- Climate risks
- ESG Factors
- Economic and financial implications
- Finance meets sustainability: Sustainable Finance and ESG Investment

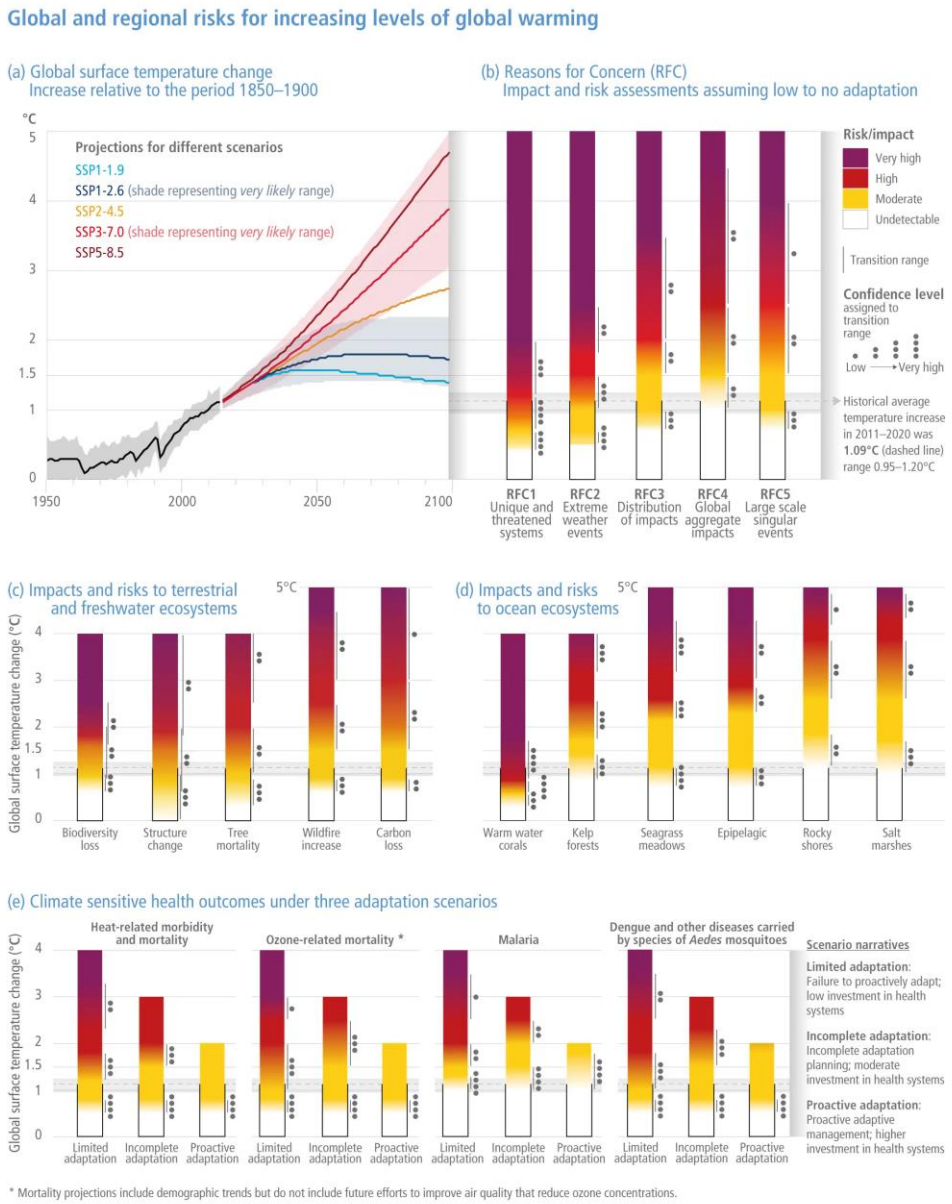
FROM ESG RISK TO SUSTAINABLE FINANCE AND INVESTMENT

VIVIANE TORINELLI

FDC

CLIMATE RISK

FROM ESG RISK TO ACTION IN SFI (SEED CLASS)

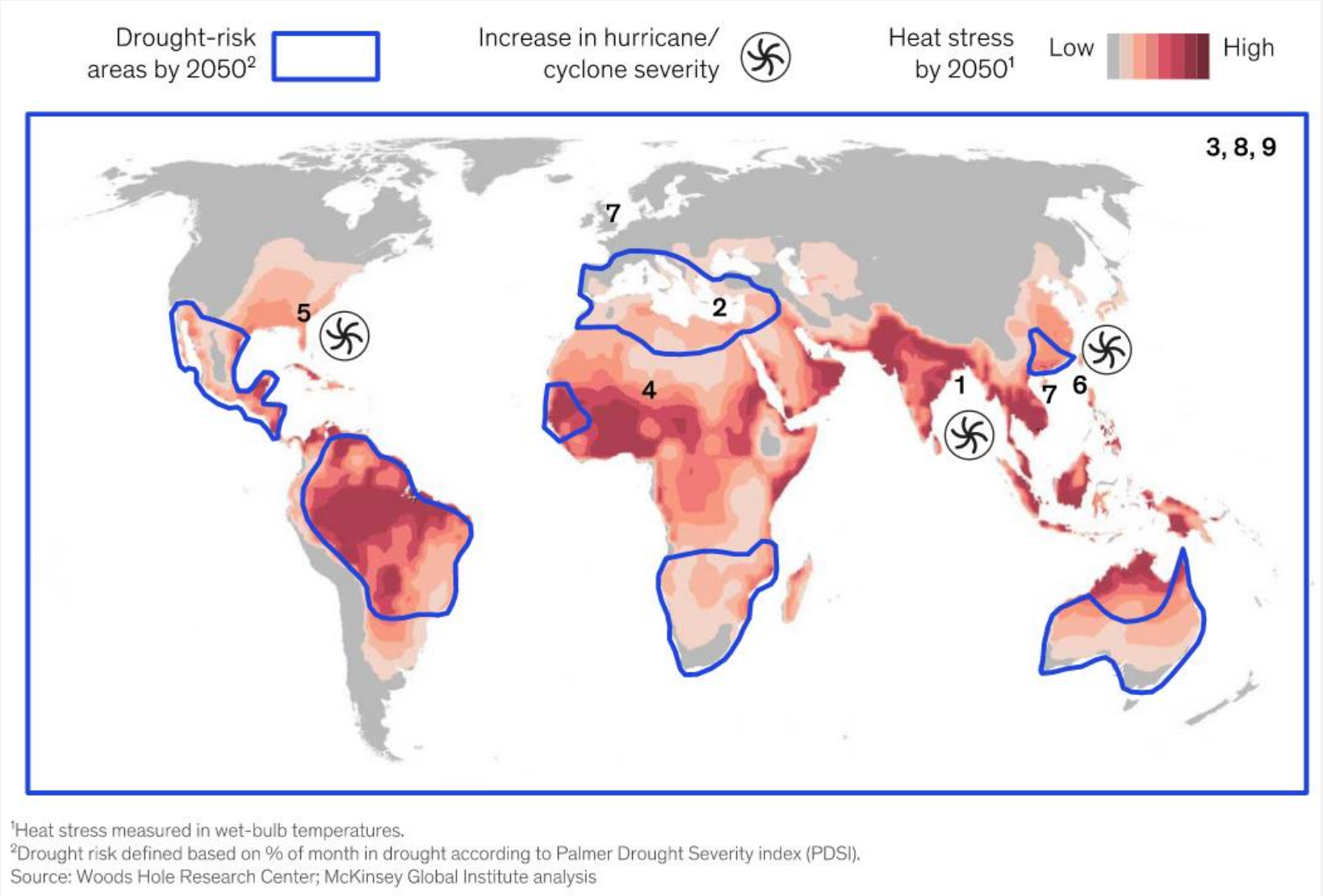


Souce: IPCC Report (2022)

Global and regional risks for increasing levels of global warming

- Assuming low or no adaptation;
- Very high or high risk/impact;
- Terrestrial and freshwater ecosystems;
- Ocean ecosystems;
- Health outcomes: ozone-related mortality; Malaria; Dengue and Other diseases carried by species of Aedes mosquitoes

Drought-risk, Heat Stress and Hurricane/ Cyclone



Souce: Woods Hole Reserach Center; Mckinsey (2020)

