Scientific and Technical Advisory Panel
Report to the 59th Meeting of the GEF Council

Photo: Nicolas Reusens

STAP Panel Members and Advisers

Thomas Lovejoy
Adviser to Chair

Rosina Bierbaum
Chair

Mark Stafford Smith
Adviser to Chair

Saleem Ali
Climate Change Mitigation

Rosie Cooney
Biodiversity

Jamidu Katima
Chemicals & Waste

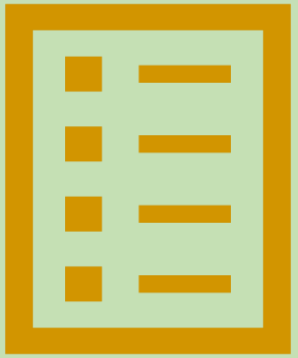
Graciela Metternicht
Land Degradation

Blake Ratner
International Waters

Edward Carr
Climate Change Adaptation

New Science

STAP's recent papers

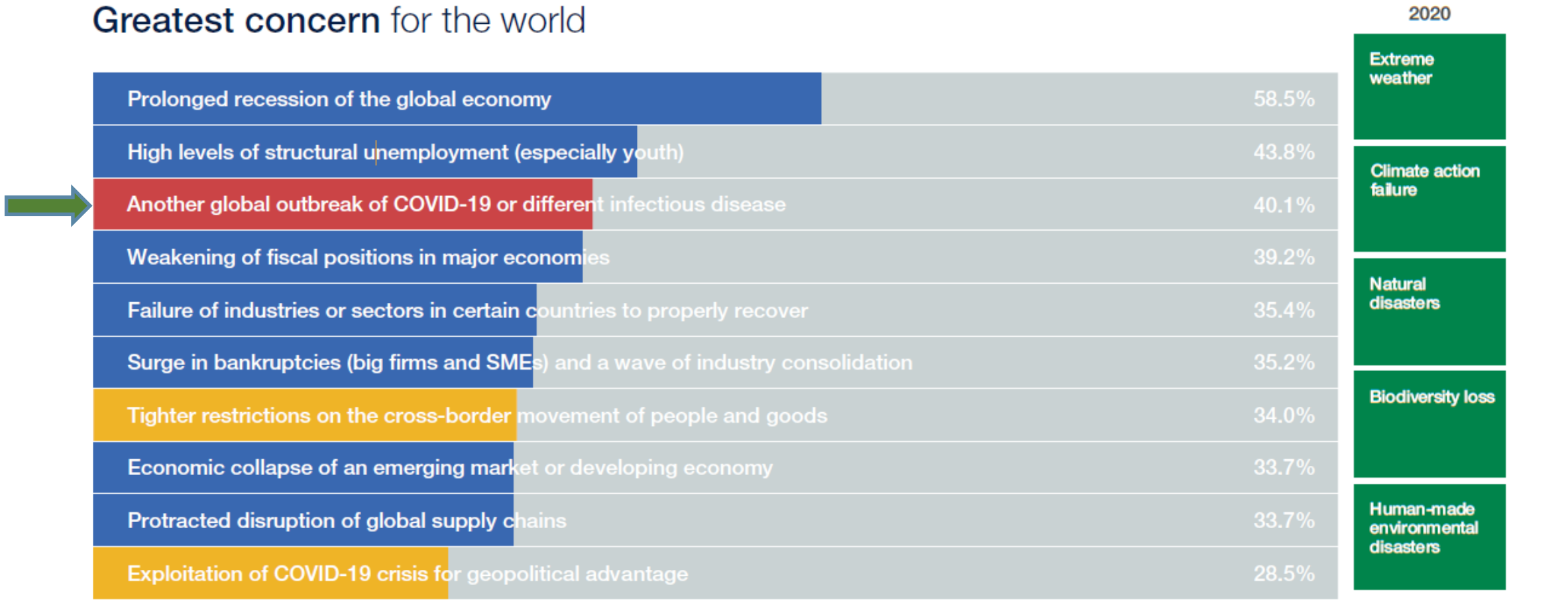


STAP's current and future work

Observations on the **GEF work program**

New Science

WEF Poll on COVID-19 Risk



https://www.weforum.org/reports/covid-19-risks-outlook-a-preliminary-mapping-and-its-implications
https://www.weforum.org/reports/the-global-risks-report-2020

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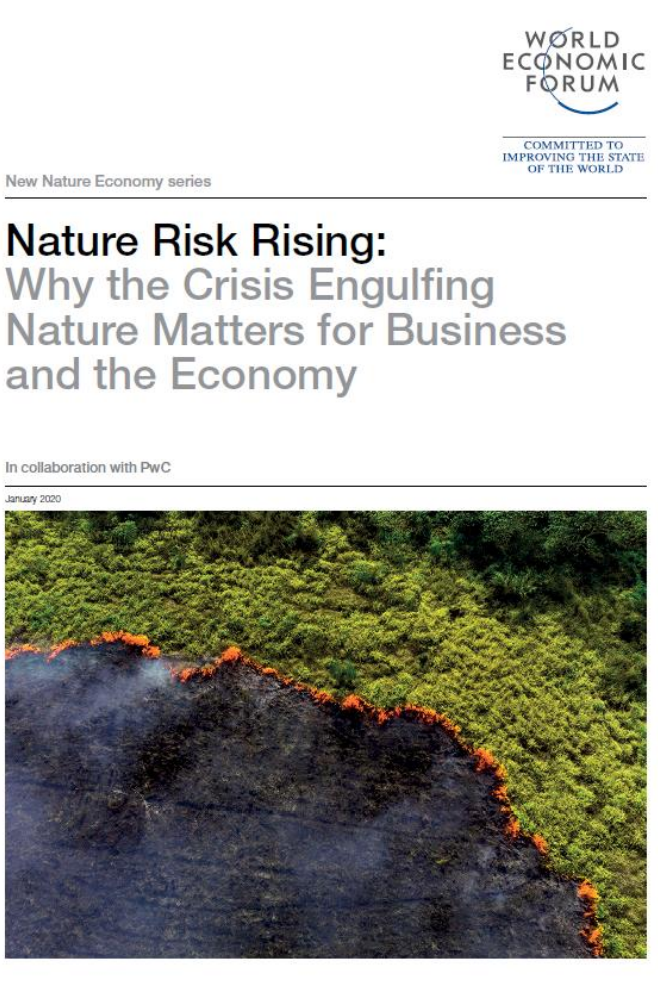
Nature Risk Rising

"$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."



