

A lush, dense tropical forest with a dirt path leading through the trees. The scene is filled with vibrant green foliage, including large leaves and thick tree trunks. Sunlight filters through the canopy, creating a dappled light effect. The path is narrow and appears to be made of earth and fallen leaves.

Achieving multiple benefits from nature-based solutions

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Two approaches to solving problems

- Crisis response
- Immediate short-term actions
- Based on expediency
- Lack of broad engagement
- Act, then think



- Deliberate
- Planned response
- Long-term planning
- Based on principles
- Engagement of diverse actors
- Think, then act

Four key messages

- Nature-based solutions need to *mitigate damage* but also address the *key drivers* of environmental and social problems
- Most emphasis has been on the *potential* to achieve outcomes rather than on how to actualize, demonstrate, monitor, document and *equitably deliver multiple benefits*
- Benefits for nature may conflict with benefits for people; not everything is win-win
- Achieving multiple benefits requires holistic planning, proactive measures, and understanding of key drivers and trade-offs

Mitigation is not a complete solution

Driver	Problem	Nature-based Solution
Conversion of natural ecosystems to agriculture	Biodiversity loss	Regenerative agriculture/ agroforestry
	Habitat loss and fragmentation	Establish tree plantations
	Greenhouse gas emissions	Habitat and ecosystem restoration
	Flooding, runoff and sedimentation	Sustainable landscape management

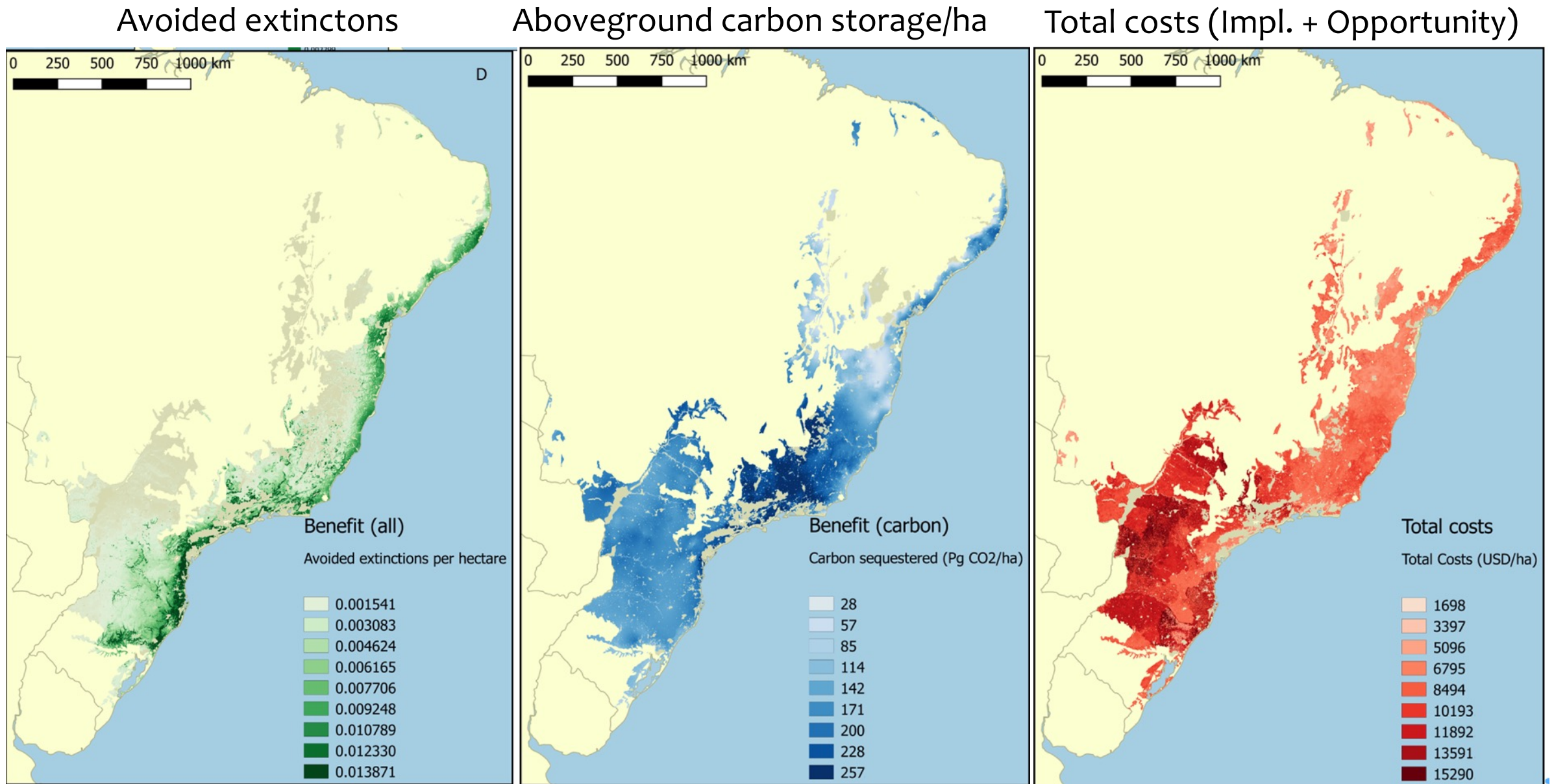
Table 1. A multi-factor mitigation hierarchy to guide land-based activity in the industrial, rural and urban development, mining, transport, agricultural, and forestry sectors

