EEAC 30th anniversary

PARALLEL SESSION #5
15:30-17:15

GLOBAL RESPONSIBILITY - DECISIONS MADE IN EUROPE AFFECT BIODIVERSITY GLOBALLY

Prof. Ilari Sääksjärvi
Finnish Nature Panel

Dr. Ville Uusitalo
LUT University

Henna Rouhiainen
University of Turku

Dr. Ayu Pratiwi
University of Turku

Dr. Anne Quarshie
LUT University

#EEAC30
#CriticalDecade

EEAC

KESTÄVYYS PANEELI

SUOMEN LUONTO PANEELI

SUOMEN ILMASTOPANEELI
The Finnish Climate Change Panel

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

Ilari E. Sääksjärvi

Biodiversity Unit, University of Turku & Finnish Nature Panel

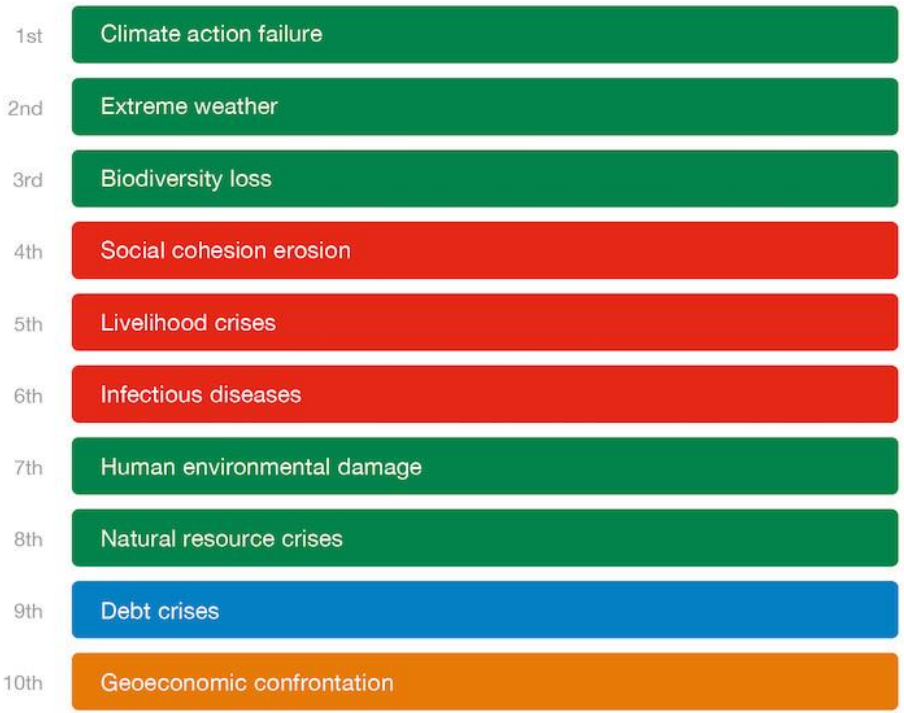
@ilarisaaksjarvi

Biodiversity loss is advancing rapidly

Top 10 Global Risks by Severity

Over the next 10 years

WORLD ECONOMIC FORUM



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, T**he School of Business and Management): **Global responsibility through nature-respectful business**

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

EEAC 30th anniversary conference

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TURUN YLIOPISTO

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UNIVERSITY OF JYVÄSKYLÄ

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Luke
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BIODIVERSITY-RESPECTFUL
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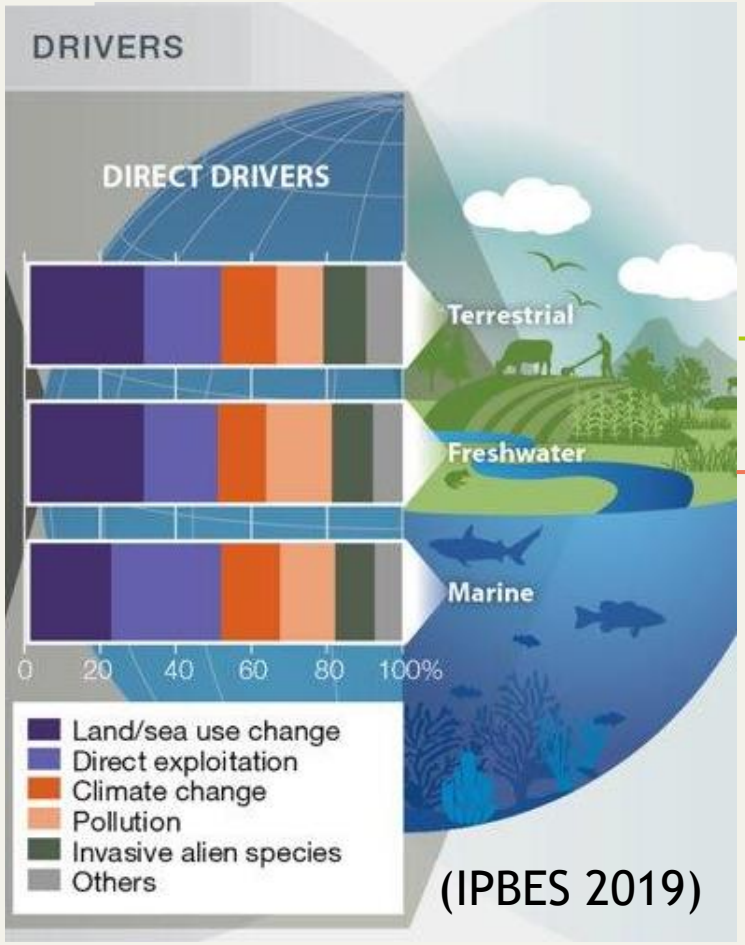
MULTIPLE DRIVERS FOR BIODIVERSITY LOSS



(IPBES 2019)

Greenhouse gas emissions and pollution to oceans have global level impacts

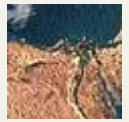
Location of emissions is not important

GLOBAL IMPACTS

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

Location of emissions is important

LOCAL IMPACTS



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CONSUMPTION LEADS TO IMPACTS ON BIODIVERSITY

HOUSING

MOBILITY

FOOD

OTHER

End of life

Product A

Retail

Transport

Manufacturing

Climate impacts

Climate impacts
Land use change

Climate impacts
Pollution (microplastics)

Fresh water use

Climate impacts

Climate impacts
Direct exploitation

Transport

Raw material 1 acquisition

Invasive species

Fresh water use
Land use change

Transport

Raw material 2 acquisition

Climate impacts
Pollution (acidification)

Energy production

Chemical production

Eutrophication
Pollution (to soil)

Fertilizers, pesticides

Life cycle perspective

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METHODS TO ASSESS IMPACTS ON BIODIVERSITY ALONG LIFE CYCLES ARE DEVELOPING

- There is a **growing interested** 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**

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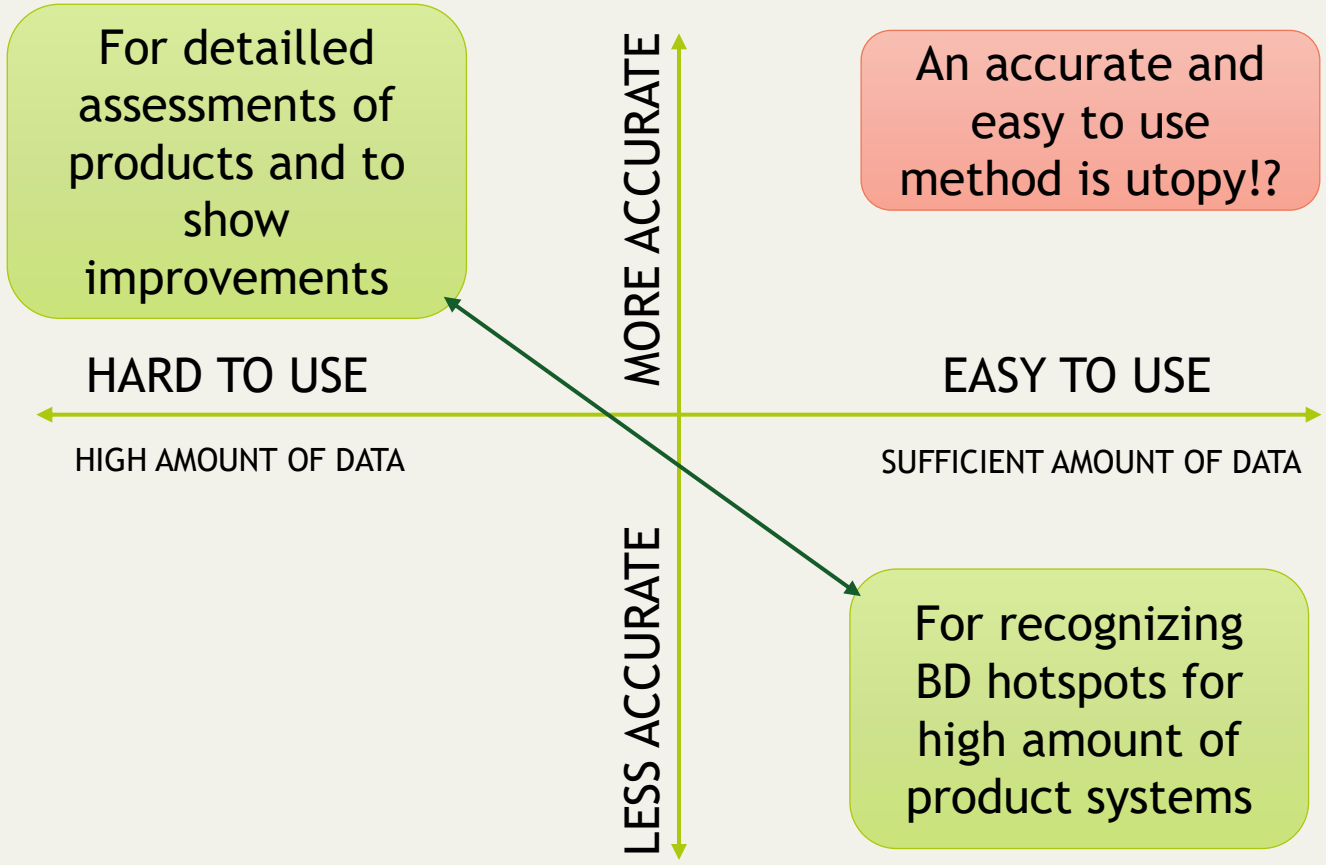
ACCURACY VS. USABILITY



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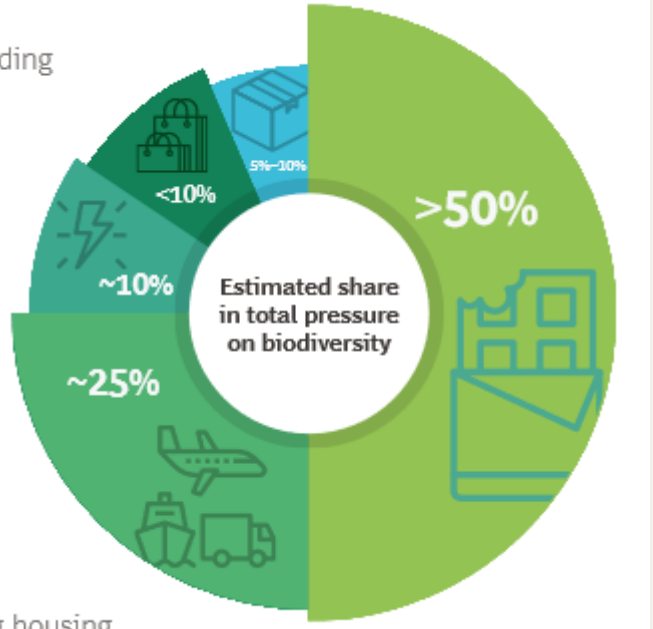
FOOD HAS A KEY ROLE IN BD IMPACTS OF OUR CONSUMPTION

