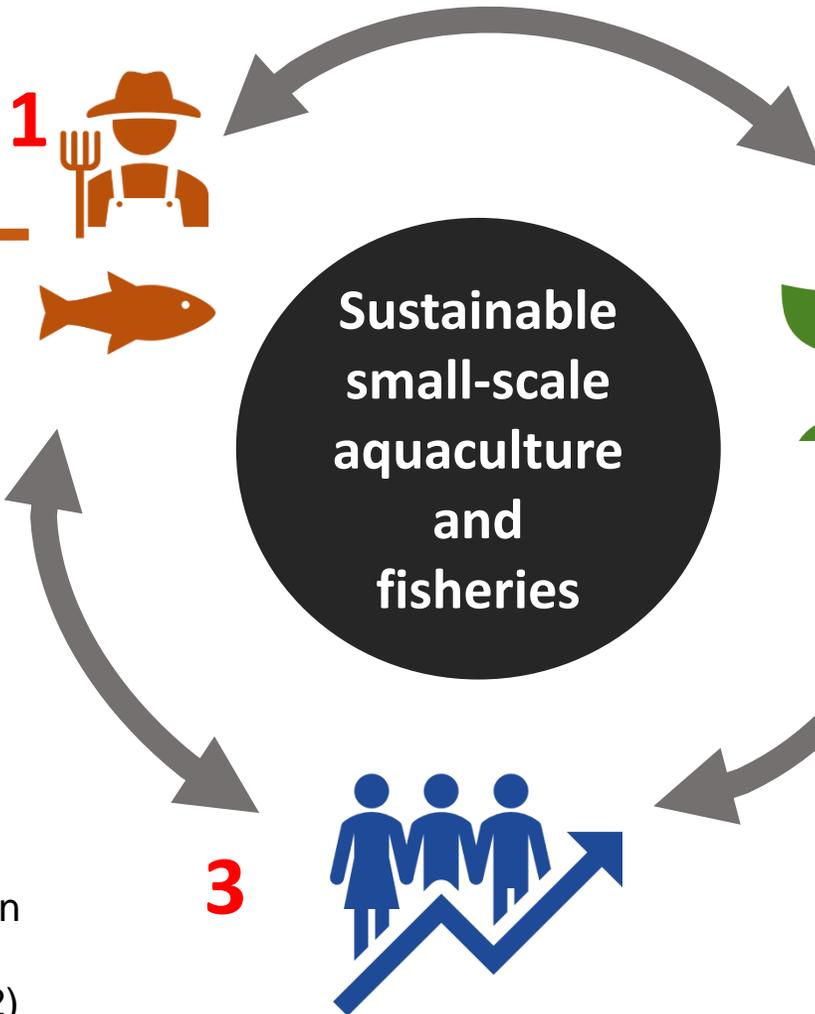
# Major recommendations for the G20 meeting to support Small-scale Farmers and Fishers

