

Measuring what matters: importance of cross-boundary indicators for climate change hotspots

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Implementation

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Climate change hotspots

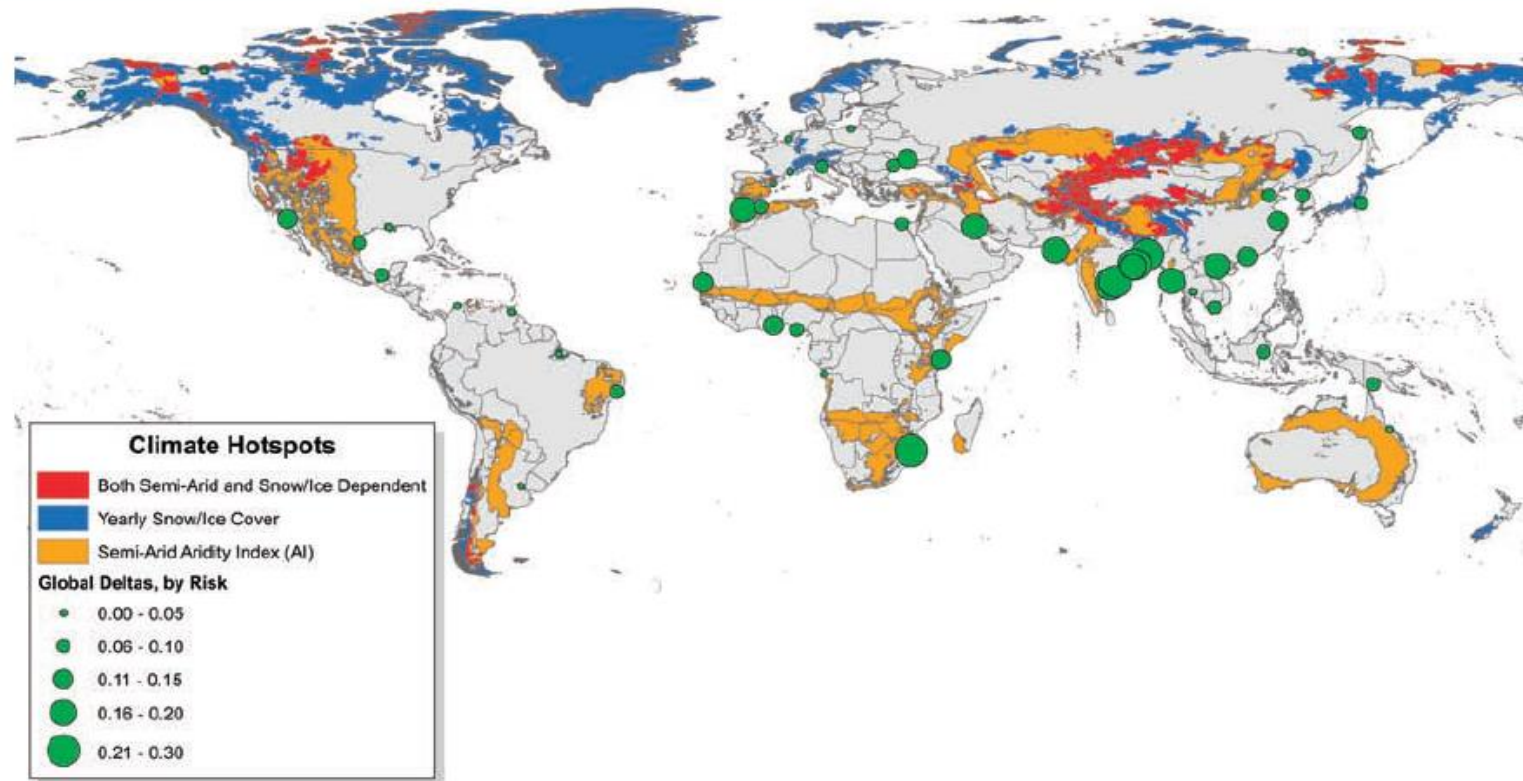
Climate change hotspots (CCH) are characterized by both a “strong climate signal” and concentration of vulnerable populations and can be defined as “geographic regions of compound risk that might be regarded as particularly susceptible to a changing climate”.

Source: Szabo et al., 2017



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Figure 1. Climate change hotspots requiring focused attention using the SDG indicator framework.



Note. The three major types of climate hotspots used in the proposed multiscale SDG framework are shown, including (1) major global delta locations (green dots),⁸ varied according to contemporary risk due to sea-level rise and anthropomorphic factors as outlined by Tessler et al.¹⁹; (2) semi-arid regions (orange) where an Aridity Index (AI) falls between 0.2 and 0.5; (3) snow and ice runoff-dependent basins (blue), defined as basins with average yearly snow/ice cover $\geq 25\%$; and (4) overlapping areas with both semi-arid AI and snow/ice runoff dependency (red).