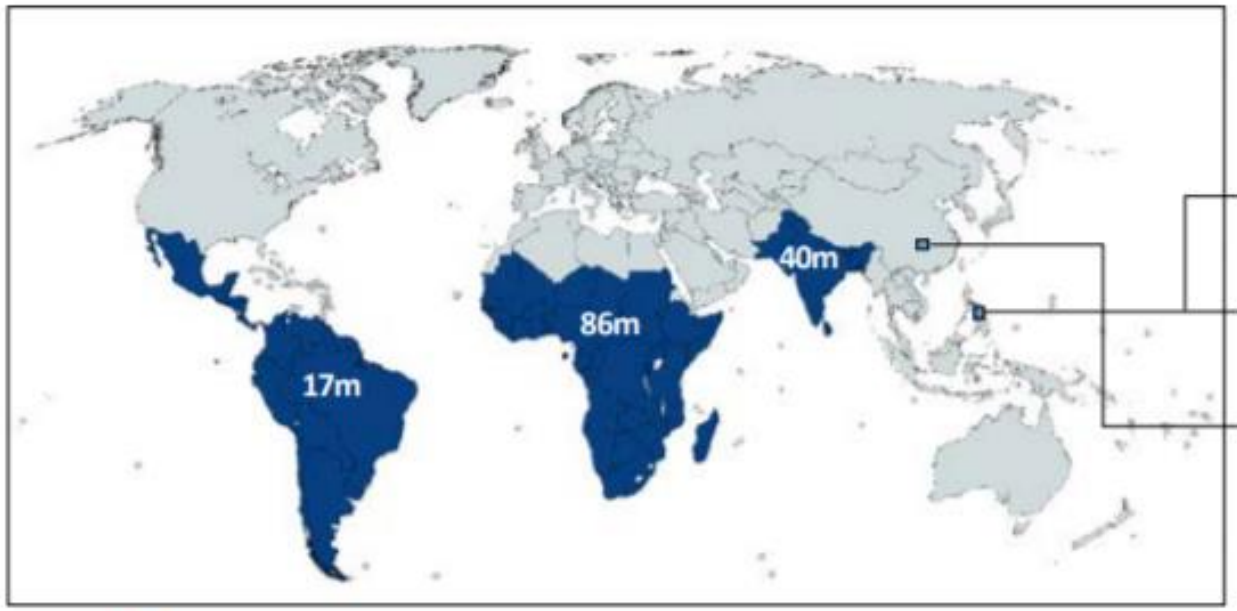
Risk of climate social migrations

"By 2050, climate change could force more than **143 million people in just 3 regions to move within their countries**"

– World Bank Group

Core threat to the stability of a country's economic sector

+24 million people[2] were newly displaced by sudden-onset climate-related hazards worldwide in 2016



3 largest displacement events in 2016 were climate-related:

- Typhoon Nock-Ten 2.6m people
- Typhoon Haima 2.4m people
- Yangtze River floods 1.9m people

2.8% of the population of these 3 regions is at risk

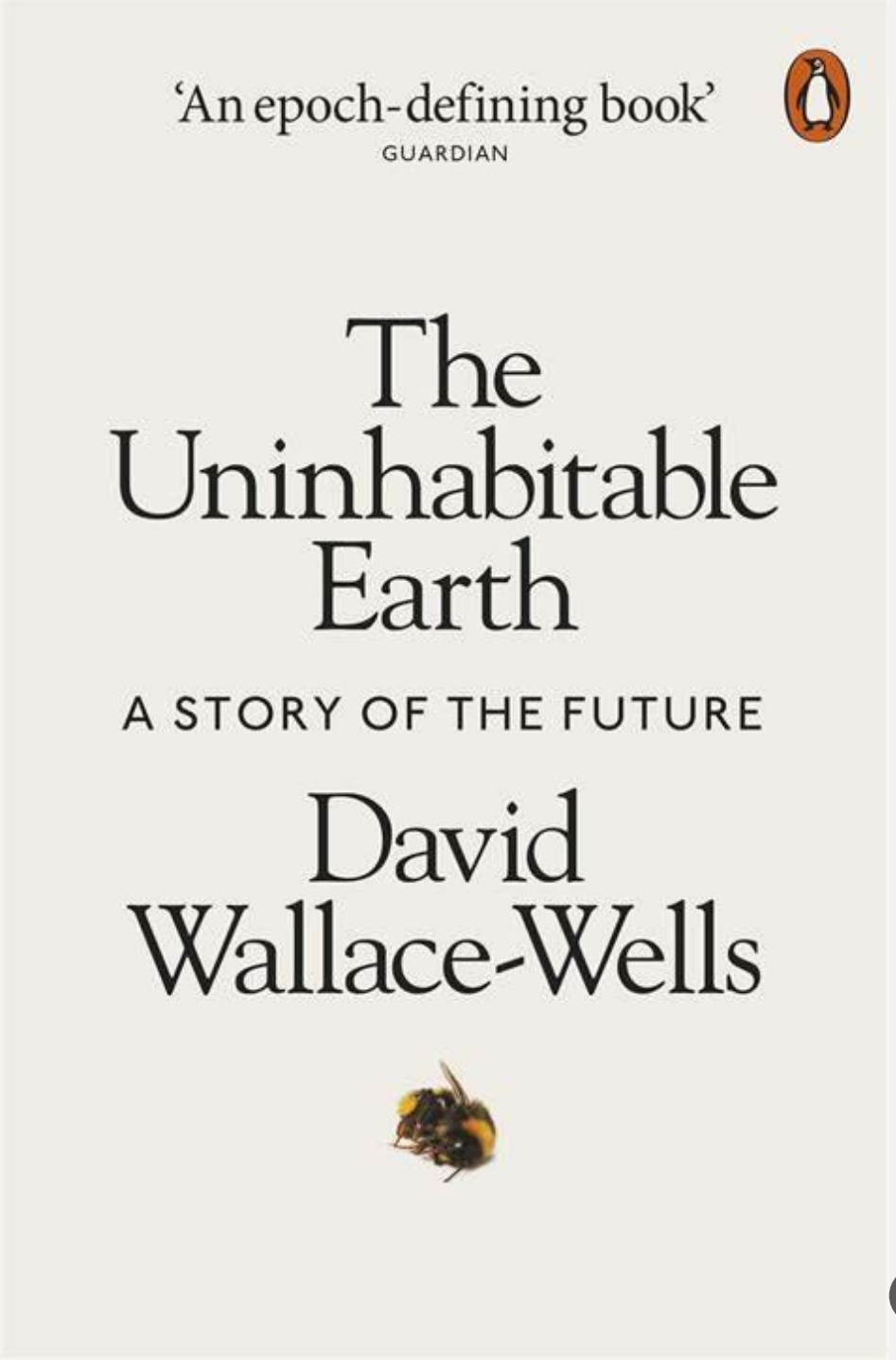
Sources: Adapted from World Bank Group (2018).

Souce: Bolton et al, BIS (2020)

The uninhabitable Earth

2019 New York Times Bestseller, Favorite Nonfiction Book by The New Yorker, Book of the Year by The Economist and Time

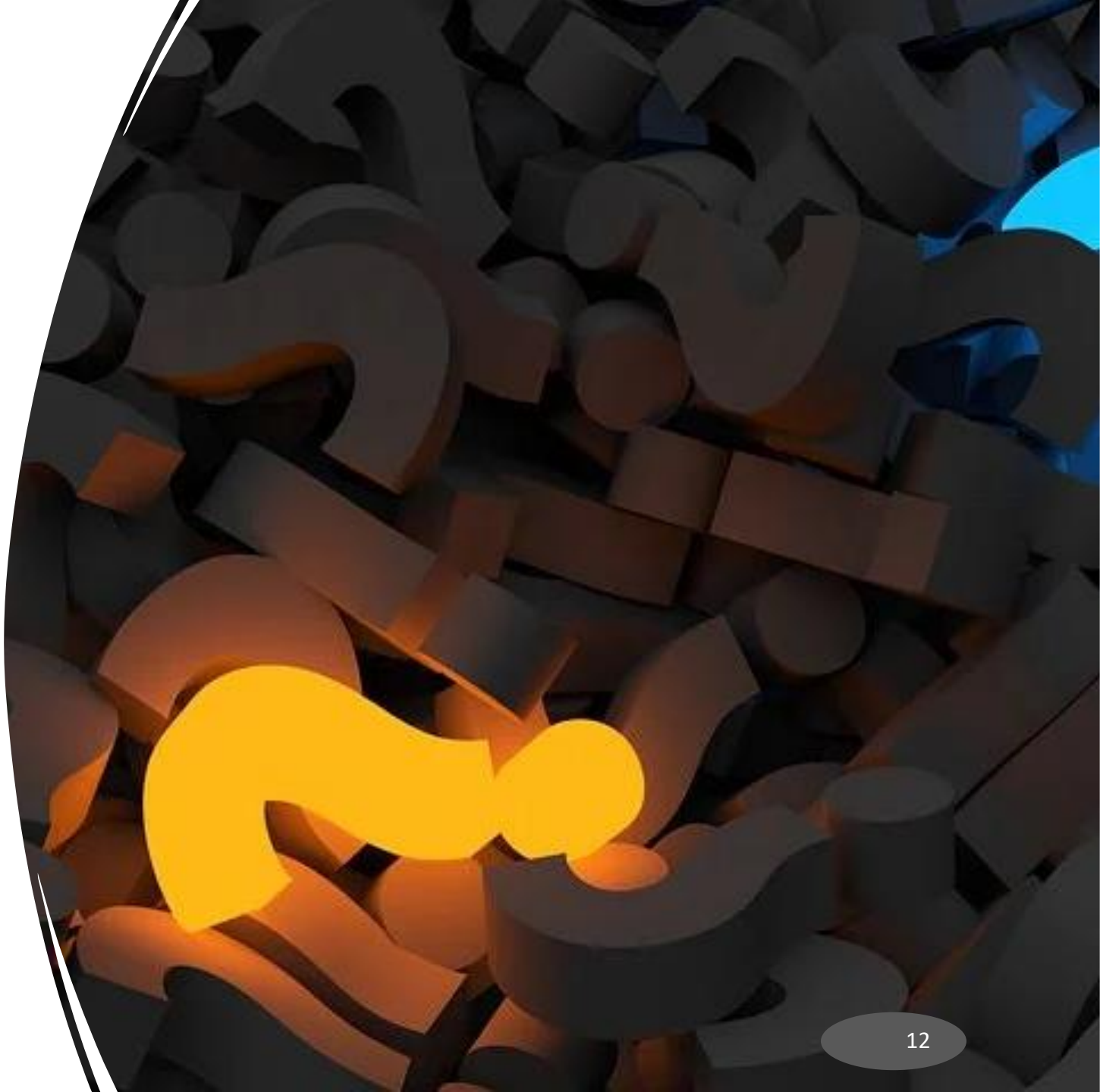
Lethal heat;
Hunger;
Drowning;
Forest fires;
No more natural disasters;
Fresh water depletion;
Death of the oceans;
Unbreathable air;
Heating pests;
Economic collapse;
Climate conflicts;
Systems – social migrations.