Support in long-term environmental planning and management

Pollution control to ensure water quality

Farm diversification to prevent complete crop failure

Spatial planning for sustainable land use change



1



2



3



**Sustainable  
small-scale  
aquaculture  
and  
fisheries**

## Investment in value chain upgrading

Installation of cold chain system

Establishment of market platform

Inclusive access to financing

Credit support for sustainable fleet

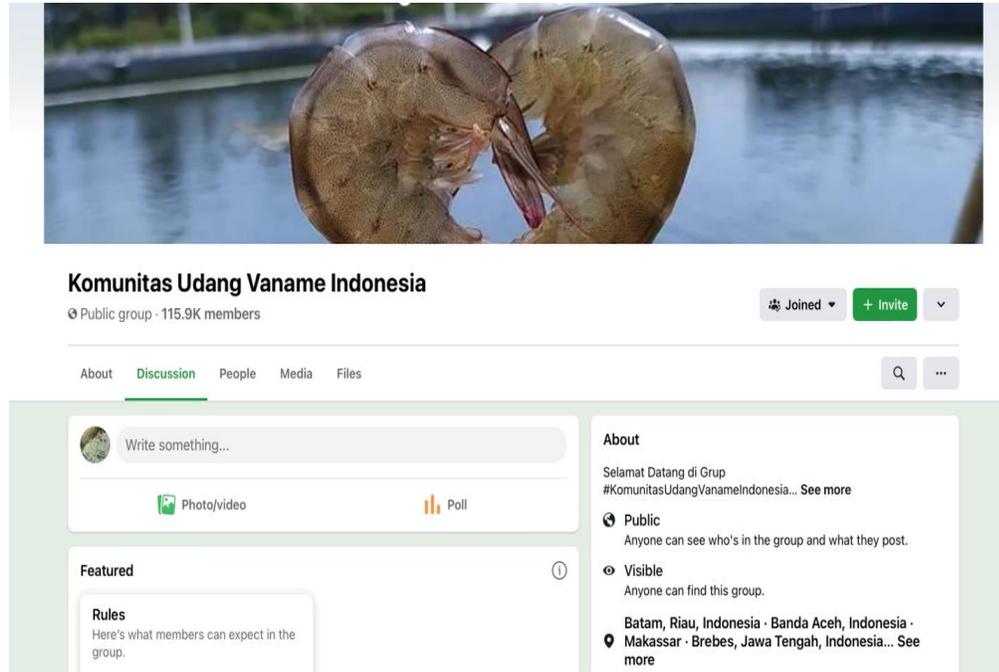
Institutionalization of smallholders

## Synergized social protection and nutrition programmes

Synergized social protection programs

Fish consumption in National Food Security and nutrition strategies and improved food safety standards

# Two initiatives tested to induce co-creation of knowledge in the grassroots communities (on-going project)



Online Community of Practices



Mobilization of final year students to solve societal students

Cooperation between Indonesia, Japan, and Finland:



東京大学  
THE UNIVERSITY OF TOKYO



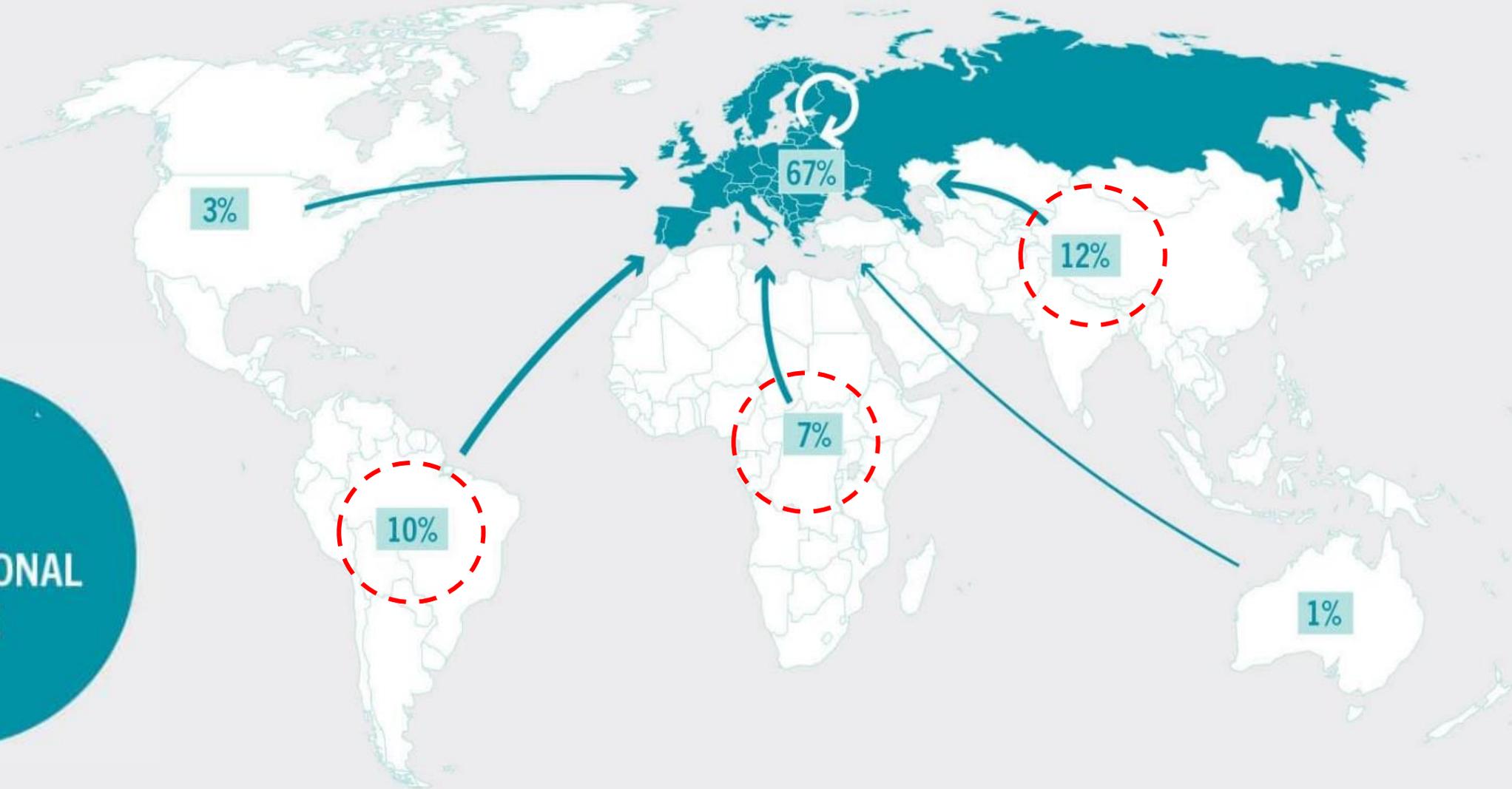
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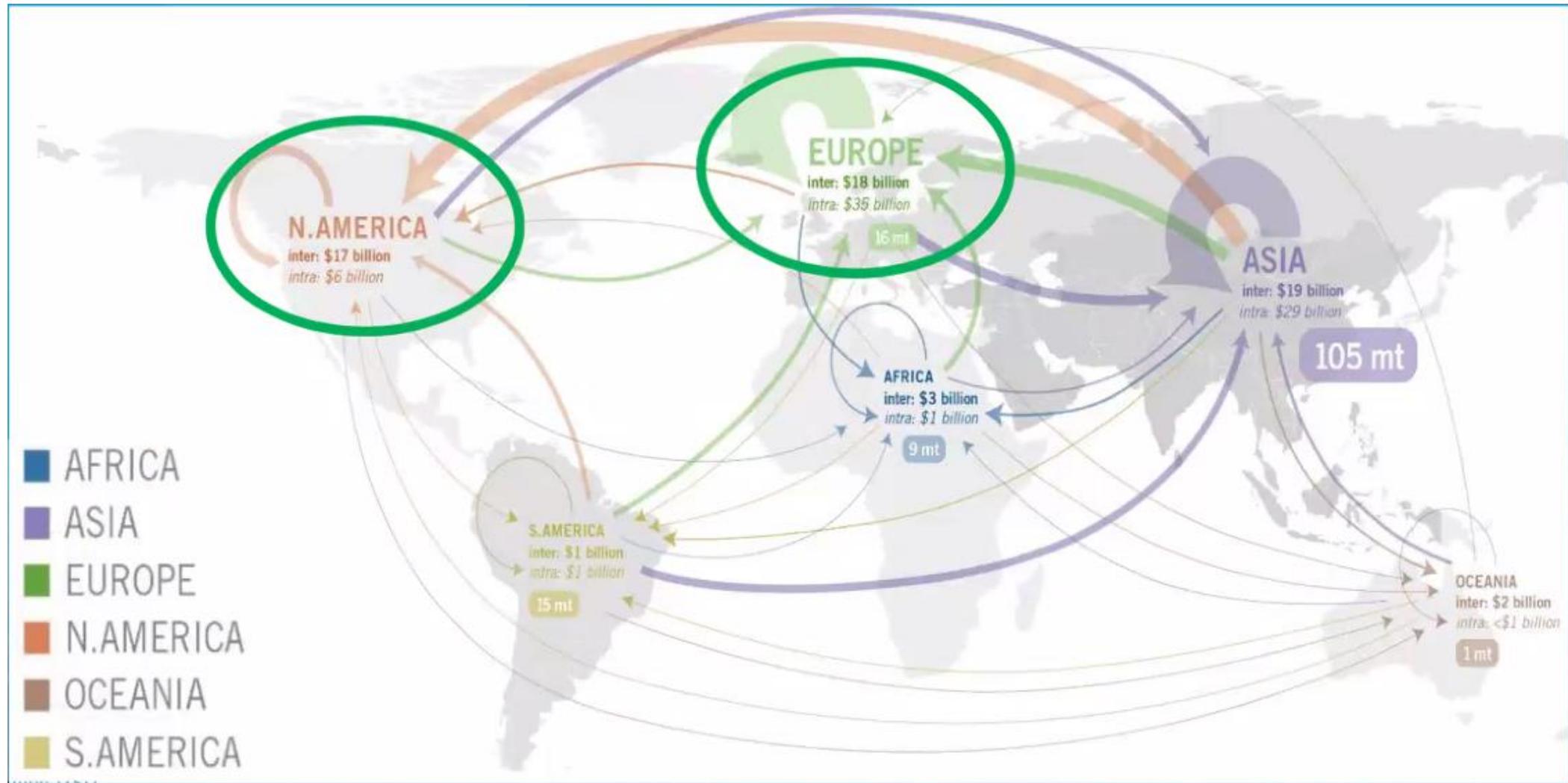
Japan International Research Center  
for Agricultural Sciences

# Trade flows in EU are mainly intraregional

EUROPE



# But EU drives the market for sustainable seafood sourcing



# Sustainable Seafood Movement

- **Sustainable seafood** –captured or produced in ways that secured the long-term vitality of harvested species and a healthy ecosystem, and the livelihoods and well-being of fisheries-dependent communities
- **Sustainable seafood movement** –An initiative based on collaboration between NGO and industry partnering to inform consumers and supply chain, allowing them to make better choices



