

Nature-Based Solutions for Adaptation: The Evidence and Implications for Finance and Funding

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Alexandre Chausson
Senior Associate, Nature-based Solutions Initiative (U. Oxford)
Specialist, Nature-based Solutions (WWF-UK)

achausson@wwf.org.uk
alexandre.Chausson@biology.ox.ac.uk

The current situation

The climate is rapidly warming

The key problem is the **rate of change** – can human and ecological systems adapt to such unprecedented change?

IPCC SR 1.5 and AR6 **substantially upgraded** the impacts that would occur at 1.5 C & lower



NOAA, 2022/USA only

Nature-based solutions for adaptation

Coastal zone & Marine



Coastal ecosystems (coral reefs, saltmarshes, seagrass, kelp beds, mangroves) provide crucial coastal storm protection (Reguero et al. 2021, Van Coppenolle et al. 2020, Menéndez et al. 2020, Narayan et al. 2016, Beck et al. 2018; Temmerman, 2020)

Marine protected areas act as a reservoir of resources, sustaining fisheries (Eriksson et al. 2017; Jacquemont et al. 2022)

Agriculture



Regenerative agriculture (e.g. agroforestry) increases the resilience of food crops to disturbance such as pests, diseases, climatic extremes, thereby enhancing food security (Vignola et al. 2015, Paul et al. 2017, Torralba et al. 2016; Altieri et al. 2015; Waldron et al. 2017).

Agricultural diversification enhances ecosystem service provisioning (pest control, water regulation, nutrient cycling, soil fertility) without compromising crop yields (Tamburini et al. 2020)

Nature-based solutions for adaptation



Forests and forestry



Native forests outperform plantations in delivering water provisioning, soil erosion control, as well as above ground carbon storage (Hua et al. 2022)

Diversity boosts plantation biomass - multispecies plantings, on average, have taller and thicker trees and greater aboveground biomass accumulation than monocultures (Feng et al. 2022)

Inland flood management



Planted and managed woodlands can mitigate flood risk and delay flood peaks, both temporally and spatially (Cooper et al. 2021)