Climate change hotspots

- Climate change hotspots generally cut across administrative boundaries and have limited political representation.
- As a result, they are not often a focus of direct policy action, which has important implications for sustainable development and the well-being of local populations.



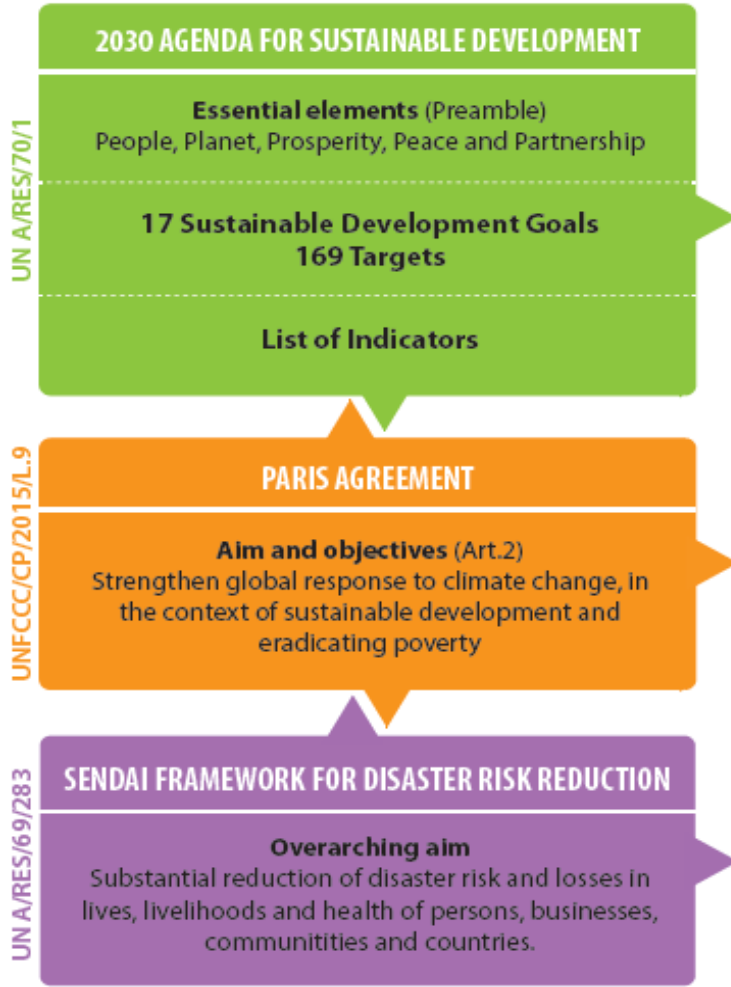
Measuring across borders

- A potentially powerful solution to avoid a development impasse resulting from omitting indicators critical to climate hotspots is to translate the existing SDG framework into an integrated multiscale indicator framework.
- Such framework would (1) reflect the key developmental challenges found in all of these climate hotspots, and (2) allow monitoring of change at different levels.

