



BLOG POST November 25th 2021

Transboundary climate risks and adaptation: the example of coastal migration

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🕒 Reading time: 6 min



Adaptation policymakers and practitioners increasingly recognize that climate change risks extend beyond national boundaries and insist on international approaches, as evidenced by the latest adaptation strategies of the European Commission and UK Climate Change Committee; and the launch of Adaptation Without Border and DG CLIMA work plan in 2022 to support international cooperation for adaptation to address cascading climate risks. Research on transboundary climate risks is in a nascent stage and there remain

gaps in characterizing these risks and relevant governance and policy responses. [IDDRI's study](#) zooms in on the transboundary implications of coastal migration triggered by sea-level changes and presents a policy-pathway approach involving multi-scale and sequenced policy action over time. Such a framing could support policymakers and decision-makers in anticipating and preparing for different kinds of transboundary climate risks, shaping new avenues for multilateral governance on adaptation.

Climate risks have cascading impacts across borders

The global impacts of climate change risks—referred to as transboundary climate risks in the pioneering initiative [Adaptation Without Borders \(AWB\)](#)—illustrate the necessity for adaptation to take on a cross-border approach and account for the interconnectedness of our global societies and ecosystems.

A variety of examples illustrate the multiple pathways of these risks: biophysical, trade, financial and people ([Benzie et al., 2018](#)). For example, severe flooding of the Yangtze river in China in 2020 impacted ports and cargo ships, disrupting the exports of protective equipment for health workers fighting COVID-19 ([Quiggin et al., 2021](#)). A recent SEI study shows that several African countries are exposed to transboundary risks from a high dependence on imports of US wheat production—an agricultural sector highly vulnerable to climate change—which has effects on global trade in commodities, food security and potential social unrest ([Adams et al., 2021](#)).

Governments are reacting to increasing awareness of the systemic nature of climate change risks. The UK Climate Change Committee's adaptation progress report (launched in June this year) prioritizes cascading climate risks as a foundation for updating national-to-international adaptation governance ([UK CCC, 2021](#)). Similarly, the revised EU adaptation strategy ([IDDRI, 2021](#)) reinforces commitments for international engagement and cooperation on adaptation, with specific attention to transboundary impacts on global supply chains and the displacement of people among others (e.g. supporting the Great Green Wall initiative in Africa and the development of adaptation plans in partner countries) ([COM, 2021](#)). The UNFCCC Adaptation Committee addresses the need to integrate these risks in the Global Stocktake as part of evaluating adaptation progress (Global Goal on Adaptation in the Paris Agreement, Article 7) and relevant methodologies are being explored ([UNFCCC, 2021](#)).

These various dynamics of transboundary climate risks calls for scaling up adaptation policies from a local to global perspective and setting up cooperative international governance arrangements. While this sounds good on paper, there are few indications of how to do this in practice.

[IDDRI's study](#) takes a deep dive on the cascading effects of coastal migration across borders and what kinds of policies can support migration as a positive long-term adaptive strategy (reducing vulnerability of migrants exposure to climate change and reducing the risks of maladaptation). The study proposes a policy pathways approach to framing policy solutions targeting transboundary impacts of climate risks. Here we discuss some lessons learned from this focus study and opportunities for future research applications to other transboundary climate risks.

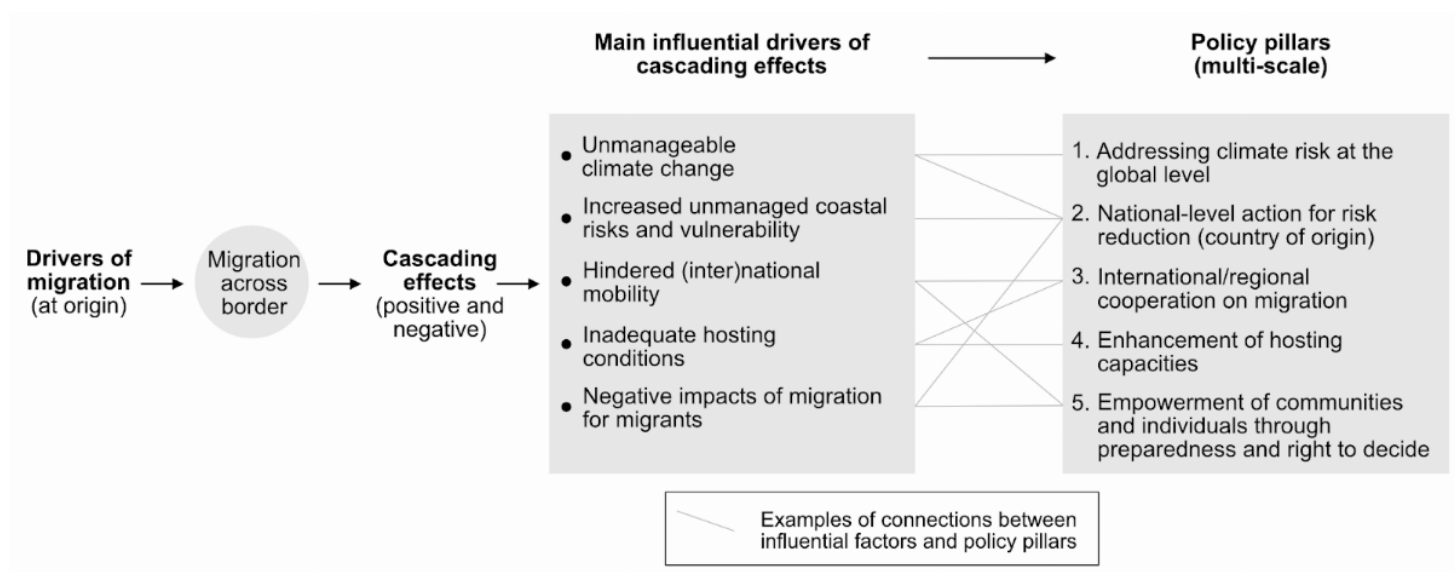
The characterization of transboundary climate risks: the case of coastal migration