Food for thought

- Which scenario will be materialized?
- Will we be able to adapt to the new reality?
- What can we do now to avoid the worse scenarios and to foster adaptation?
- How to integrate climate risk into curricula, including teaching and research?
- Are we open to “plant seeds” discussing ways to face this modern challenge and to deal with finance in a more holistic way?

Awareness and Action.



ESG FACTORS

FROM ESG RISK TO ACTION IN SFI (SEED CLASS)

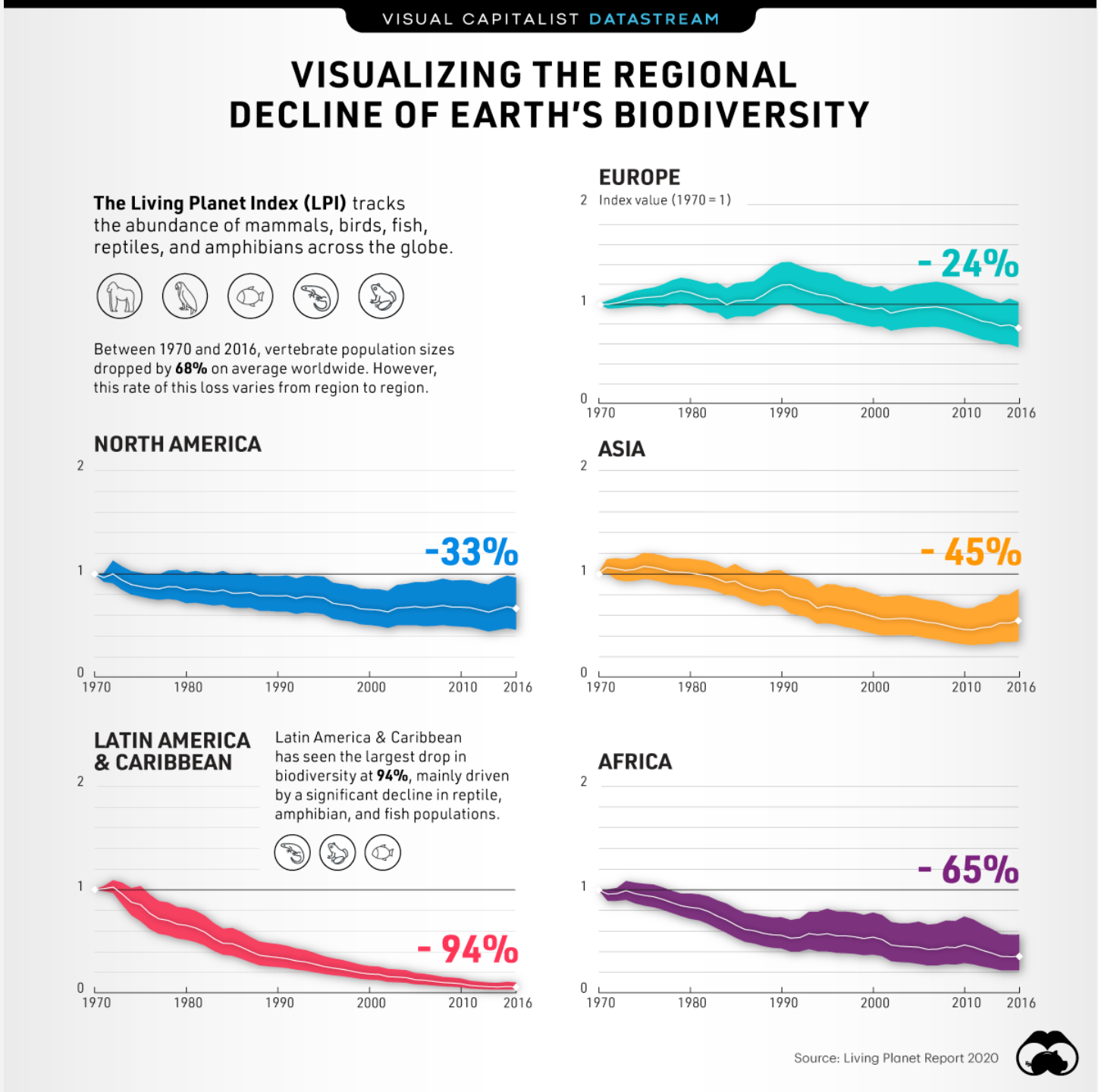
Environmental factors

Factors from the natural world, including use and interaction with renewable and non-renewable resources such as water, minerals, ecosystems and biodiversity.

- **Climate change** and carbon footprint;
- Energy efficiency;
- Use and management of natural resources;
- Pollution;
- Waste Management;
- Changes in ecosystems;
- Deforestation.

Biodiversity loss

Nature loss poses both risks and opportunities for business, now and in the future. More than half of the world's economic output – US$44tn of economic value generation – is moderately or highly dependent on nature (TNFD, 2022).