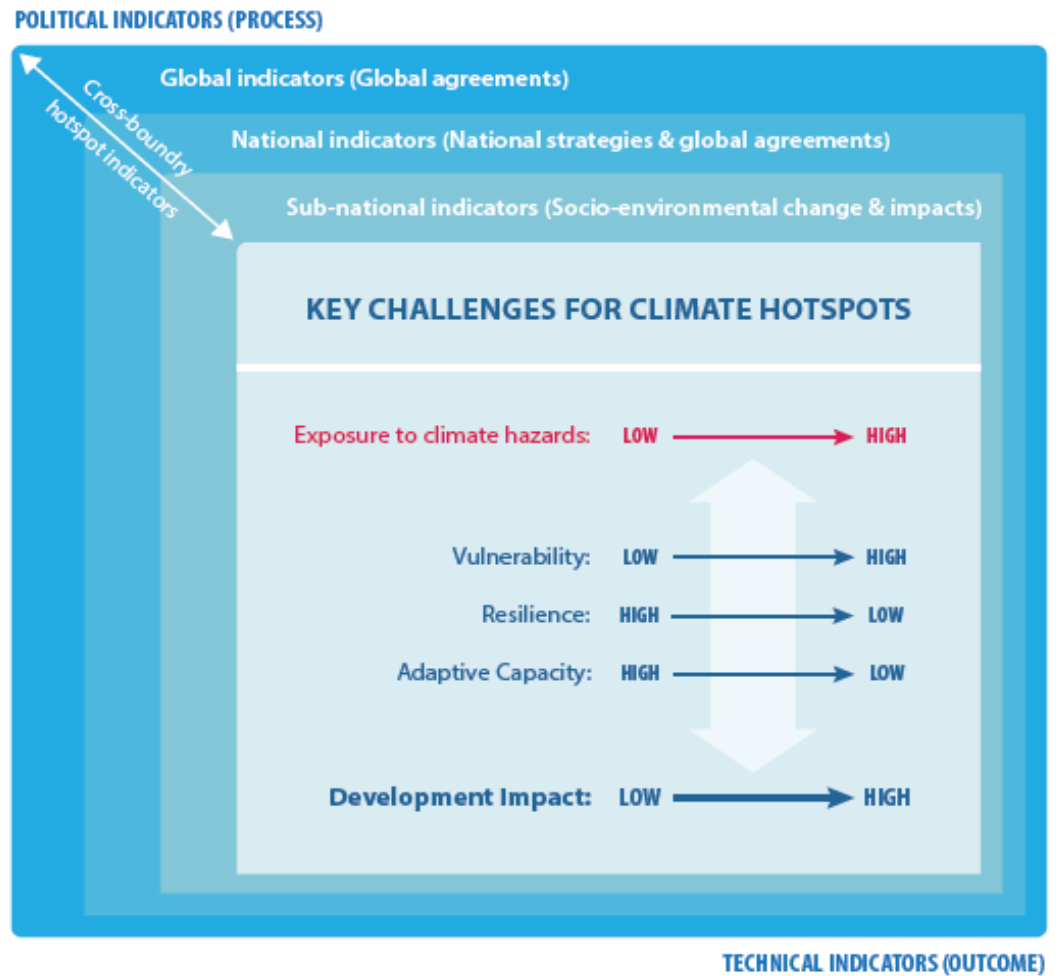


Figure 2. Proposed multiscale SDGs framework for climate hotspots that aligns objectives of the UN 2030 Agenda for Sustainable Development, the UNFCCC's Paris Agreement, and the Sendai Framework for Disaster Risk Reduction.

GLOBAL AGREEMENTS



INTEGRATED MULTI-SCALE INDICATOR FRAMEWORK



Note. Key developmental challenges of climate hotspots and development progress are monitored through additional cross-boundary indicators. Political (process) indicators and technical (outcome) indicators are applied for measuring progress and developmental outcomes at different levels of analysis.

Proposed CCH-specific indicators

Table 1. Key Challenges of Climate Hotspots, Resulting Developmental Impacts, and Proposed Technical Indicators for Measuring Cross-Boundary Environmental Impacts

Climate Hotspots	Key Challenge	Developmental Impacts and Proposed Impact Indicator(s)
Deltas	Global warming-induced sea-level rise	<i>Inundation by coastal storms</i> Indicators: Percent of delta inundated in a 1-in-100-year coastal flood event—under consideration of different adaptation levels and options.
	Compaction and vertical land movement (loss of land elevation—subsidence)	<i>Inundation by river floods</i> Indicators: Percent of delta inundated in a 1-in-100 year river flood event—under consideration of different adaptation levels and options.
	Changes in water and sediment flows	<i>Salinity intrusion</i> Indicators: Percent of delta area within the 4 ppt surface salinity isohaline. ^{17,18} <i>Erosion</i> Indicators: Percent of delta coastline and river network affected or threatened by riverbank and coastal erosion (allowing for accretion and deposition). <i>Water quality for aquatic ecosystems</i> Indicators: Percent of deltaic river and canal network area with dissolved oxygen <3 mg/L. ¹⁹

Proposed approach to accelerate SDG2 progress

4 key solution areas:

1. Applying the concept of safe and just operating spaces in regional CCH social-ecological systems
2. Capitalising on cross-boundary and cross-sectoral interdependencies
3. Tapping the potential of rising food and nutrition security opportunities in CCHs
4. Setting up robust CCH SDG monitoring frameworks for greater accountability

Online Food Security Information System

- In November 2017, Nepal, with the support of WFP and the SERVIR Initiative of ICIMOD, launched a new Online Food Security Information System (OFSIS) to map and visualize patterns of food security, poverty, and malnutrition in the country.
- Such initiatives should be expanded to neighbouring countries in the HKH region and applied in other CCHs.
- Regional OFSIS would allow regular monitoring on the progress of important indicators within and across countries.



Measuring progress in CCH

Progress will not be made without:

- Effective cross-boundary collaboration
- Disaggregated data
- Investments in technology and data dissemination



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A wide-angle photograph of a massive glacier system extending across a fjord. The glacier face is a deep blue color, showing vertical crevasses and a jagged edge. In the foreground, a dark, rocky shoreline is covered with numerous icebergs of various sizes that have calved from the glacier. The water is a calm, greyish-blue. The sky is a clear, bright blue. The overall scene is one of a powerful natural landscape.

THANK YOU!