



Accounting for transboundary climate risks in the Global Stocktake to drive regional and global cooperation on adaptation

The world's economies, societies and ecosystems are deeply interconnected, and climate shocks can have cascading consequences - crossing countries and continents, sectors and systems - by rippling through these various networks (Fig. 1). 'Transboundary climate risks' (TCR) have two main origins: they form when a climate-related hazard in one place generates impacts that cross one or more national borders, with consequences for people's lives, livelihoods and environments in distant places; and/or form when adaptation actions have detrimental consequences beyond the areas or countries where they are first implemented, shifting vulnerabilities and risks across space and time and resulting in global maladaptation.

A recent report by the Adaptation Without Borders global partnership (*forthcoming* in April 2023) suggests that most approaches to climate adaptation remain nationally- or locally-driven, which constrains better consideration of wider interconnections as well as shared global adaptation challenges. A growing evidence base of TCRs shows a need to expand the governance of adaptation as not just a focus of local and domestic policy but an international concern that requires the involvement of new actors and forms of coordinated action at multiple scales. The design of policies and governance arrangements to address TCRs provides opportunities for more collaborative and cooperative stakeholder engagement on adaptation, which could help strengthen ambition to meet the global goal on adaptation, together with sustainable development goals.

Accounting for global adaptation as more than the sum of national adaptation efforts supposes, first, that we are able to assess TCRs now and in the future, and second, that this knowledge is adequately integrated into international policy discussions and mechanisms on adaptation. This note highlights some takeaway messages on the scientific feasibility and policy demand of such an endeavor, and formulates two recommendations to the UNFCCC policy community.

1. The potential for science-based approaches to assessing and tracking transboundary climate risks

Recommendation #1

Current discussions around tracking adaptation progress, such as under the GlaSS work programme, show that there is country interest in filling the gap on tracking TCRs and progress in adapting to them. We therefore recommend that the 3rd Technical Dialogue under the first Global Stocktake:

- (i) acknowledges the need for more science-based information on TCRs;
- (ii) discusses a potential architecture of such a scientific endeavor and its connections with the policy process.

Such policy signals are both timely and critical if we are to better integrate cross-border and cascading risks in future cycles of the Global Stocktake (in 2028 and beyond).

There is significant potential to strengthen scientific research on TCRs to better assess their timescales, transmission modes and ways to adapt to them. So far, there are few robust assessments on the potential cascading, cross-border effects of both climate impacts and adaptation responses across countries and regions. The first Global Stocktake could play an important role in drawing attention to this gap as a critical component to assessing global progress on adaptation.

Specifically, the development of methods to track TCRs would provide a systematic evidence base of these risks for consideration in subsequent cycles of the Global Stocktake. The assessment of cross border and cascading risks are crucial to our understanding of global adaptation progress. Indeed, the aggregation of progress on adaptation at a national scale that does not address these systemic risks can leave a significant degree of climate risk unassessed and provide a skewed picture of our global vulnerability and resilience. Not only would this render the Global Stocktake an incomplete assessment of global progress, it would also send an inaccurate message to the public and private sector, thereby widening the adaptation gap.

The “Global Transboundary Climate Risk Report 2023” by Adaptation Without Borders highlights two promising and complementary avenues:

- Indicators to track different kinds of globally significant TCRs (e.g. relating to agriculture and commodity markets) face conceptual and methodological challenges relating to capturing the high degree of complexity associated with cross-border systems and flows, as well the attribution of changes or impacts to climate-driven cascading and compounding processes. Data and information collection on cross-border flows in complex systems is also a daunting challenge as, for example, traditional trade statistics tend to describe bilateral trade flows only. Initiatives are emerging around the development of transboundary indicators (e.g. a forthcoming report by the European Environment Agency). These analyses show that indicators could be developed at a country or a system level to assess changing exposure to different kinds of TCRs, track the efforts made to reduce or manage them, and identify the cross-border or cross-sector consequences of national adaptation measures (i.e. where a national adaptation plan has positive or negative implications for neighboring countries or trade partners).
- Approaches based on expert judgment exercises could add value in allowing for a comprehensive and global-scale understanding of TCRs levels today, and those to be expected in the future under various climate and socioeconomic scenarios. Expert judgment-based risk assessments have demonstrated multiple benefits, for example to assess climate risks against temperature changes in the IPCC reports. Expert judgment approaches are complementary to indicator-based assessments as they support the generation of scientifically-based knowledge when quantitative information does not exist or is scattered, which is the case with TCRs. Such an exercise would allow to explore the design of adaptation options across scales (e.g. beyond domestic to regional or global level plans and actions) to manage and address TCRs in the future.

