

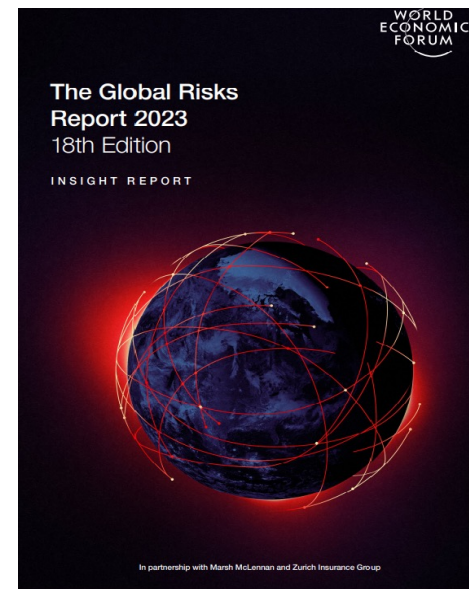


Environmental Dimensions of Sustainable Development

January 24, 2023
Rosina Bierbaum, STAP Chair
UN Evaluation Group
Annual General Meeting

Presentation order

- Emergence of the environment as central to economic wealth, security, sustainability, social cohesion
- Inter-relationship of climate, biodiversity, COVID-19
- What can UN evaluators do?



Drivers



Source: Modified from Johan Rockstrom: Let the environment guide our development

World Economic Forum Global Risk Reports

	1	2	3	4	5
2020	Extreme weather	Climate action failure	Natural disasters	Biodiversity loss	Human-made environmental disasters
2021	Extreme weather	Climate action failure	Human environment damage	Infectious diseases	Biodiversity loss
2022	Climate action failure	Extreme weather	Biodiversity loss	Social cohesion erosion	Livelihood crises
2023	Failure to mitigate climate change	Failure of climate change adaptation	Natural disasters	Biodiversity loss	Large-scale involuntary migration



Global risks ranked by severity over the long term (10 years)

https://www3.weforum.org/docs/WEF_Global_Risk_Report_2020.pdf
https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2021.pdf

https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf
https://www3.weforum.org/docs/WEF_Global_Risks_Report_2023.pdf

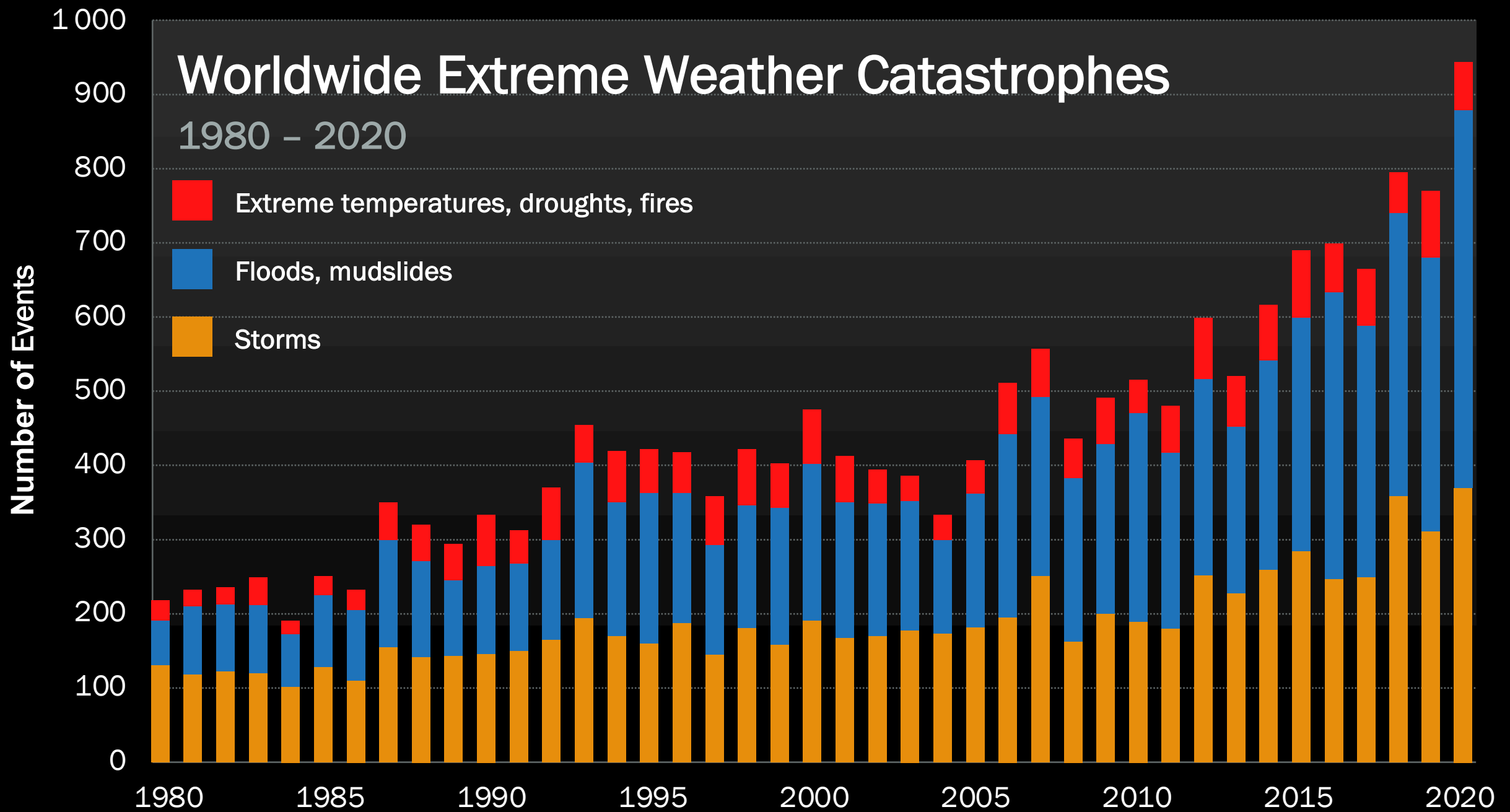
Climate change is causing societal impacts NOW

- Ideal ranges for crops, forests, & pests are shifting
- Timing, quantity, and quality of water less predictable
- Extreme weather events are increasing human pain and costs:
 - ❖ crop losses from floods and droughts; forest die-offs
 - ❖ health problems from heat, smog & increased pest ranges
 - ❖ coastal erosion and infrastructure loss
 - ❖ Loss of species ranges and ecosystem integrity
 - ❖ increased energy/water disruption
 - ❖ power of strongest storms increasing
 - ❖ global supply chain interruptions



All linked to climate change by theory, models, & “fingerprints” (attribution analysis). Many are growing faster than previously predicted.





