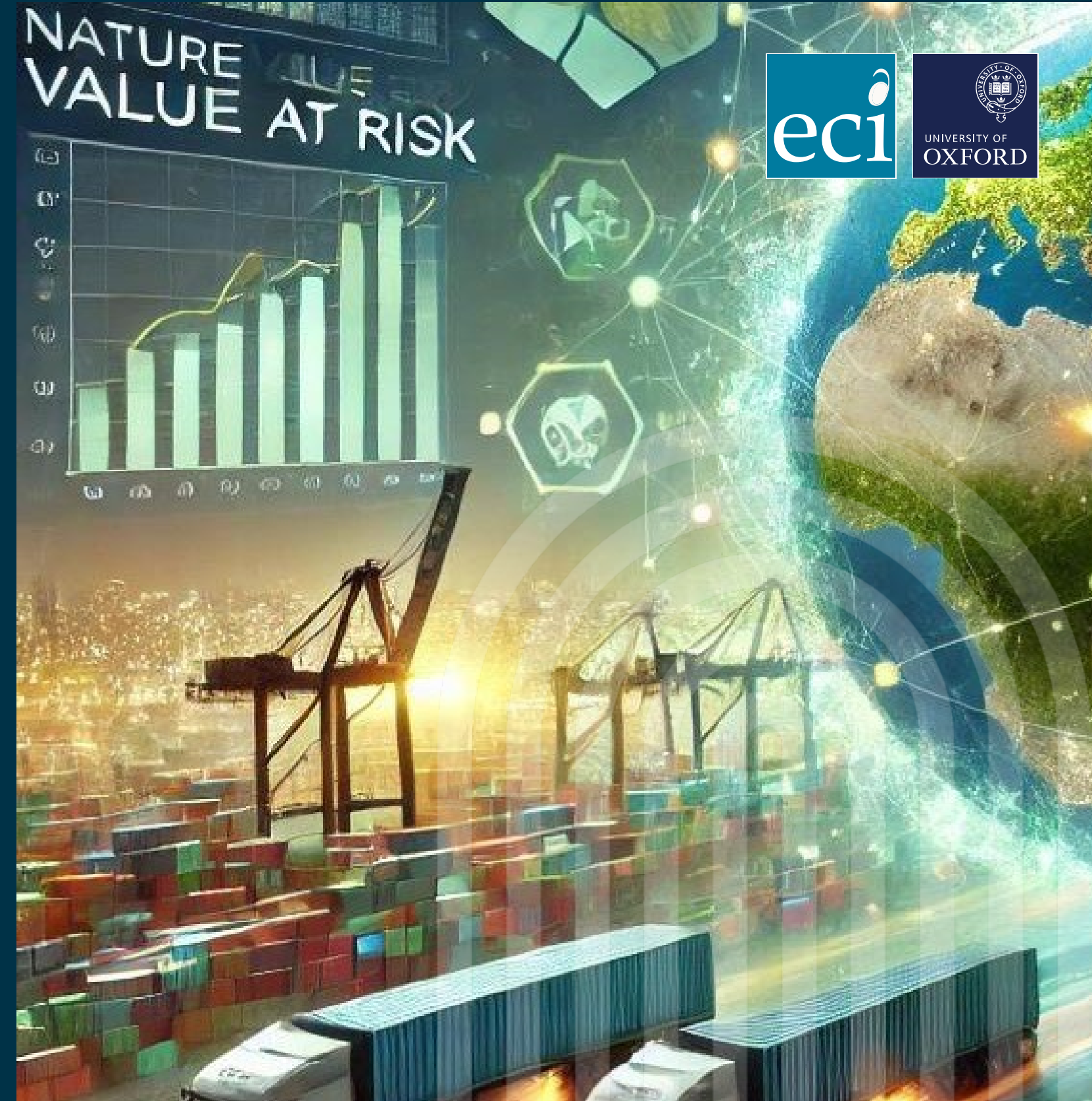




Leveraging Earth Observation for Nature Finance

Dr Nicola Ranger
Director, Global Finance Group, University of Oxford
Co-I, LEON



LEADING PARTNERS



PARTNERS



The Core Challenge of Nature Finance

Greening Finance

\$7 trillion

Financial flows with
direct negative
impacts on nature

Financing Green

**\$200bn to
\$540bn**

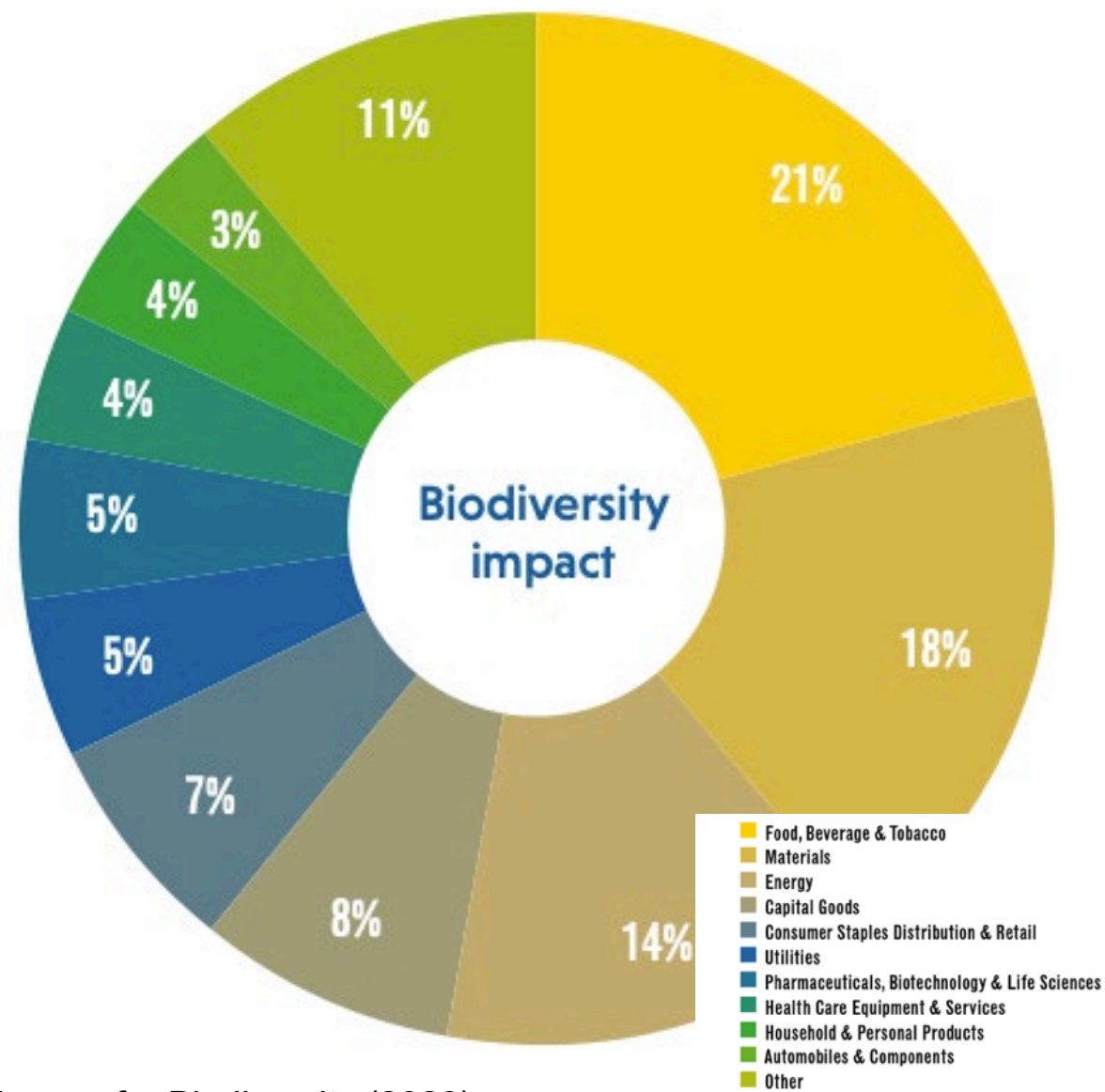
Annual nature
investment required to
meet the Rio targets

