



BLOG POST October 27th 2022

Questioning the scientific feasibility and policy relevance of assessing transboundary climate risks

Adaptation Without Borders Partnership

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 Reading time: 6 min



**Funded by
the European Union**



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This blog has been produced with the financial assistance of the European Union. The contents of this blog are the sole responsibility of the Adaptation Without Borders partnership and can under no circumstances be regarded as reflecting the position of the European Union.

Climate policies need to be better prepared to deal with transboundary climate risks resulting from the cascading effects of both climate hazards and adaptation responses. This however requires asking whether scientific knowledge is available on transboundary climate risks, and political willingness there.

In 2015, countries collectively decided to establish a global goal on adaptation under the United Nations Framework Convention on Climate Change (UNFCCC) in order to inspire action on climate risk reduction. In 2021, the UNFCCC established the Glasgow—Sharm el-Sheikh work program (Decision 7/CMA.3) to provide input into how to track “overall progress made in achieving” the global goal on adaptation in view of the Global Stocktake process (GST, Article 14.1 of the Paris Climate Agreement). The first GST assessment is scheduled for 2023 and will be repeated every five years.

The discussions on identifying relevant frameworks and methodologies to assess the adequacy and effectiveness of adaptation efforts globally demonstrate complexity and varying views. First, the UNFCCC refers to “adequacy and effectiveness” respectively to ask whether various instruments (e.g. finance) help address the adaptation needs identified by countries, and what the outcomes of planning and implementation efforts are. Second, the country-level reporting planned for feeding the GST limits the scope to domestic adaptation action and benefits. Scientific research however calls for a more comprehensive approach to adaptation progress that includes understanding whether adaptation actions implemented today actually reduce current and future climate risks, or carry a risk of being counterproductive across sectors, jurisdictions and population groups, as well as over time. Such a more

comprehensive approach requires to acknowledge that climate impacts do not stop at national borders, and that climate risks and adaptation actions in a given context can have implications on neighbouring and distant countries (Benzie et al., 2018; Carter et al., 2021; Benzie and Harris, 2022; AWB, forthcoming).

In its 6th Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) underlines transboundary climate risks both within and across borders (IPCC, 2022). The IPCC warns that cascading risks will combine to substantially influence the magnitude, lifespan, rate of emergence, and spatial spreading of individual risks across economies, societies and natural systems, so that severe climate risks will likely be higher, last longer and occur both sooner and at larger scales, and will therefore be more complex to anticipate and manage.

This calls for revisiting adaptation policies to be better prepared to deal with a wide variety of transboundary climate risks resulting from the cascading effects of both climate hazards (e.g. a drought affecting crop production, and then markets) and adaptation responses (e.g. dam building for managing water stress but with ecological and economic consequences downstream). To prepare for these risks, the UNFCCC could encourage Parties to include a new component into their official adaptation documents (National Adaptation Plans, Adaptation Communications) to describe the transboundary risks they are concerned with, as well as strategies to tackle them (Magnan et al., 2022). However, this supposes, first, that scientific knowledge is available on transboundary climate risks at regional and global levels, and second, that high-level political willingness is there to make the case for non-domestic climate risks.

What is the scientific feasibility of proposed methods to assess transboundary climate risks?

Case study-based evidence of transboundary climate risks and governance mechanisms is emerging for some sectors (e.g. on ocean natural resources, industrial supply chains and food security; AWB, forthcoming) and regions (e.g. Hindu Kush Himalaya; Prabhakar et al., 2018, Wester et al., 2019). We see two main ways of moving forward:

- First, indicators could be developed to track the changing level of climate risk in transboundary systems like shared natural resources (e.g. changes in fish catch in neighbouring Exclusive Economic Zones in the Pacific), commodity markets (e.g. changes in cereal exports/imports), and international financial flows (e.g. climate-related financial risk metrics for economic value chains). These indicators would be predominantly based on global data pertaining to cross-border flows. Suites of national and system-level indicators could then combine to create a global-scale picture of transboundary climate risk today.
- Second, we also need to get a sense of future transboundary climate risks under various climate change and socioeconomic scenarios. With that respect, expert judgment approaches could help partly overcome current knowledge gaps and deliver first analyses of future global trends. Expert judgment approaches proved to be successful and relevant in the IPCC context to support climate risk assessments, especially where data and/or information is lacking, such as for the Reasons for Concern used to illustrate types of aggregated, cross-system and global-scale climate risks (Zommers et al., 2021; O'Neill et al., 2022).

As a first step in the coming months, there is a need to undertake a consultation with climate scientists to ensure that these approaches have a real potential for dealing with transboundary climate risk, and henceforth that it is worth further investigating methodologies and assessment exercises.

What would be the policy relevance of new knowledge on transboundary climate risks in the perspective of the 5-year GST cycle?

Policy-wise, a second step consists in understanding the conditions under which new knowledge on transboundary climate risk and how to manage them could effectively support and impact policy decisions at the global, regional and national levels. As the topic is relatively new in international climate negotiations, there is still a need for consultation with policy experts and decision-makers to understand (i) the policy appetite for a better understanding of transboundary climate risks; (ii) the opportunities to include transboundary climate risks in GST-oriented discussions/processes; (iii) the level of scientific information that is concretely needed to effectively inform the GST series; and (iv) the actual barriers and enablers for implementation.

Integrating transboundary climate risks into the GST process is critical to address a blindspot that currently hinders any real progress towards global adaptation. We argue that the on-going Glasgow–Sharm el-Sheikh work programme under the UNFCCC could serve as an accelerator of change to this end.

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