Living Planet Report, 2020

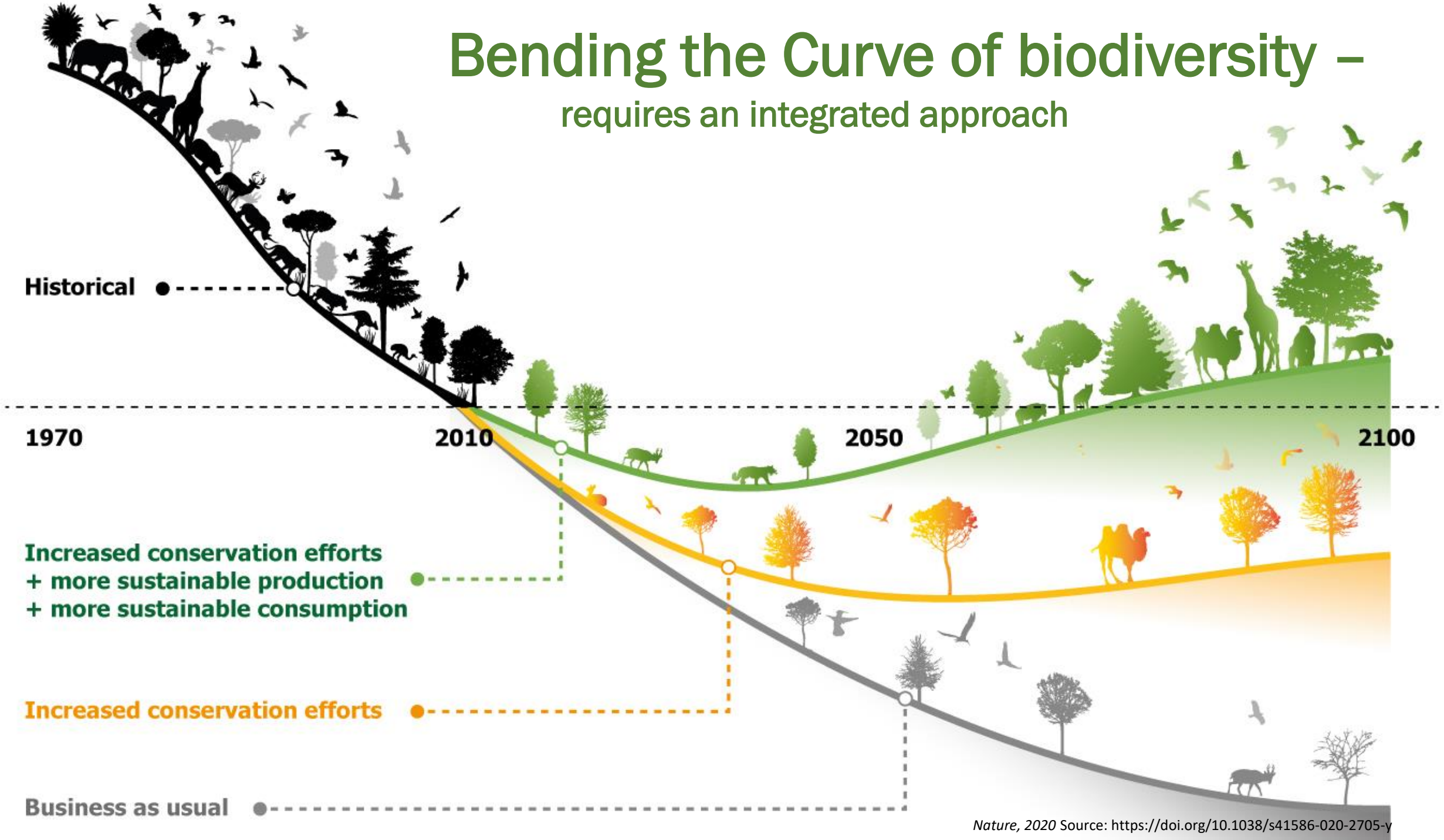
"This year's Living Planet Report provides unequivocal and alarming evidence that nature is unravelling and that our planet is flashing red warning signs of vital natural systems failure."