All other, including pharma, cosmetics, and consumer electronics

Fashion and related FMCG, including luxury goods

Energy, including fuels, power, and other commodities



Food and beverages, including packaging

Infrastructure and mobility, including housing, public infrastructure, and vehicles

(BCG 2021)

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CONSUMPTION IN EUROPE LEADS TO IMPACTS GLOBALLY

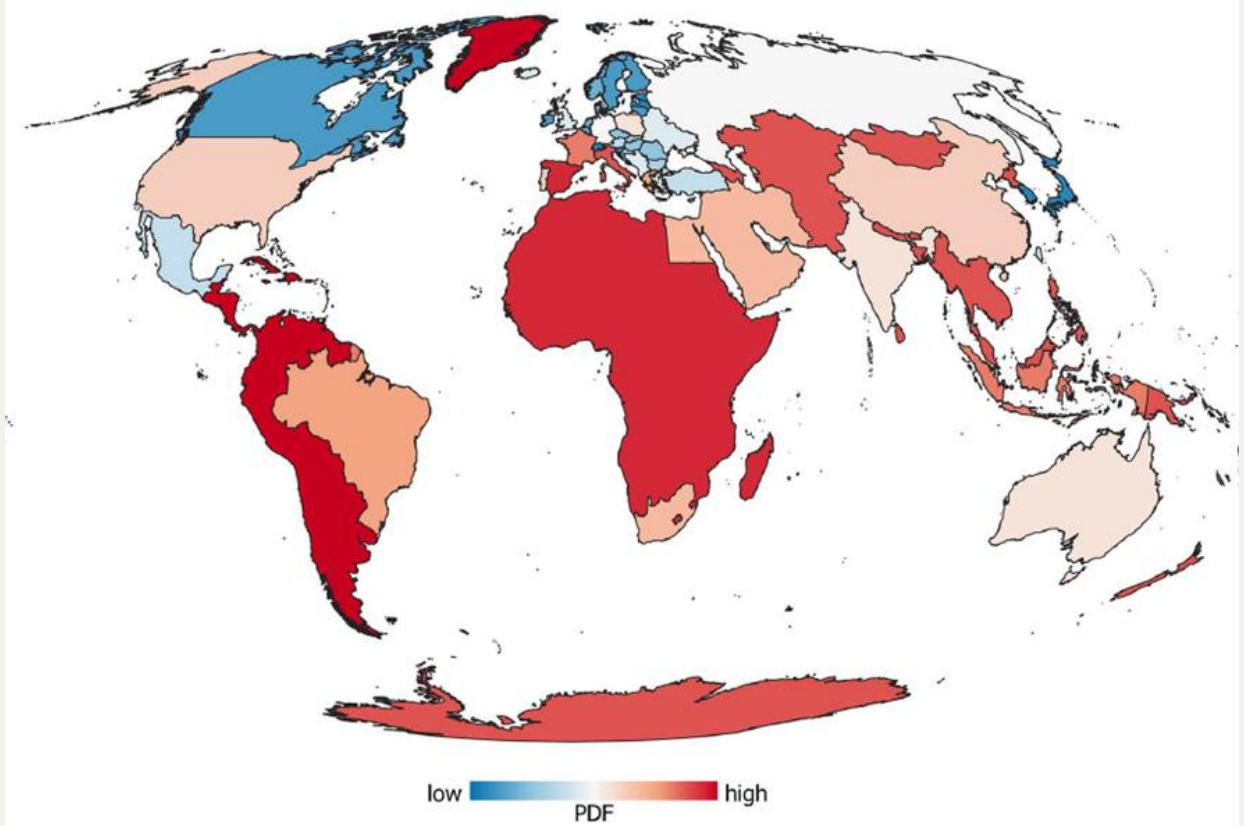
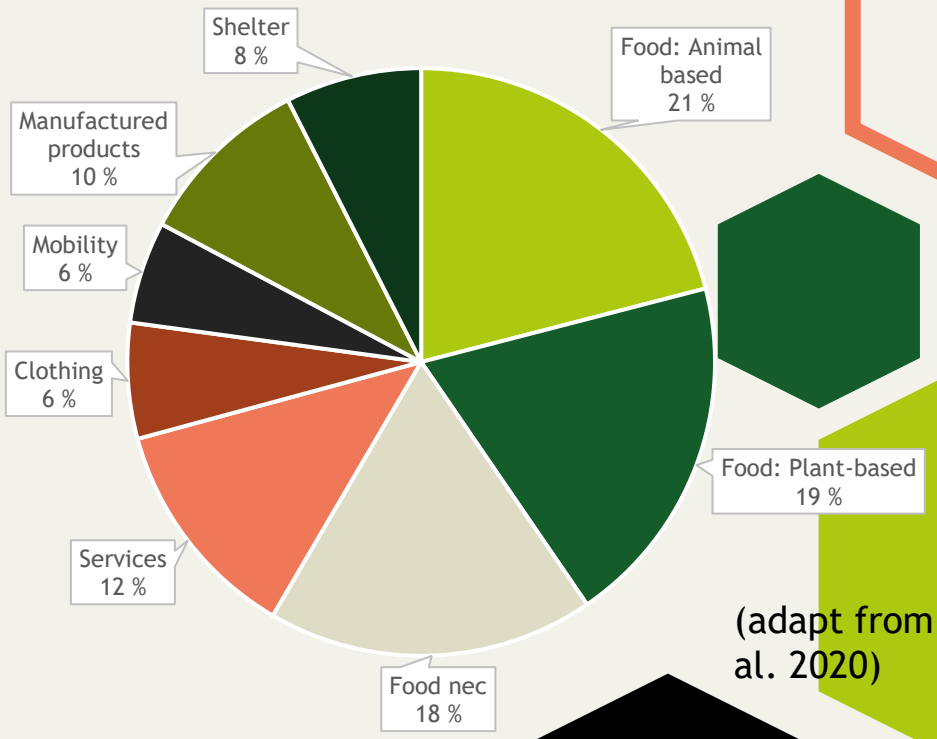


Fig. 2. Total global biodiversity losses due to European household consumption in 2010, measured in PDF.

(Koslowski et al. 2020)



(adapt from Koslowski e
al. 2020)

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BD IMPACTS OF FINNISH CROP SUPPLY

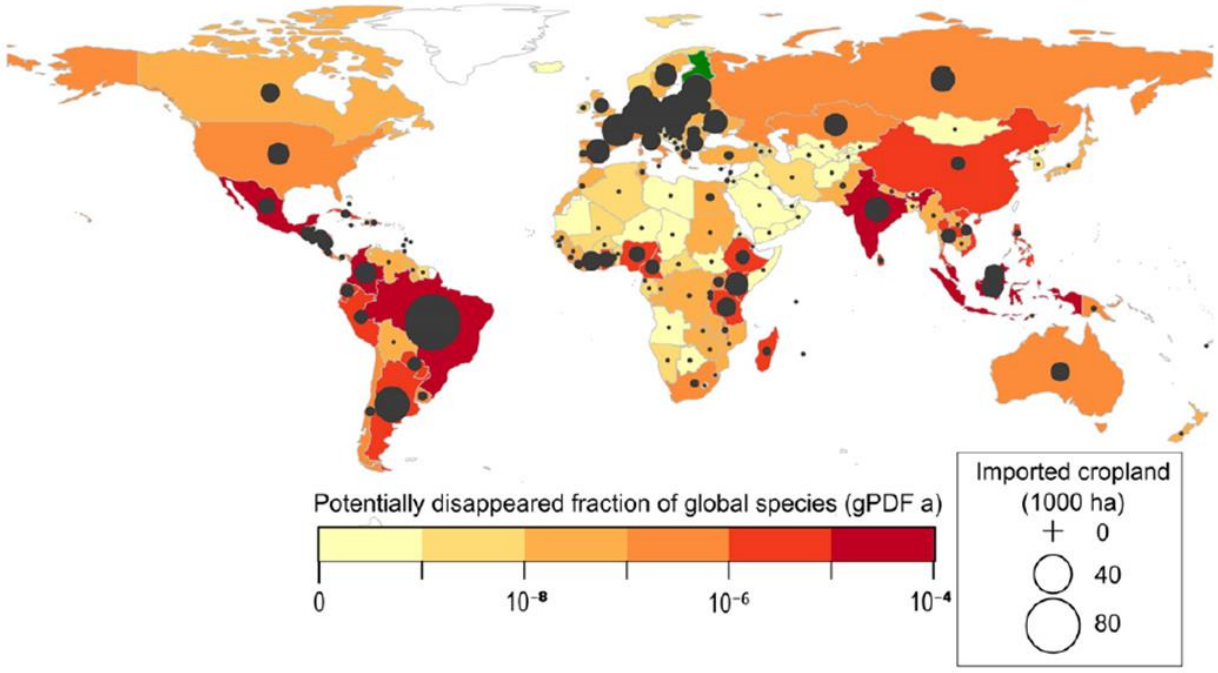


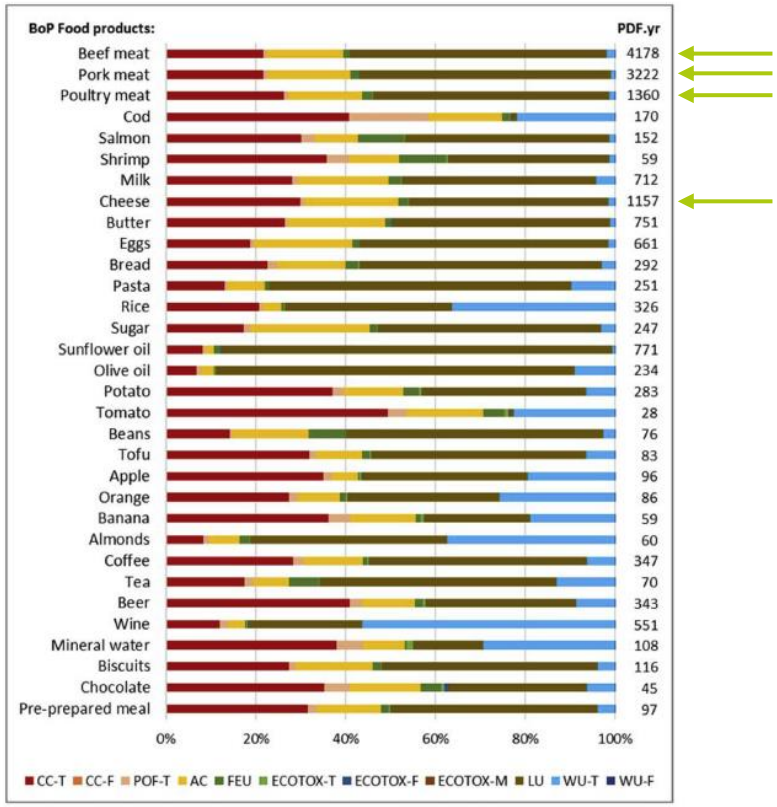
Fig. 3. Imported cropland and the impacts on global biodiversity in 2010. Bubbles represent the "imported" cropland and the color of the countries represents biodiversity impacts caused by land use (values presented as three-year means of 2009–2011).