Focus of mitigation effort	Steps of the mitigation hierarchy			
	(1) Avoid damage	(2) Minimize damage	(3) Mitigate damage	(4) Compensate for damage
Biodiversity	avoid destruction of intact natural ecosystems	minimize species loss and habitat degradation	remediate species losses and damage on site	improve, protect, or restore biodiversity on other sites
Climate change	leave carbon-based fuels below ground; use only non-carbon energy sources	increase fuel efficiency, reduce fuel consumption, and use renewable energy sources	recycle fuels; instigate on-site carbon recovery programs	carbon offset programs; REDD+
Equity and social justice	avoid negative social impacts and displacement of local communities	reduce impacts on local communities	engage local people in decisions and benefit sharing from on-site remediation projects	empower communities to manage and guide restoration interventions; ensure that benefits of restoration projects reach local communities and are fairly distributed

Chazdon, R. L. 2020. Creating a culture of caretaking through restoring ecosystems and landscapes. *One Earth* 3:653-656.

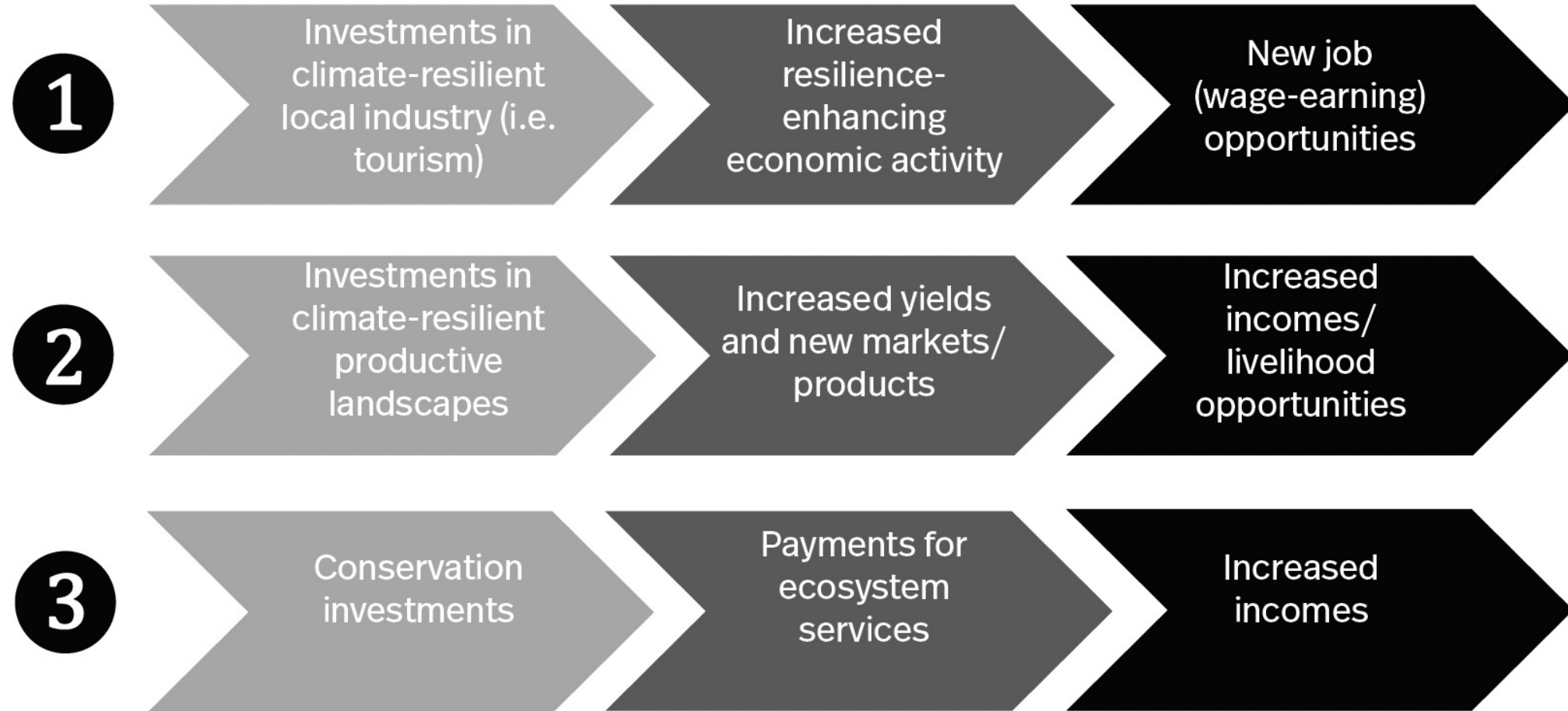
How to deliver multiple benefits equitably?