Greening Finance:

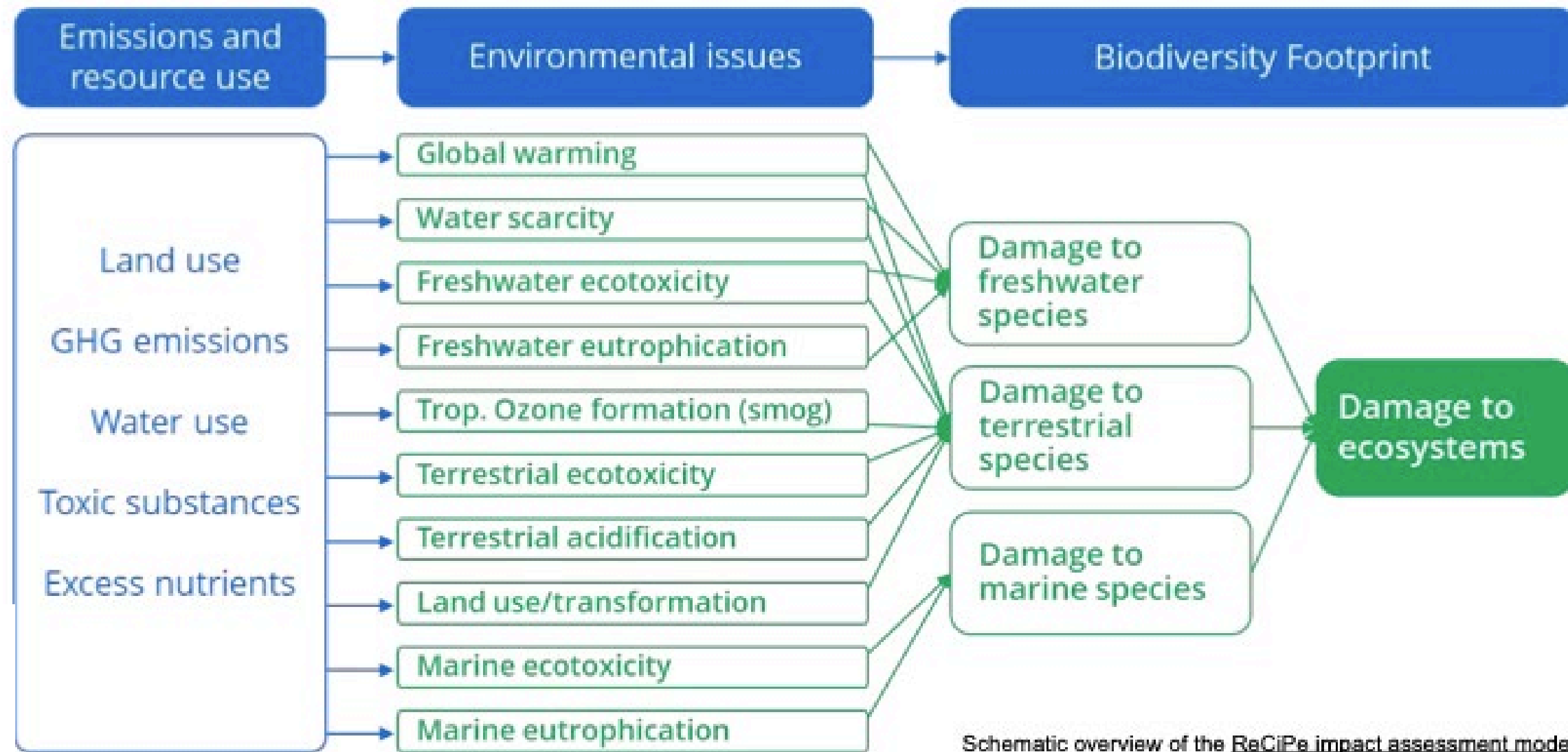
Tackling the \$7 trillion

01

Impact

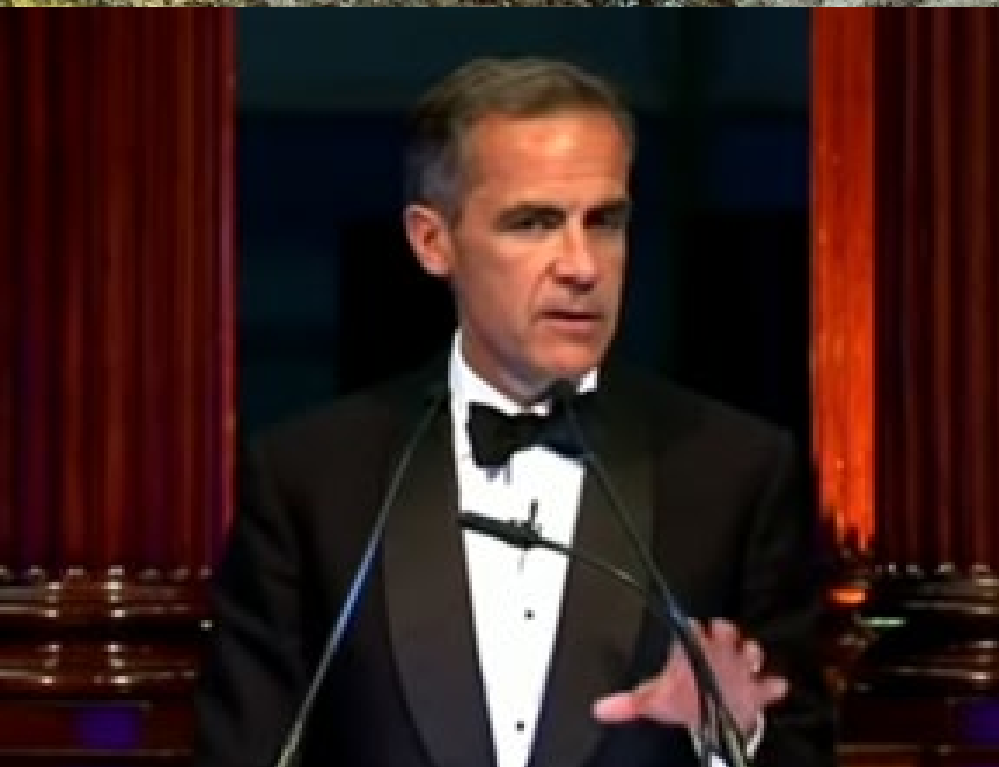


Finance for Biodiversity (2023)