Marco Lambertini, Director General
WWF International

Source: Living Planet Report, 2020, WWF

Bending the Curve of biodiversity –

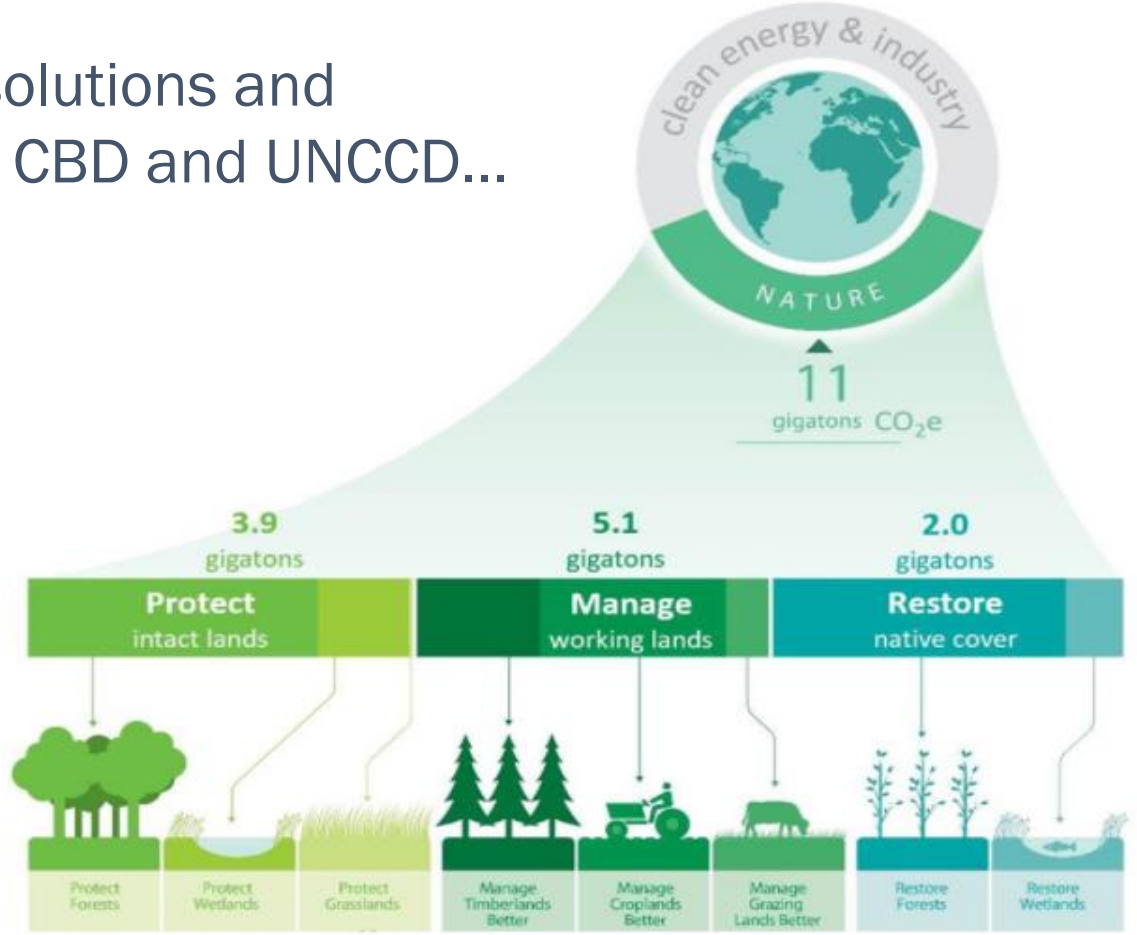
requires an integrated approach



Nature, 2020 Source: https://doi.org/10.1038/s41586-020-2705-y

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

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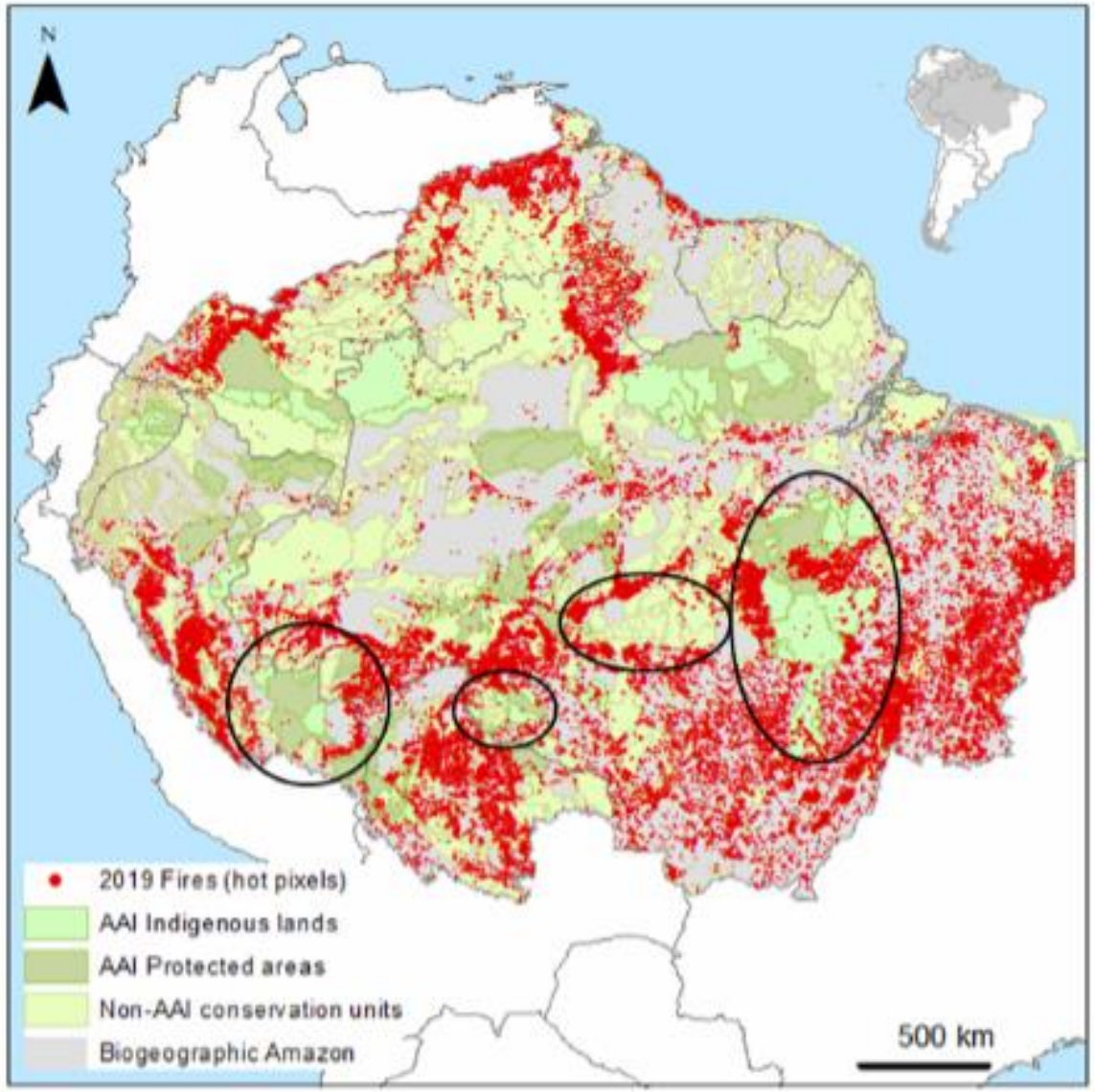
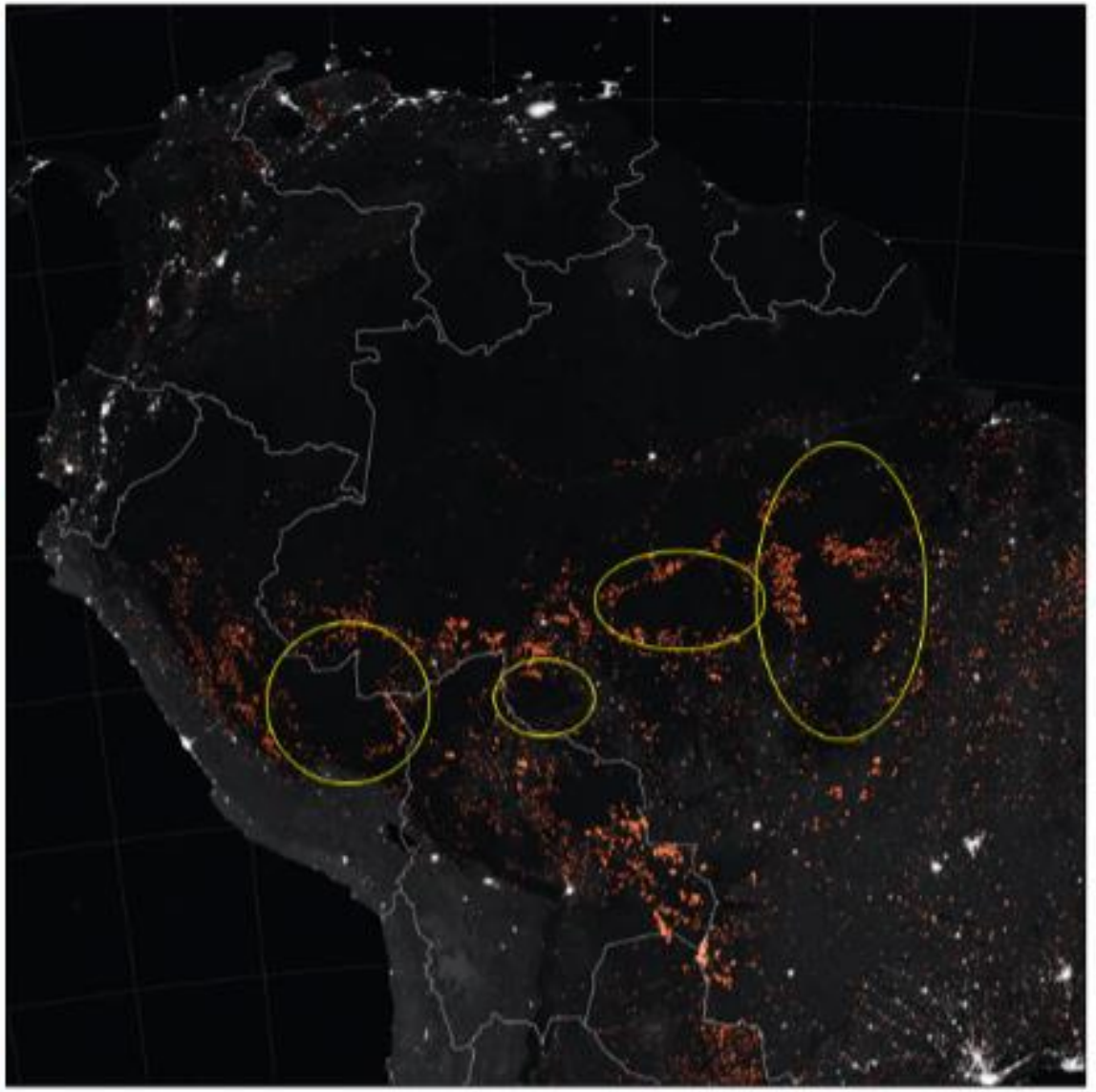
Note that fires (in red) did not penetrate the intact protected areas (in green)