- ❖ Broad engagement of multiple stakeholder groups in all stages of implementation
- ❖ Create local ownership and investment in outcomes
- ❖ Prioritize interventions that offer high potential for multiple environmental benefits
- ❖ Integrate socio-economic benefits, sustainable livelihoods and capacity development into NbS practices and priority interventions



Strassburg, B. et al. 2018. Nature Ecology & Evolution 3:62-70.

Investments in NbS contribute to new job and livelihood opportunities and increased incomes



Boyle, Alaina and Kuhl, Laura, Nature-based Solutions are Job and Livelihood Solutions (April 30, 2021). Nature-based Solutions Policy Briefs 2021, <https://ssrn.com/abstract=3843420>

Consider all types of benefits that ecosystems contribute to people

- ❖ Direct vs indirect benefits (also called “co-benefits”)
- ❖ Role of co-production of ecosystem services
- ❖ Material vs. non-material benefits
- ❖ Short-term vs. long-term benefits
- ❖ Individual vs. community benefits



Equator Initiative Case Studies

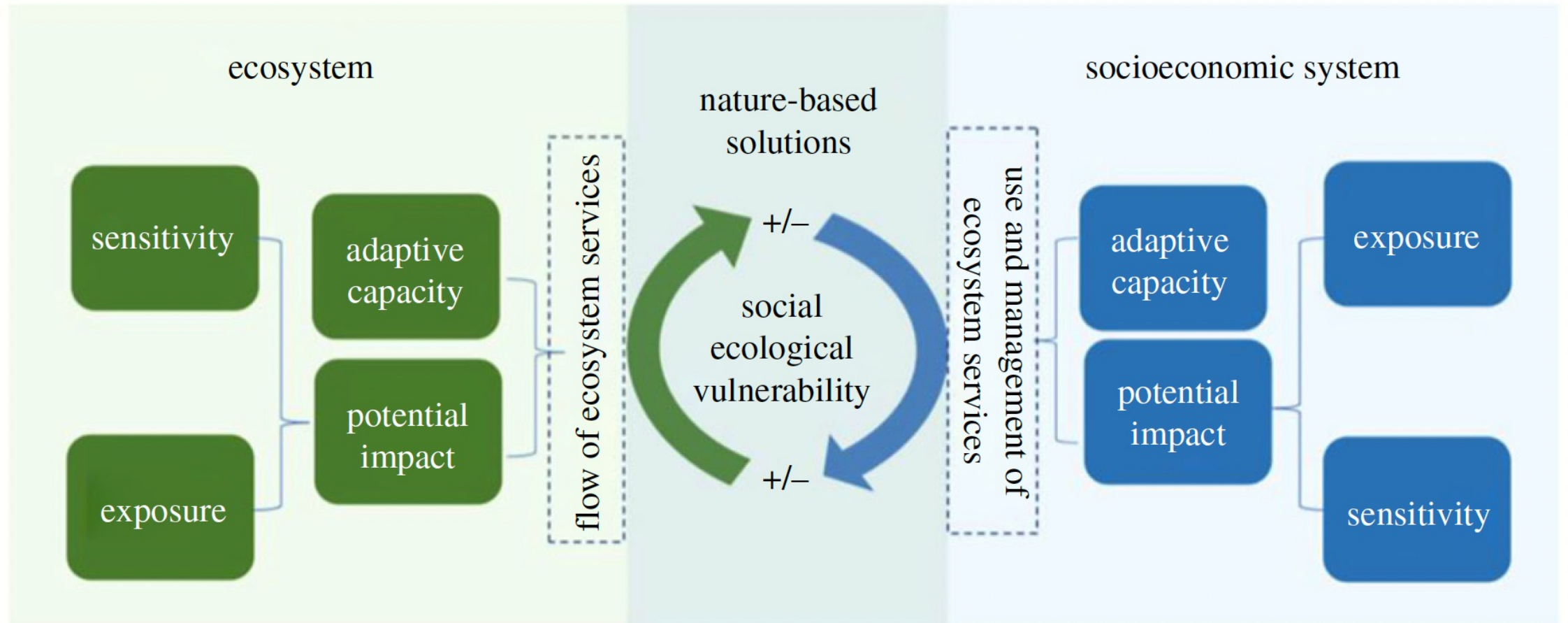
Local sustainable development solutions for people, nature, and resilient communities