Types of Infrastructure at Risk from Extreme Weather

Train Tracks

Flood Barriers,
Levees

Drinking Water
Systems

Sewage Systems

Roads

Bridges

Airport Runways

Dams

Power Plants

Power Lines

Internet and
Telephone Lines

Oil and Gas Pipelines

Building Foundations

Stormwater Drainage

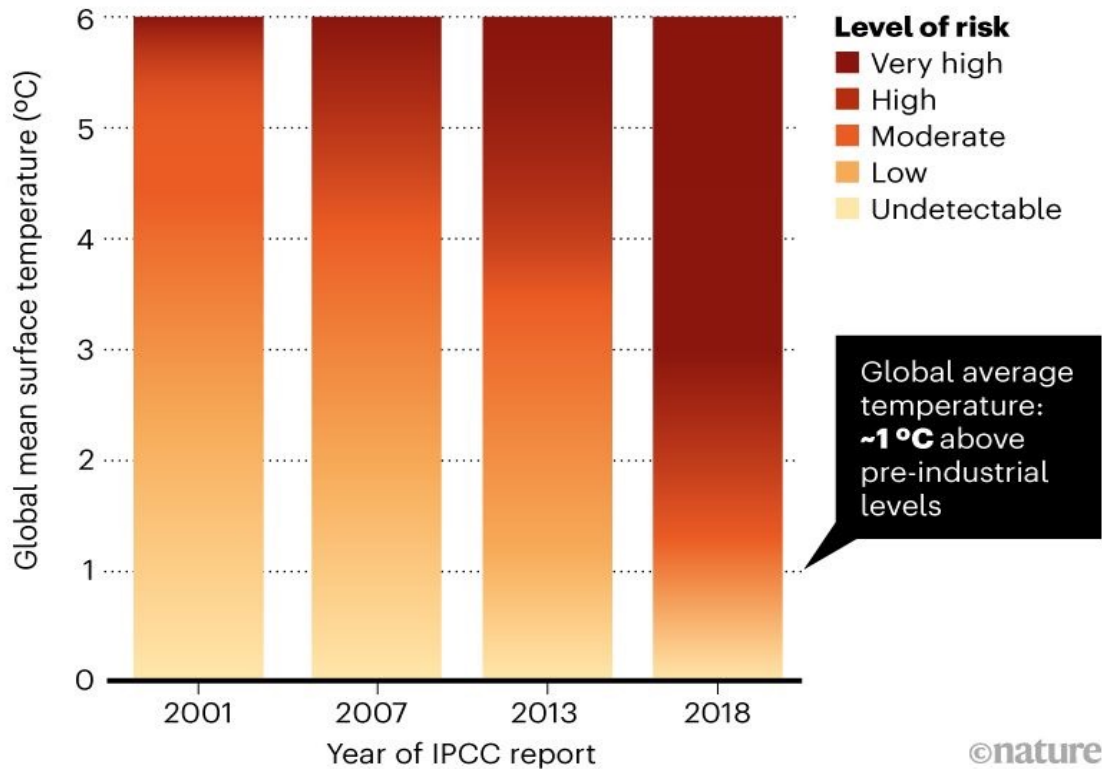
Subways

Agriculture

Abrupt and irreversible changes in the climate system

TOO CLOSE FOR COMFORT

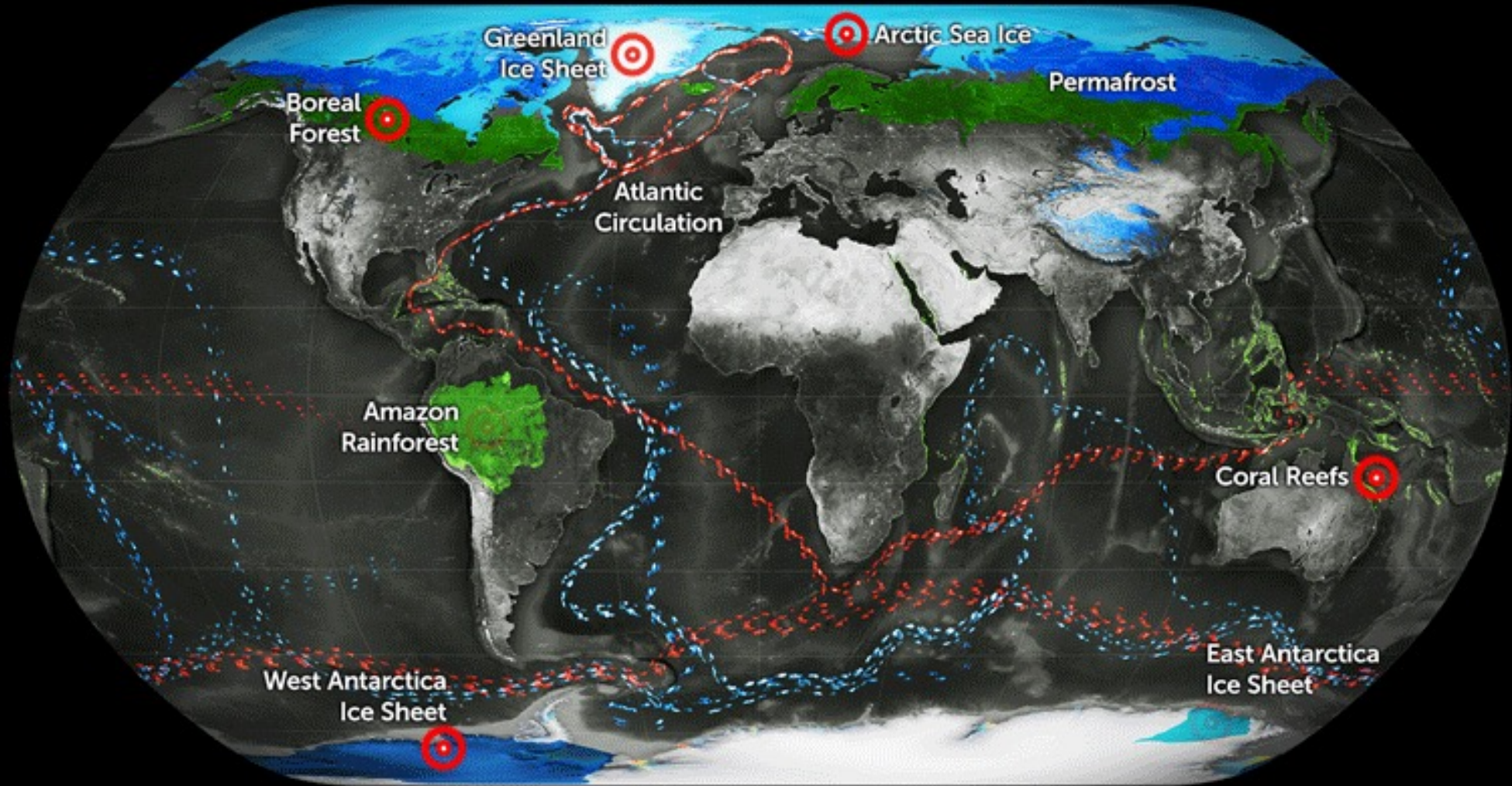
Abrupt and irreversible changes in the climate system have become a higher risk at lower global average temperatures.