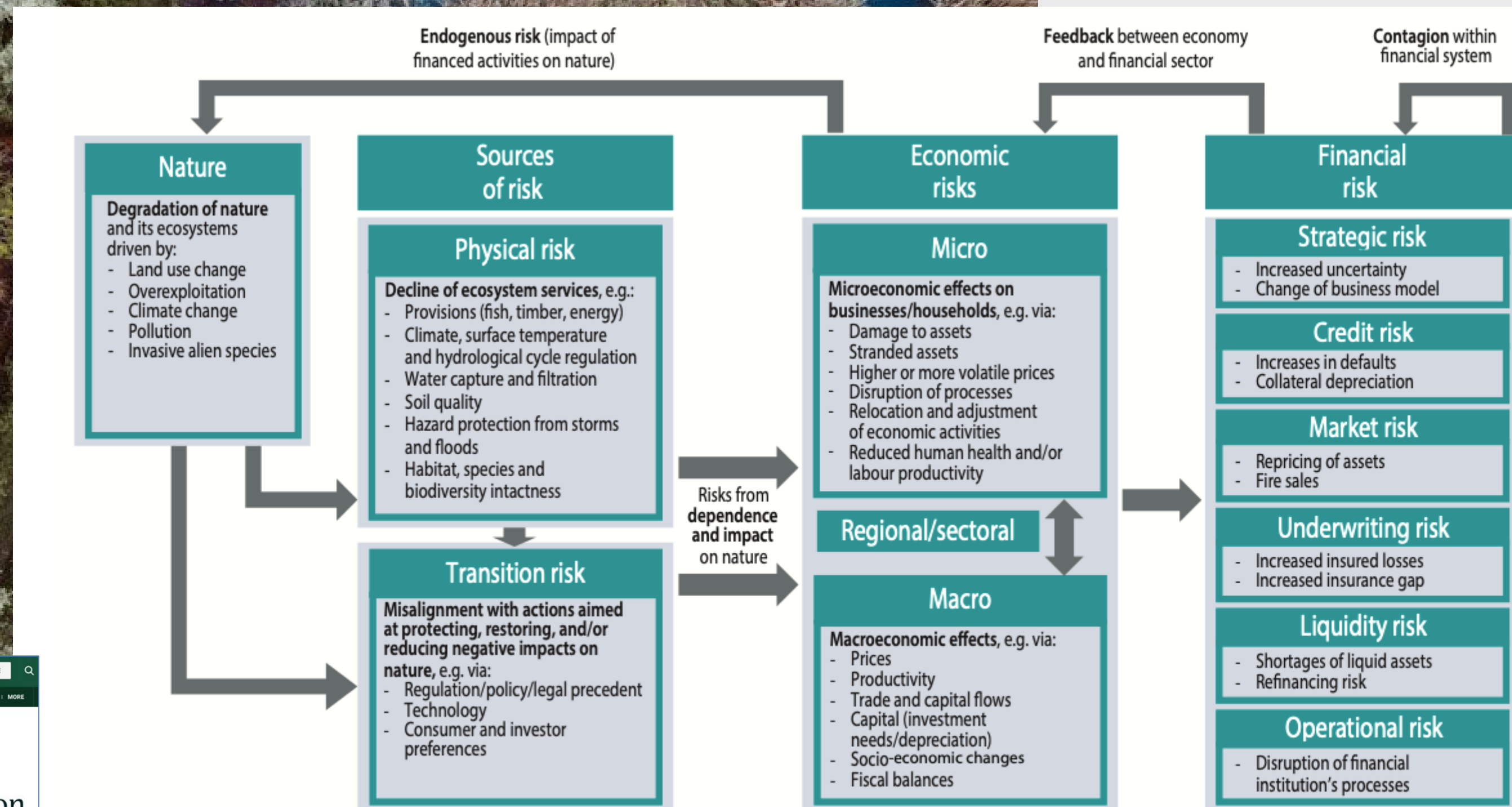


Top 250 high-impact companies represent 73% of MSCI World Index footprint (1564 companies)

RISK



“When climate change becomes a defining issue for financial stability it will already be too late”
Mark Carney, 2015



Green Central Banking

MONETARY POLICY | CAPITAL REQUIREMENTS | DISCLOSURE | NATURE LOSS | SUPERVISION | STRESS TESTS | MORE

← News

Almost 75% of bank loans to companies highly dependent on nature, says ECB

June 14, 2023 | Written by Scott Speer | European Central Bank

Preliminary findings from European Central Bank's research that almost 75% of all bank loans are provided to companies highly dependent on at least one ecosystem service. If nature degradation continues, these companies may be negatively impacted and subsequently cause significant risks to bank credit portfolios.

Sources: Adapted from Svartzman, R. et al. (2021) A "Silent Spring" for the Financial System? Exploring Biodiversity-Related Financial Risks in France.



**“The more we invest with
foresight; the less we will
regret in hindsight”**

“What can be measured, can be managed”

— Mark Carney, 2015

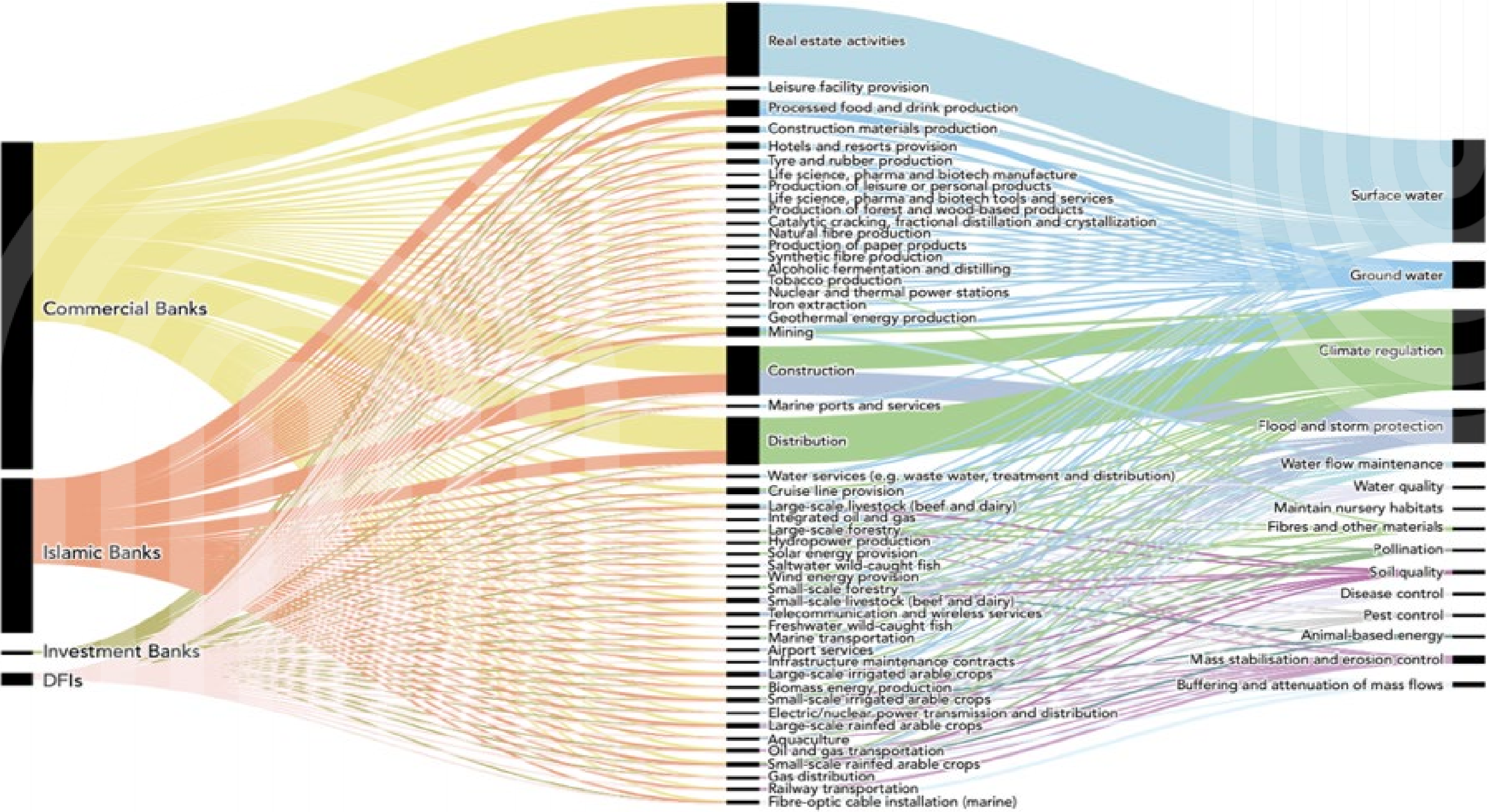
Information is the foundation to pricing risks and building markets. Consistent, comparable, reliable and clear disclosure allows investors to assess risks and express their views to the market