GORDON AND BETTY MOORE FOUNDATION

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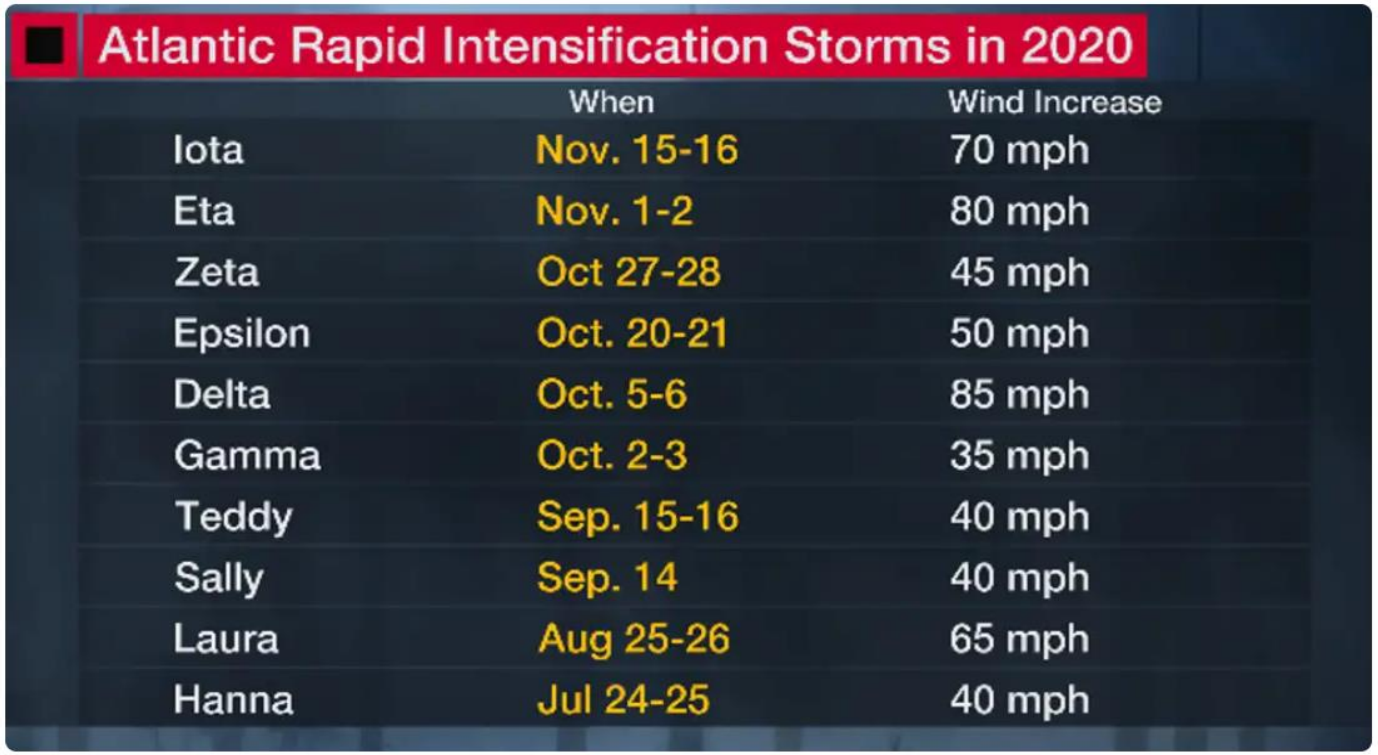
Hurricanes



Atlantic Rapid Intensification Storms in 2020

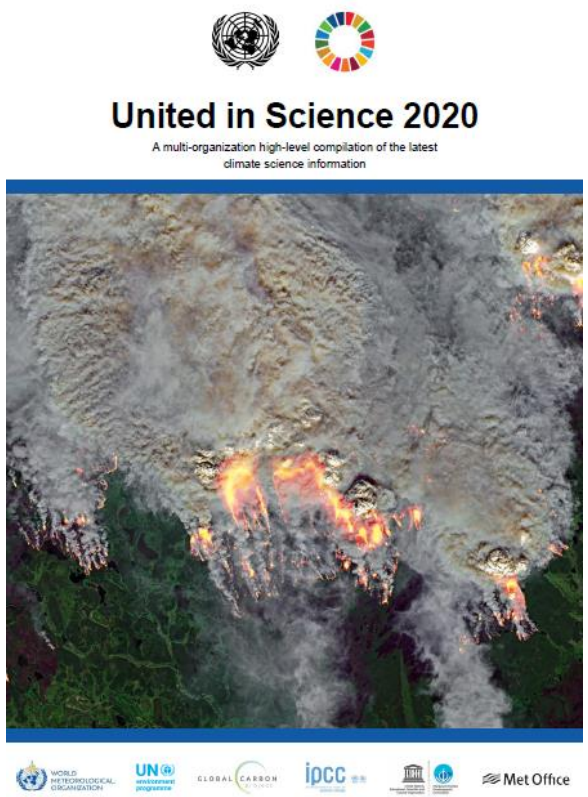
	When	Wind Increase
Iota	Nov. 15-16	70 mph
Eta	Nov. 1-2	80 mph
Zeta	Oct 27-28	45 mph
Epsilon	Oct. 20-21	50 mph
Delta	Oct. 5-6	85 mph
Gamma	Oct. 2-3	35 mph
Teddy	Sep. 15-16	40 mph
Sally	Sep. 14	40 mph
Laura	Aug 25-26	65 mph
Hanna	Jul 24-25	40 mph

List of storms that rapidly intensified in the 2020 Atlantic hurricane season, along with peak 24-hour wind intensification rates.

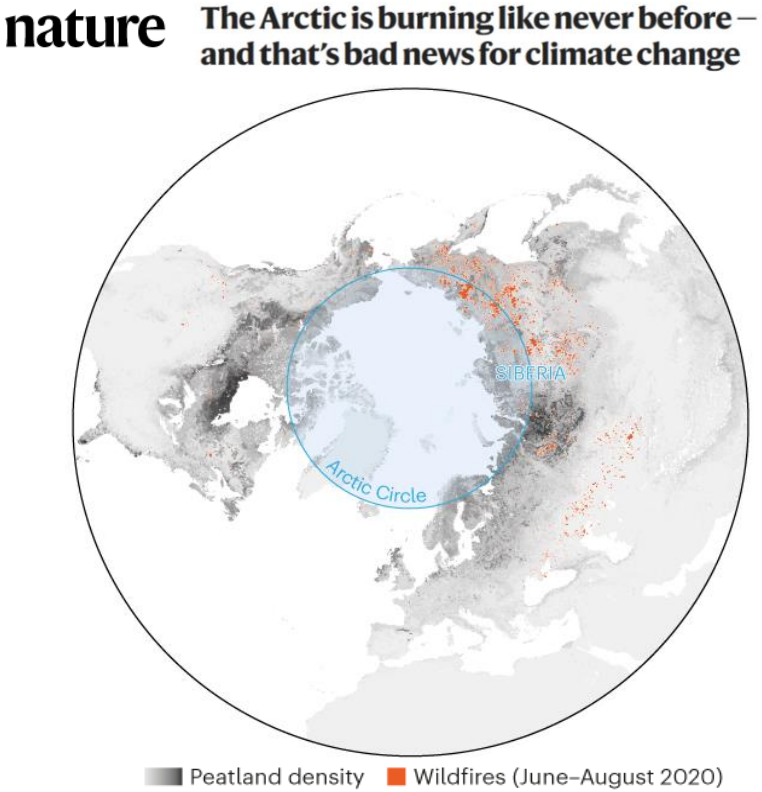
By 2100, the probability of a hurricane's wind speed increasing by more than 70 mph (114 km/hr) is expected to be 1 every 5 -10 years compared with once in 100 years now

https://weather.com/storms/hurricane/news/2020-11-15-atlantic-hurricane-season-ten-storms-rapidly-intensify