IPCC's reports indicate that tipping points could be exceeded even between 1 and 2°C of warming

Earth's Sleeping Giants Stirring

9 TIPPING ELEMENTS NOW ACTIVE



Lenton et al. Climate tipping points—too risky to bet against, *Nature*, vol. 575, 28.11.2019. | GLOBAIA

Biodiversity and Climate Change IPBES-IPCC co-sponsored Report

- The combined effects of biodiversity loss and climate change can trigger **hard to reverse or irreversible** tipping points
- Satisfactorily **resolving** climate change or biodiversity requires consideration of the other
- Protected Areas have been **insufficient** to stem biodiversity loss
- Nature-based solutions can **play an important role in climate mitigation**
- To meet climate and biodiversity treaty goals require transformative **interventions of a scale and scope never attempted before**



IPBES-IPCC CO-SPONSORED WORKSHOP

BIODIVERSITY AND CLIMATE CHANGE

WORKSHOP REPORT

The Dasgupta Review

We have collectively **failed to engage with Nature sustainably**

We **endanger the prosperity of current and future generations**

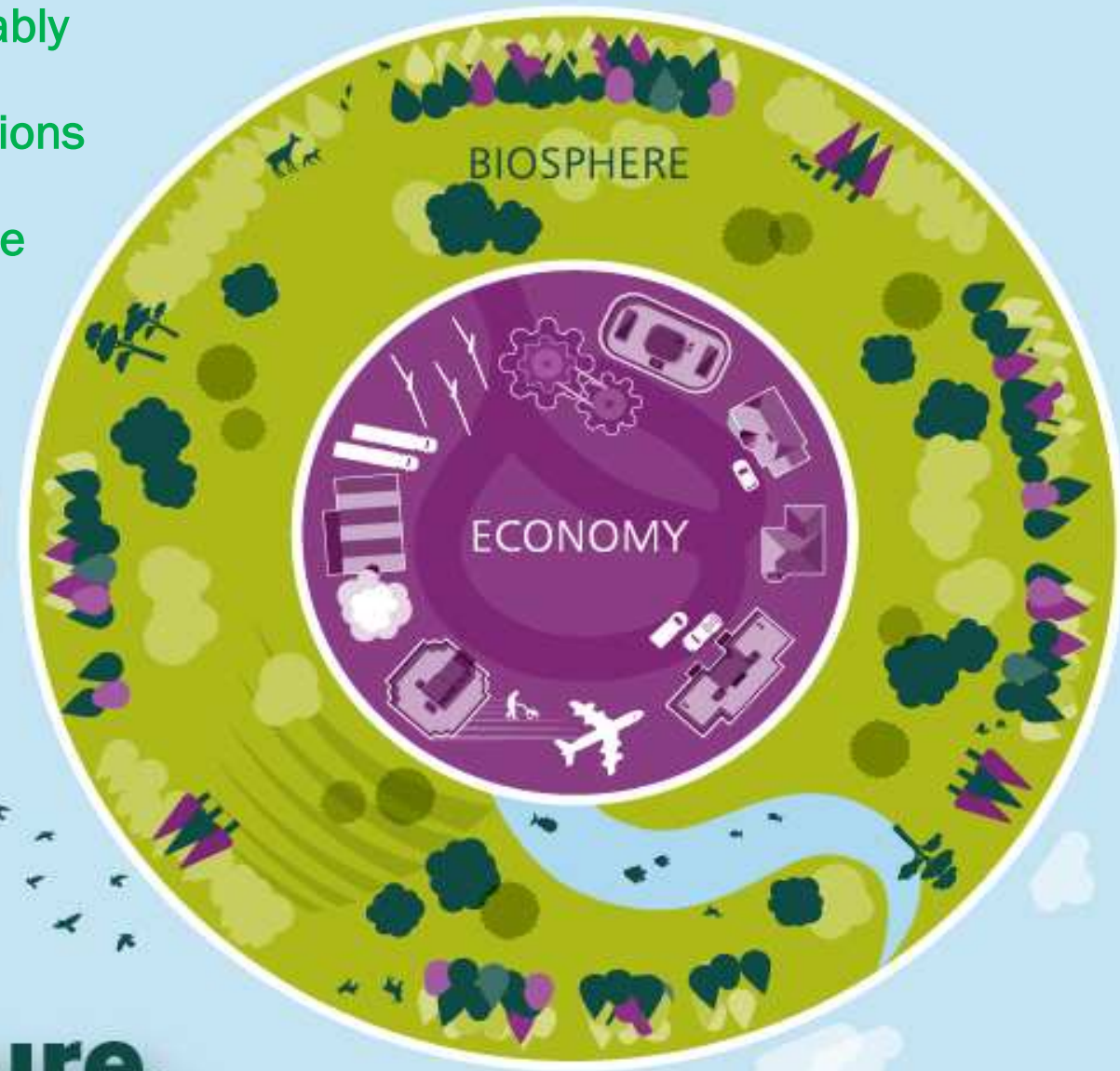
The heart of the problem is **widespread institutional failure**

Must **change how we think, act, and measure success**

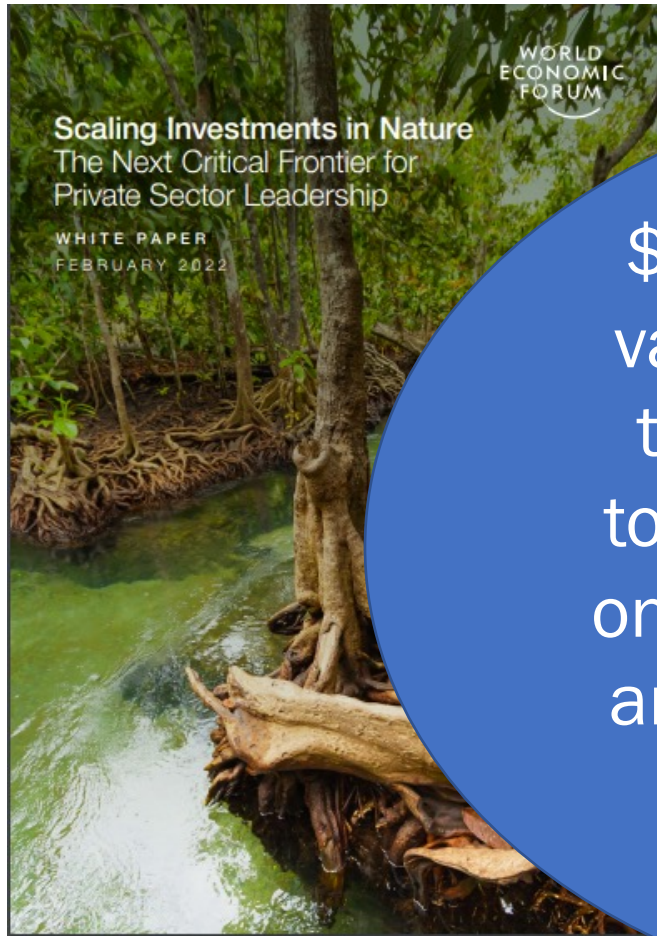
We need to **transform our institutions** and systems –