**Taskforce on Nature-related
Financial Disclosures**

DEPENDENCIES

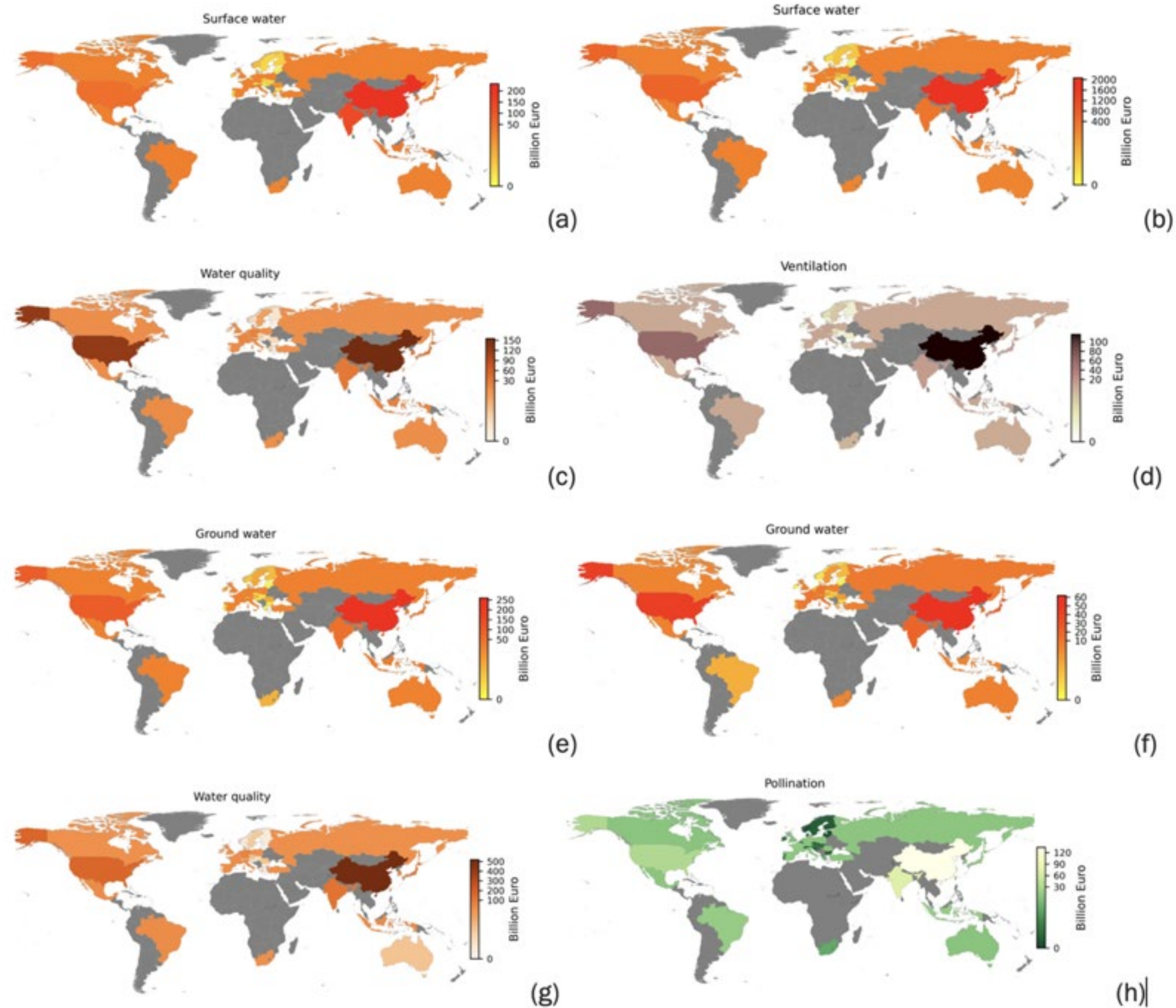
The financial sector and ecosystem services dependencies per Malaysian ringgit invested (in million RM)



"Among all ecosystem services, Malaysian banks depend most strongly on individual ecosystems which provide surface water (30 percent), ground water (14 percent), flood and storm protection (16 percent), and climate regulation (26 percent). Of every RM per loan, almost half depends highly or very highly on these four ecosystem services"

Source: BNM (unpublished data), ENCORE, WB calculations

Nature-related Value at Risk (nVaR)



Nature-Related Value at Risk (nVaR) for scope 1 + scope 3 – selected figures: surface water impacts on (a) agriculture and (b) manufacturing; (c) water quality impacts on services; (d) air quality impacts on services; (e) groundwater impacts on construction; (f) groundwater impacts on electricity utilities; (g) water quality impacts on manufacturing; (h) pollination to agriculture. Grey zones are missing data in EXIOBASE.