# Trends of market demand on sustainable seafood

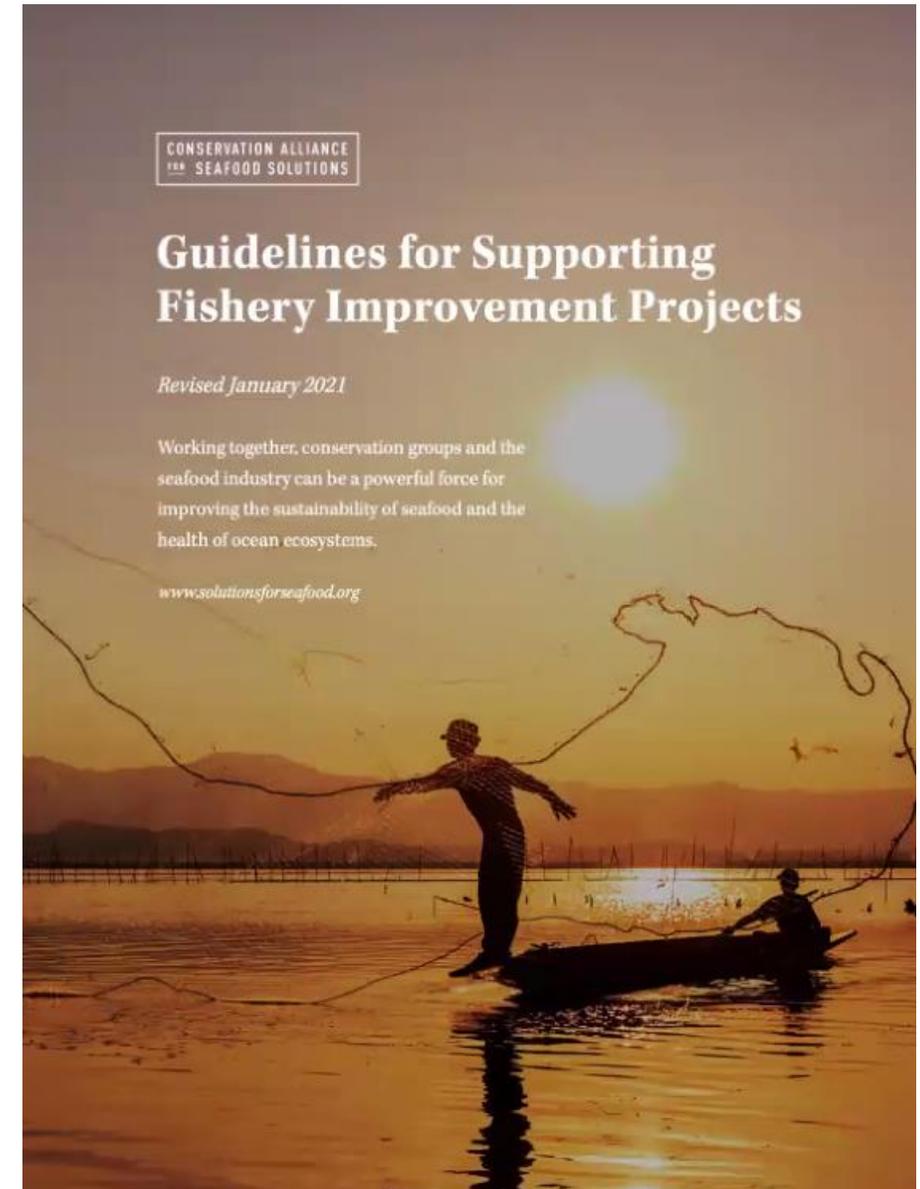
- Mature markets (UK, Northern EU, North America) already have various sustainable seafood commitments
- Emerging markets (Southern EU, Latin America, Japan, Asia) are following the initiatives and developing sustainable seafood commitments



# How to build a sustainable fisheries in every level of supply chain?

- **FIP:** *Fisheries improvement project*
- **AIP:** *Aquaculture improvement project*

FIP or AIP is an alliance of buyers, suppliers, and producers that work together to improve a fishery by supporting better policies and management, voluntarily changing fishing practices, and communicating their actions with buyers



# Typical market sustainability commitments

- Capture-fisheries
  - 3rd party certifications (MSC or GSSI recognized)
  - In an Fishery Improvement Project (rating A-C)
- Aquaculture
  - 3rd party certification (ACS, BAP, GGAP)
  - In an Aquaculture Improvement Project (AIP)

Recognised certification standards



# Reporting the improvement

**FISHERYPROGRESS.ORG** Fishery Improvement Project  
Progress Tracking Database & Tools

Log In | Create New Account

[My Dashboard](#)

Select Language ▾

[FIP Directory](#) [Resources for FIPs](#) [Resources for Buyers](#) [Social Responsibility](#) [About Us](#) [Contact](#)

## Welcome to FisheryProgress

A fishery improvement project uses the power of the private sector to address challenges in a fishery. As the number of FIPs around the world has grown rapidly, businesses and conservation organizations need an easier way to access consistent, reliable information about FIP progress.