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

(Sandström et al. 2017)

BD IMPACTS DUE TO FOOD CONSUMPTION IN EU

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



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

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.

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

(Crenna et al. 2019)

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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

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IPBES (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES secretariat, Bonn, Germany. 56 pages.

Koslowski, M., Moran, D.D., Tisserant, A., Verones, F., Wood, R. 2020. Quantifying Europe's biodiversity footprints and the role of urbanizastion and income. Global Sustainability

Richie, H., Roser, M. 2019. Land Use.

Sandström, V., Kauppi, P. E., Schere, L. Kastner, T. 2017. Linking country level food supply to global land and water use and biodiversity impacts: The case of Finland. Science of the Total Environment 575, 33-40.

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Education on biodiversity and global responsibility in European schools

Henna Rouhiainen

EEAC 14th Oct 2022

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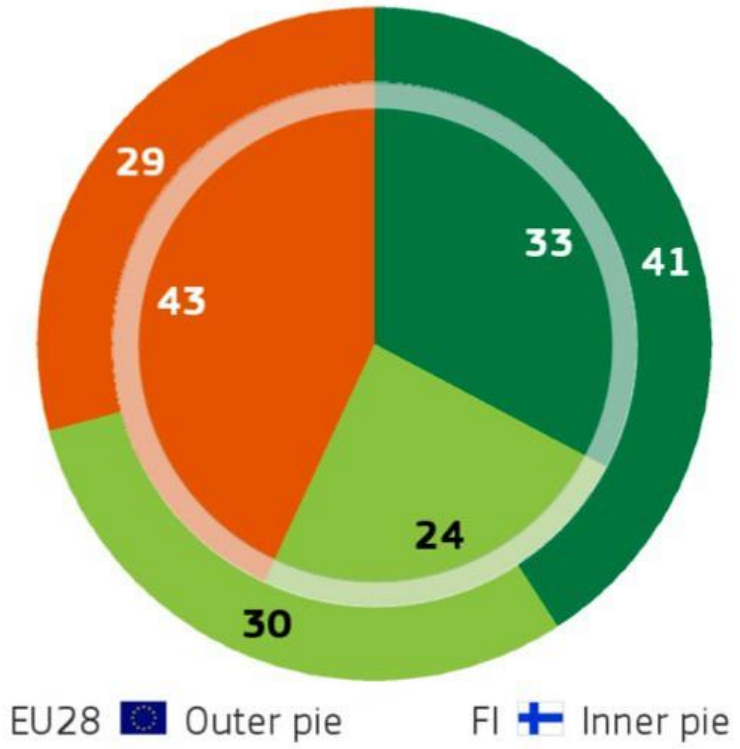
Education on the environment and sustainability

- 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"?

(%)



- 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)

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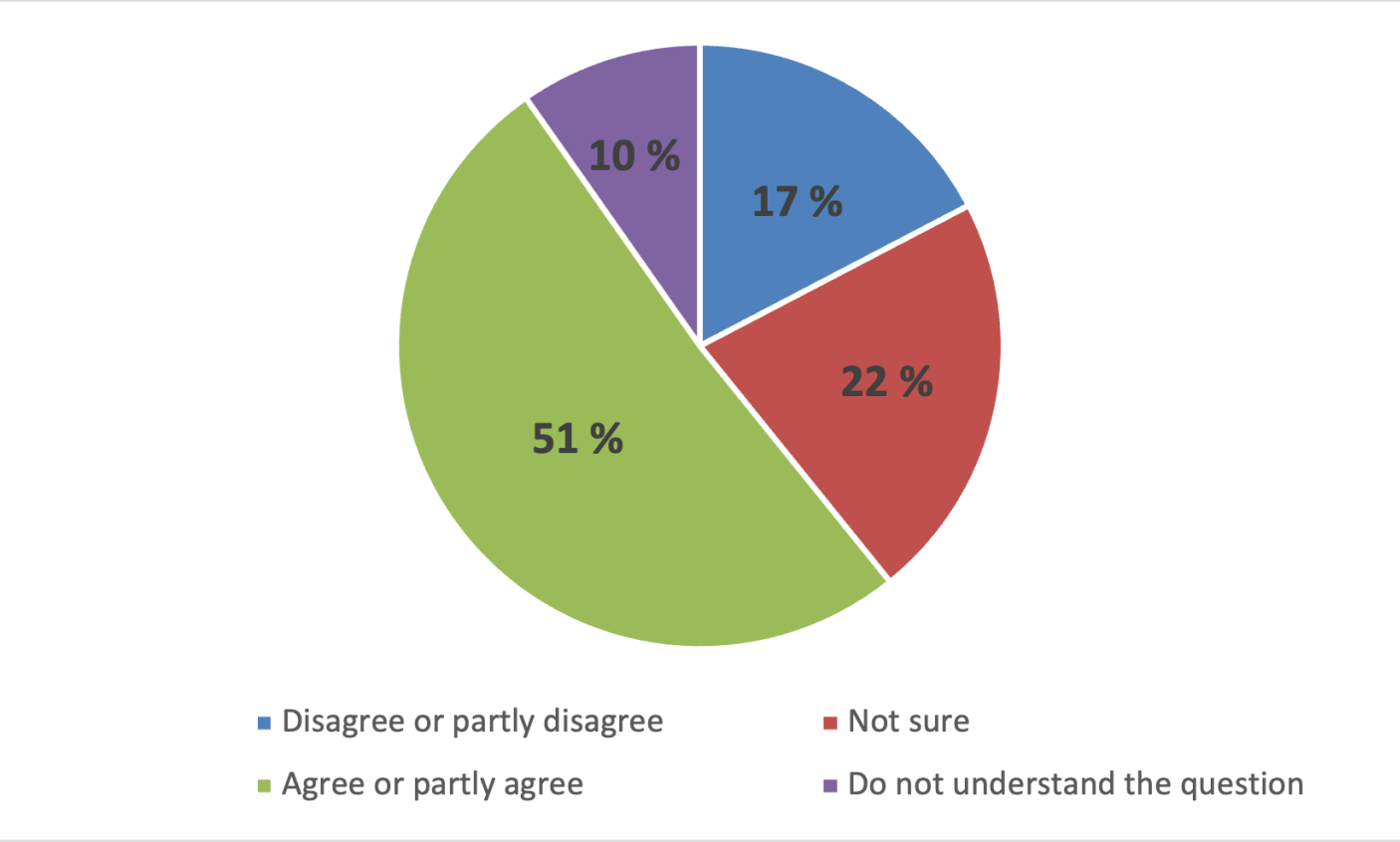
Adolescents' biodiversity awareness in Finland

'I know what biodiversity means.'



Source: LNYK survey (2019)

- N=329 students
- grades 7-9

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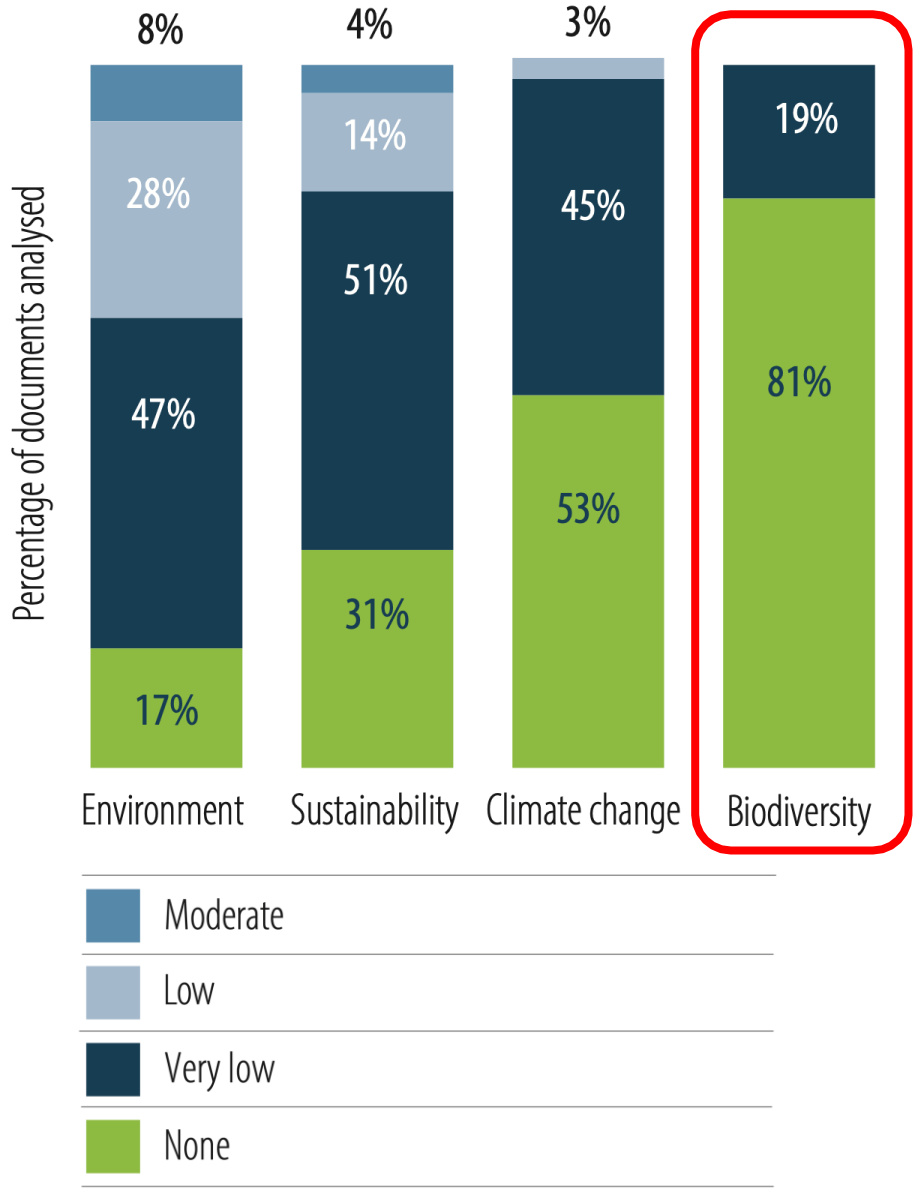
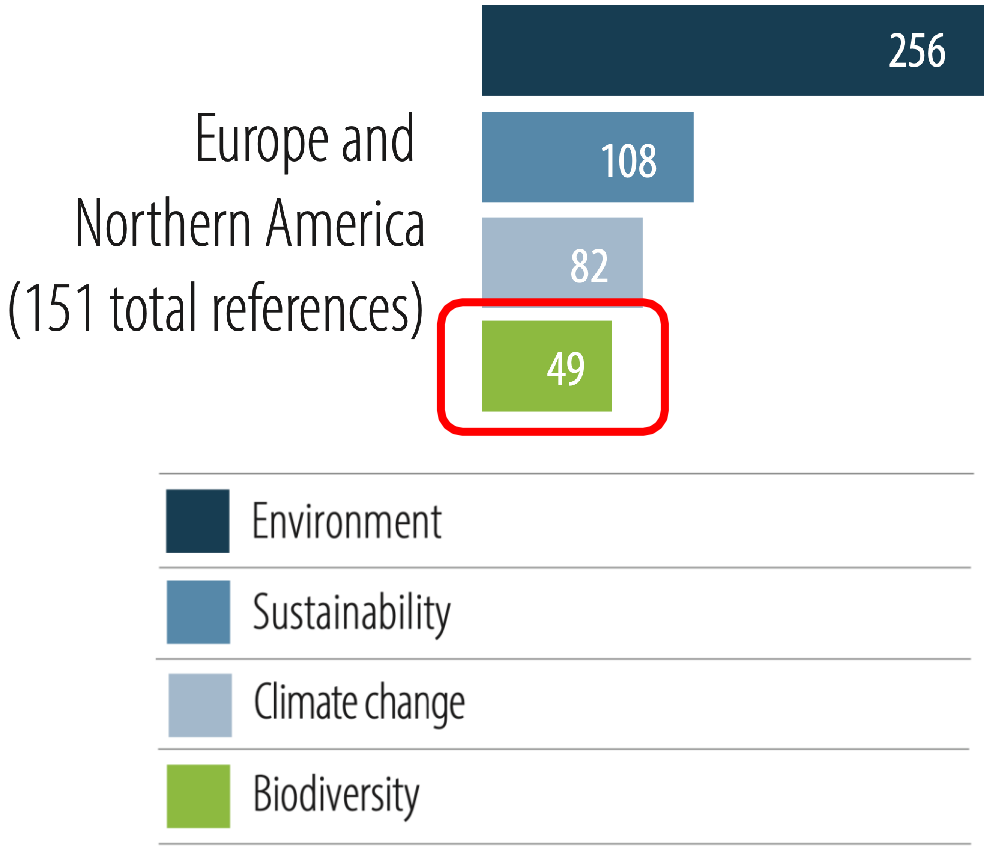