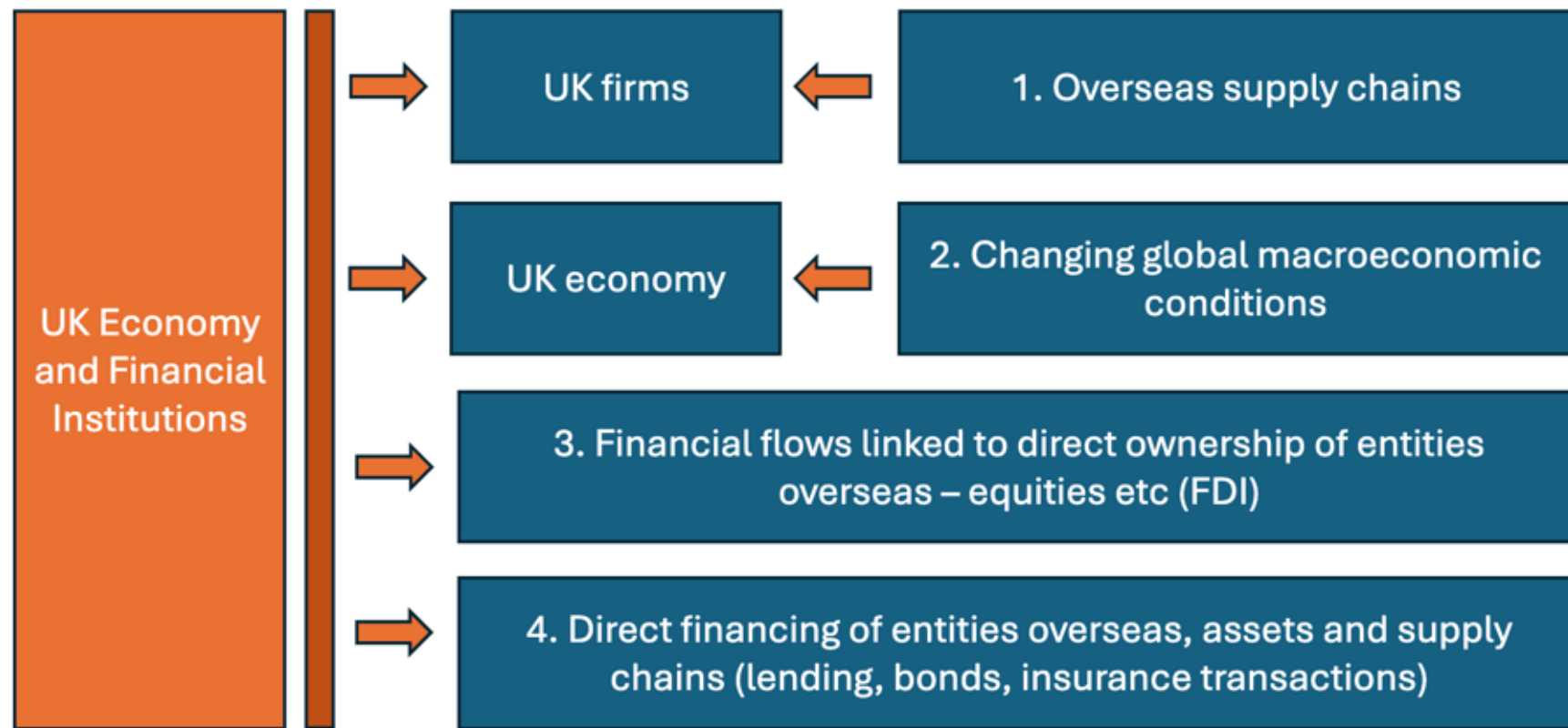
Source: Authors



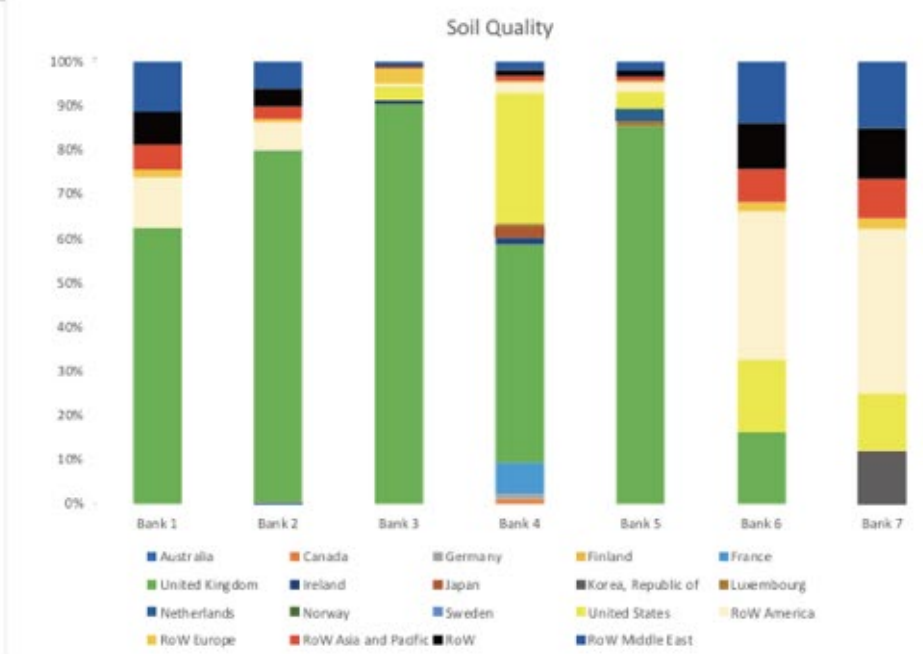
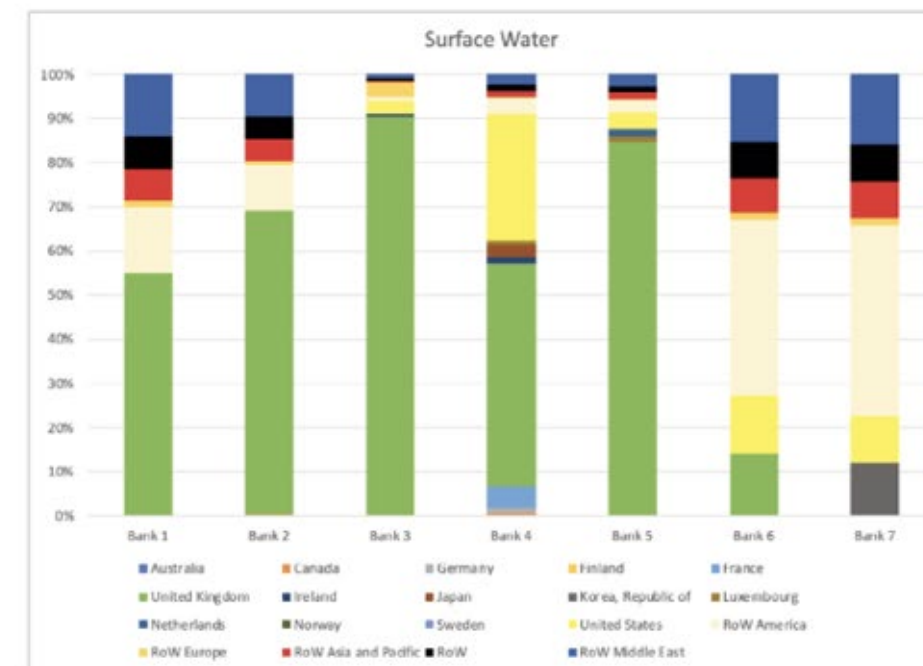
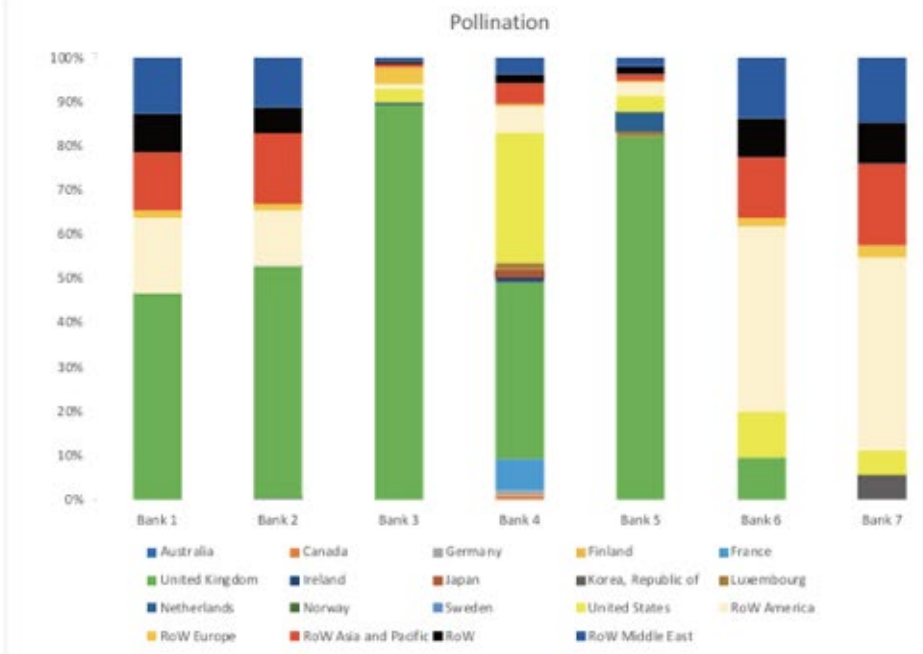
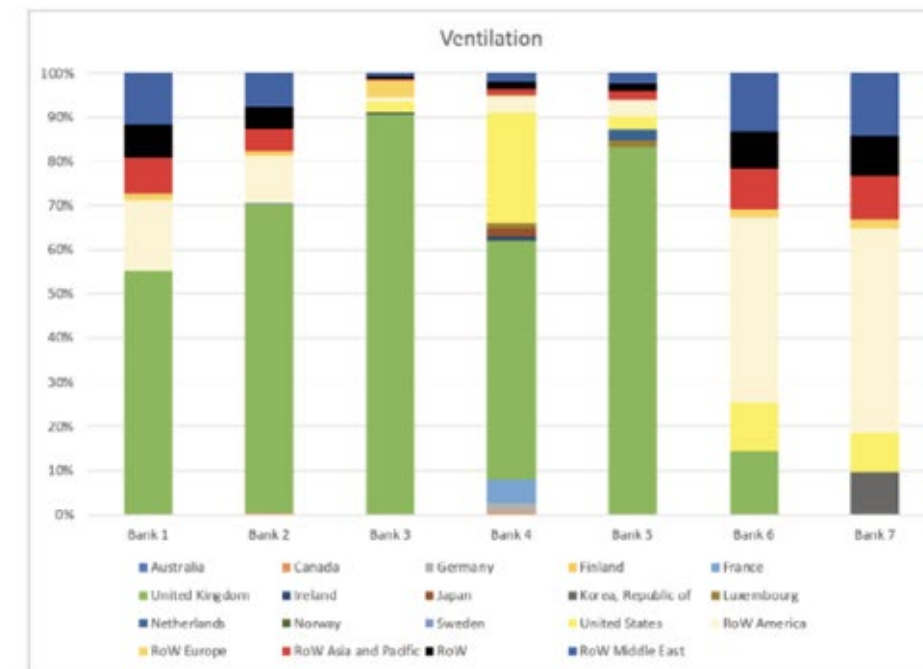
International risks account for more than half of all nature-related financial risks