2. Global-scale policy opportunities and challenges

Recommendation #2

Addressing TCRs is vital to ensure climate risk reduction and just adaptation across scales. We therefore recommend that the 3rd Technical Dialogue under the first Global Stocktake:

- (i) Account for existing experiences in managing TCRs from countries and organizations ;
- (ii) Engage Parties in a dialogue on the policy implications of TCRs (e.g. in terms of the type of information that would be needed from Parties) and ways to report on efforts to build resilience to them (e.g., a new chapter in Adaptation Communications?)
- (iii) Discuss concrete linkages on resilience-building with other international policy processes, for example under the World Health Organization, the World Trade Organization, etc.

Evidence shows that the international, regional and local mechanisms already in place to address the climate crisis are not yet equipped to deal with TCRs. While regional mechanisms have taken shape (e.g. water management in West Africa, adaptation across mountain communities in the Hindu Kush Himalaya, the Risk Insurance Facility in the Caribbean) these are often focused on biophysical pathways (e.g. shared resources) and financial (regional insurance schemes). These experiences offer important lessons, to build a strategic,

coherent and coordinated approach for cross border and cascading risks that includes also critical trade and people pathways and a more global perspective (beyond regional/neighboring country arrangements). The analysis of TCRs highlights two main points. First, that climate change risks and adaptation responses can no longer be framed solely as local domestic issues: they must also be seen as a regional-to-global concern. Second, that regional-to-international cooperation is vital not only for the minimization and management of TCRs, but also to ensure just adaptation (i.e. adaptation that does not shift exposure and vulnerability to others; Lager et al. 2021).

The above raises a major governance challenge: addressing TCRs cannot happen in silos and by any nation working alone. Given the need for action beyond the jurisdictions and mandates of most national adaptation planners, the development of regional, global and sectoral plans to manage TCRs are needed –harnessing existing governance mechanisms and potentially choreographing new ones– to enhance ‘ownership’ and management of such risks.

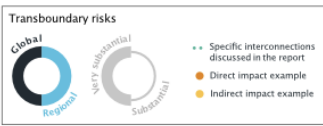
References

AWB (*forthcoming*). *The Global Transboundary Climate Risks Report 2023*. Adaptation Without Borders, Flagship report 2023. Available on the AWB website (<https://adaptationwithoutborders.org/>) from April 2023.

Lager F, KM Adams, A Dzebo, M Eriksson, RJT Klein, M Klimes (2021). A just transition for climate change adaptation: towards just resilience and security in a globalising world. *Adaptation Without Borders policy brief 2*, Stockholm Environment Institute, 12 pp. <https://www.sei.org/publications/just-transition-climate-adaptation/>

Figure 1. Overview of 10 transboundary climate risks and case studies. Source: AWB (forthcoming).

Case study overview map



Finance

Extreme weather events in Mexico trigger transboundary climate risks for European investors with physical assets in the country.

- Disrupted business operations
- Effects on foreign direct investments

Human health

Global warming promotes the spread of Zika virus by increasing the biological range and reducing the mortality of mosquitos.

- Higher risks of disease
- Health systems overburdened

Well-being

Climate change impacts on smallholder coffee growers in Brazil can reduce yields, affecting local livelihoods and causing cascading effects across global coffee supply chains.

- Land suitable for cultivation declines
- Declining yields, livelihoods impacted, risks across global coffee supply chains

Agricultural commodities

Compound climate impacts, such as heat and drought in India, interact with non-climate events, such as conflict in Ukraine, affecting critical agricultural commodities in the global food system.

- Local food insecurity
- International price shocks

Livelihoods

Biophysical impacts of climate change compound with non-climate drivers across Africa's Sahel region, threatening pastoral livelihoods.

- Livestock deaths
- Pastoral livelihoods impacted

Energy

Flooding and debris from Tropical Cyclone Idai damage interconnected energy networks and cause cascading electricity disruptions throughout eastern Africa.

- Damage to homes
- Disruption to regional energy networks

Terrestrial shared natural resources

Mass flows in shared river corridors across the Koshi River Basin damaged roads, houses, and hydropower infrastructure in Nepal with cascading effects on livelihoods and the disruption of energy supply.

- Damage to infrastructure
- Disruption to regional energy networks

Industrial supply chains

Floods in Bangkok cause local damage to infrastructure, leading to economic losses in import dependent countries such as Japan and wider effects on global manufacturing supply chains.

- Damaged manufacturing infrastructure
- Global supply chain disruptions

Oceans and coastal shared natural resources

Shifting tuna stocks in the Pacific Island region lead to cascading economic losses and effects on global seafood supply chains.

- Disruption to international fish markets
- Local livelihoods impacted

Human mobility

Transboundary climate risks and human mobility in international labor markets: a case study of guest worker programmes and remittances in the Pacific Region.

- Shifting migration patterns
- Cross-border flow of remittances