FisheryProgress gives you a range of information about global FIPs from a quick snapshot of progress and opportunities to get involved to detailed evidence for improvements.

[Learn more »](#)

### FIP Directory

Search FIPs by typing the name in the box below.

### Guidance for Buyers

Learn how to interpret the information on FIPs to make business decisions.

### Create a FIP Profile

Step by step instructions for users looking to create a FIP profile.

**AIP DIRECTORY**

HOME ABOUT AIPs - VIEW AIPs REGISTER YOUR AIP UPDATE YOUR AIP RESOURCES - A

## THE AIP DIRECTORY

Welcome to the AIP Directory – a dedicated platform for information about aquaculture improvement projects (AIPs) around the world.

Supported by:

### Landscape-based AIPs support:

- Habitat regeneration**
- Climate change resilience**
- Supply chain security**
- Shrimp and fish welfare**

Explore active AIPs, list your project, report progress, and find useful resources on AIP

# What should Sustainable Seafood Movement look like in the small scale fisheries and aquaculture?



**Sustainable Fisheries**  
PARTNERSHIP

- Food security
- Economic development
- Social well-being
- Sustainable livelihoods
- Healthy communities
- Gender transformative
- Access to innovative technologies



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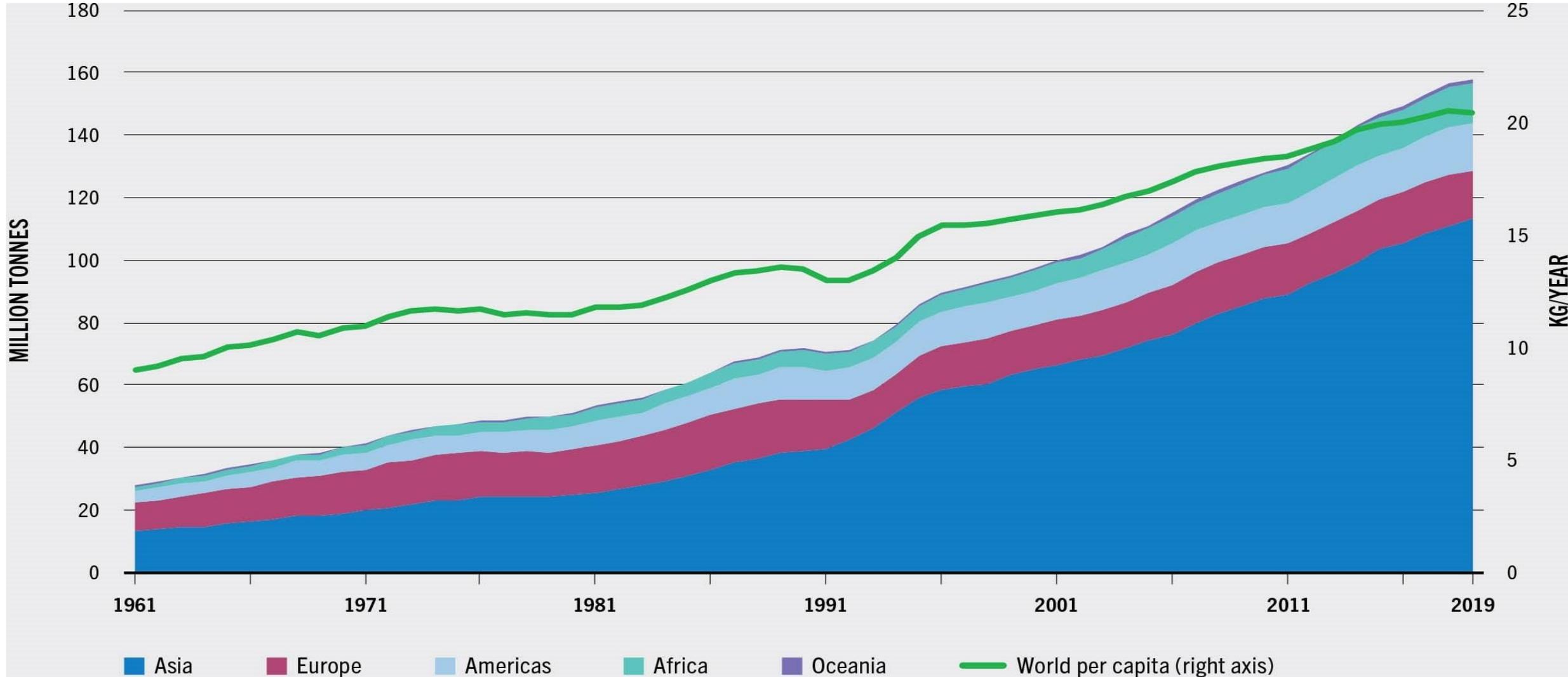
**THANK YOU!**