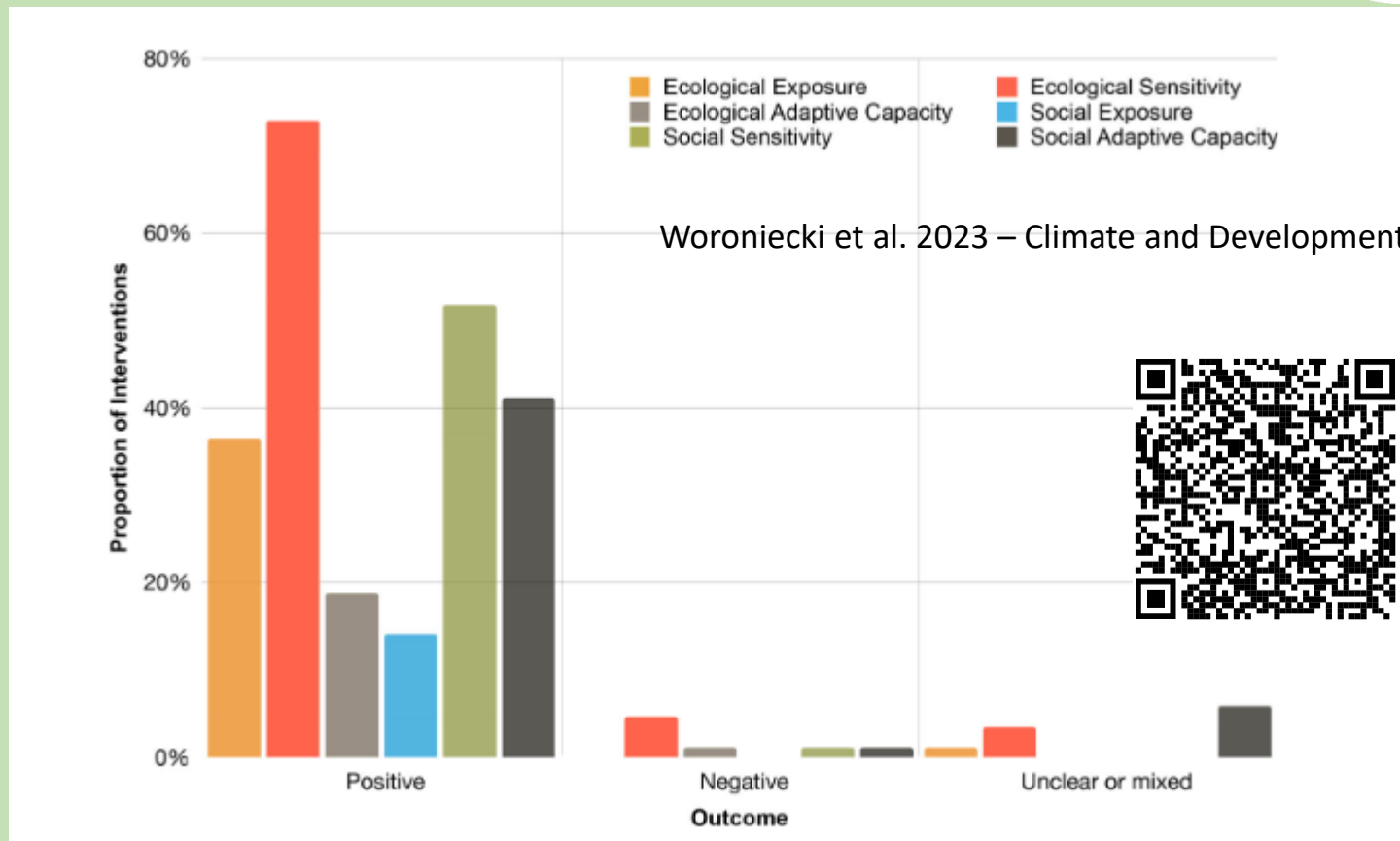
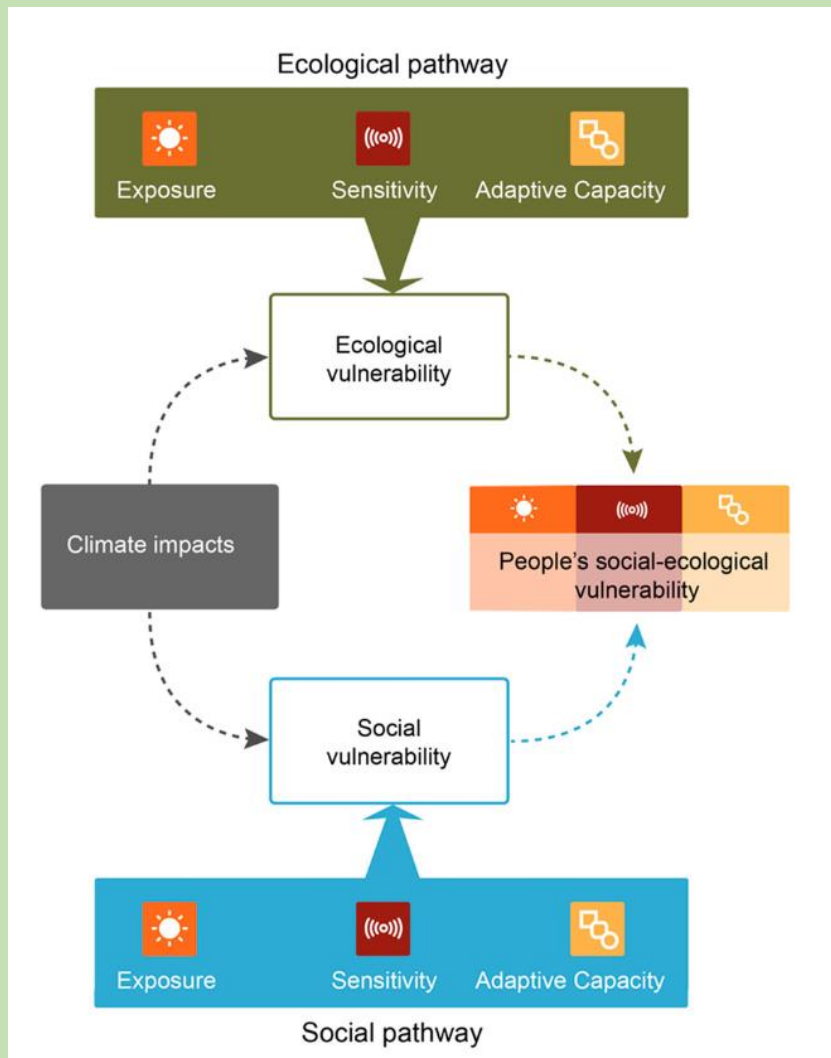
Urban zone