Source: UNESCO (2021)

Biodiversity in educational policy documents - worldwide

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

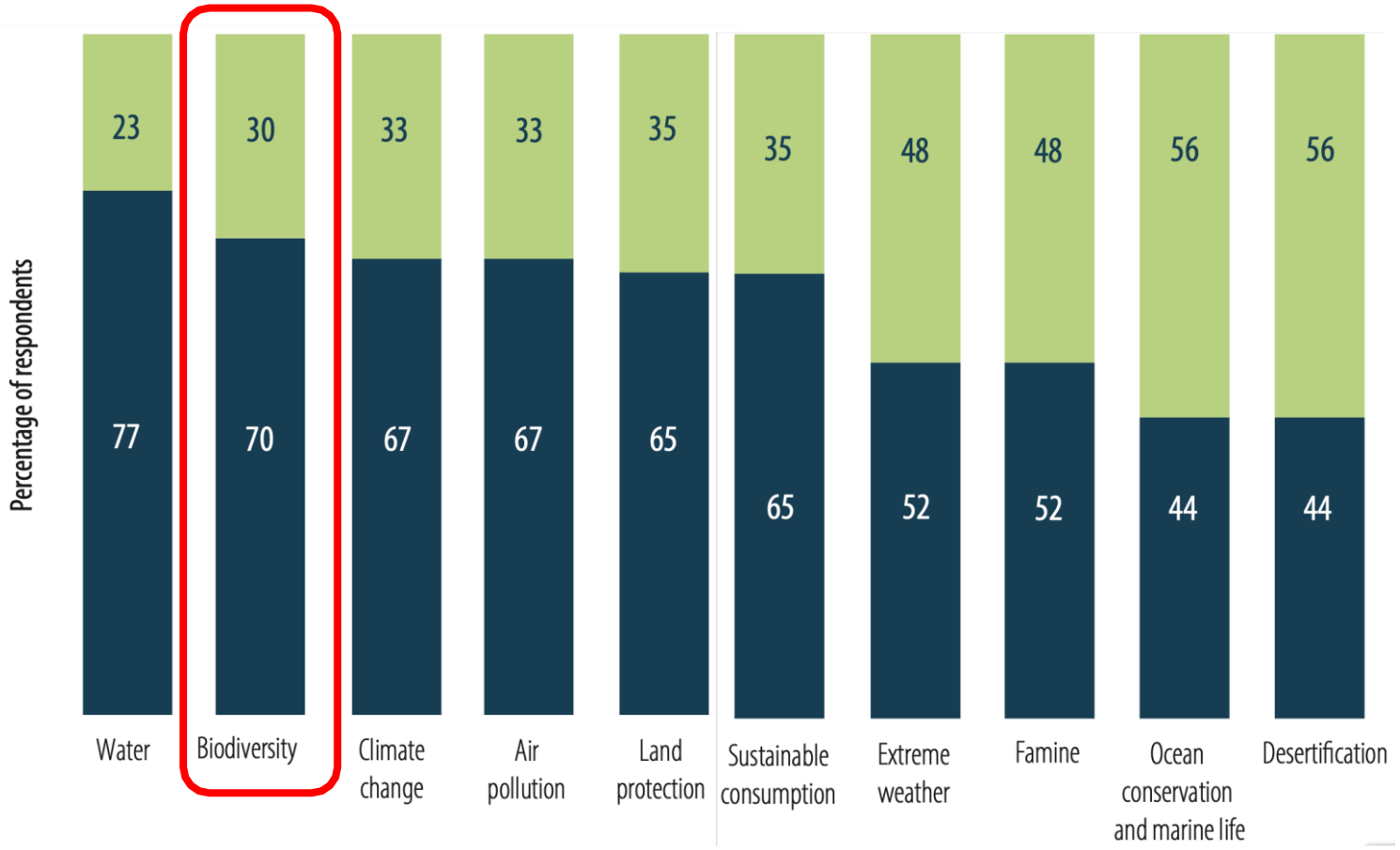
Biodiversity in educational policy documents - Europe and North America



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

Source: UNESCO (2021)

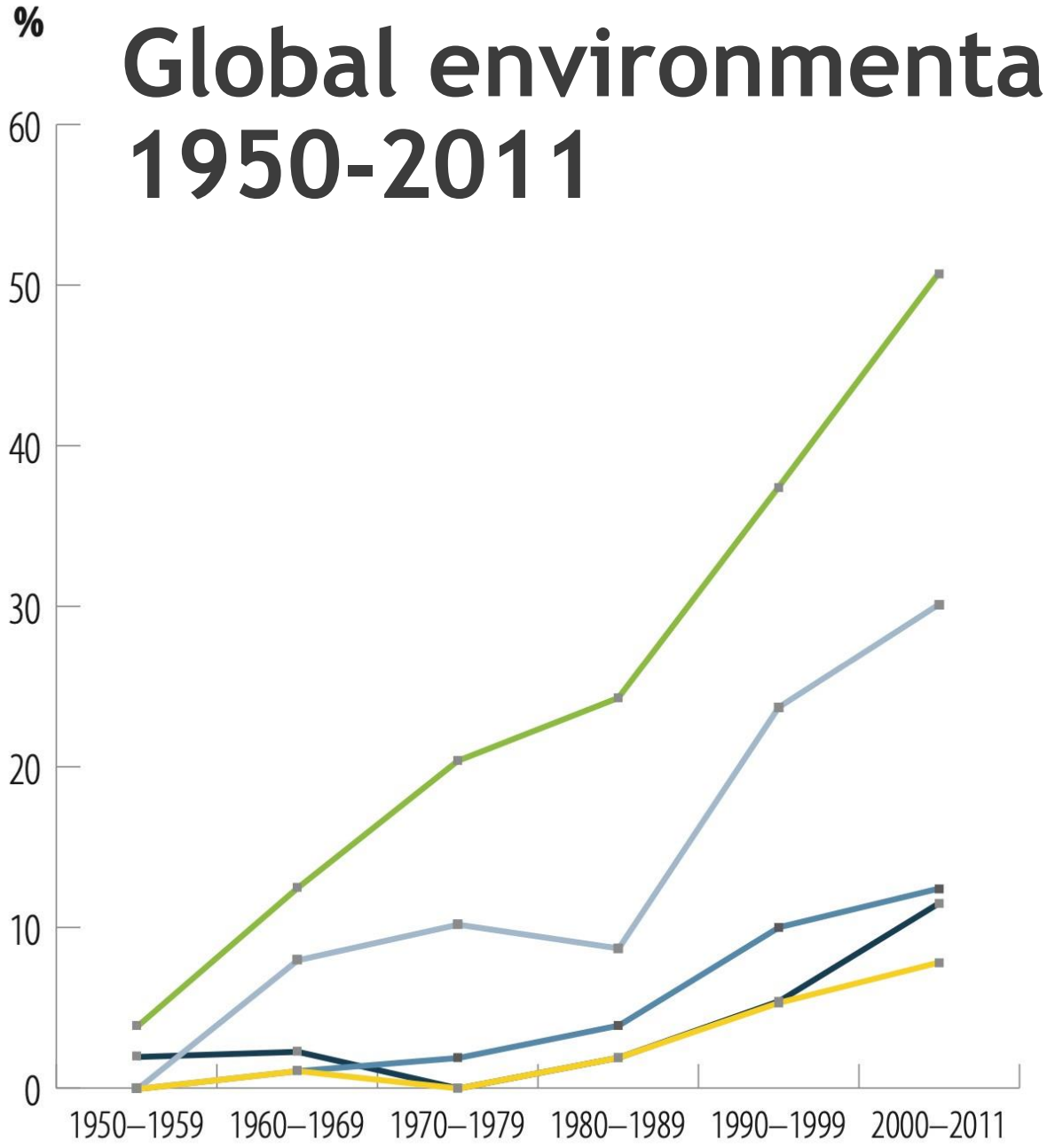
Biodiversity integration in schools



Source: UNESCO (2021)

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

Global environmental themes in textbooks 1950-2011



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

Source: UNESCO (2021), Bromley et al. (2016)

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!

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References

- Special Eurobarometer 481 – Attitudes of Europeans towards Biodiversity 2018.
- LNYK (Lasten ja nuorten ympäristökäsitykset) survey 2019. Unpublished.
- UNESCO 2021: Learn for our planet – A global review of how environmental issues are integrated in education.
- Bromley et al. 2016: Education for Global Citizenship Education & Sustainable Development: Content in social science textbooks. Paper commissioned for the Global Education Monitoring Report 2016, Education for people and planet: Creating sustainable futures for all.
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- Mykrä, N. (2021). Peruskoulu ekologista kestävyyttä edistämässä: Toiminnanteoreettinen tutkimus koulun monitasoisesta muutoshaasteesta.

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Thank You!