Biodiversity concentration

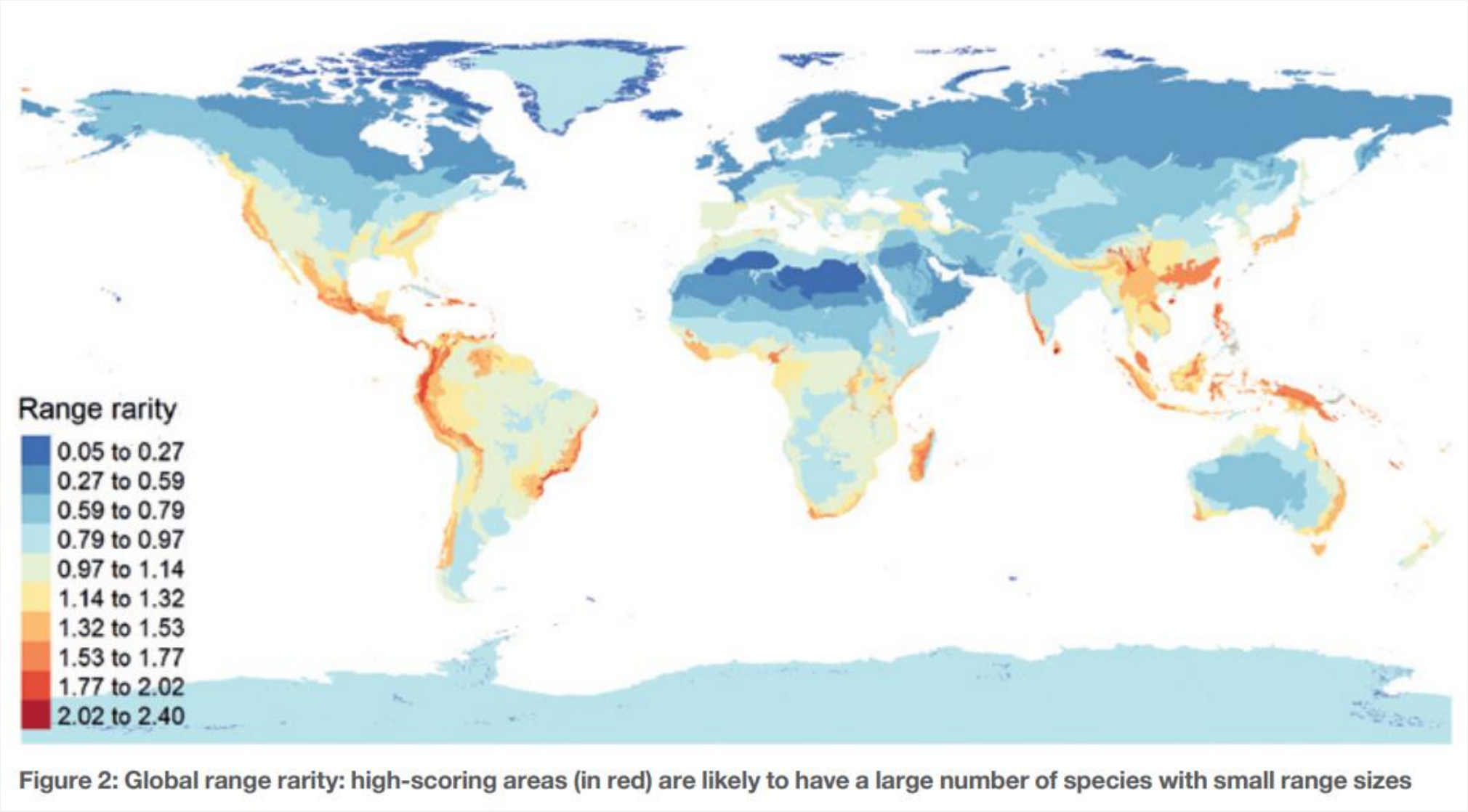


Figure 2: Global range rarity: high-scoring areas (in red) are likely to have a large number of species with small range sizes

The relevance of the Global South for biodiversity conservation

Souce: University of Cambridge Institute for Sustainability Leadership- CISL (2020).

Social factors

Factors that affect the lives of human beings, such as the management of people, local communities and customers.

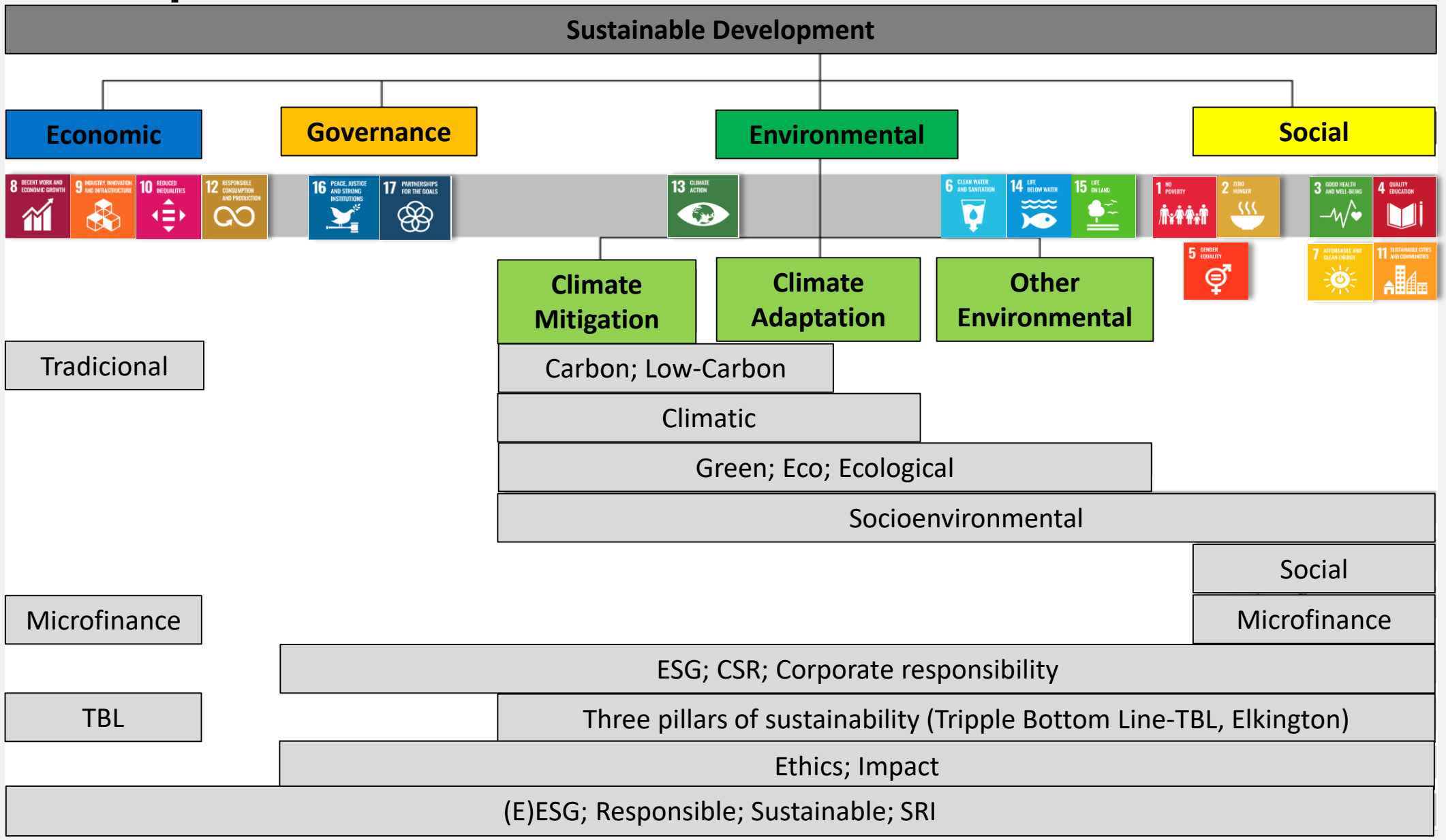
- Diversity and inclusion;
- Human rights;
- Labor dignity;
- Modern slavery;
- Child labor;
- Relations with employees;
- Impact on local communities;
- Data privacy and security;
- Respect for the consumer;
- Healthy relationship with other related parties.

Governance factors

Set of mechanisms, processes and relationships used by parties to control and operate a corporation. It involves issues inherent to the business model, common practices in the sector, as well as the relationship with stakeholders.

- Management structure;
- Diversity and board structure;
- Respect for shareholders' rights;
- Executive compensation;
- Lobbying and Political Donations;
- Bribery and Corruption;
- Tax strategy

Concepts and SDGs



Source: Forstater; Zhang (2016), UNEP Inquiry (2017), Cunha, Meira e Orsato (2021)

Food for thought

- Which are the transmission channels from ESG Factors to financial risks?
- What´s the financial materiality of ESG factors for business?
- Which recent macroeconomic effects are related to ESG factors?
- How to integrate ESG factors and SDGs into curricula, including teaching and research?
- Are we open to “plant seeds” discussing ESG factors alongside finance and investments?

Awareness and Action.

ECONOMIC AND FINANCIAL IMPLICATIONS

FROM ESG RISK TO ACTION IN SFI (SEED CLASS)

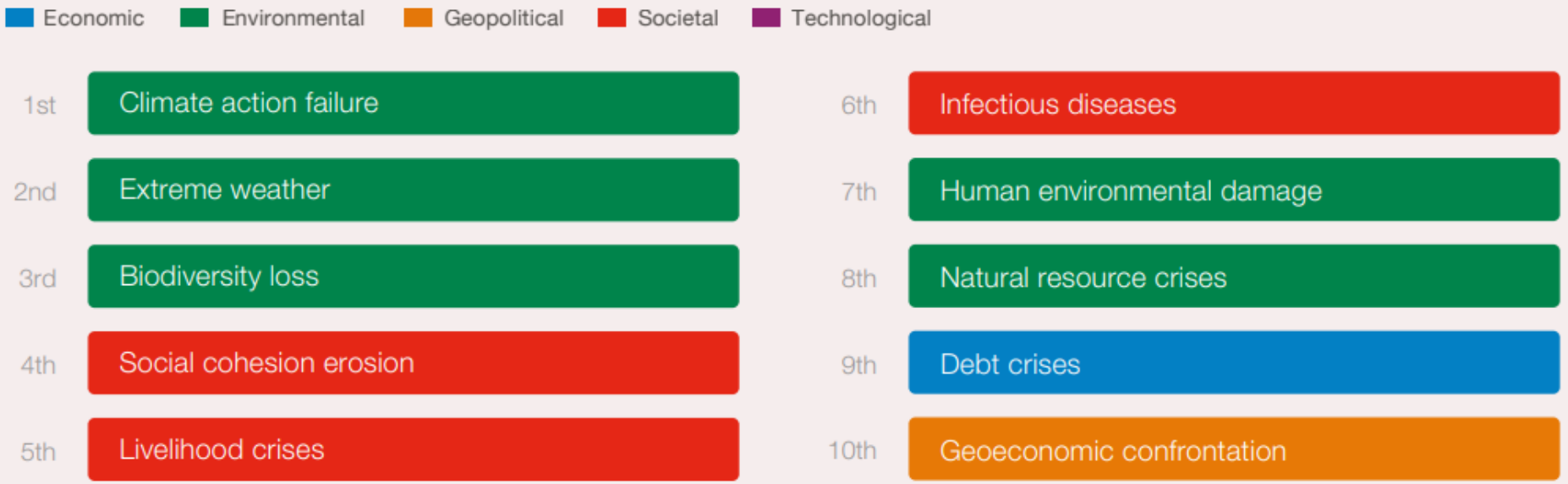
2022 Top Global Risks by Likelihood and by Impact

