# Nature-positive Climate Risk Transfer & Financing: A Systematic Review

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## SYSTEMATIC REVIEW

**BACKGROUND** **Nature-based Solutions (NBS)** are recognized as critical to climate resilience, but they remain underfinanced. Innovative financial instruments that transfer or reduce climate risk while enhancing ecosystem services – what we term **nature-positive climate risk transfer and financing instruments (CRTFIs)** – can help close the adaptation and nature finance gaps.

**OBJECTIVES** The primary objective of the review is to structure the evidence on nature-positive CRTFIs and their effectiveness and economic viability. The secondary objective is to create an inventory of these instruments.

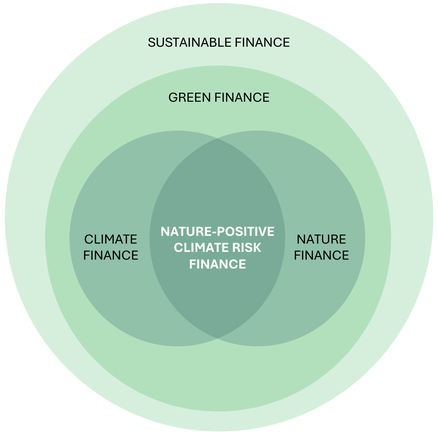



**Fig. 1. Nature-positive climate risk financing (CRF) in the broader finance landscape** (Fig. adapted from [2])

**METHODS** We conducted a systematic review in Covidence, a software to document the review process, in line with the 'Preferred Reporting Items for Systematic reviews and Meta-Analyses' (PRISMA) 2020 Statement [1].

**ELIGIBILITY** For publications to be included, they had to mention:

**(1) a risk transfer or risk financing instrument**, defined as a mechanism where a part of the risk is transferred to or financed by another party (that does not hold the risk initially),

**(2) a Nature-based Solution**, defined as "action[s] to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems [...]" [3], **and**

**(3) its hazard regulation benefits**.

Publications that met each criterion but did not draw a link between NBS and the risk transfer and financing instrument were excluded.

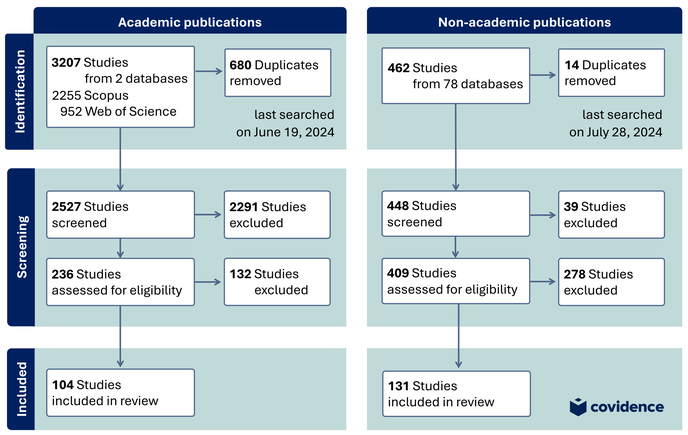
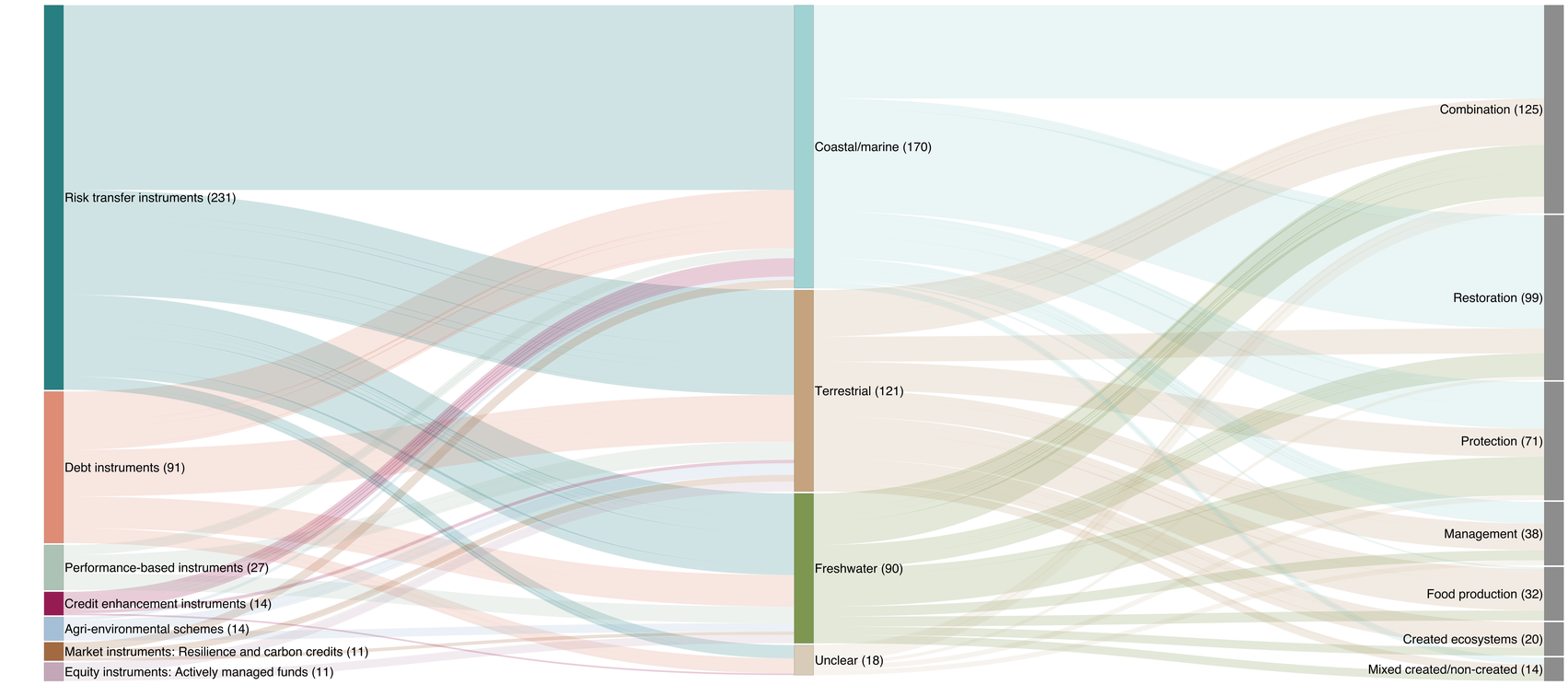