International nature-related risks transmit to the UK economy through four main channels:



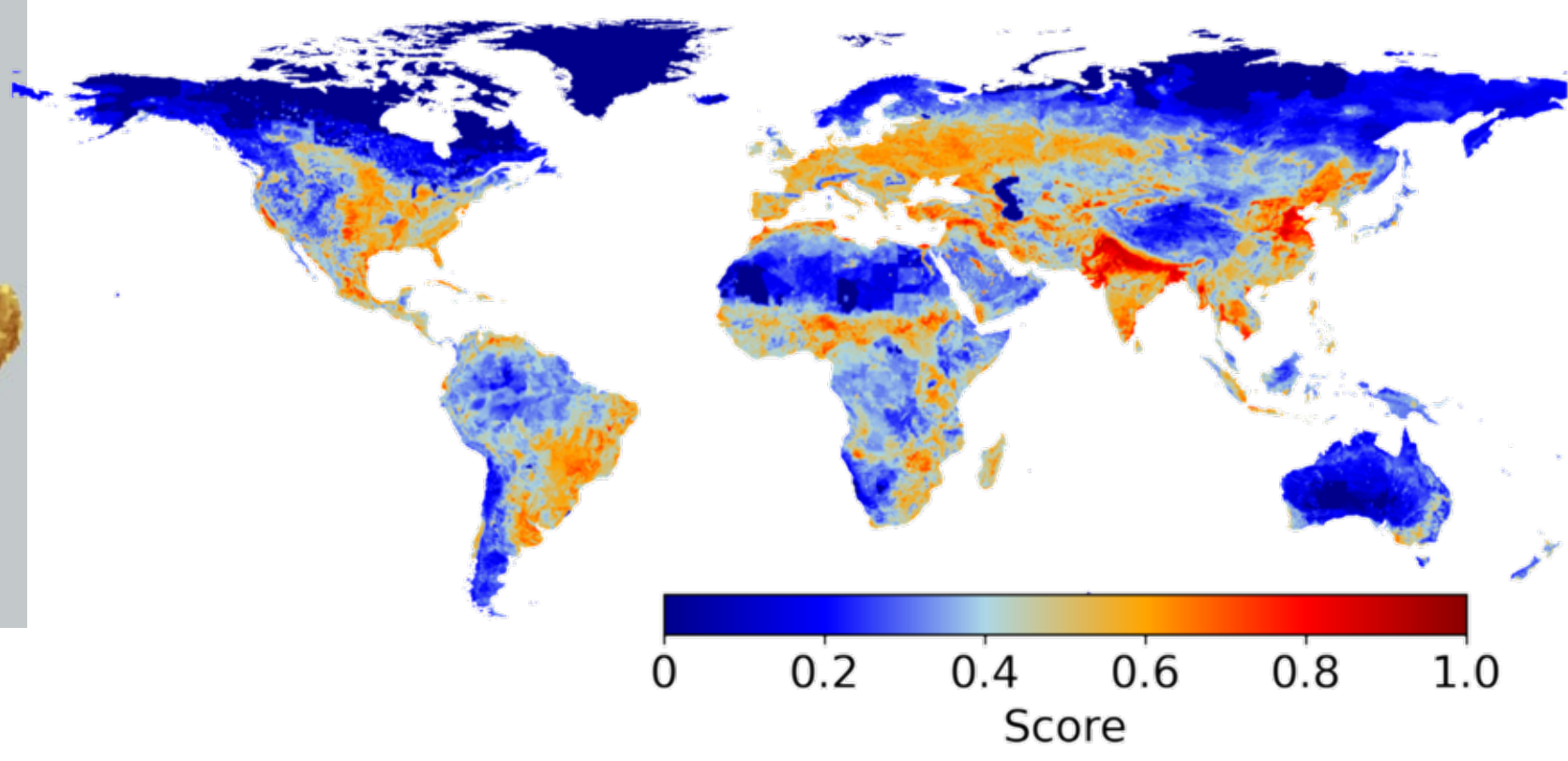
The £3.8 trillion in assets from UK banks and insurers are dependent on a wider set of assets through supply chains, which may represent approximately £5.8 trillion of assets, of which **£3.2 trillion, or 56% of the total upstream exposure are highly or very highly dependent on nature. International banks are particularly highly exposed.**





Significant refinements to nVaR to 5 arc min resolution to allow asset-level risk assessment, in addition to significant enhancements to supply chain representation