Global Risk Report- World Economic Forum (Davos)

Socioenvironmental factors as relevant economic and financial risk factors

FIGURE 1.3

"Identify the most severe risks on a global scale over the next 10 years"



Source: World Economic Forum Global Risks Perception Survey 2021-2022

Top Global Risks by Likelihood and by Impact

Global Risk Report- World Economic Forum (Davos)

Top Global Risks by Likelihood

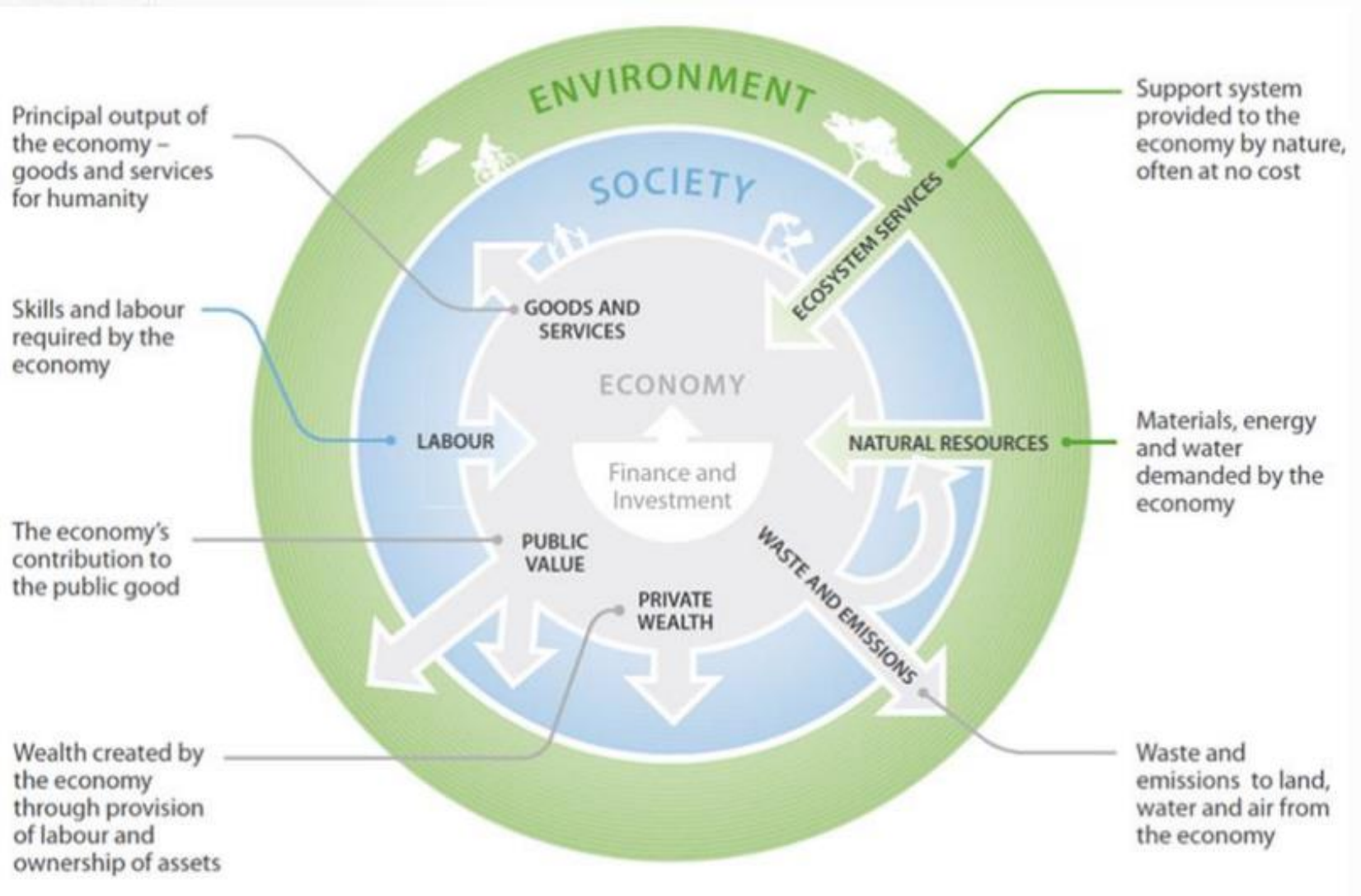
	1st	2nd	3rd	4th	5th
2021	Extreme weather	Climate action failure	Human environmental damage	Infectious diseases	Biodiversity loss
2020	Extreme weather	Climate action failure	Natural disasters	Biodiversity loss	Human-made environmental disasters
2019	Extreme weather	Climate action failure	Natural disasters	Data fraud or theft	Cyberattacks
2018	Extreme weather	Natural disasters	Cyberattacks	Data fraud or theft	Climate action failure
2017	Extreme weather	Involuntary migration	Natural disasters	Terrorist attacks	Data fraud or theft
2016	Involuntary migration	Extreme weather	Climate action failure	Interstate conflict	Natural catastrophes
2015	Interstate conflict	Extreme weather	Failure of national governance	State collapse or crisis	Unemployment
2014	Income disparity	Extreme weather	Unemployment	Climate action failure	Cyberattacks
2013	Income disparity	Fiscal imbalances	Greenhouse gas emissions	Water crises	Population ageing
2012	Income disparity	Fiscal imbalances	Greenhouse gas emissions	Cyberattacks	Water crises

Top Global Risks by Impact

	1st	2nd	3rd	4th	5th
2021	Infectious diseases	Climate action failure	Weapons of mass destruction	Biodiversity loss	Natural resource crises
2020	Climate action failure	Weapons of mass destruction	Biodiversity loss	Extreme weather	Water crises
2019	Weapons of mass destruction	Climate action failure	Extreme weather	Water crises	Natural disasters
2018	Weapons of mass destruction	Extreme weather	Natural disasters	Climate action failure	Water crises
2017	Weapons of mass destruction	Extreme weather	Water crises	Natural disasters	Climate action failure
2016	Climate action failure	Weapons of mass destruction	Water crises	Involuntary migration	Energy price shock
2015	Water crises	Infectious diseases	Weapons of mass destruction	Interstate conflict	Climate action failure
2014	Fiscal crises	Climate action failure	Water crises	Unemployment	Infrastructure breakdown
2013	Financial failure	Water crises	Fiscal imbalances	Weapons of mass destruction	Climate action failure
2012	Financial failure	Water crises	Food crises	Fiscal imbalances	Energy price volatility