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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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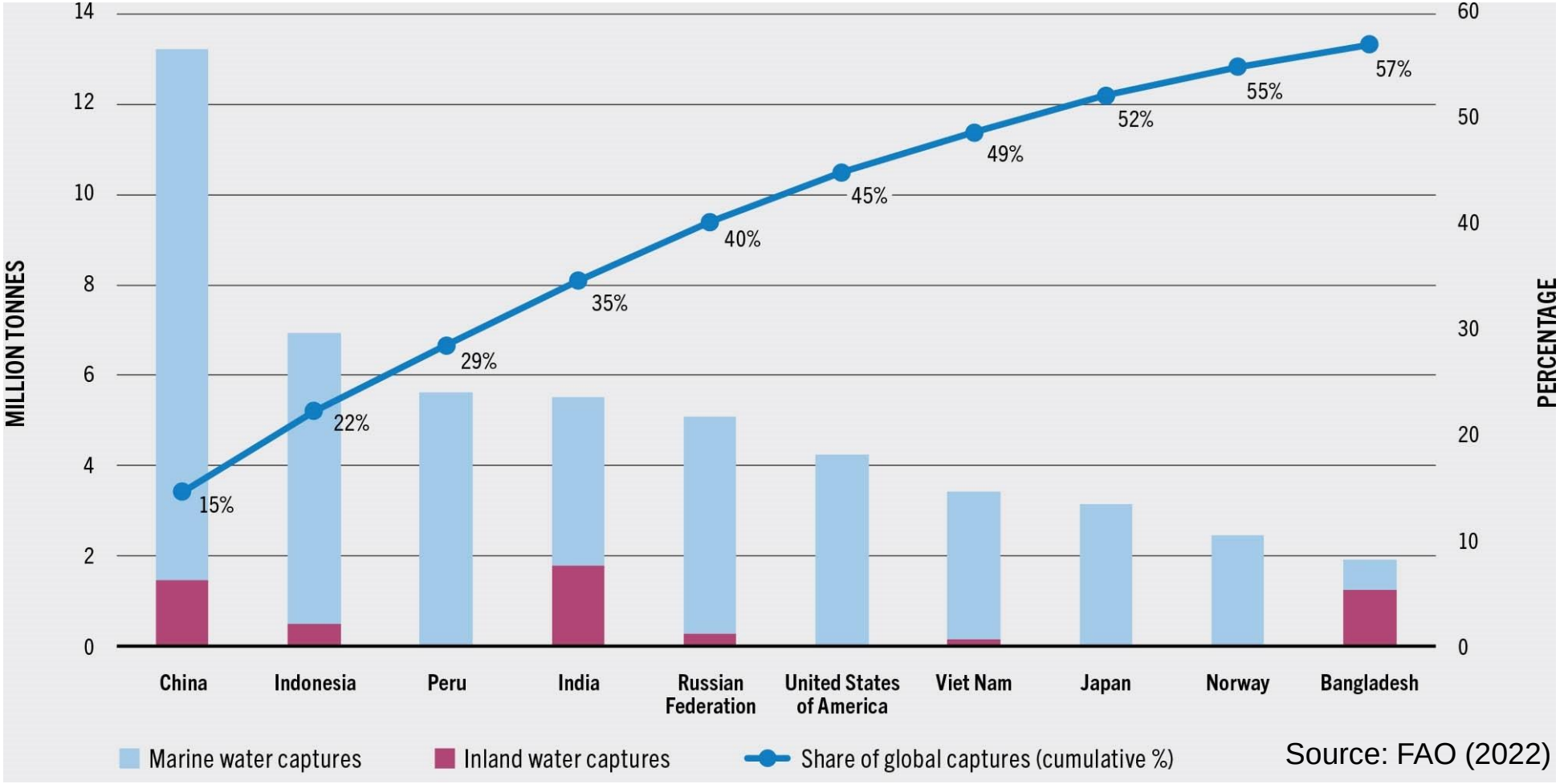
Why captured-fisheries?



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

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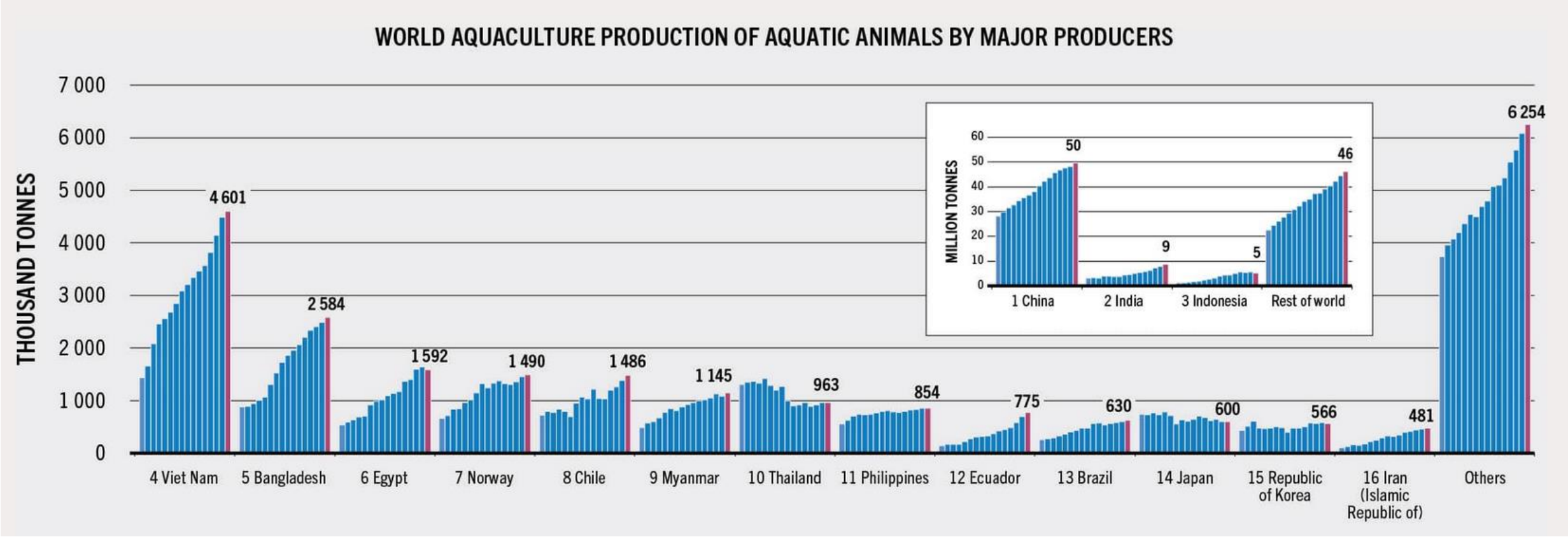
Why aquaculture?



Source: FAO (2022)

Same trends for aquaculture….

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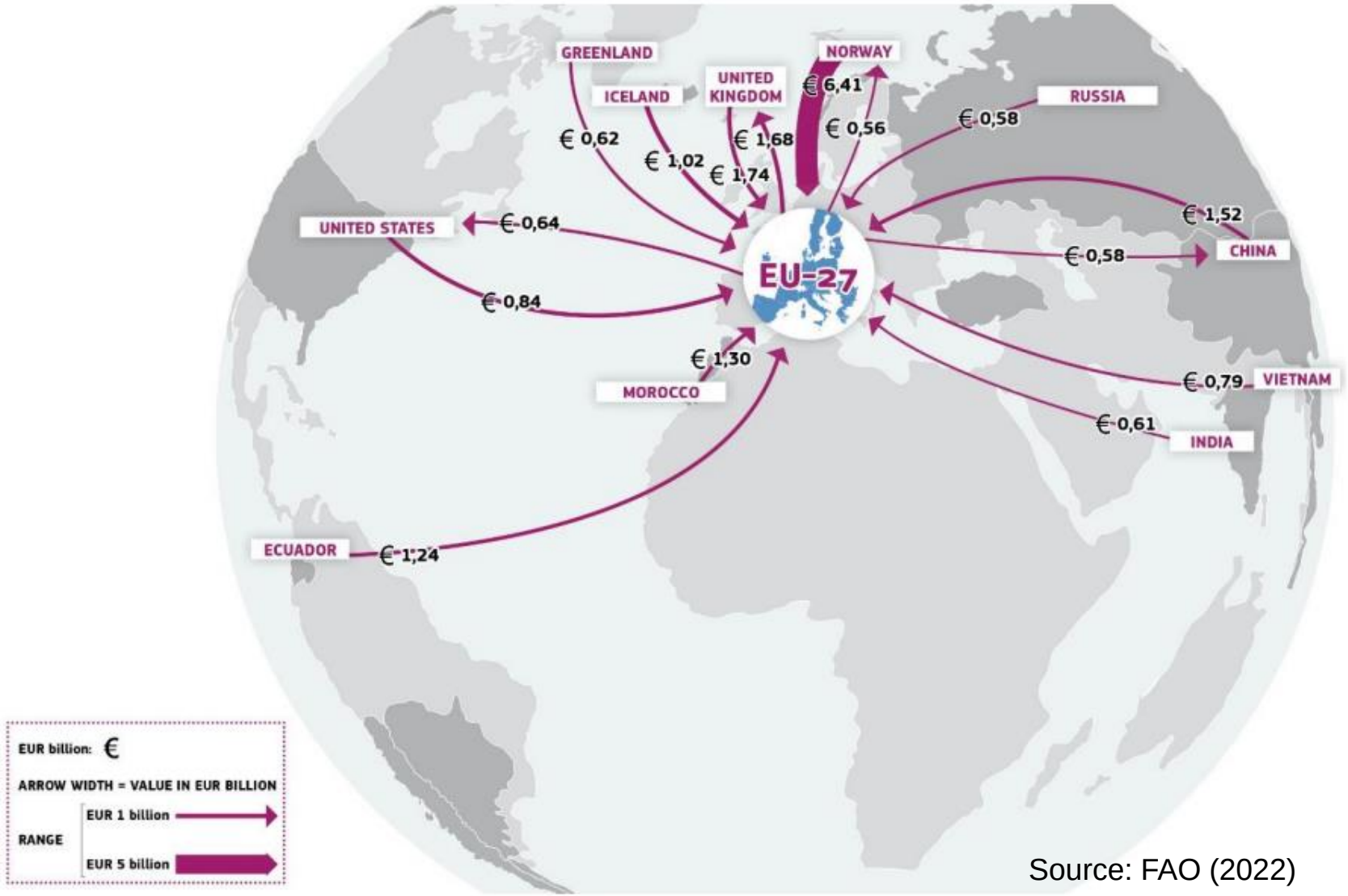
Extra-EU trade flows in fishery and aquaculture in 2021



Source: FAO (2022)

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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

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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** impending 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 loses** 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

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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

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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**

Source: Worldfish (2022)