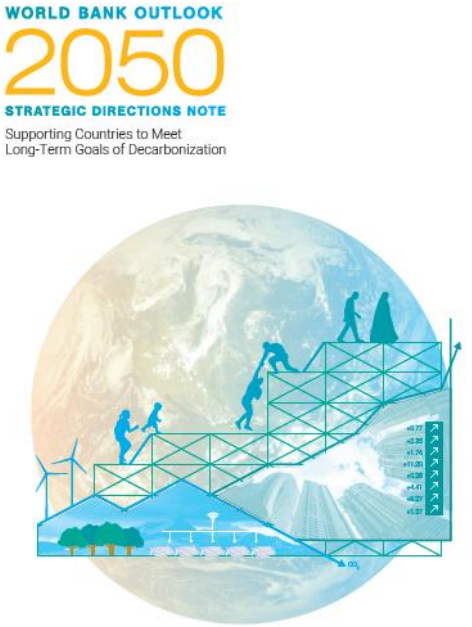
Climate science



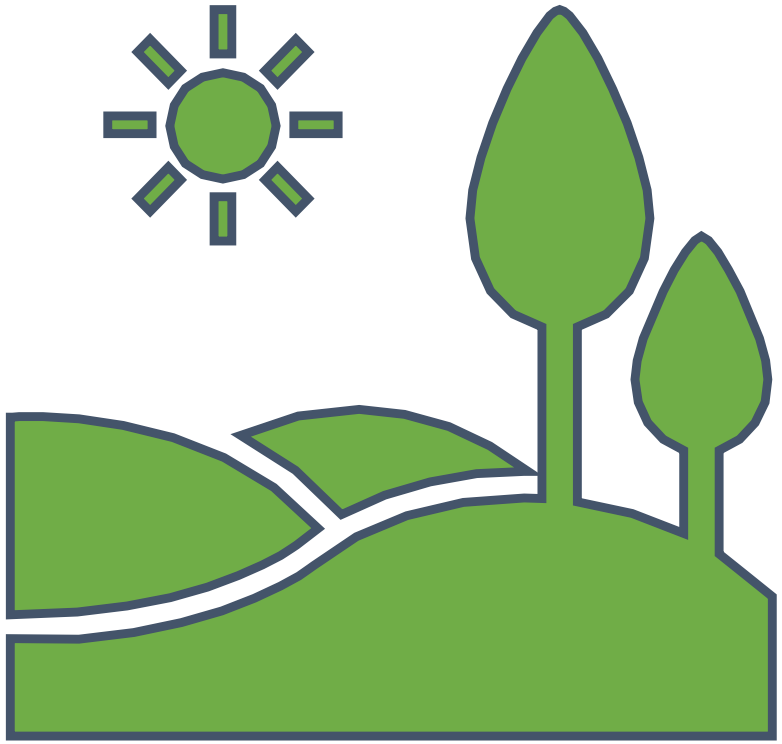
https://public.wmo.int/en/resources/united_in_science



https://public.wmo.int/en/our-mandate/climate/wmo-statement-state-of-global-climate



https://openknowledge.worldbank.org



STAP'S RECENT PAPERS:

- INITIAL PERSPECTIVES ON GEF-8
- NATURE-BASED SOLUTIONS
- BEHAVIOR CHANGE
- TECHNOLOGY-CRITICAL ELEMENTS
- CHEMICALS AND WASTE: GEBS AND CO-BENEFITS

STAP's initial perspective on GEF-8

Two compelling conclusions:

1. Despite some positive progress, drivers of global change are increasing systemic risk.

2. GEF is using resources more effectively, but totals remain modest compared to the need.

And as the GEF's White Paper notes:

The pandemic reinforces the need for a lasting transformation to a sustainable, inclusive, resilient, low-carbon, low-polluting, nature-positive, and circular economy.

Such an economy and a society will build resilience to thrive despite the inevitable shocks

STAP suggests that GEF-8 consider a three-pronged strategy

1. **Ensure GEF's individual investments are efficient, transformative, and durable**

   ...but incremental improvement insufficient given rates of global environmental change.

2. **Ensure GEF's overall portfolio is more integrated and coherently transformational**

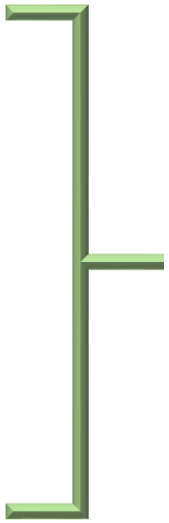
   ... but still not commensurate with need to tackle root causes

3. **Catalyze the transformation of global economic systems, using convening power and leverage, to form partnerships to deliver more environmentally sustainable development.**

1. At the project level

How to deliver more GEBs, and co-benefits, more systematically?

- a clear rationale and robust **theory of change**
- assessed for **climate risk**
- well-designed **multi-stakeholder processes**
- **durable** benefits
- explicit about **behavior change**
- more rigorous about **transformation**
- **systems thinking**
- **innovation**
- **monitoring, evaluation, and learning**
- create opportunities for **youth**, strengthen **gender** elements
- more systematic about achieving multiple GEBs, and **co-benefits**
- genuinely **additional**
- avoid **leakage**
- seek synergies with the **SDGs**
- **streamline** project design processes



STAP's Enabling Elements

2. At the portfolio level

How to catalyse **transformational change**, and make the portfolio more integrated?

- a **toolbox of diverse integrated approaches**, e.g. NbS, circular economy
- **better use of Earth Observation and geospatial technologies**
- **codify monitoring, evaluation and learning**, and develop **common metrics**
- decide on an **appetite for risk**
- **decide what is needed for transformation**, not incremental improvement.
- a portfolio-wide approach to South-South **knowledge exchange**

3. At the global level

Contribute to transforming the global context, in partnership with others, to reshape global economic, and socio-economic systems:

- build the **evidence base for the social, environmental, and economic costs and benefits of investment**
- **country coalitions** to demonstrate the viability of key innovations at scale
- **policy dialogues** to accelerate innovation, additionality, and resilience
- a **renewed effort to influence public and private investment flows.**

Photo: IUCN/Patricia Ugalde

Nature-based Solutions:

"Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits." IUCN

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NbS: findings from STAP's review of GEF projects

- Environmental components of projects stronger than societal challenge
- Co-benefits not well-specified
- Synergies identified, but few address trade-offs
- Need for balance between short and long-term benefits
- Monitoring and evaluation

Some persistent challenges in enabling conditions:

- **Climate risk recognized**, **but** few projects screened for risk, or identified mitigation measures.
- **All had multi-stakeholder dialogue**, **but** sometimes top-heavy, not always clear about roles.
- **Implicit behavior change -** outcome clear, but not **how to achieve it.**
- **Durability and scalability** mentioned, but not much about **how.**

NbS' needs for GEF (and the broader community): Responding to four key challenges

- **Balance between nature and society**

  NbS projects need a clear statement of the societal problem AND the nature problem, and linkages. Systems thinking can help. Develop a clear rationale for actions and robust theory of change.