[ayprat@utu.fi](mailto:ayprat@utu.fi)

# References

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# Aquatic food consumption by region



SEPTEMBER 14, 2022

# — GLOBAL RESPONSIBILITY THROUGH NATURE-RESPECTFUL BUSINESS

Anne Quarshie, [Anne.Quarshie@lut.fi](mailto:Anne.Quarshie@lut.fi)

Postdoctoral Researcher | LUT School of Business and Management

# MY BACKGROUND

- **Research interests:**
- Sustainable business and supply chain management
- Systemic change processes
- Interorganizational interaction
- Biodiversity, human rights, disaster response
- **Teaching:**
- Sustainable / responsible business
- Sustainable supply chain management



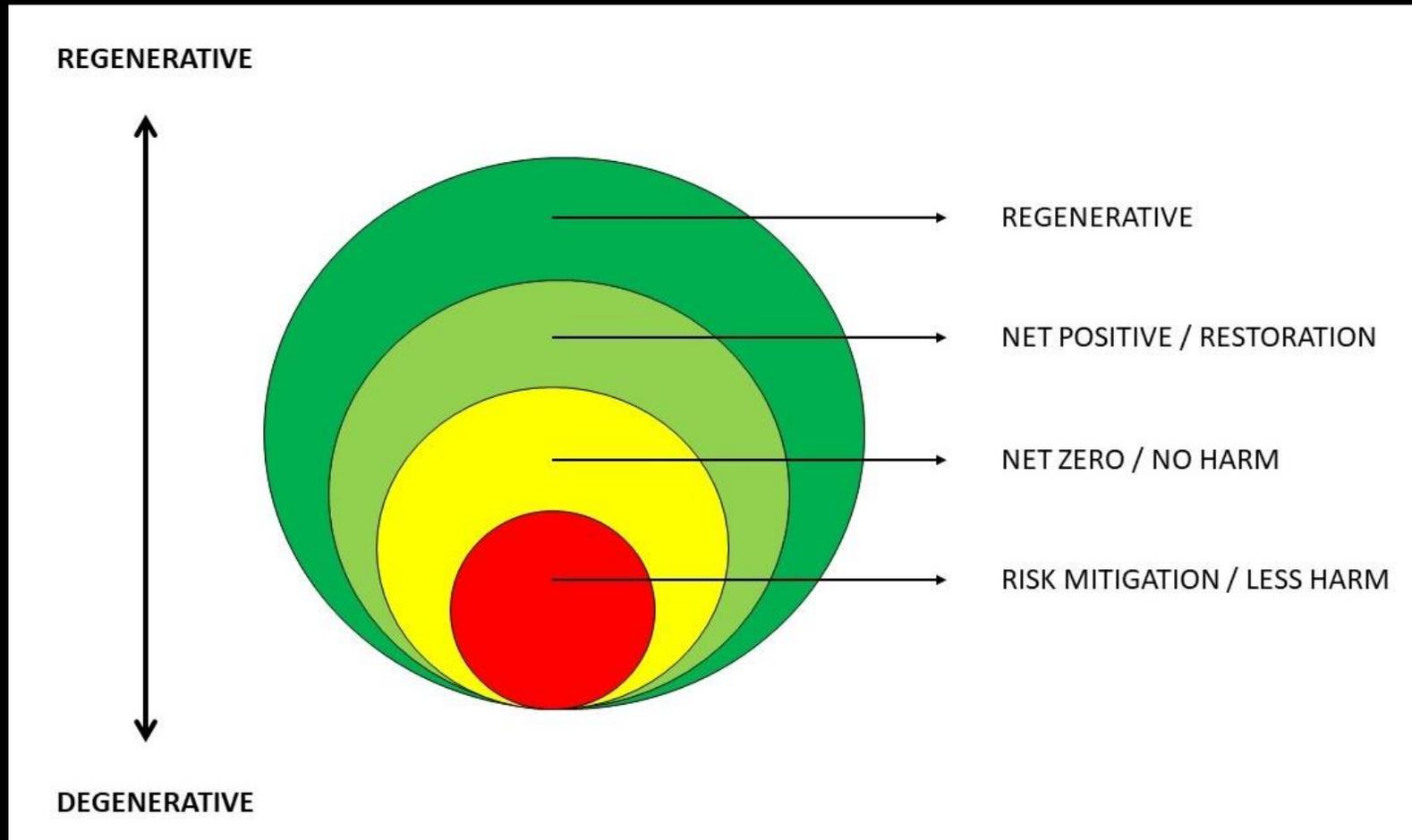
## **Experience:**

LUT University  
Aalto University  
Rutgers University  
Fairtrade Finland  
Save the Children US

# OBJECTIVES

- To discuss how nature-respectful business can be understood.
- To examine how the biodiversity topic has been treated in the business literature.
- To present initial insights on nature-respectful business and supply chain management.