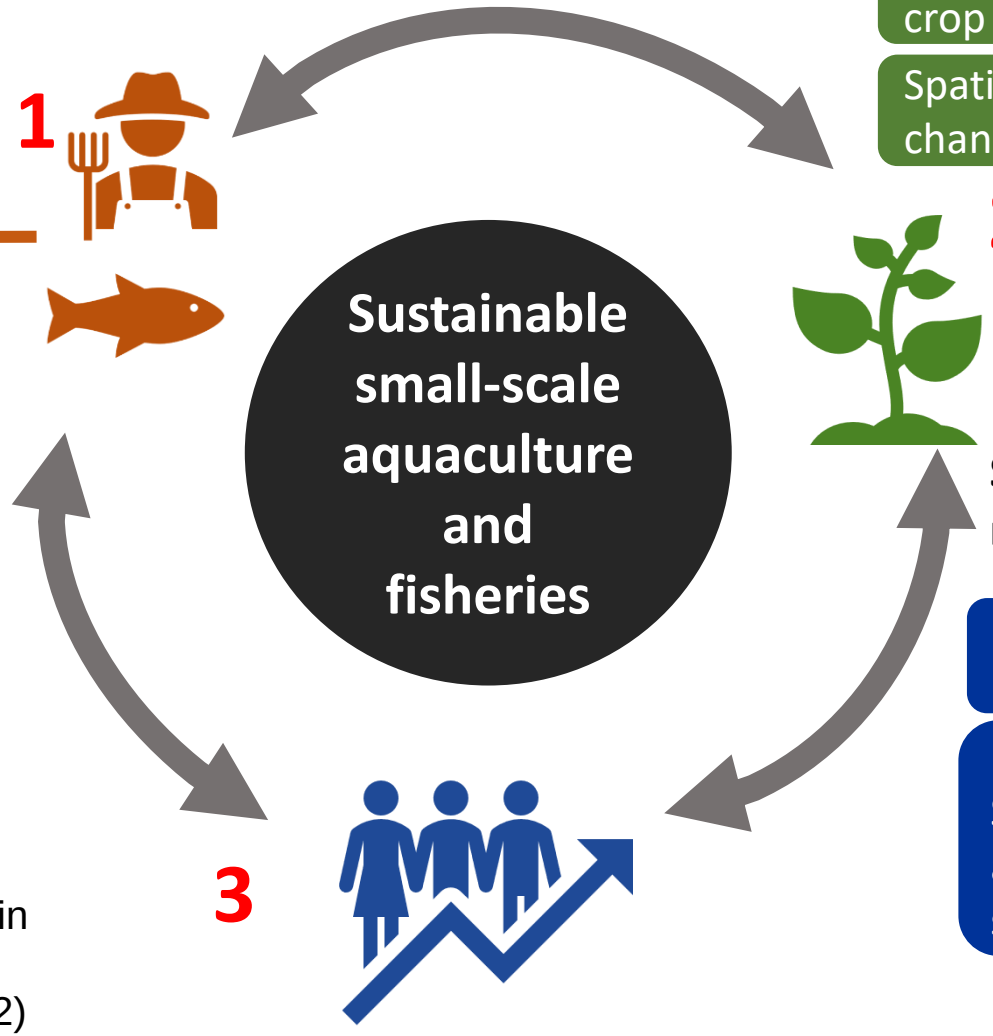
Major recommendations for the G20 meeting to support Small-scale Farmers and Fishers

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

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

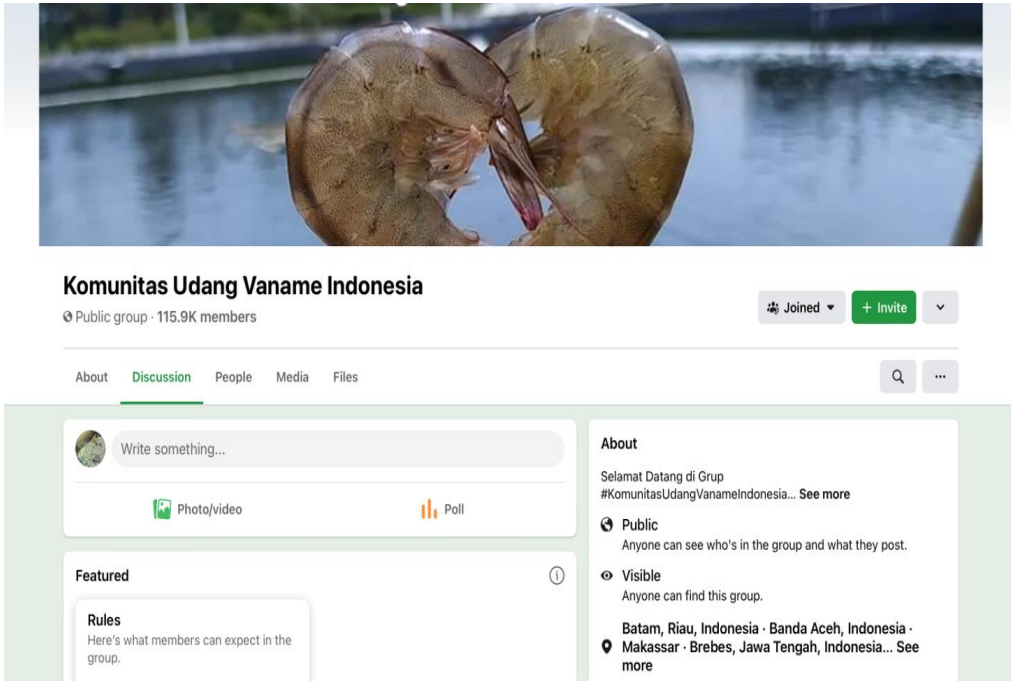


Synergized social protection and nutrition programmes

- Synergized social protection programs
- Fish consumption in National Food Security and nutrition strategies and improved food safety standards

Policy Brief to G20 Indonesia Presidency in 2022, Task Force 4: Food Security and Sustainable Agriculture, Pratiwi et al (2022)

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:

UNIVERSITAS MUHAMMADIYAH GRESIK

HITOTSUBASHI UNIVERSITY

東京大学 THE UNIVERSITY OF TOKYO

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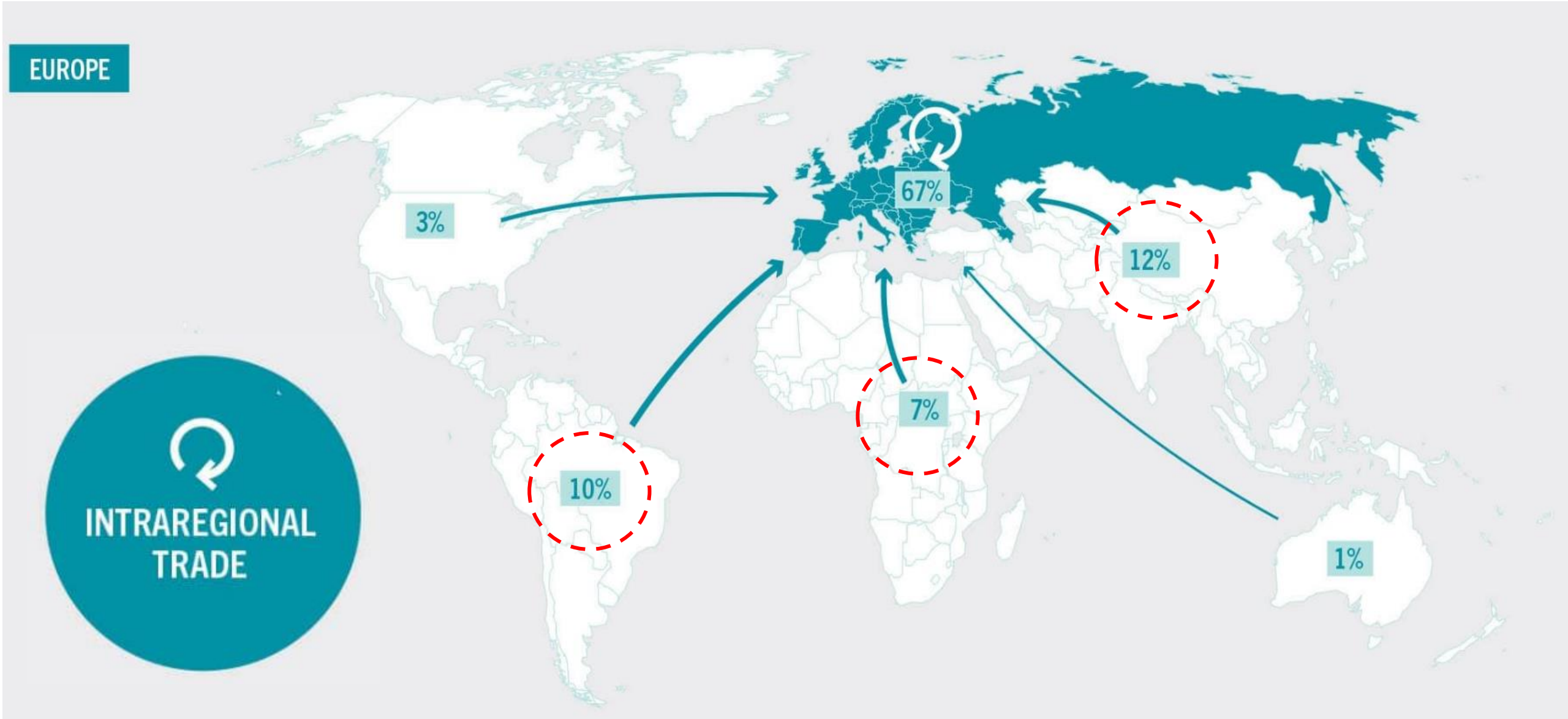
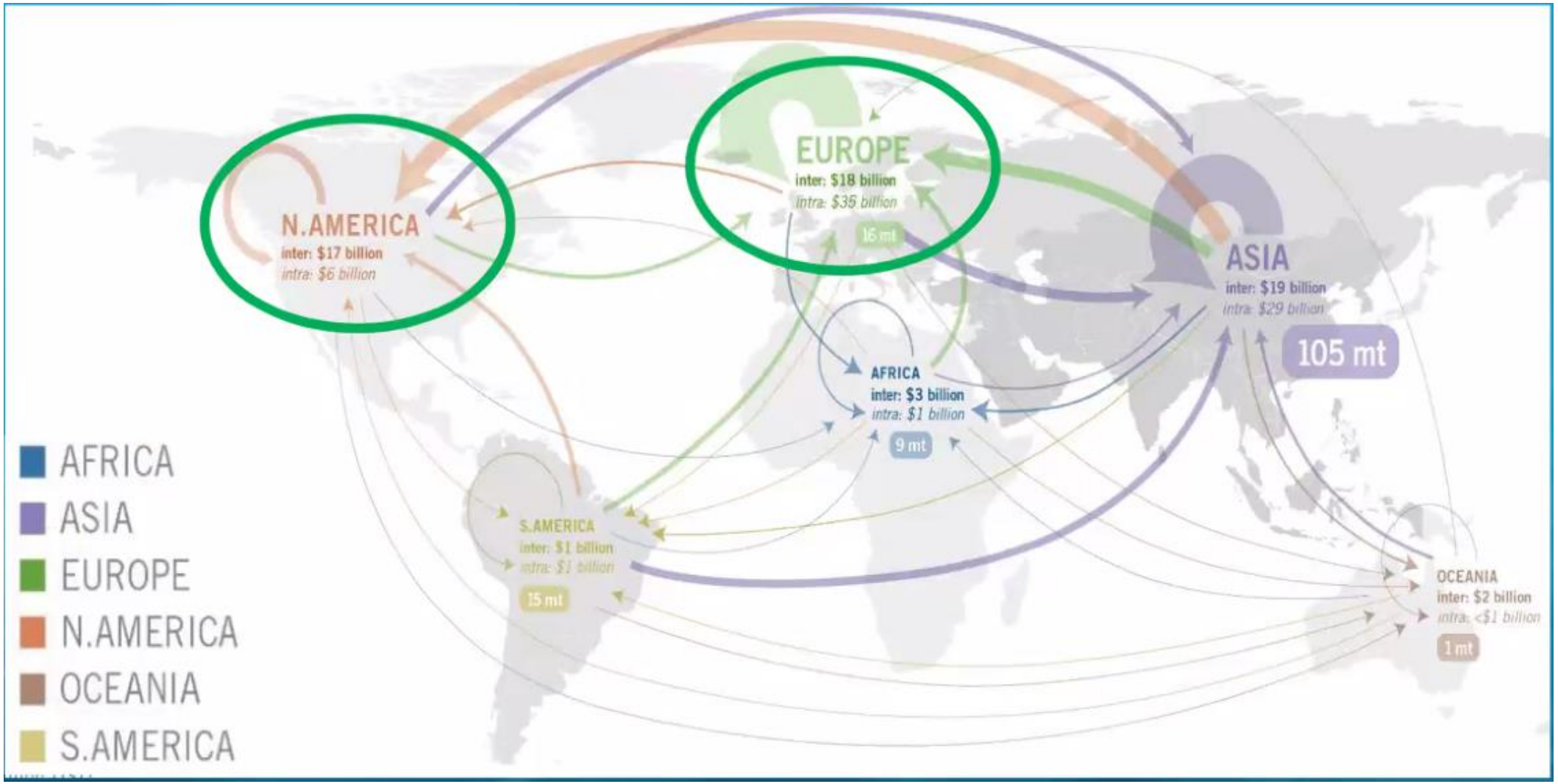
JIRCAS Japan International Research Center for Agricultural Sciences