Urban NbS provide cooling, water regulation, flood mitigation, support human health, reduces premature mortality (van den Bosch & Sang 2017; Hobbie & Grimm 2020; Kabisch et al. 2017; Stefanakis 2019; Marando et al. 2019; Lungman et al. 2023)

Urban NbS key to foster **transformative change** in cities (Goodwin et al. 2023)

Reducing vulnerability through NbS in the Global South



Human-nature interactions underpin the resilience of NbS (Turner et al. 2022)

Funding and Financing Nature-based solutions



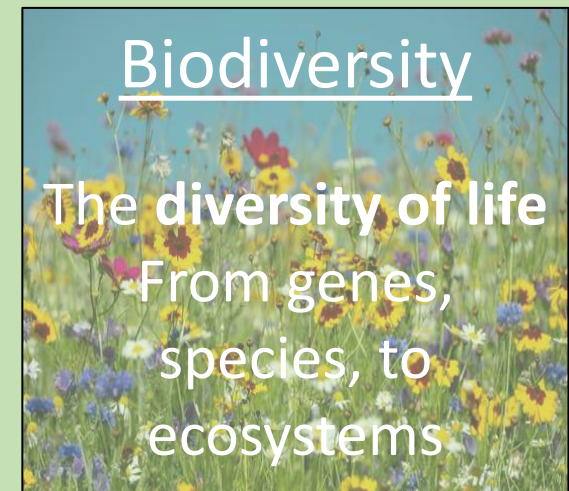
Biodiversity funding gap estimated at **~900 billion USD/yr**

<2% of global climate finance reaches IPLCs in the Global South

NbS for adaptation gets only **0.6%** of total climate finance flows (as of 2018, WRI)

Private finance (e.g. impact investors, banks) important to bridge the funding gap but...

Private finance and market-based mechanisms (e.g. bond markets, credit schemes) is **insufficient** to scale NbS



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Limits to scalability:

Natural capital markets limited to 'mature' revenue-generating NbS (primarily commodity production, carbon credits) (Finance Earth, 2021)

Transaction costs conflict with institutional investor appetite for near-term, competitive returns (Kedward et al. 2022)

Carbon credits alone insufficient to fund 80% of NbS potential in tropical regions (Koh et al. 2021)

Biocredit markets very immature and even more complex (Ducros & Steele, 2022)





Financing and funding Nature-based solutions

Complementary finance & funding mechanisms are critical...

1. Reduced interest loans from development banks
2. Repurpose harmful public subsidies (Currently 1.8 trillion \$/yr globally) = **2X the biodiversity funding gap** (Barbier, 2022; Koplow & Steenblik, 2022)
3. Tax regimes which reward environmentally beneficial activities and disincentivize damaging industries (Barbier, 2022)
4. Directly fund investments in nature – strong multiplier effects (jobs and economic output) (BenDor et al. 2015)

But... **decenter GDP growth** as a core economic and political target, refocusing instead on **human and ecological well-being and funding NbS as public goods**





THANK YOU