- **Co-benefits**

  Assess comprehensively for both societal (food security, health, jobs) and nature outcomes (better air and water quality). Need improved valuation, including natural capital.

- **Trade-offs**

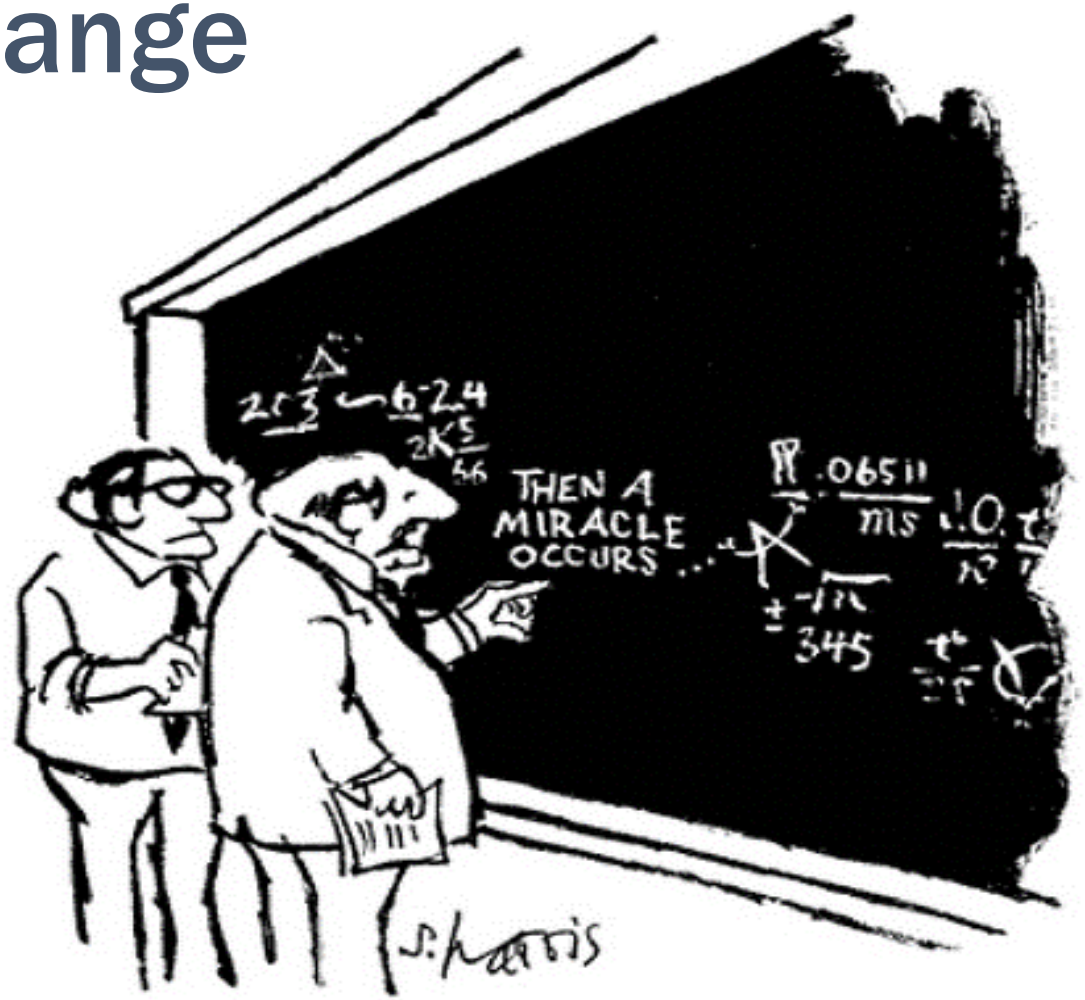
  NbS likely involves a wide range of stakeholders, more divergent interests. This puts a premium on good quality multi-stakeholder dialogue to determine tradeoffs across regions/sectors.

- **Leakage (an issue for all global environmental benefits)**

  STAP recommends that the GEF could consider developing a concept equivalent to land degradation neutrality to avoid leakage for other GEBs, and apply this it to its NbS, and other projects.

Behavior Change

- Many GEF projects involve behavior change, but this is often implicit, i.e. the outcome sought was clear, but not **how** this was to be achieved.
- Projects are more likely to succeed if behavior change is spelled out explicitly.
- STAP commissioned a review of the literature on behavioral science, and a synthesis of case studies, tools, approaches.



"I think you should be more explicit here in step two."

Source: Google image search

Behavior Change

- Combination of six levers to foster pro-environment behavior

- Framework applied to five successful examples:
  - reducing wild meat consumption (Brazil)
  - arresting land degradation (Mexico)
  - reducing overfishing (Indonesia)
  - enhancing silvopastoral systems (Colombia- GEF)
  - reducing rhino poaching (Namibia)

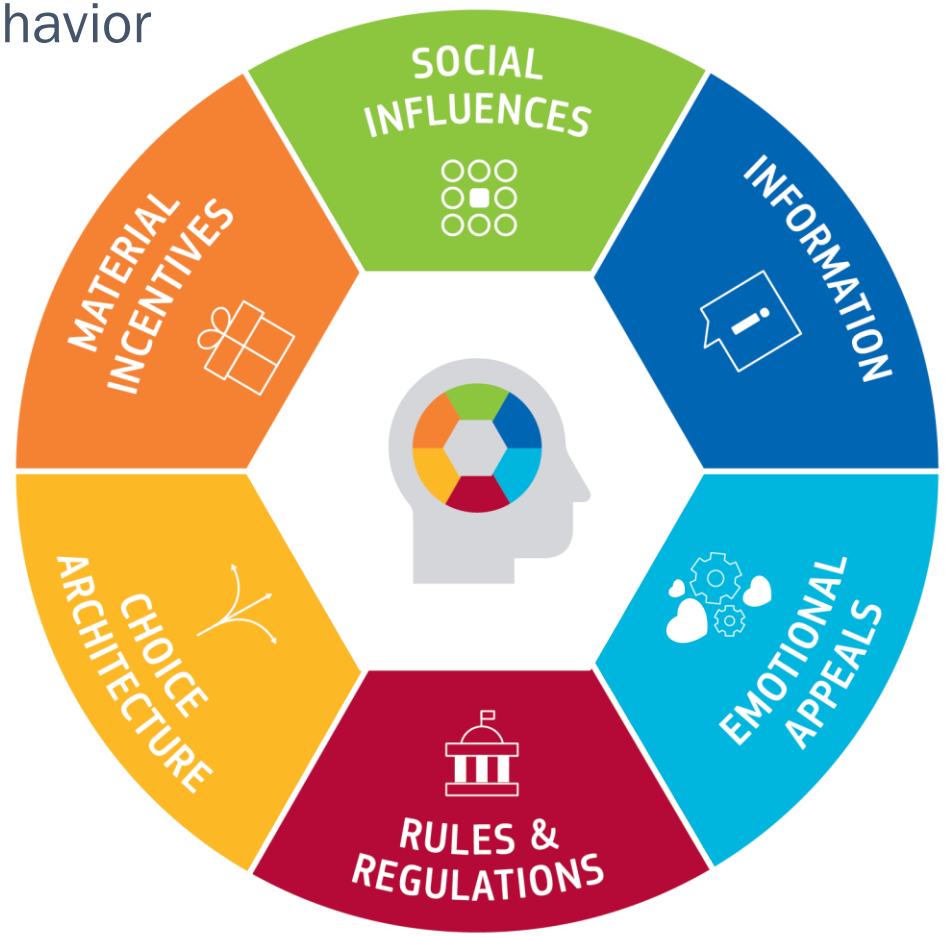


Figure 1: Rare's Levers of Behavior Change Framework Source: Bujold, P. M., Williamson, K., & Thulin, E. (2020).