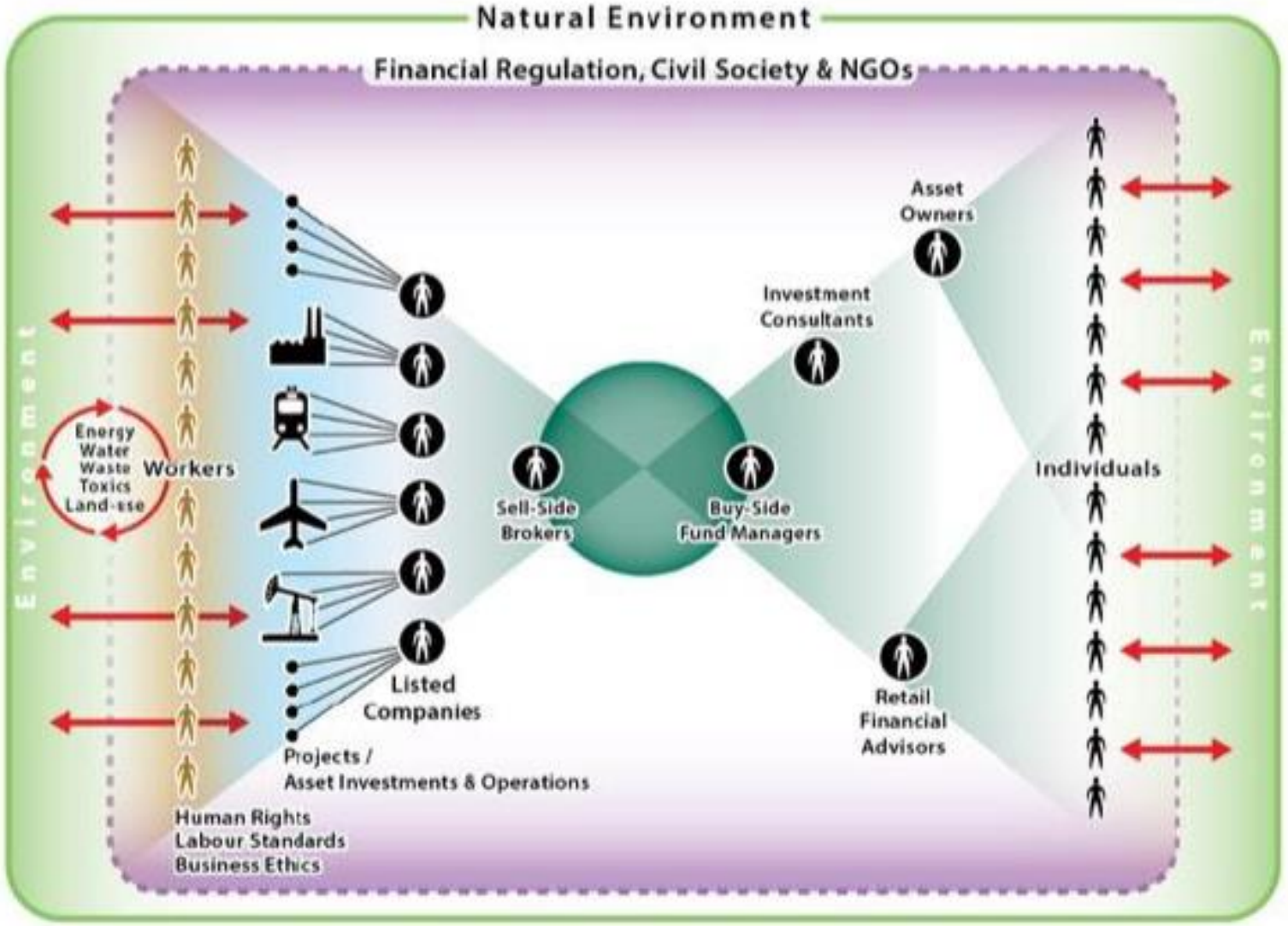
Economic | Environmental | Geopolitical | Societal | Technological

Economic Interdependencies



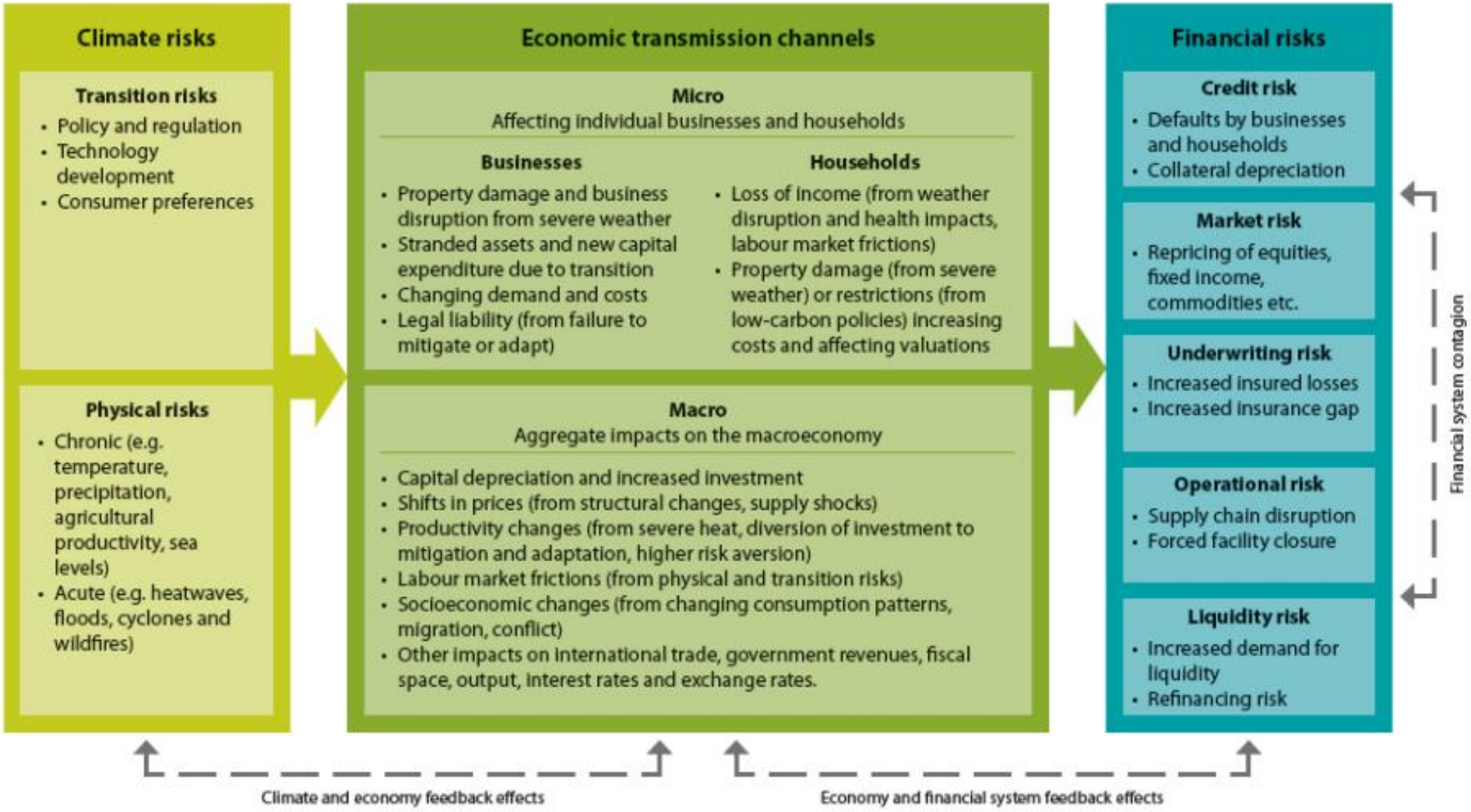
Source: CISL; WeESG

Natural environment, society and the financial system



Source: Tellus Mater (2014)

Transmission channels from climate risks to financial risks

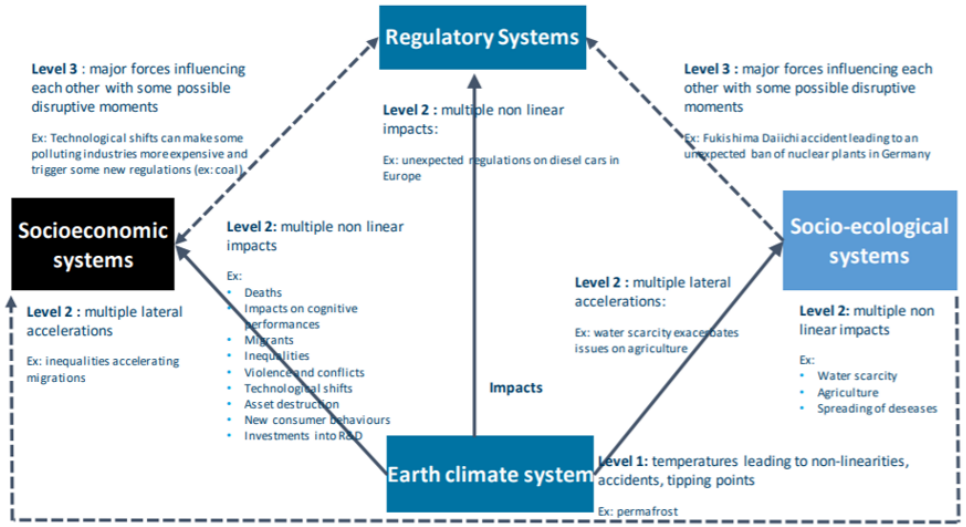


Source: NGFS Climate Scenarios for central banks and supervisors

Green Swan: Systemic Risk

There is an emerging recognition among central banks and financial regulators that climate-related risks are also a source of price and financial instability, and that there is a need to safeguard the financial system against these risks.