We must reduce our demand - and
increase Nature's "supply"

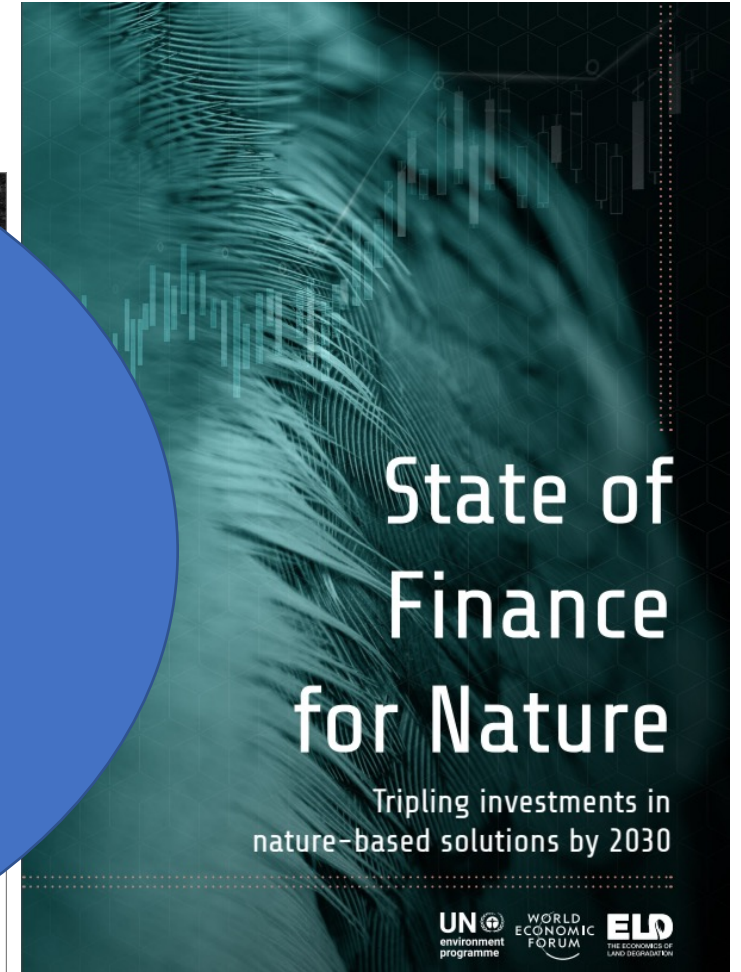
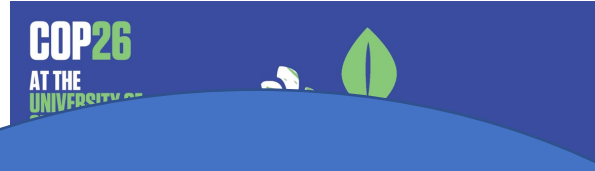
**A simple truth:
our economies are
embedded within Nature.**



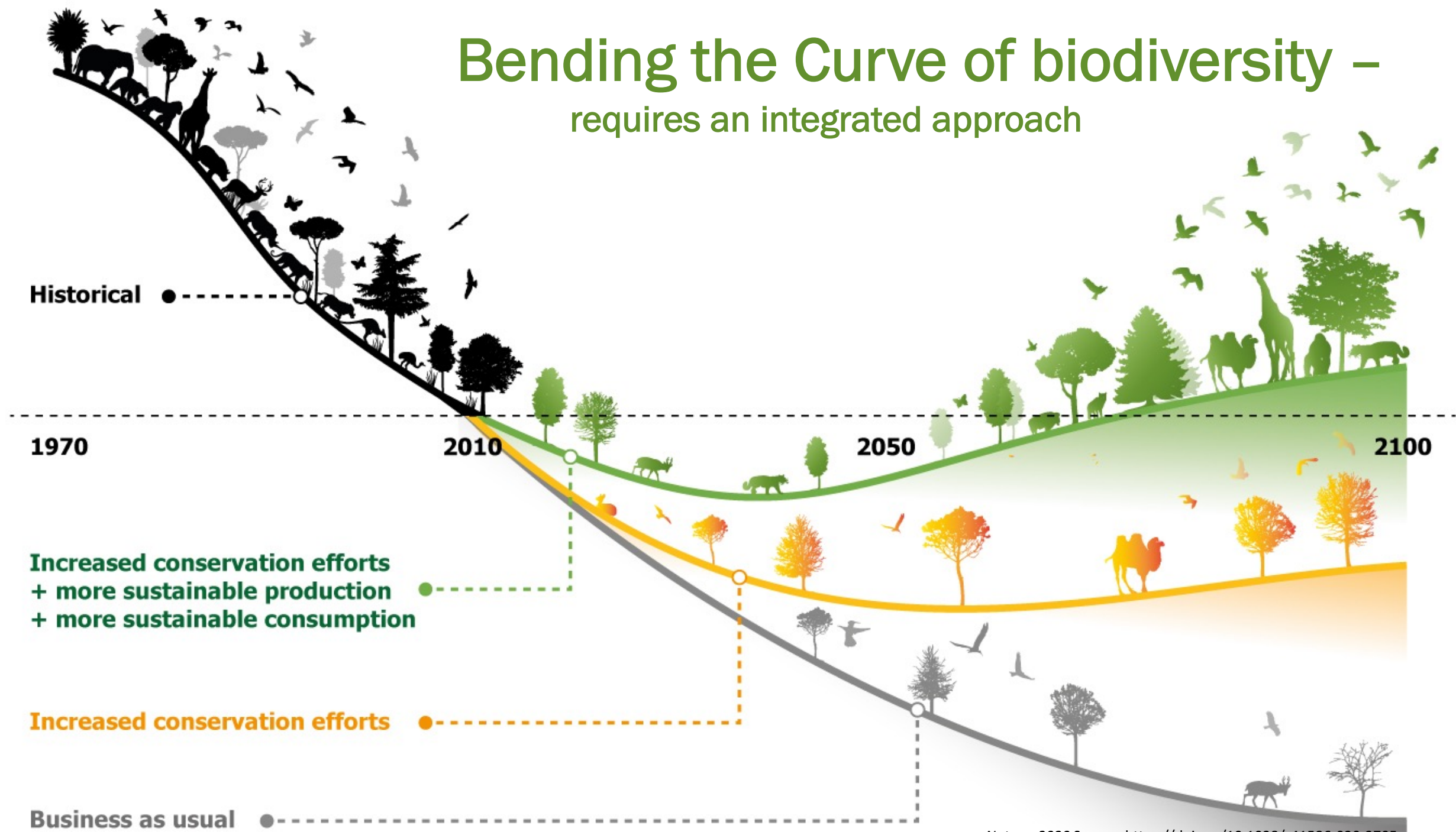
New Trend: Finance Nature-Based Solutions