https://stapgef.org/sites/default/files/publications/STAP%20Behavior%20Change%20Paper%20%28web%29.pdf

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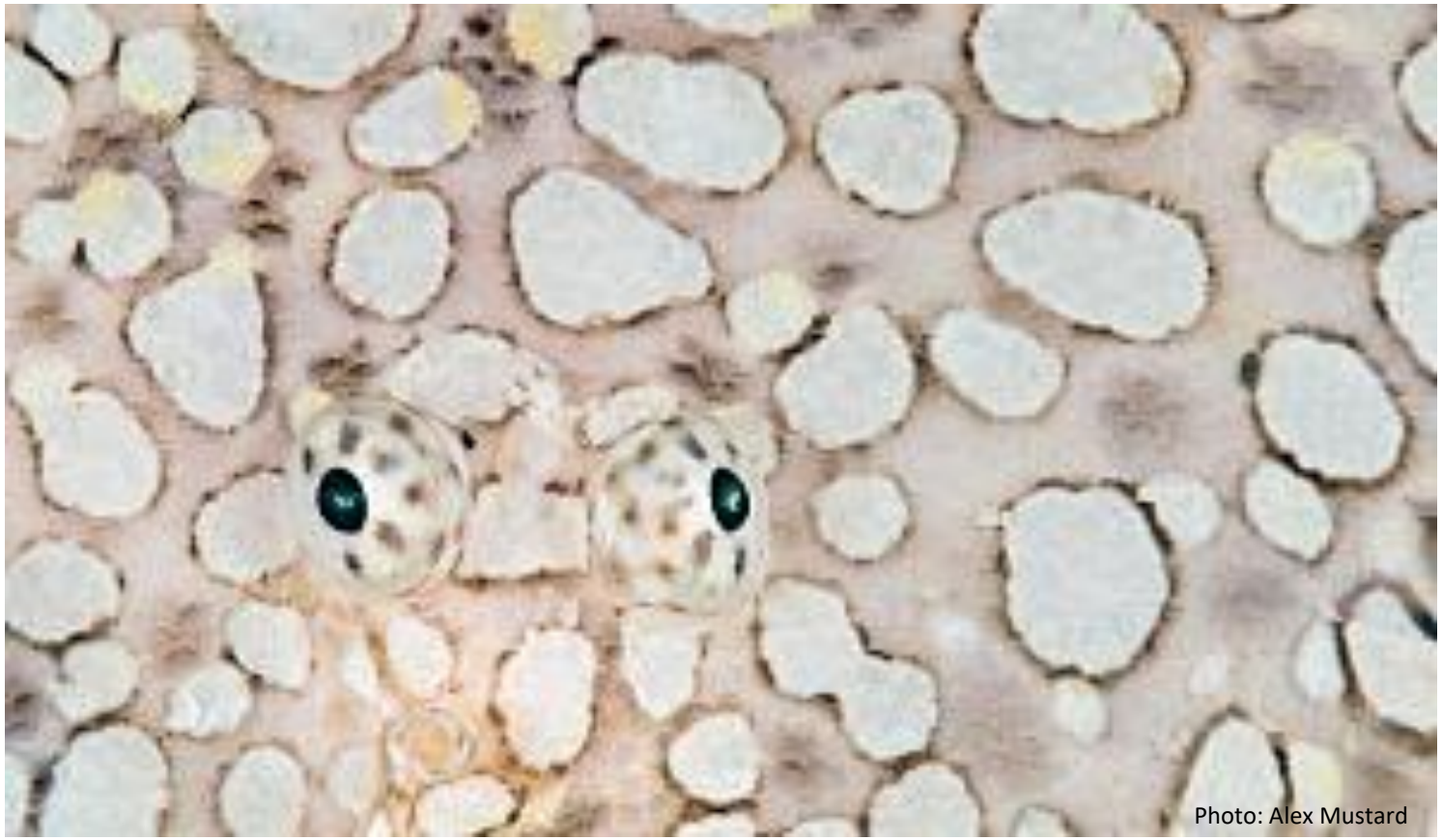


Photo: Alex Mustard

Behavior change checklist

1. Whose behavior needs to change?
2. Who needs to be involved?
3. What are the barriers?
4. Choose multiple levers
5. Monitoring? Learning?
6. Opportunities for scaling, innovation, and transformation?

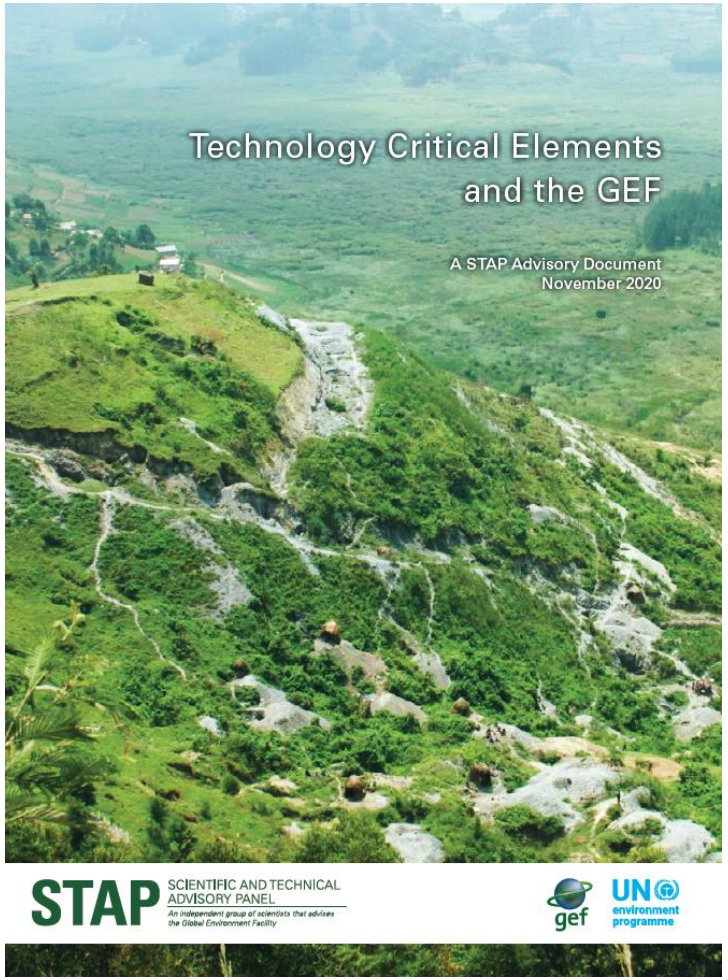
Technology Critical Elements (TCEs)

- TCEs, e.g. rare earth elements
- Used in renewable energy, energy storage, batteries, and electronics, with climate benefits
- But harmful effects on ecosystems, adversely affecting the GEF objectives, e.g. land clearance, deforestation, pollution, and biodiversity loss
- And mining, processing, extraction, refining, and disposal of TCEs have significant harmful effects on human health.