# BIODIVERSITY-RESPECTFUL BUSINESS: MOVING BEYOND RISK MITIGATION AND ELIMINATION



*“These transformations will depend on three critical strategic business mindset shifts: reinventing capitalism to reward true value creation, not value extraction; building long-term resilience; and taking a regenerative approach to business sustainability” (WBCSD, 2021: 8).*

# LITERATURE REVIEW

- The topic of biodiversity has received scant attention in the management field (Whiteman et al., 2013; Quarshie, Salmi, & Wu, 2021).
- This is also the case in the supply chain management (SCM) domain (Matthews, Power, Touboulic, & Marques, 2016; Quarshie, Salmi, & Leuschner, 2016; Salmi, Karttunen, & Quarshie, 2019).
- However, there is a significant body of knowledge on how firms can seek to create more sustainable (or less harmful) supply chains (Pagell & Shevchenko, 2014; Salmi, Quarshie, Scott-Kennel, & Kähkönen, under review).
- Much of this research focuses on how firms can improve their financial or sustainability performance through environmental or sustainable SCM.
- Relatively few studies aim to generate understanding of more ambitious or radically different SCM approaches and practices.
- Montabon, Pagell, & Wu (2016) propose an ecologically-dominant sustainability logic where practices are optimized to eliminate harm in the long-term.

# ENVIRONMENTAL / SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES

- According to Pullman et al. (2009, p. 39), companies are engaged in “certain sustainability practices that align with their desired performance outcomes”.
- Sustainable supply chain management practices can be understood as intraorganizational and/or inter-organizational efforts and activities that delineate the ways of implementing purchasing and SCM principles and strategies (Pullman et al., 2009; Vachon & Klassen, 2006).
- Many studies propose and discuss specific sustainability practices (Beske et al., 2014; Marshall et al., 2015), sustainable supplier development practices (Sancha et al., 2015), or green supply chain practices (Li & Huang, 2017).
- For example, Tate et al. (2012) identify 61 environmental SCM practices.

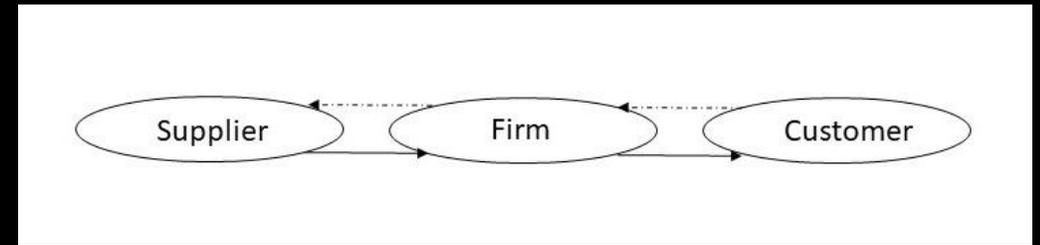
# TWO MAIN APPROACHES FOR ENGAGING SUPPLIERS IN SUSTAINABILITY / BIODIVERSITY

## ASSESSMENT & MONITORING

These are evaluative activities that aim to monitor the environmental management and performance of suppliers (Klassen & Vachon, 2003).

### Examples of firm activities:

- supplier audits (Grimm et al., 2014)
- monitoring of suppliers' environmental performance (Lee & Klassen, 2008)
- supplier questionnaires (Bowen et al., 2001)
- codes of conduct (Vachon & Klassen, 2006)
- environmental certifications and standards (Hoejmose et al., 2014)
- environmental management systems (Cousins et al., 2004)
- penalty clauses or rewards and incentives (Rao & Holt, 2005; Marshall et al., 2015).



## COLLABORATION

These are collaborative activities that aim to achieve sustained improvements in environmental performance (Klassen & Vachon, 2003).

### Examples of firm activities:

- supplier training and development (Cousins et al., 2004; Sancha et al., 2019)
- exchanging knowledge and expertise (Klassen & Vachon, 2003; Rao and Holt, 2005)
- joint solving of sustainability problems or joint development of new solutions (Lee & Klassen, 2008; Grimm et al., 2014).

# OTHER APPROACHES FOR ADDRESSING SUSTAINABILITY/BIODIVERSITY IN SUPPLY CHAINS



- Environmental (and social) sustainability impacts are especially challenging to assess and address along multi-tier supply chains (Villena & Gioia, 2018; Simpson et al., 2021).
- Several scholars have examined the diffusion of sustainability practices (beyond direct suppliers) within supply chains.
- For example, Meqdadi et al. (2020) show how intensive interaction with suppliers during mentoring activities can facilitate the diffusion of practices to sub-suppliers.
- Pagell and Wu (2009) suggest reconceptualizing sustainable supply chains to include nontraditional actors (e.g., nonprofits and regulators). Working with such actors can also be helpful in addressing biodiversity (at the sub-tier supplier level).
- Other critical practices include improving transparency and traceability of supply chains, as well as collaborative, biodiversity-related research and other projects with stakeholders (Salmi et al., under review).