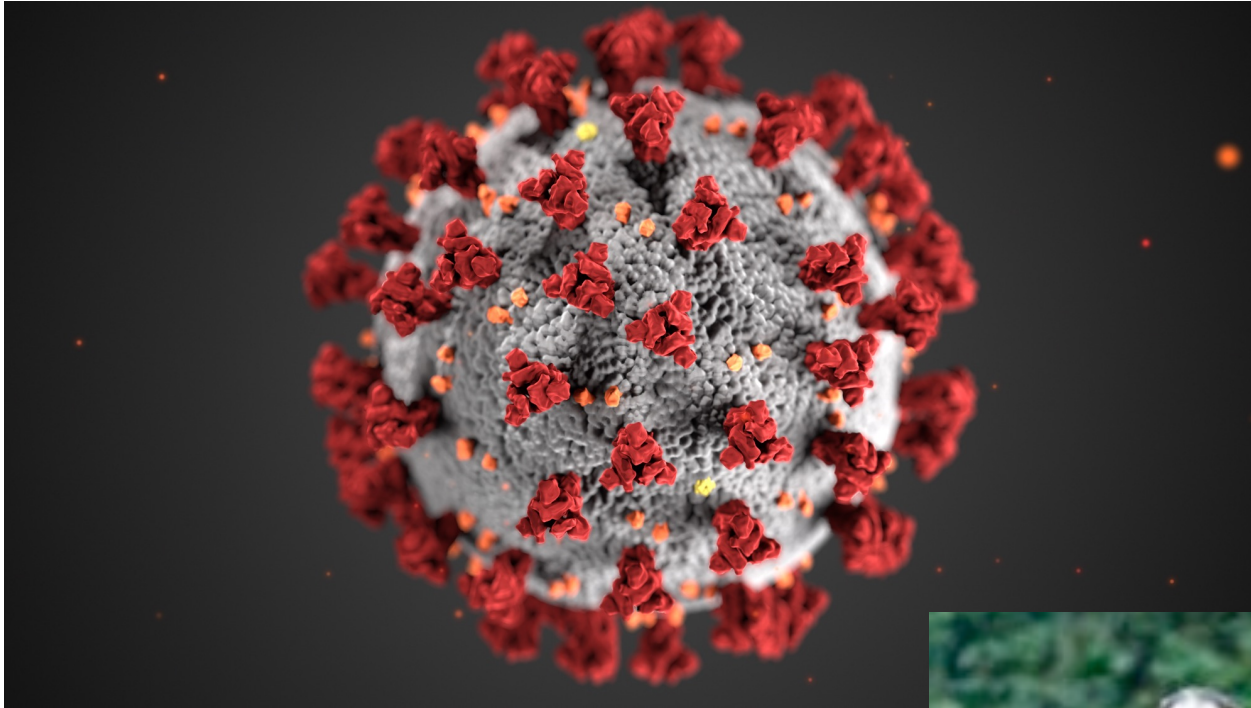
\$44 trillion of economic value generation – more than half of the world's total GDP – is dependent on nature and its services and is therefore exposed to nature loss.