Groundwater Stress Risk



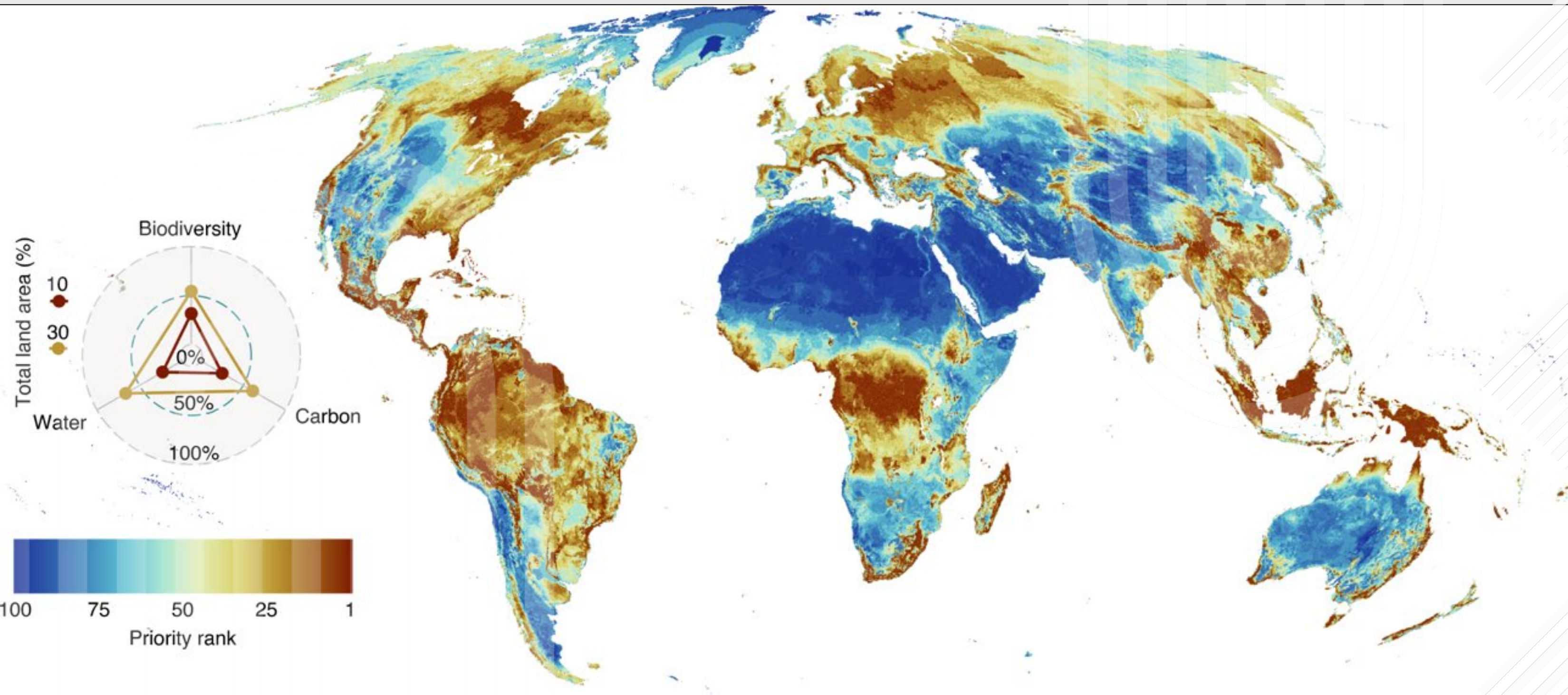
First glimpse new nVaR high res metrics:

Financing Green:

Growing the \$200bn

02

Opportunity: Biodiversity-Water-Carbon



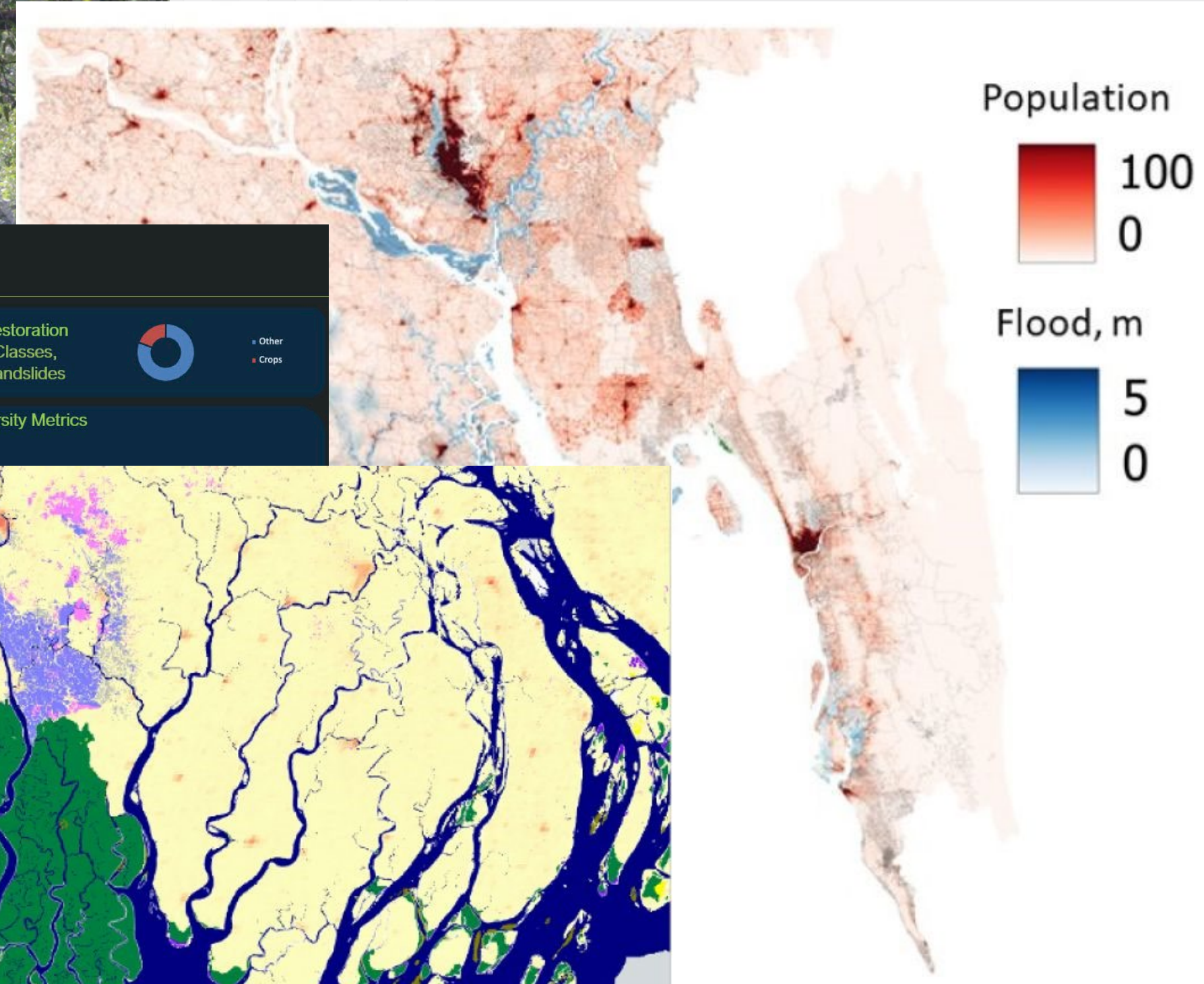
Markets

Instruments

Alignment

Jung et al. (2021) Areas of global importance for conserving terrestrial biodiversity, carbon and water. Nature Ecology and Evolution. <https://www.nature.com/articles/s41559-021-01528-7>