There is a growing interest in transboundary climate risks, yet little understanding of their characteristics and methods to assess them. IDDRI's study focuses on coastal migration: coastal areas are one of the most vulnerable systems to climate-related risks (floods, erosion, sea-level rise, extreme events) and due to 'shrinking solution spaces', retreat and relocation of human assets will become inevitable in many low-lying coastal areas ([Haasnoot et](#)

al., 2021).

The study addresses a major gap: a majority of policy papers and scientific research focus on risk drivers, and methods are developing to assess trajectories of internal climate migration (see [Clement et al., 2021](#)). For example, coastal migration could be triggered by: sea-level rise, loss of homes following an extreme weather event, prioritization of structural protection measures in densely urban areas therefore making rural areas more at risk, loss of important ecosystems and livelihoods. However, few studies address the associated cascading effects (positive and negative) and how to prepare for them. By characterizing those main influential drivers of cascading effects, policy pillars can be identified (Figure 1). As further described in IDDRI's study, designing appropriate policies and governance arrangements across scales (community, national, to multilateral) means migration can be facilitated in transboundary adaptation strategies and avoid negative impacts or maladaptation.

Figure 1. Characterization of the transboundary nature of coastal migration (*source: authors*)



Policy pathways to anticipate and prepare for transboundary climate risks

The complexity of transboundary climate risks is marked by its spatial and temporal dynamics, justifying why policies must be planned accordingly to better anticipate and prepare for the impacts. In the study on coastal migration, IDDRI proposes *policy pathways* designed to enable a systemic and flexible approach to adjust to uncertainties. There are three important properties of the framing:

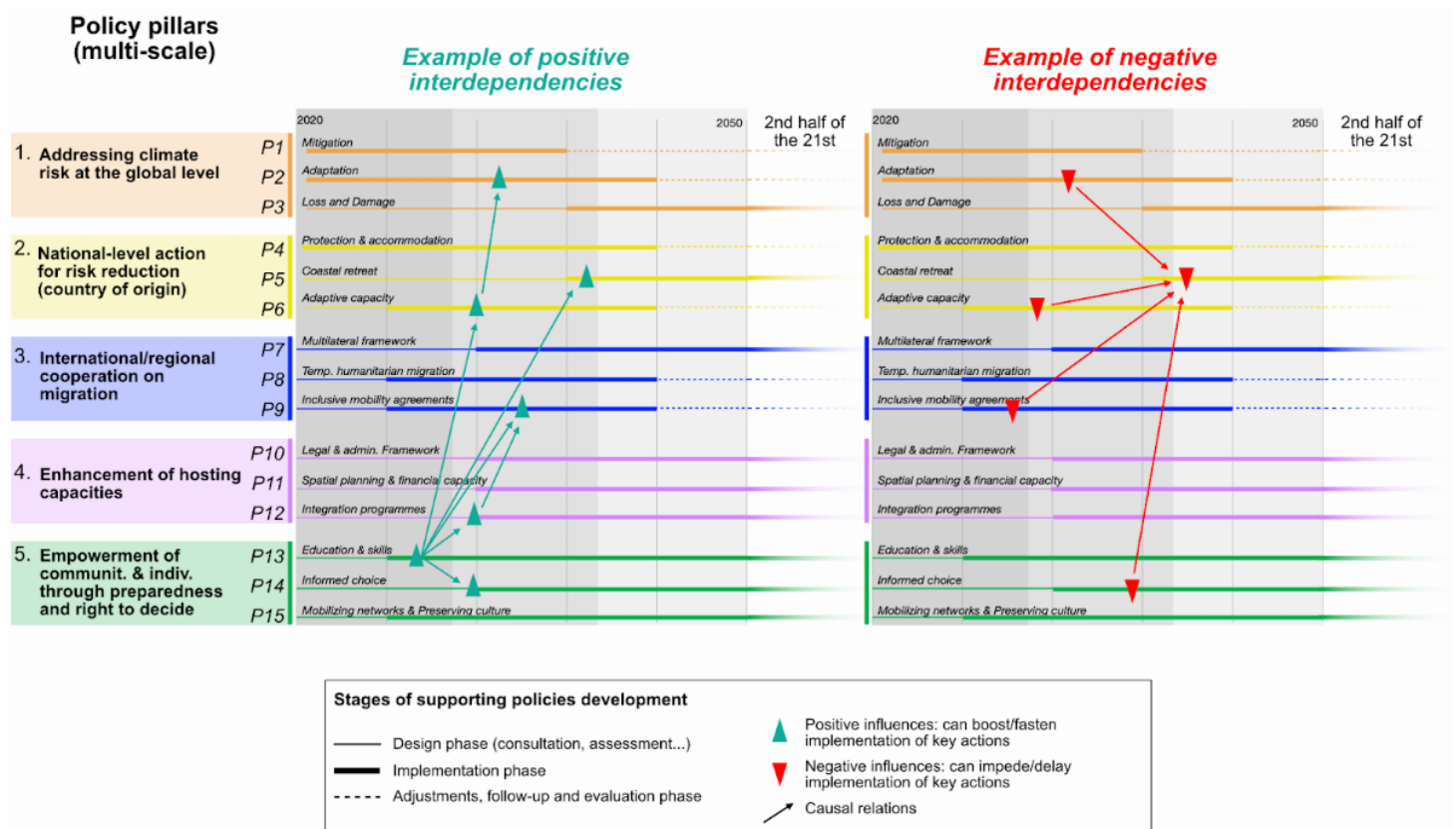
- 1) **The definition of policy pillars** relevant to the Transboundary Climate Risks: the characterization of the cascading effects leads to identify the most important policies for enabling anticipation and preparedness.
- 2) **A multi-scale policy response:** designing policies across different levels (from local to national to multilateral policy instruments) means that different actors are mobilized with varying roles and responsibilities in managing transboundary effects of climate risks and driving adaptation.
- 3) **Planning interdependent policy pillars across time horizons:** sequencing policy instruments can help determine priority interventions. At the same time, the interdependencies of policies means that some reinforce others, while delays can have severe cascading effects. These interdependencies are inherent to the policy

pathways approach.

In the case of coastal migration, five policy pillars for adaptation-compatible migration are identified: (1) implementation of ambitious mitigation and international support for adaptation, which includes attention to loss and damage (see Warsaw International Mechanism for Loss and Damage - WIMLAD); (2) effective national to local coastal risk reduction policies; (3) development of robust migration policies that would allow to plan for the movement of people across borders; (4) enhancement of hosting conditions; and (5) participatory measures to ensure the empowerment of communities and individuals, through preparedness and right to decide.

Figure 2 illustrates multi-scale and sequenced policy pathways using a high ambition scenario for migration and a time horizon towards 2050 in order to be compatible with both scientific and policy concerns and challenges. This scenario represents the best conditions for implementing relevant policy pillars. It shows examples of key interdependencies (positive and negative influences) between the policy pillars. For example, empowering communities that are vulnerable to climate migration will reinforce adaptive capacity and informed choice; in contrast, delaying coastal retreat in highly exposed areas could lead to severe delays in adaptive capacity and hamper the development of mobility agreements in regional/international governance.

Figure 2. Policy pathways (source: authors)



A need for more deep dives on transboundary climate risks

Transboundary climate risks have an inextricably multi-actor dimension, providing opportunities for enhancing international cooperation on adaptation. The coastal migration study illustrates a need for a multi-scale approach

across international processes, governments, private sector, and civil society, including the empowerment of vulnerable groups in society (e.g. migrant community’s right to choose). Indeed, the latter reflects important discussions on climate migration under the UNFCCC WIMLAD working group and the operationalization of the Santiago Loss and Damage Network.

Deep dives into major global transboundary climate risks could provide a better understanding of the characterization of these risks, and on designing multi-scale and sequenced policy pathways—which could provide policymakers and practitioners with a means for coordinated responses in building global resilience.