Bending the Curve of biodiversity – requires an integrated approach



Environmental Degradation linked to zoonotic diseases



SARS-CoV-2



Fruit bats: Nipah virus, Hendra virus



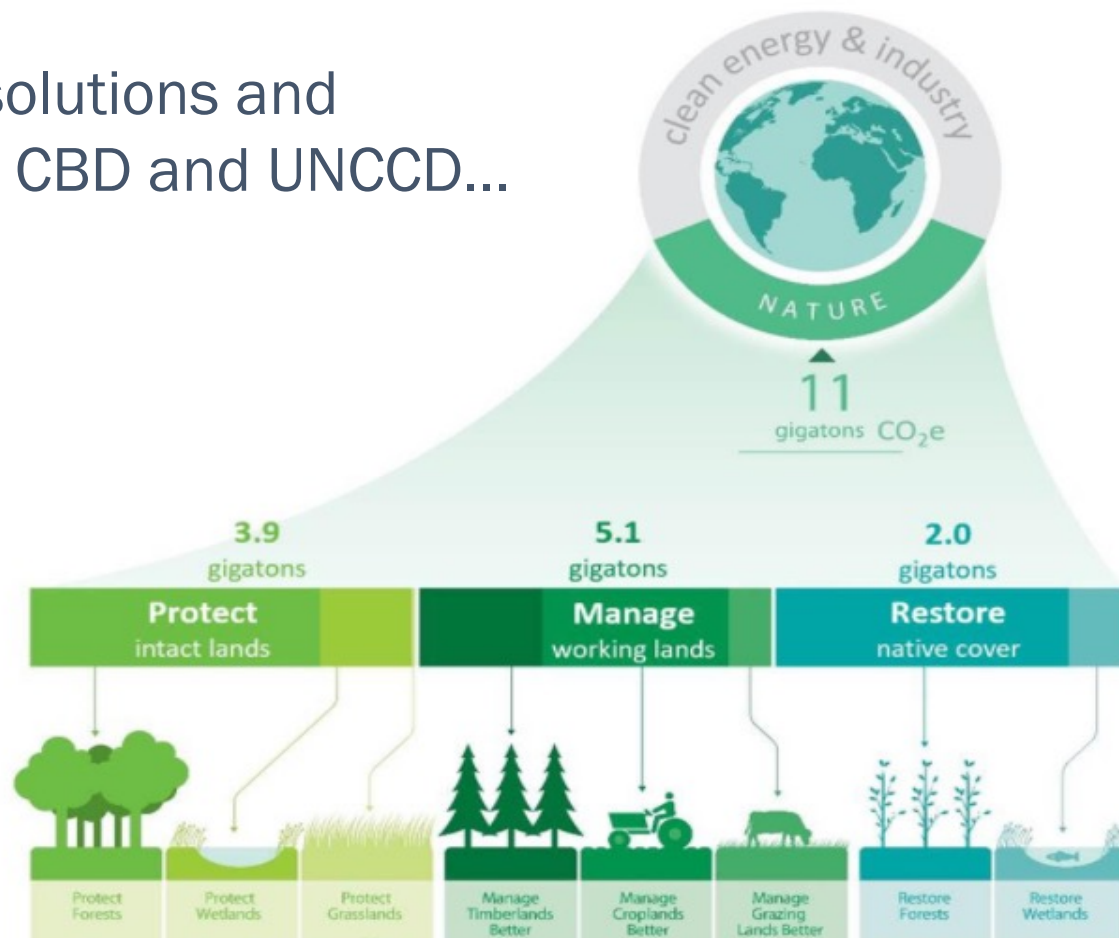
Bonobos: herpes simplex viruses



Chimpanzees: HIV

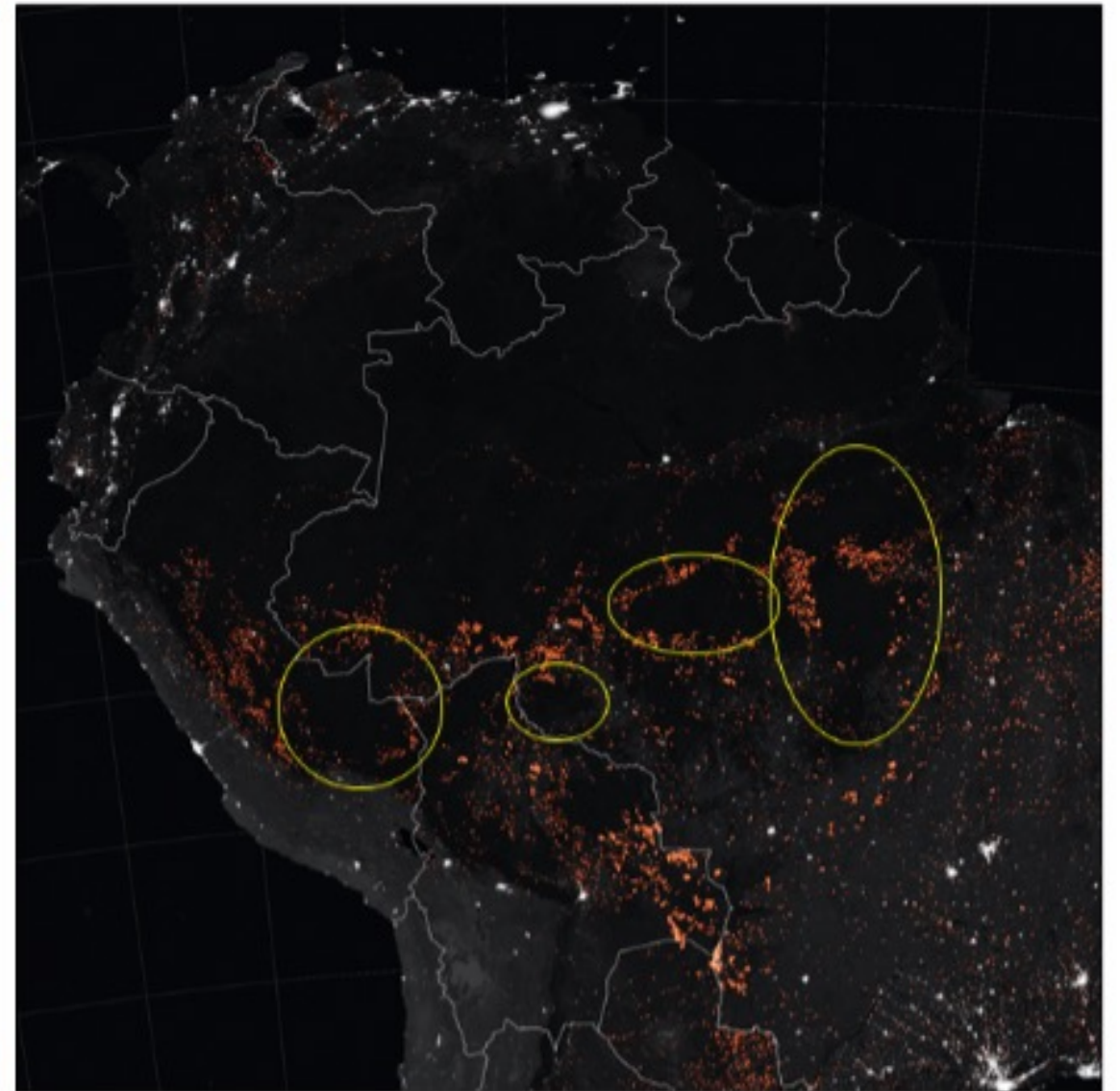
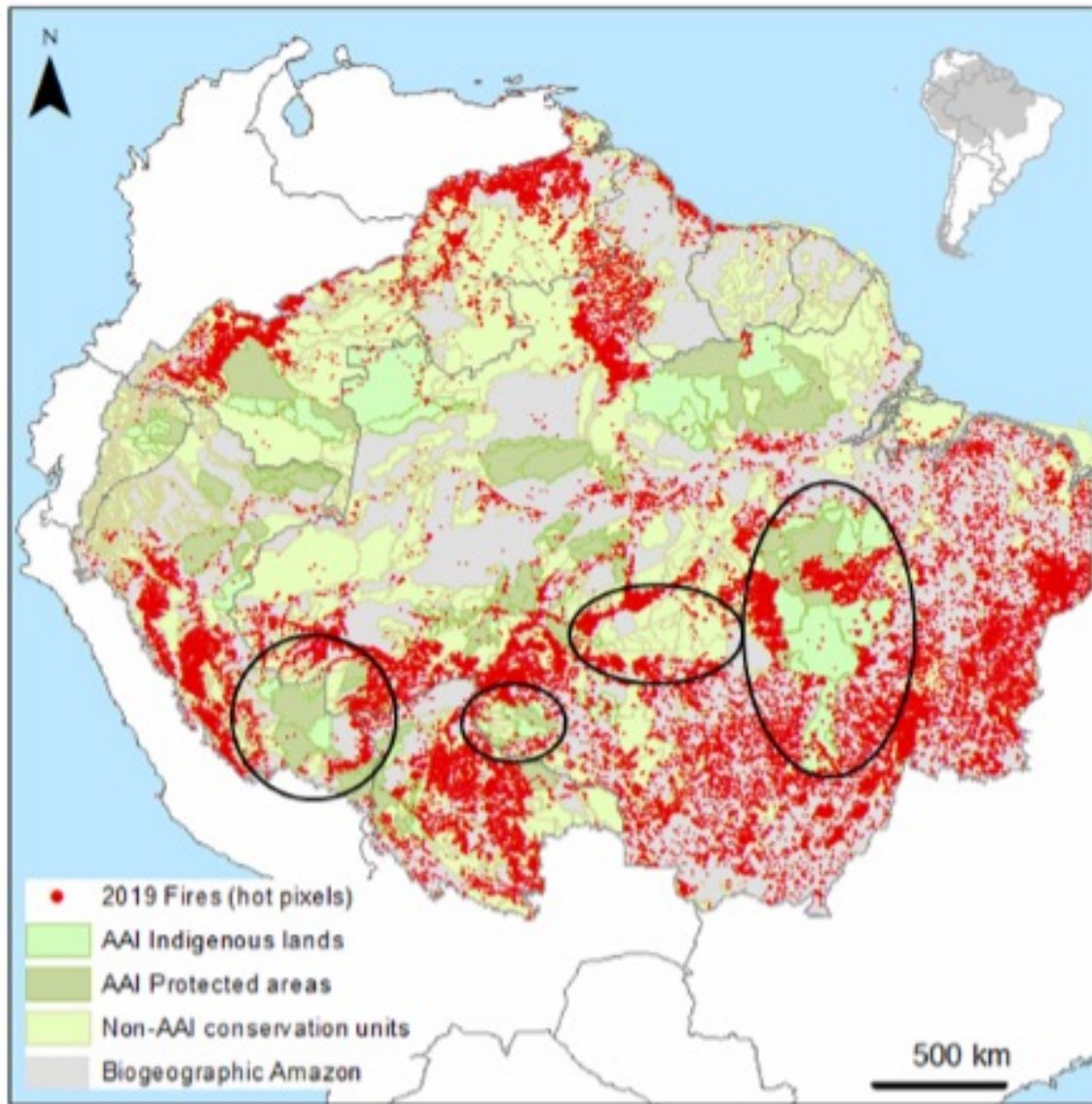
Nature can help meet climate targets