- ❖ Jeffrey Town Farmers Association informs and educates farming communities on alternative energy options, sustainable agriculture techniques, and disaster risk reduction.
- ❖ Focus on land restoration, water harvesting, and organic farming. Fruit-bearing trees are prioritized to ensure food security.
- ❖ Community incomes have improved through a range of alternative livelihood activities that include livestock rearing, cultivation of biodiverse crops, and agroforestry
- ❖ New health facility meets local medical needs
- ❖ Local radio station engages youth while informing the community about important issues.

Achieving multiple benefits requires holistic planning, proactive measures, and understanding of key trade-offs

- ❖ Adopt a socio-ecological systems approach to planning and implementation
- ❖ Assess key tradeoffs:
 - productive vs. supportive/regulating ecosystem services
 - short-term gain vs. long-term sustainability
 - carbon storage vs. biodiversity conservation
 - native vs. non-native species
 - stockholders vs. stakeholders

social-ecological system



Seddon, N., A. Chausson, P. Berry, C. A. Girardin, A. Smith, and B. Turner. 2020. Understanding the value and limits of nature-based solutions to climate change and other global challenges. *Philosophical Transactions of the Royal Society B* 375:20190120.

What is driving environmental degradation?

- ❖ Evaluate the scale of drivers: local, national, global
- ❖ Evaluate the nature of drivers: social, economic, political
- ❖ Align government policies and incentives
- ❖ Address poor governance and corruption
- ❖ Address political oppression and marginalization

Osborne, T., S. B. Brock, R. Chazdon, S. Chomba, E. Garen, V. Gutierrez, R. Lave, M. Lefevre, and J. Sundberg. 2021. The Political Ecology playbook for Ecosystem Restoration: Principles for effective, equitable and transformative landscapes. *Global Environmental Change* 70, 102320.