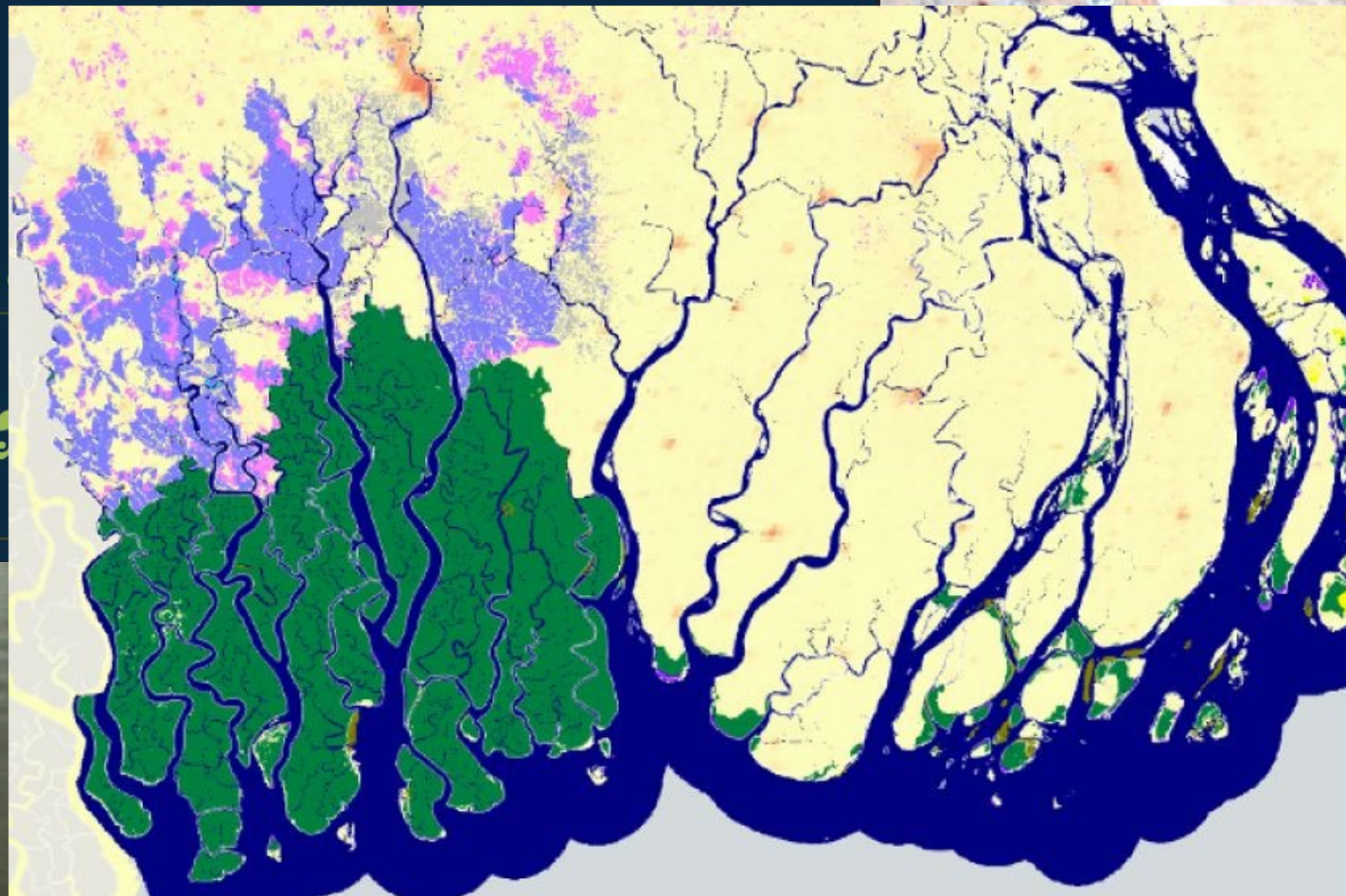
Opportunities



Nature Based Solutions,



Top 3 Opportunity Areas: Financial, Carbon and Biodiversity Metrics



Leveraging Earth Observation for Nature Finance (LEON): Accelerating Action through Data

03

LEON: Pilots



Financial Risk



Nature Markets



Sovereign Debt Instruments



Natural Capital Accounting



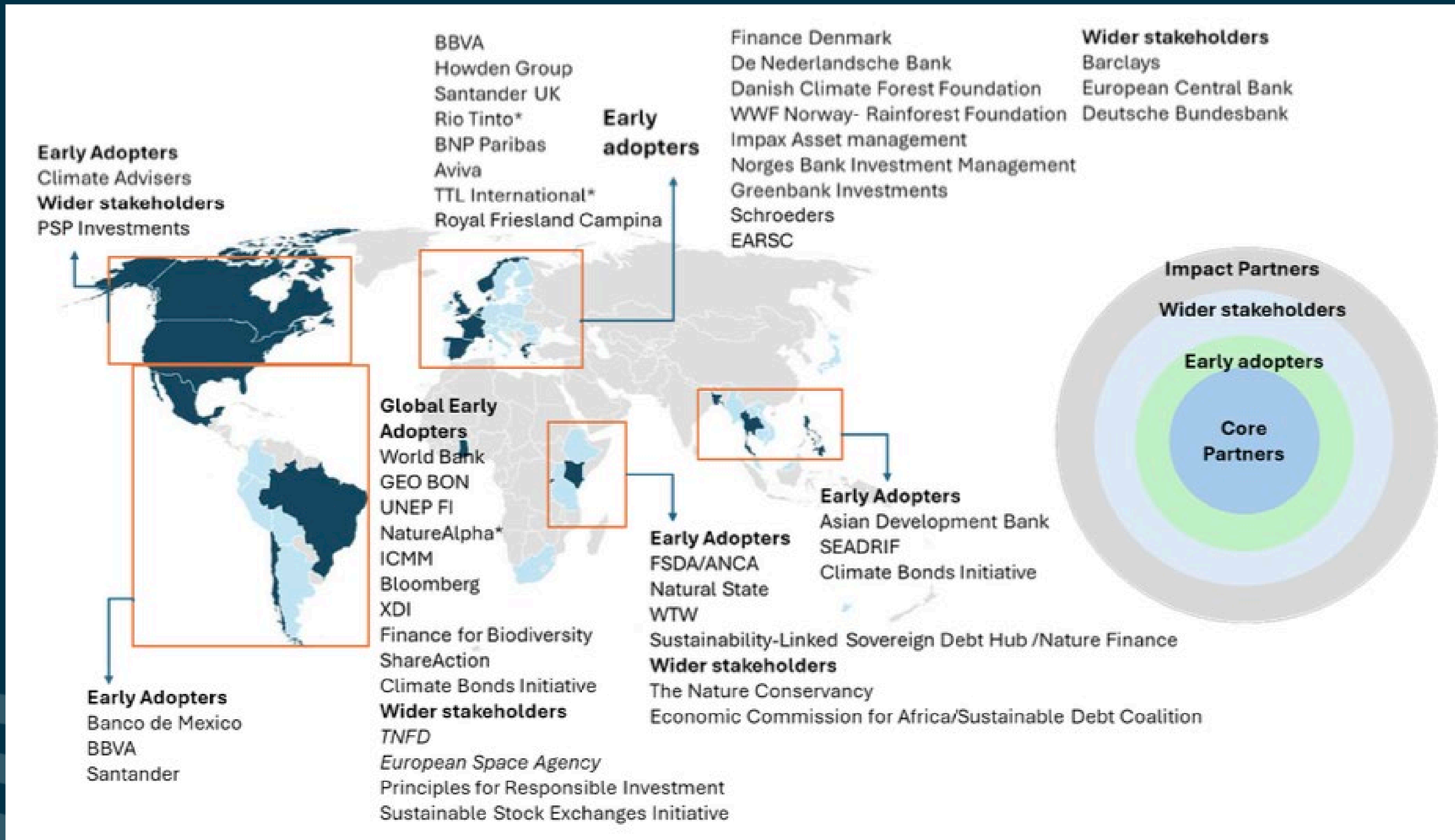
Mining



Agricultural Supply Chain

**Risks, Dependencies
and Impacts**

LEON: Early Adopters and Stakeholders



We have strategically assembled a group of supporting organisations that represent the breadth of Nature Finance activities and with financial interests, data and projects across the globe

Early adopters will work with us to co-design and evaluate solutions; wider stakeholders play a critical role in scale and impact, allowing LEON to respond to wider requirements, gain feedback and increase uptake; impact partners help us connect to wider community of EO providers, users but also regulators and governments

Thank you

Leveraging Earth Observation for Nature Finance