Future NDCs can include more nature-based solutions and help meet the SDGs, and the objectives of the CBD and UNCCD...



Source: Griscom et al., PNAS (2017) and Griscom et al., 2020 Philosophical Transactions of the Royal Society B. Graphics from Nature Conservancy magazine and 5W Infographics

Note that fires (in red) did not penetrate the intact protected areas (in green)



Water/Food and Environmental Security – risk multipliers

- Complex interactions between climate change, food, biodiversity, water, extreme events, and social justice
- By 2050, **food supply** must nearly double
- **70% of the world's poor** depend directly on wild species for food, medicine, and energy
- **Indigenous peoples** manage the use of wild species on more than 38 million km² in 87 countries
- Land degradation and drought currently affect 1.8 billion people - significant mortality and GDP impacts
- 2 billion people live in countries where development outcomes affected by fragility, conflict, and violence
- Environmental drivers – can be risk multipliers of conflict and migration



What can UN evaluators do?

Need “Sustainably-Ready” evaluations – considering BOTH social and nature

Sound Theory of change that includes possible alternative futures

Support from leadership

Expertise from BOTH human and natural system experts

Multi-stakeholder dialogue – top down and bottom up, ILK, women, youth

Evaluate unintended consequences / and co-benefits

Knowledge management – collect, analyze, and share lessons learned

Can UNEG develop generalized guidance? (e.g., gender, human rights)

Trade-offs need to be managed



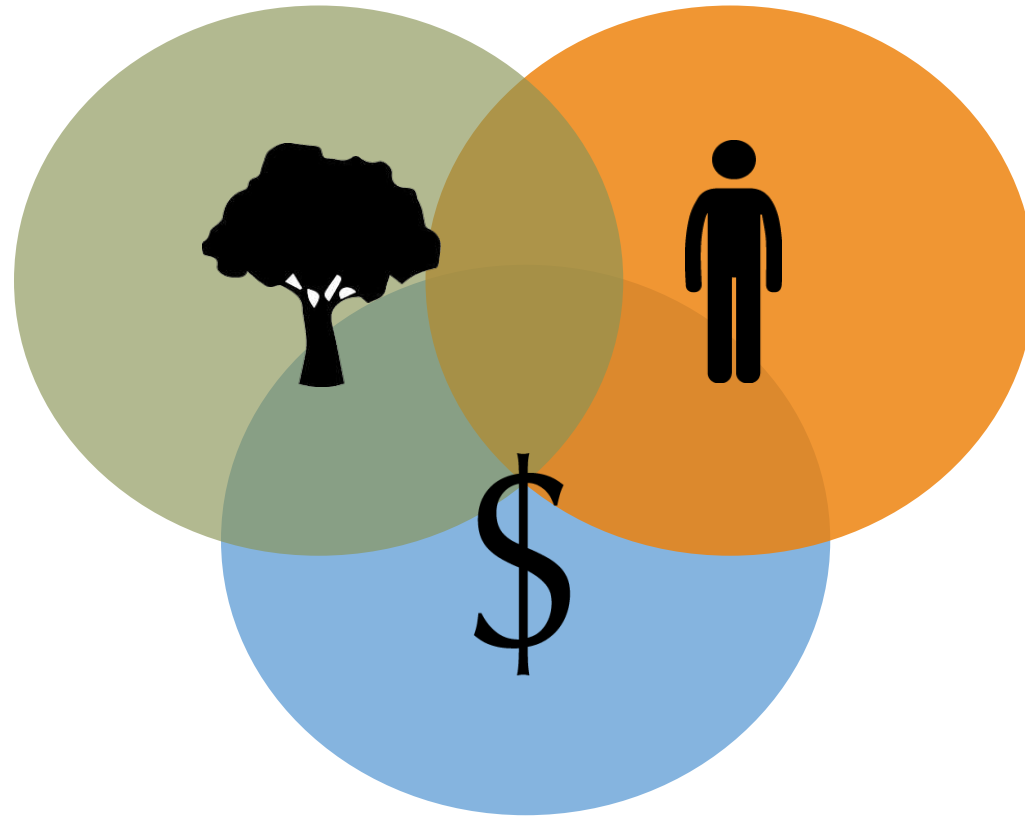
“Enabling Elements” for Sustainability- Ready Evaluations?



GEB = global environmental benefit; MEL = monitoring, evaluation and learning.