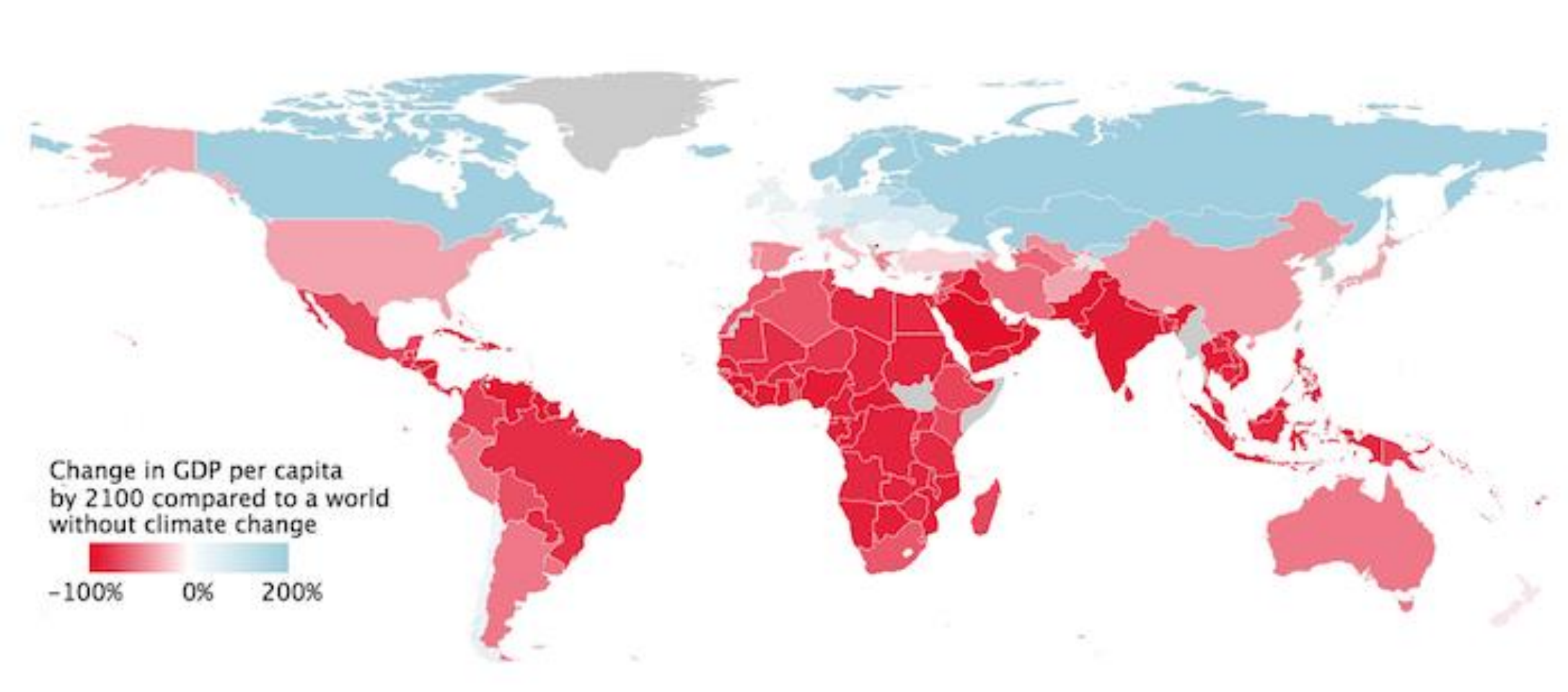
Figure 1. Chain reactions stemming from climate risks



Source: (Bolton, Despres, Pereira da Silva, Samana, & Svartzman, 2020), *The green swan: Central banking and financial stability in the age of climate change*, https://www.bis.org/publ/othp31.pdf

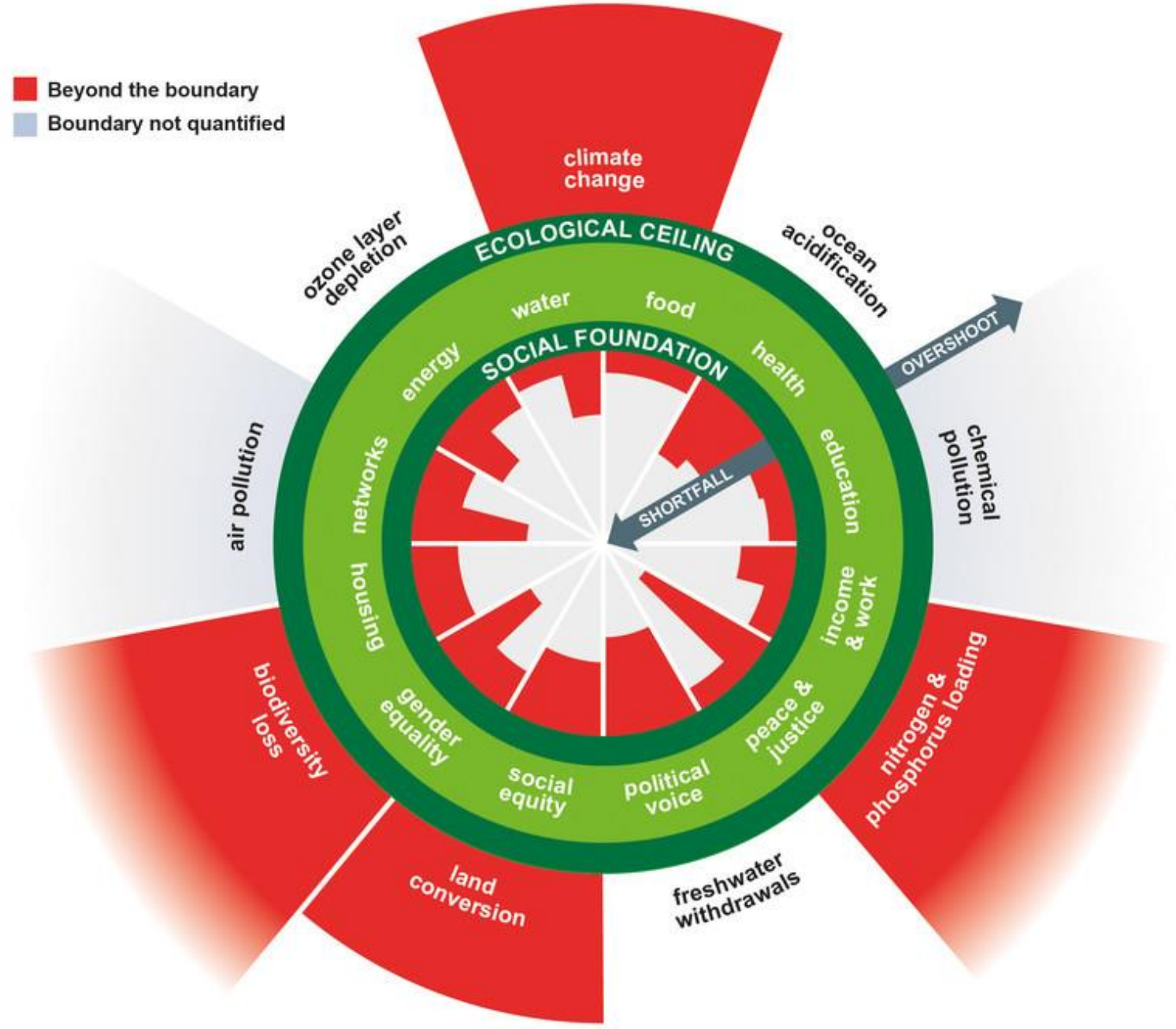
First, while similar in some respects to "black swans"– highly unexpected events with severe far-reaching consequences (e.g. 2008 U.S. housing market crash) that can be best explained ex post – climate-related risks are distinct. *They are not tail-risk events; scientific evidence suggests that climate-related shocks are virtually certain to occur, though the exact timing of these events is uncertain. Since the climate crisis poses an existential threat to humanity, climate-related risks are also more catastrophic than traditional systemic financial risks. Finally, as alluded to earlier, climate-related risks are much more complex. They are propagated non-linearly with destructive feedback loops and can cascade across sectors, countries and systems (see Figure 1 for a representation of chain reactions stemming from climate-related risks). Taking inspiration from the "black swan" moniker,* ***climate-related events are termed "green swans"****.*

Economic impacts of climate change



Souce: Burke, Hsiang and Miguel, from Stanford- published by Nature (2015)

Doughnut Economic Model- Amsterdam City



[Souce: WEF (2017)]

Food for thought

- How to integrate the financial and economic implications of ESG factors into curricula, including teaching and research?
- Are we open to “plant seeds” discussing if current financial and economic models and practices can address ESG challenges? If no, which changes are required?

Awareness and Action.