Unavoidable tradeoffs

Native forest restoration

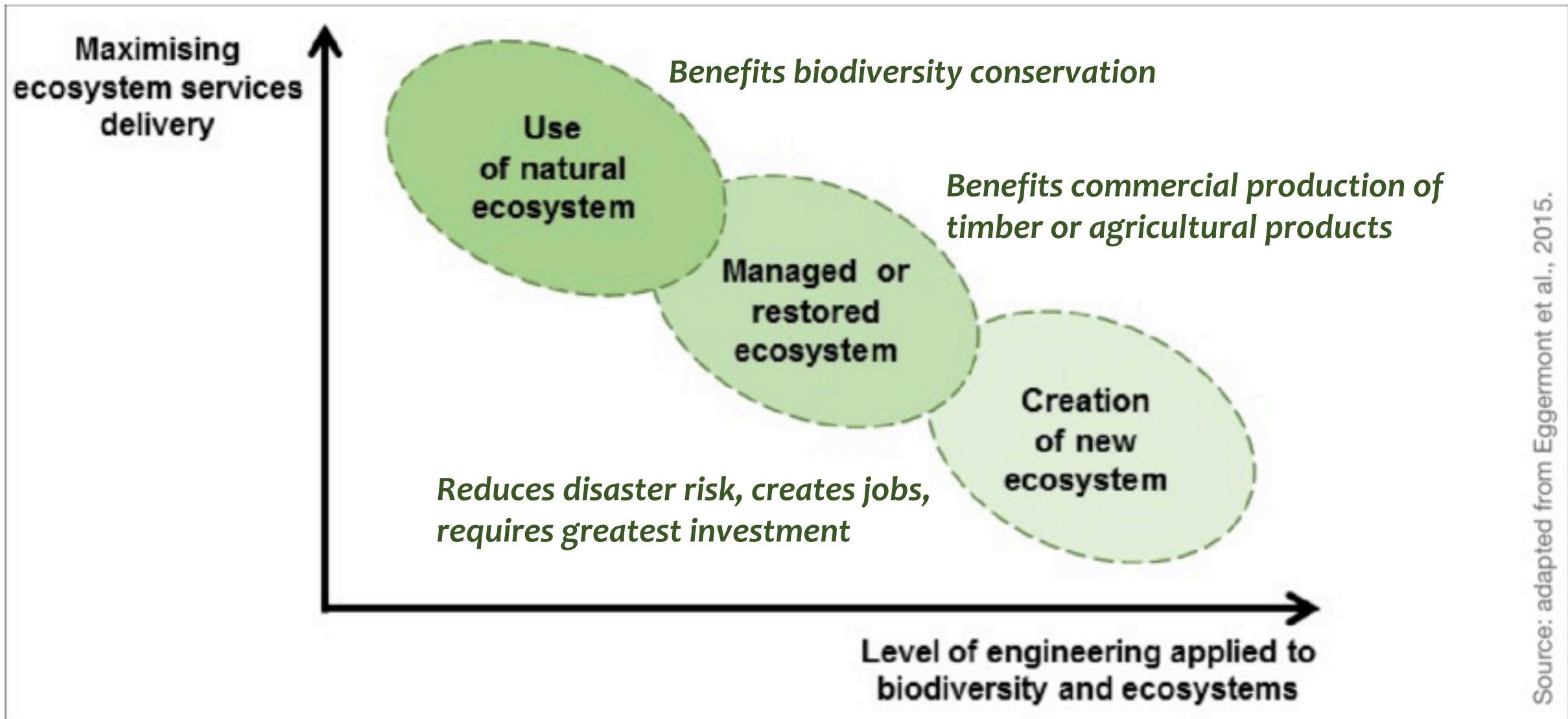
- Aboveground carbon storage
- Water provisioning
- Soil erosion control
- Biodiversity conservation