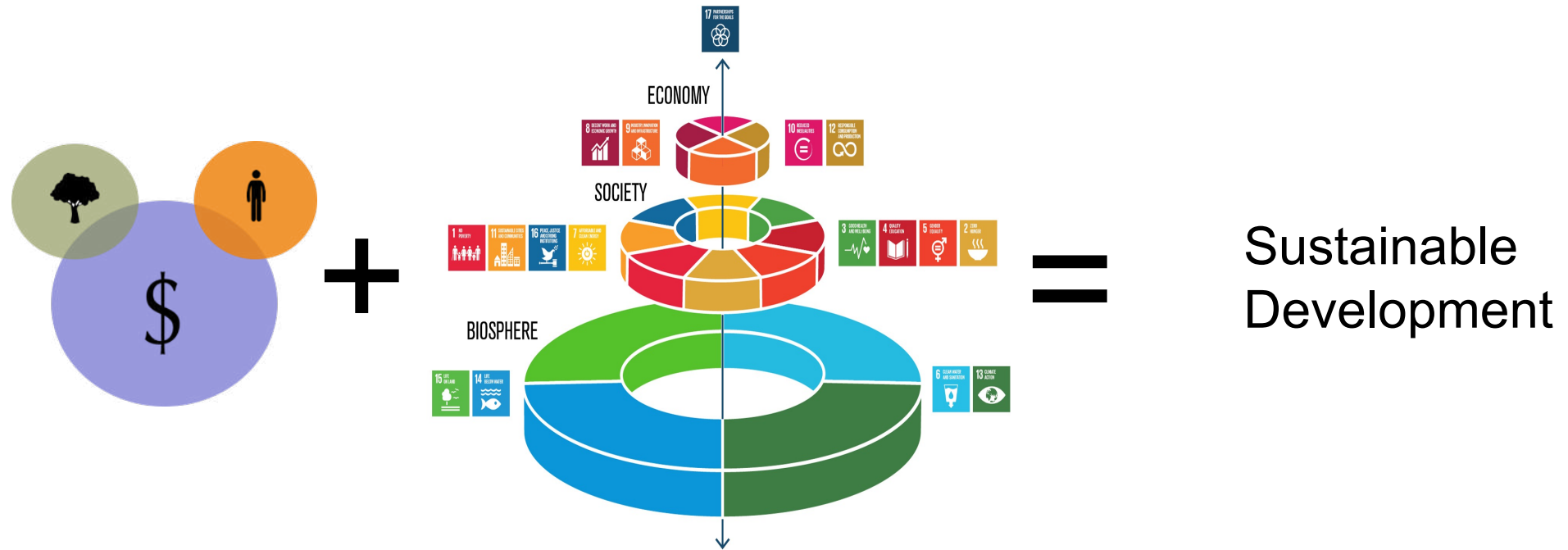
Figure 2: Eight enabling elements to maximize enduring GEBs from GEF investments.

The 3 inter-dependent facets of sustainability

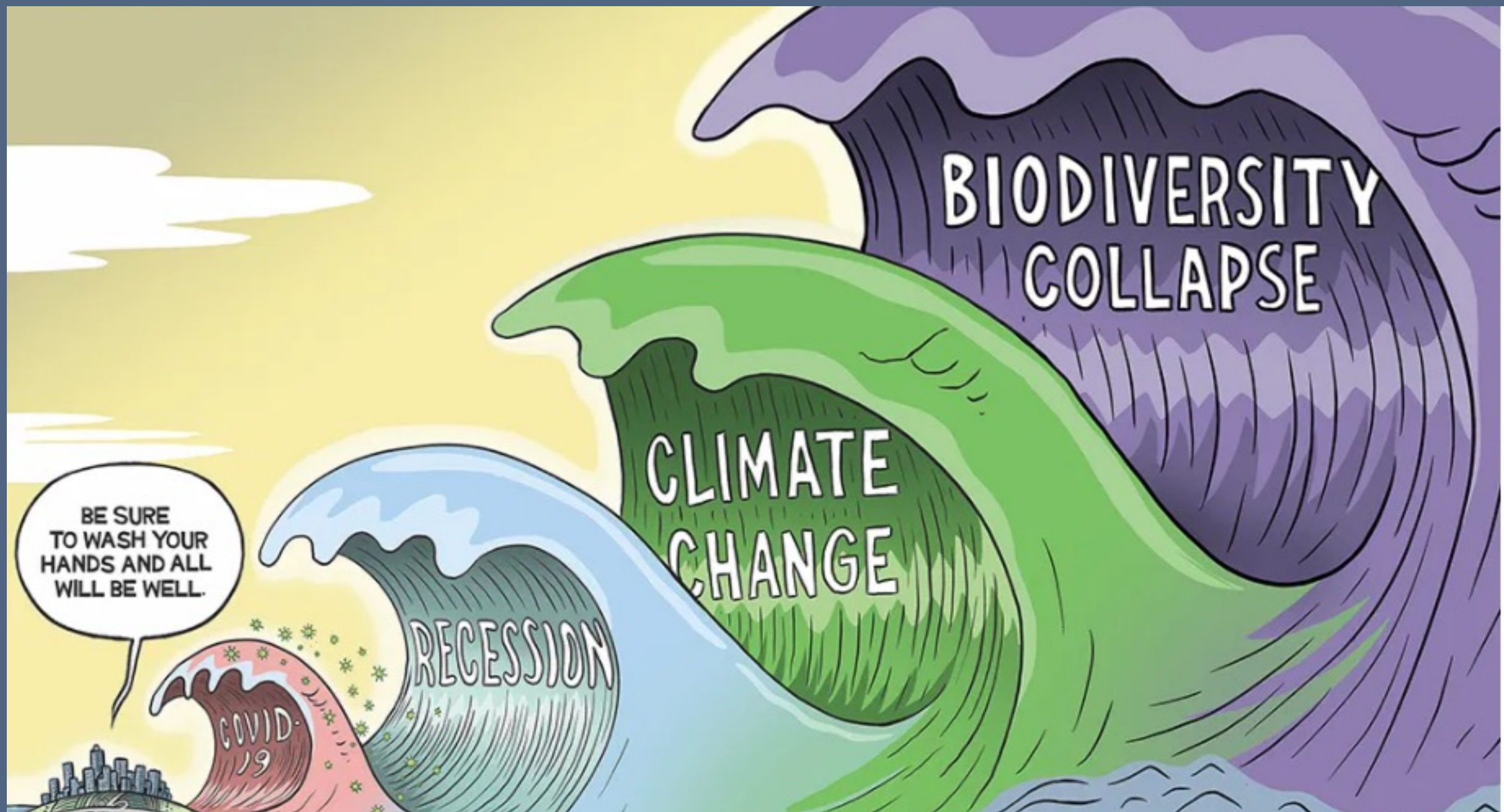


Source: Johan Rockstrom,

Attaining the SDGs depends on restoring ecological and societal values as co-equal to economic. The SDGs depend on a strong biosphere.



Source: Johan Rockstrom





Parade Pelican
by Natalia Rublina