FINANCE MEETS SUSTAINABILITY:

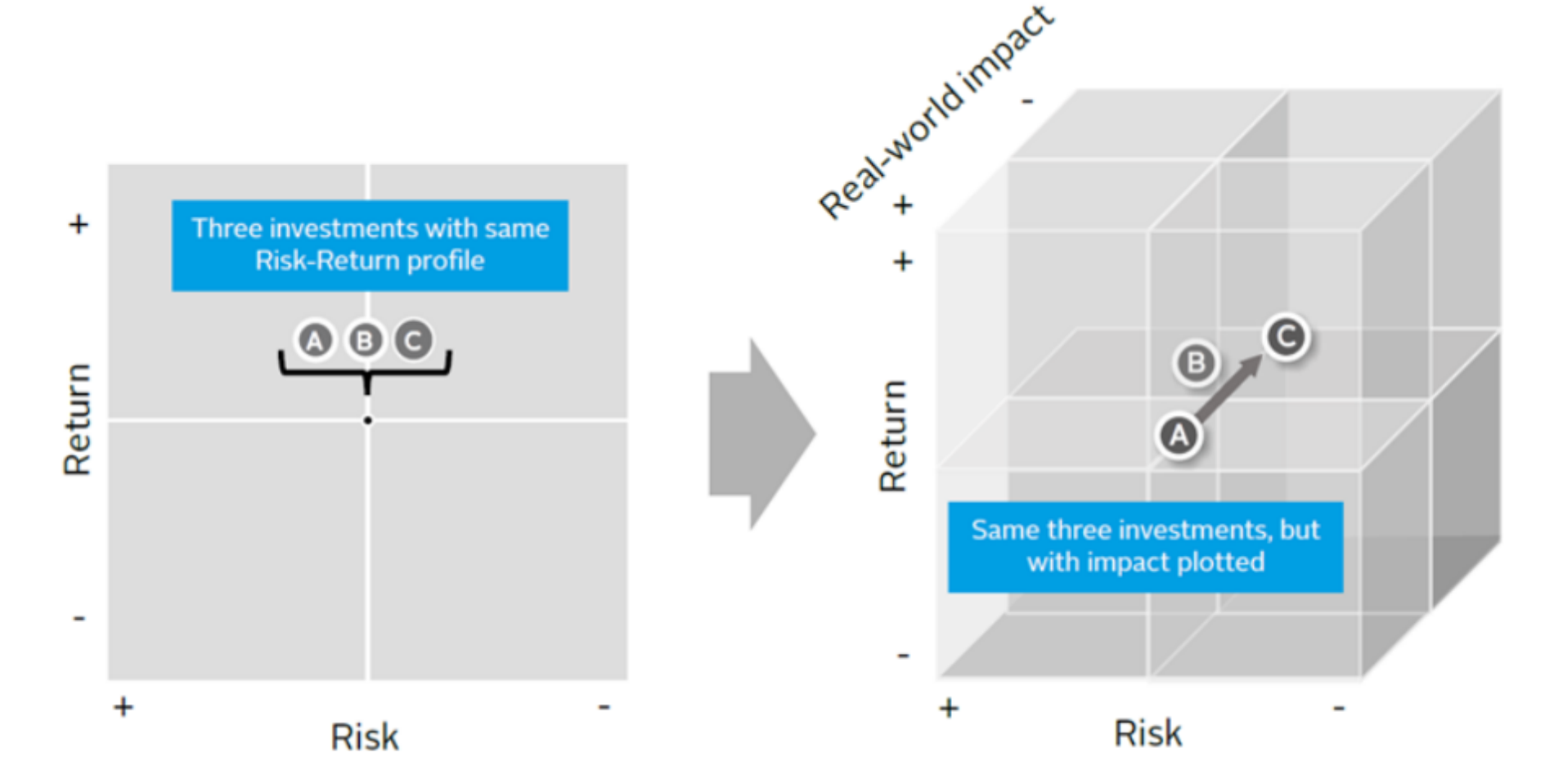
SUSTAINABLE FINANCE AND ESG INVESTMENT

FROM ESG RISK TO ACTION IN SFI (SEED CLASS)

Sustainable Finance Definition

Sustainable Finance is the process of taking due account of environmental, social and governance (ESG) considerations when making investment decisions in the financial sector, leading to increased longer-term investments into sustainable economic activities and projects (European Commission).

Real Economy Influence (REI) as a third dimension of financial analysis



Souce: PRI (2019)

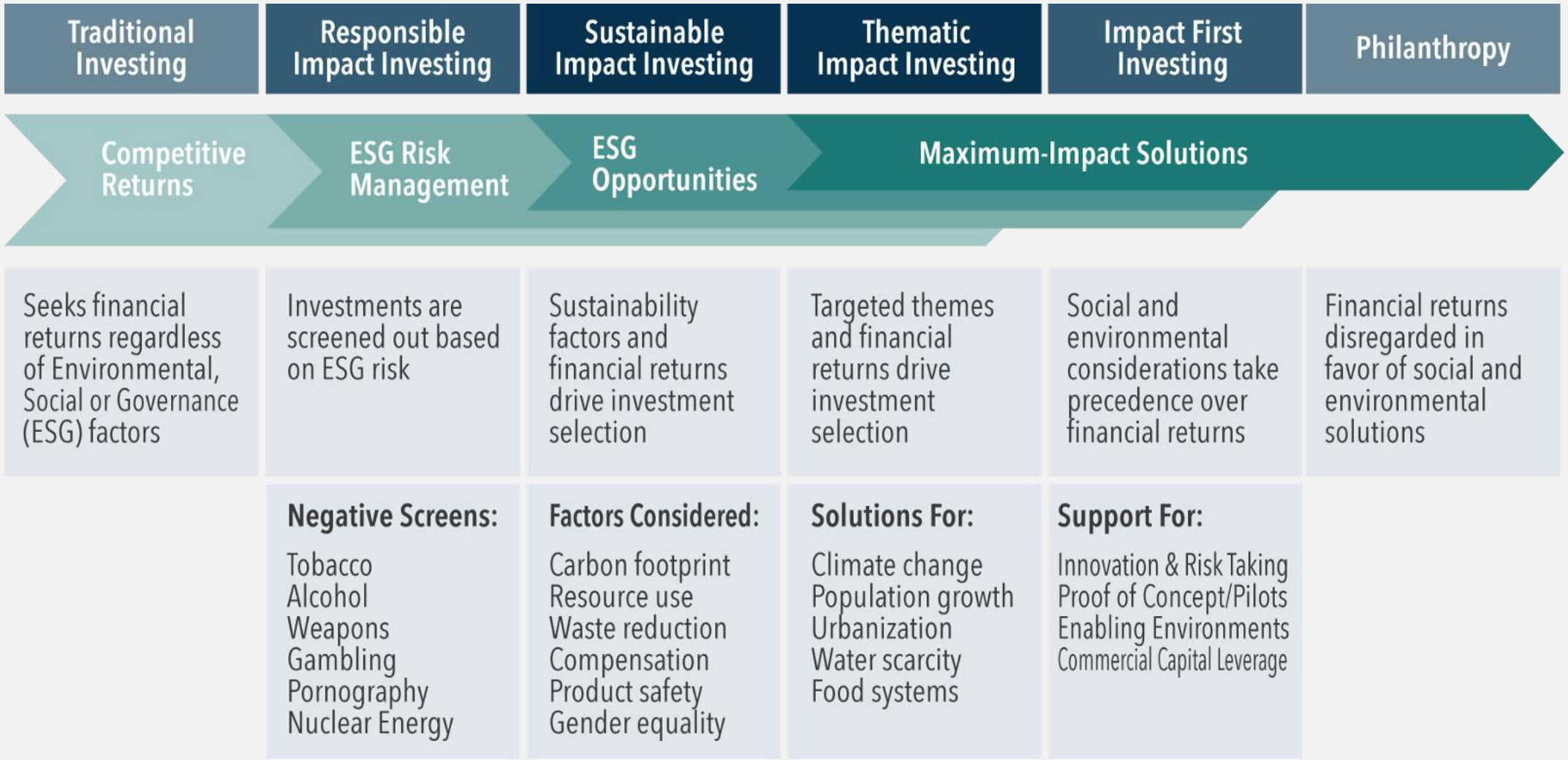
ESG Investment

Asset management approach in which investors recognize:

- the relevance of ESG factors in investment decisions, since social, environmental and governance issues can impact the long-term risk, volatility and return of securities (as well as markets);

- their role as asset holders, since investments can have both positive and negative impacts on society and the environment-> Doble materiality (impact and finance)!

ESG Investment Spectrum



Source: Sonen Capital

Food for thought

- How to Sustainable Finance and ESG Investment into curricula, including teaching and research?
- Are we open to “plant seeds” discussing strategies, tools, instruments, models, resources, skills and values for Sustainable Finance and ESG Investment?

Awareness and Action.

THANK YOU!

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