## HOW FINNISH FIRMS CONSIDER BIODIVERSITY

According to the Confederation of Finnish Industries (2022), in Finland:

- 46 percent of firms report that considering biodiversity is already a part of the firm's operations.
- 43 percent of firms have set targets for considering biodiversity.
- 13 percent measure the achievement of the targets.

# High-Level Business Actions on Nature

(Business for Nature, 2022).

The COP15 business advocacy campaign "Make it Mandatory" demands mandatory assessment and disclosure.

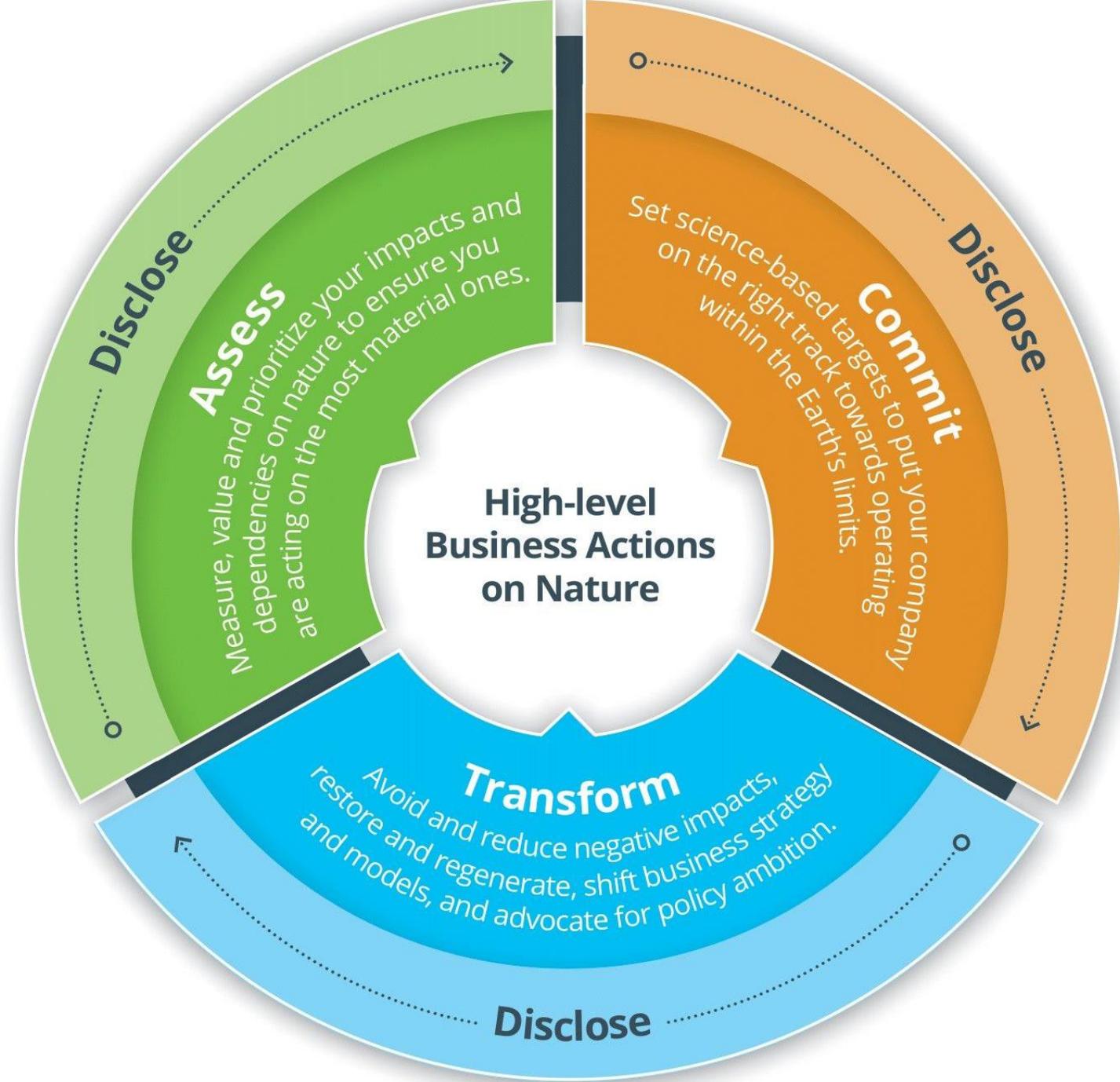


Figure: Business for Nature, 2022



**Questions or comments?**

**Thank you!**

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