**Fig. 2: PRISMA flowchart exported from Covidence**. The flowchart visualizes the publication selection process.

## 1 Nature-positive climate risk transfer and financing instruments (CRTFIs) are used across ecosystem categories to realize various nature-based interventions.




## 2 Inventory of implemented nature-positive CRTFIs

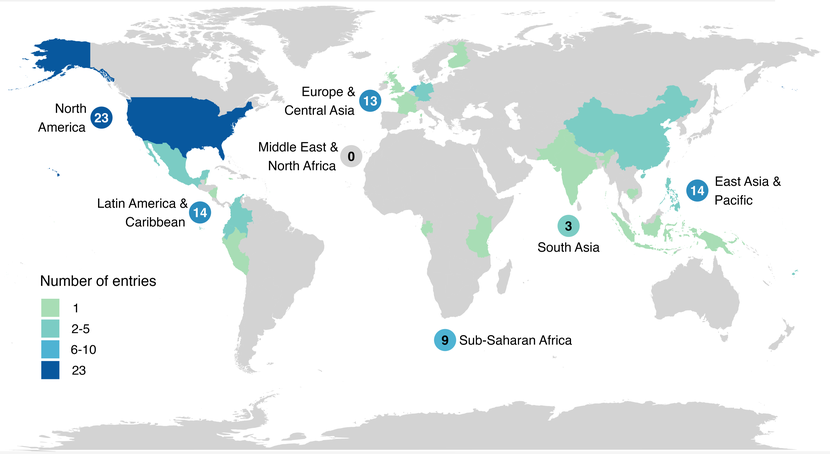



**Fig. 3: Global inventory of nature-positive climate risk transfer and financing instruments.** The map shows the number of inventory entries per country, considering projects at the national level and below. The count of entries per global region (considering instruments at all levels, including the regional level) is presented in bold. An entry at the global level is not displayed.

## 3 Recommendations for future research

### Quantifying the benefits of NBS

- Quantify the NBS' hazard regulation benefits and highlight sources of uncertainty
- Use probabilistic analyses to estimate the NBS' hazard reduction benefits under different climate scenarios
- Conduct assessments that evaluate the entire range of NBS' benefits

### Targeting understudied geographies and types of CRTFIs

- Conduct more research in the Global South
- Further explore solutions that combine multiple CRTFIs
- Investigate the cost-efficiency of regional pooling of ecosystem-related risks

### Incorporating broader concepts like equity and resilience

- Disaggregate benefits by socio-economic groups and conduct well-being-based risk assessments
- Integrate resilience considerations by adopting a socio-ecological systems approach

### Scaling nature-positive CRTFIs

- Assess demand for NBS and CRTFIs
- Conduct post-project evaluations to assess the long-term effectiveness and economic viability of nature-positive CRTFIs
- Explore the conditions for nature-positive CRTFIs to trigger a positive tipping point
- Refine damage functions for ecosystems and crops

**References:**

[1] Page, M. J. et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Syst Rev 10, (2021).
[2] World Bank Group. Scaling up Ecosystem Restoration Finance: A Stocktake Report (2022).
[3] United Nations Environment Programme (UNEP). Resolution adopted by the United Nations Environment Assembly on 2 March 2022. (2022)

**Acknowledgements:** This research is supported by the Ministry of Education, Singapore, under its NTU Singapore International Graduate Award and its MOE AcRF Tier 3 Award MOE2019-T3-1-004, awarded to the Southeast Asia Sea-level (SEA2) programme, and by the National Research Foundation, Prime Minister's Office, Singapore, under the NRF-NRFF12-2020-0009 award. We thank Ong Wueng Ling for supporting the reference management.

Contact me about Nature-based Solutions and climate risk financing!