Trade flows in EU are mainly intraregional



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

CONSERVATION ALLIANCE FOR SEAFOOD SOLUTIONS

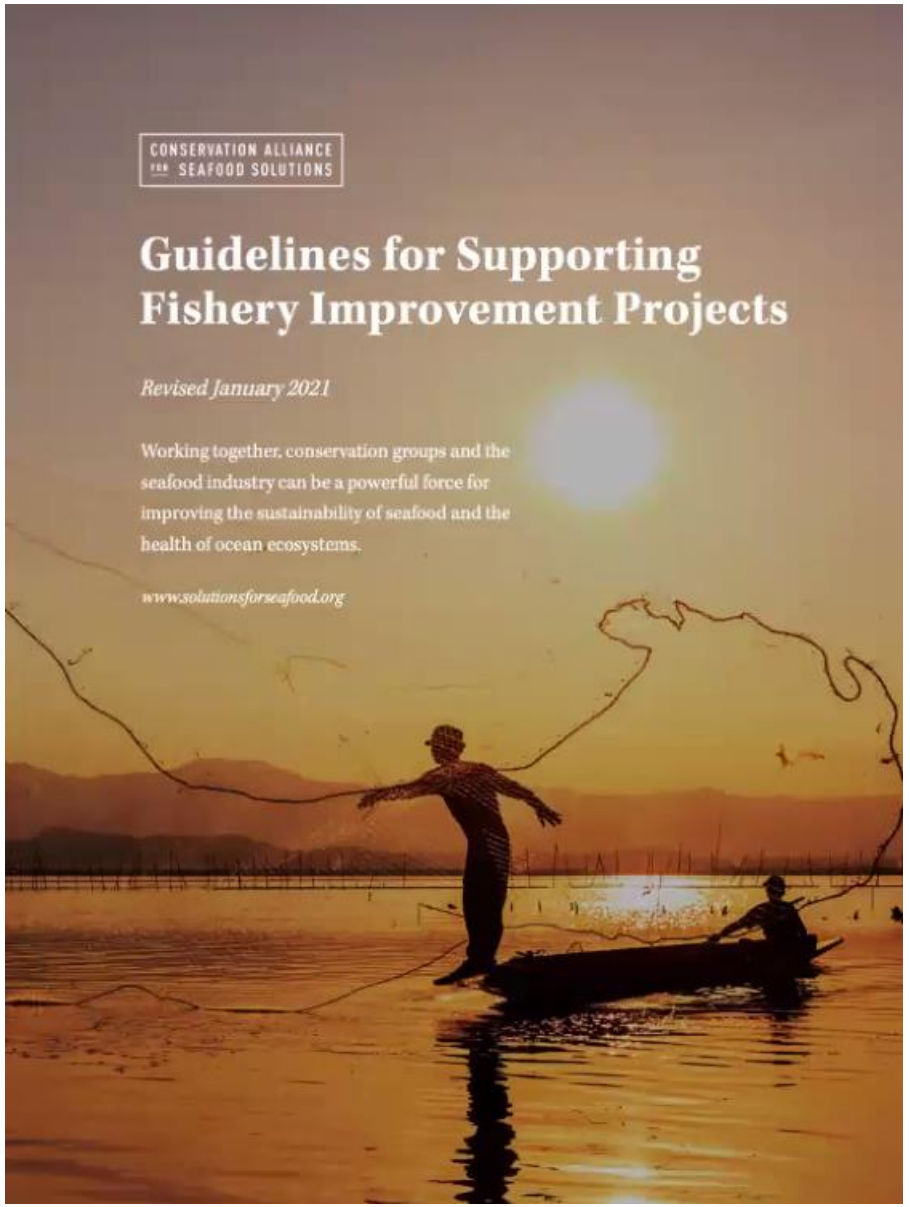
Trends of market demand on sustainable seafood

- 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*

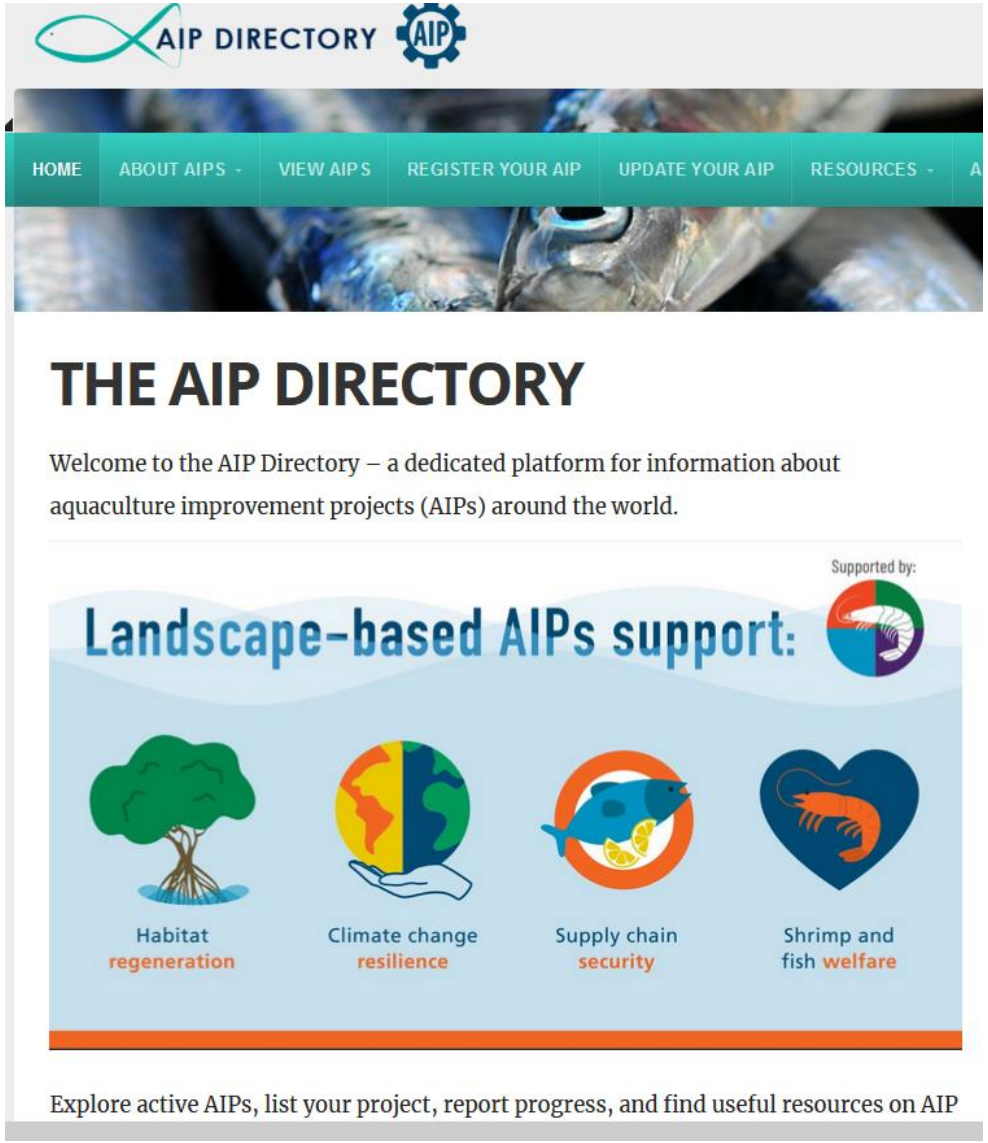
FIP or AIP is an alliance of buyers, suppliers, and producers that work together to improve a fishery by supporting better policies and management, voluntarily changing fishing practices, and communicating their actions with buyers



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)

Reporting the improvement



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

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

Sustainable Fisheries
PARTNERSHIP

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THANK YOU!

ayprat@utu.fi

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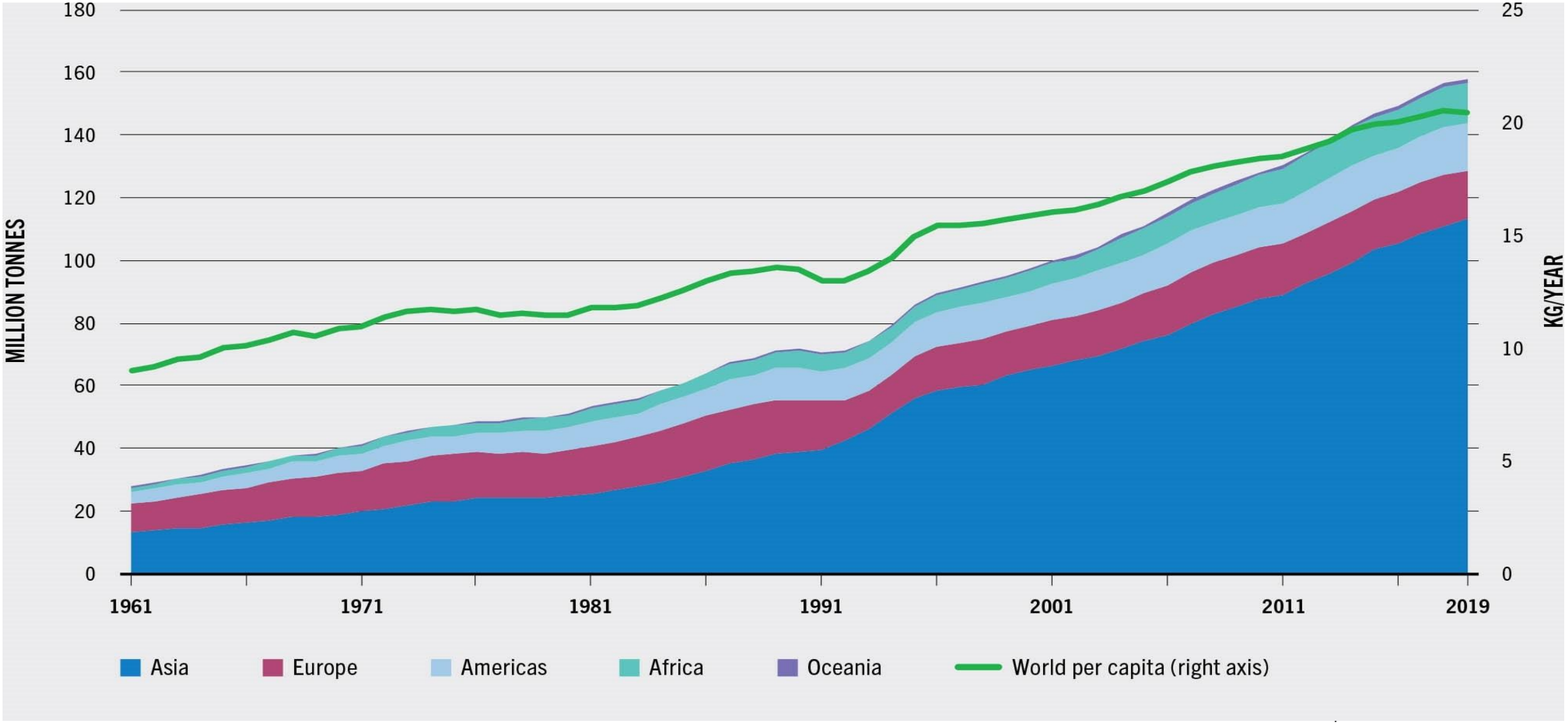
Aquatic food consumption by region