Tree plantations

- Wood products
- Jobs and income

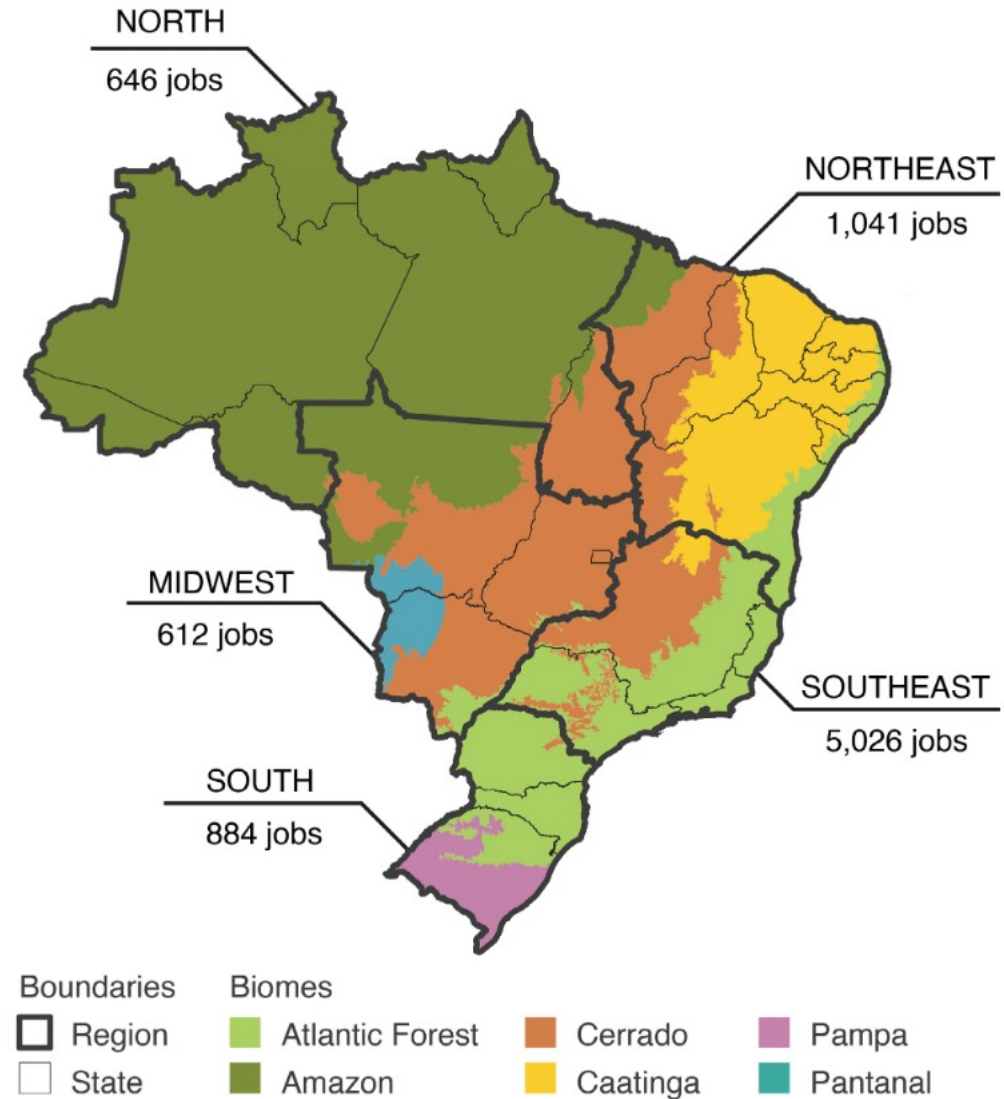
Hua, F. et al. 2022. The biodiversity and ecosystem service contributions and trade-offs of forest restoration approaches. *Science* 376:839-844.



Cohen-Shacham, E., Walters, G., Janzen, C. and Maginnis, S. (eds.) (2016). Nature-based Solutions to address global societal challenges. Gland, Switzerland: IUCN.

Restoration activities can generate 0.42 jobs per hectare (19,426 ha of restoration implementation created 8223 jobs), which could potentially create 1.0–2.5 million jobs based on the scenarios of 20%–50% of Brazil's restoration target, respectively, being implemented through active restoration

Brancalion, P. H., L. P. de Siqueira, N. T. Amazonas, M. B. Rizek, A. F. Mendes, E. L. Santiami, R. R. Rodrigues, M. Calmon, R. Benini, and J. R. Tymus. 2022. Ecosystem restoration job creation potential in Brazil. *People and Nature*.



All ecosystems are connected



Urban wetlands



Coastal wetlands



Forests & vegetation



Coral reefs



Dunes & beaches



Urban green space



Inland wetlands



Rivers & floodplains



Mangroves

Conclusion

- ❖ Aside from direct benefits to mitigate climate change, well-planned interventions involving local communities that are focused on conservation, ecosystem restoration and sustainable ecosystem management also offer benefits for conserving native biodiversity, climate adaptation, disaster risk reduction, food security, and social justice.
- ❖ Through adopting practices that enhance social, financial, human, as well as natural capitals, nature-based solutions can address multiple planetary crises and chart a course toward a sustainable and resilient future.

Thank you!

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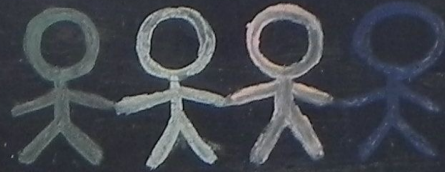


Actúa

Globalmente

Localmente

Think Global



Act Local

Conectate,

Colabora,

Crea

Connect

Collaborate

Create

7.2012

7.2012