Electric vehicle charging station. 3D rendering. Nerthuz

Metallic Mining site in the middle of the Guyana Shield rainforest, South America. Saleem H. Ali

TCEs



- Examines the benefits and costs of TCEs
- Offers advice on mitigation measures, including:

  - life cycle assessments on the effects of extraction, use, and disposal of TCEs

  - adoption of responsible mining methods, e.g. the Forest Smart Mining Principles

  - adopt a circular economy approach, including future recycling of TCEs.

https://www.stapgef.org/technology-critical-elements

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Chemicals and Waste: GEBs and Co-Benefits

Suitably-designed projects can deliver multiple benefits, through the sound management of chemicals and waste using a systems thinking approach

http://stapgef.org

https://stapgef.org/delivering-multiple-benefits-through-sound-management-chemicals-and-waste

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Chemicals and Waste: GEBs and Co-Benefits

In the near-term:

- develop a **check list of environmental and socio-economic benefits**;
- **use qualitative, and quantitative, indicators of co-benefits**; and
- **build capacity** (systems thinking, co-benefit metrics, social science and health expertise

Looking further ahead:

- include environmental and socio-economic co-benefits in the indicator framework;
- methodologies for environmental and socio-economic co-benefits;
- composite indicators; and
- science-based targets.

STAP'S CURRENT AND FUTURE WORK PROGRAM

Ongoing and future work program

- Advice on **circular economy and climate mitigation**
- **Mainstreaming biodiversity** in production sectors, and ecosystem valuation (workshop)
- **Behavior change** (workshop)
- **Global mercury platform**
- **Contribute to the GEF-8 replenishment process**

STAP'S OBSERVATIONS ON THE GEF WORK PROGRAM

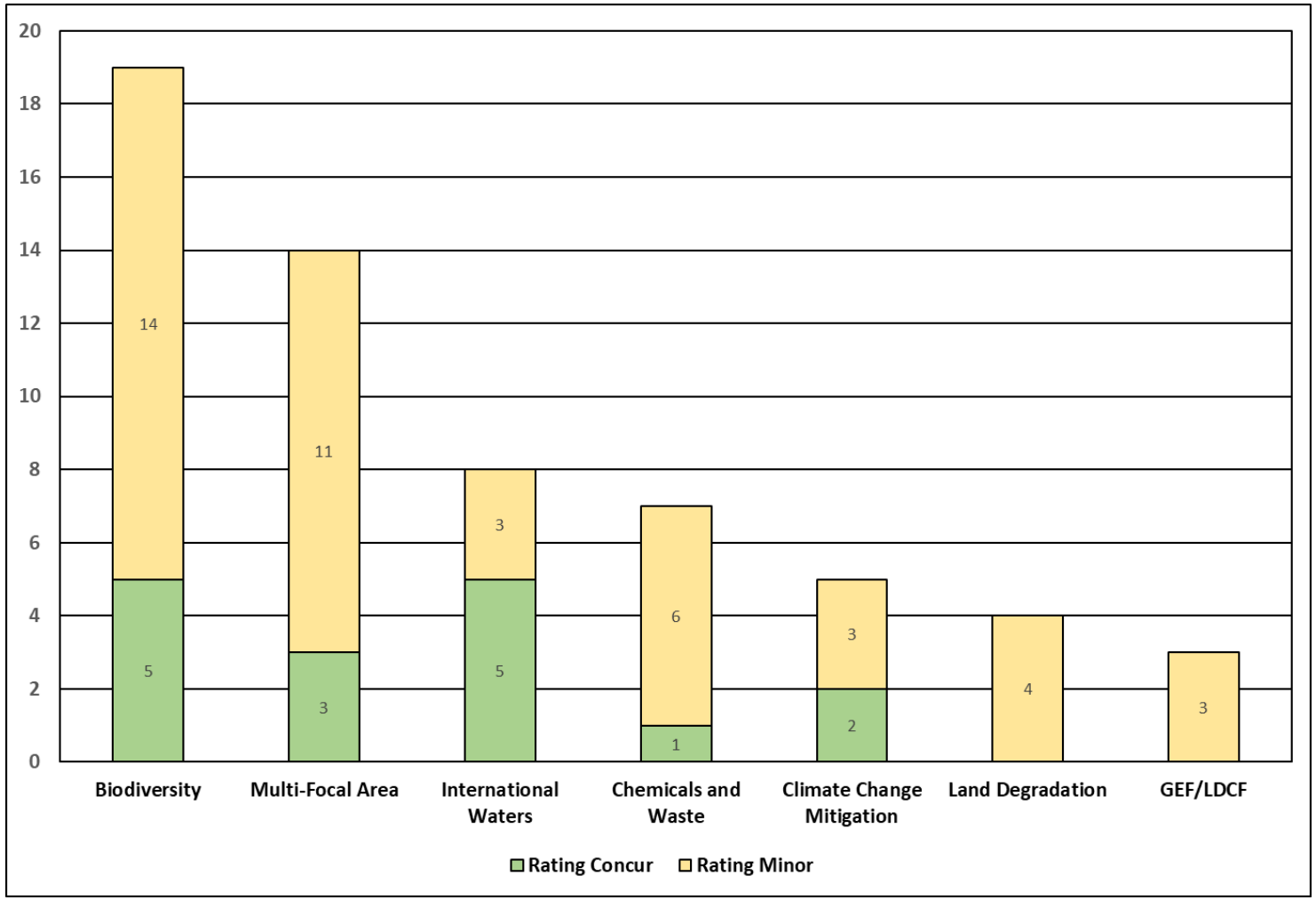
STAP Observations on the GEF Work Program

GEF Trust Fund

- STAP reviewed 59 projects and 1 program
- Includes 3 GEF/LDCF
- $376 million in GEF funding and $2.1 billion in co-financing

STAP Ratings

- 16 concur
- 44 minor
- 0 major



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Observations on the GEF work program

- Overall, the projects in this work program indicated improving quality, particularly on climate risk screening and theory of change (ToC), on where STAP recently held training sessions
  - GEF and World Bank training session on climate risk for the GEF partnership (September)
  - Seminar for the GEF partnership on theory of change (October)

- However, still room for improvement:
  - Some TOCs very good, others lacked sufficient detail, e.g. outcomes showing they are *necessary* and *sufficient* to achieve GEBs
  - More projects included climate risk screening, and incorporated this in project design, while others noted the risk without mitigation measures

- To ensure that GEBs are durable, projects need to demonstrate how they are sufficiently robust to deal with long term trends (e.g. climate change, migration, changing market conditions)

There were several noteworthy projects:

a few examples….

Green and Inclusive Recovery in Mexico (GreenMex): Making high-value ecosystems and rural livelihoods more resilient and sustainable in a post COVID-19 scenario
FAO (GEF ID 10717) - BIODIVERSITY

Coral Reef Rescue: Resilient Coral Reefs, Resilient Communities
WWF-US (GEF ID 10575) – INTERNATIONAL WATERS

Promotion of circular economy in the textile and garment sector through the sustainable management of chemicals and waste in Ethiopia
UNIDO (GEF ID 10683) – CHEMICALS AND WASTE

(LEFT) Yoda purpurata (credit: David Shale, image courtesy of Phys.org). (B) Jedi Master Yoda (credit: Wikipedia)