SEPTEMBER 14, 2022

GLOBAL RESPONSIBILITY THROUGH NATURE-RESPECTFUL BUSINESS

Anne Quarshie, 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:

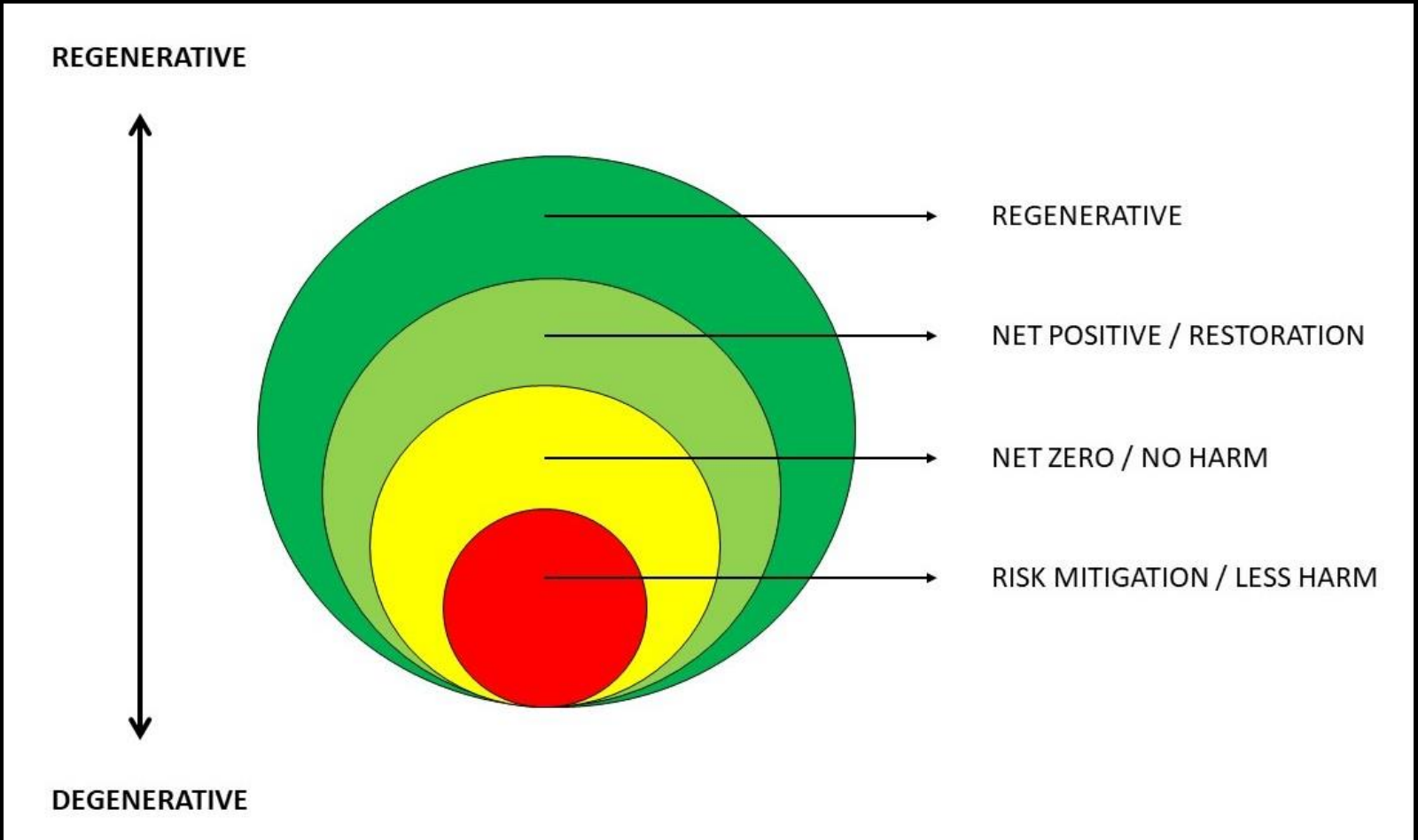
LUT University
Aalto University
Rutgers University
Fairtrade Finland
Save the Children US

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-respecftul business and supply chain management.

Photo: Riikkinen

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).

Figure: Adapted from World Business Council for Sustainable Development, 2021: 86.

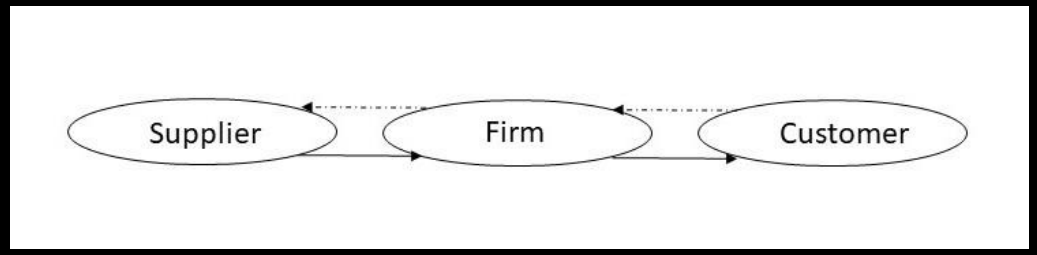
LITERATURE REVIEW

- 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

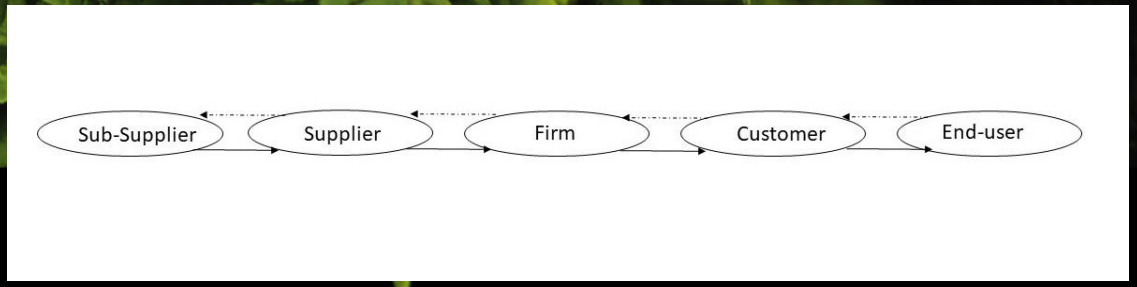
These are collaborative activities that aim to achieve sustained improvements in environmental performance (Klassen & Vachon, 2003).

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).

Figure: Adapted from Carter, Rogers, & Choi, 2015: 92.

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).

Figure: Adapted from Carter, Rogers, & Choi, 2015: 92.

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.

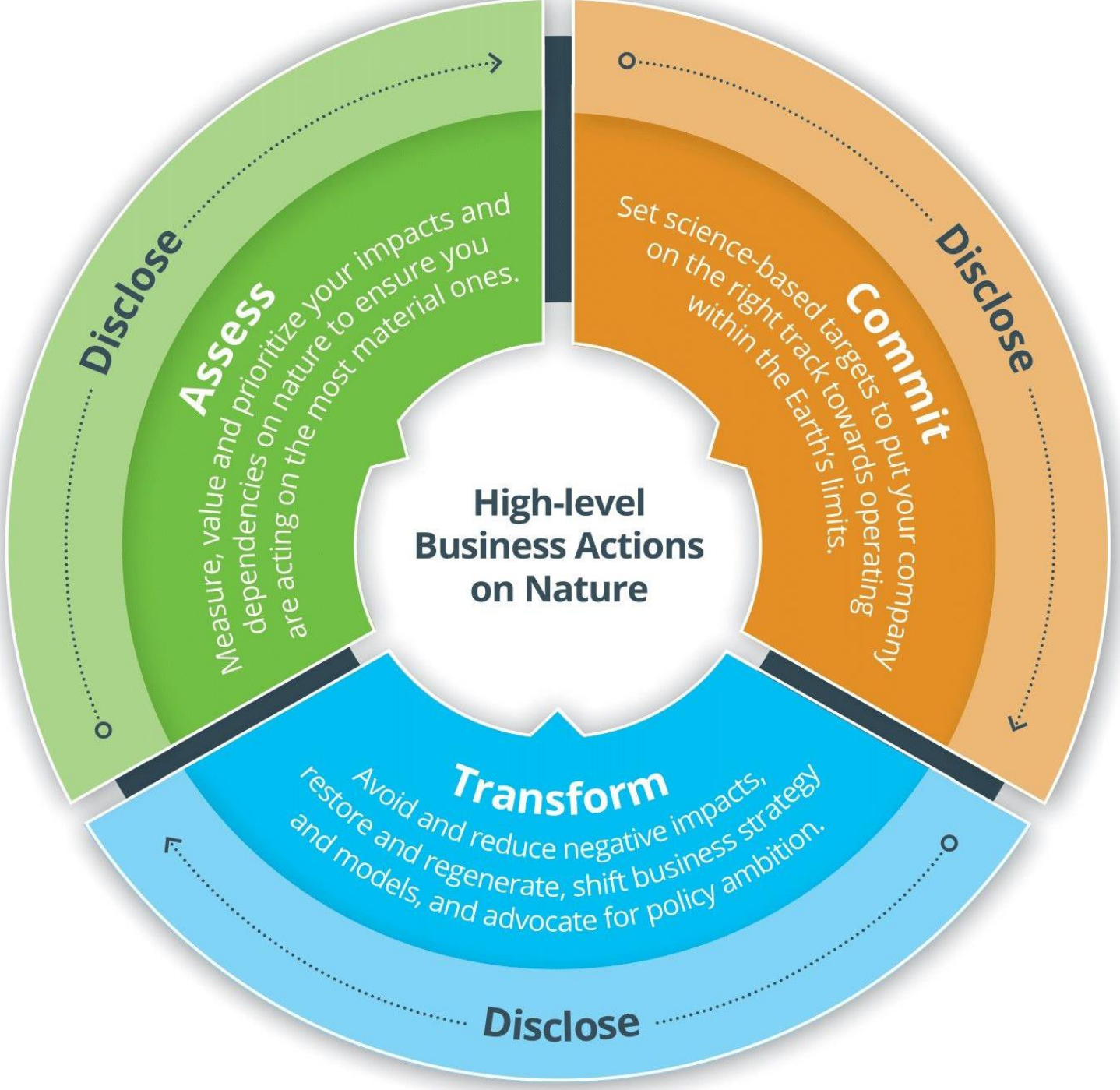


Figure: Business for Nature, 2022

Questions or comments?

Thank you!

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