



Adaptation
Without
Borders



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GROUP

The Collective Advantage

Understanding
transboundary climate
risks in Southeast Asia and
charting a path forward

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 - Varad Pande, Partner and Director, BCG
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 - Katy Harris, Director, Adaptation Without Borders
 - Richard Klein, Steering Committee Member, Adaptation Without Borders
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Foreword

Southeast Asia weaves a rich tapestry interconnected by its geography, from the transboundary forests of Borneo to the vast and vibrant Coral Triangle, as well as its culture, shaped by shared histories, languages, practices, and religions. The region is also bound by bustling trade networks, with exchanges of goods and services across borders, fostering deep economic and social ties.

Consistent with the region's make up, climate risks in the region are also transboundary in nature. From droughts impacting a shared river basin to water-related risks increasing pressure on migration across borders - the region is facing an urgent need to collectively tackle these challenges. Southeast Asia has taken the necessary first steps towards addressing these issues, but there is more to be done.

This piece aims to outline our perspective on what a systematic roadmap for tackling transboundary climate risks may look like for Southeast Asia. We hope to spark meaningful conversations and connections with various stakeholders such as government actors, private sector players, academic institutions, think tanks, civil society organizations and more to advance this crucial agenda. We believe that collective action is the key to unlocking a vibrant and resilient region together.



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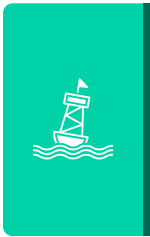


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Executive Summary



Planning, financing and implementation of climate adaptation takes place at the national and local levels, despite the growing urgency of transboundary climate risks which require regional and global adaptation



Transboundary climate risks (TCR) - risks introduced by climate impacts outside of one's own borders - can be categorized according to 4 main transmission channels:

- Biophysical connections – Through shared natural resources (e.g., river basins)
- Trade links – Via impacts on global and regional supply chains
- Financial flows – Disruptions to foreign direct investments or portfolio investments
- Human mobility - Through poorly managed climate migration and forced displacement



Examples of TCRs in the region include economic losses and climate migration in Laos, Cambodia, Thailand and Vietnam due to their shared river basin, global manufacturing shocks due to Bangkok floods, and intra- and inter-regional FDIs and remittances at risk



The region has taken several steps in the right direction in addressing TCRs - utilizing institutional mechanisms, studying TCRs across shared physical systems, brokering science and policy domains, and leveraging civil society organizations for implementation



Southeast Asia must maintain its momentum by following a systematic roadmap to manage TCRs, focusing on 3 key steps:
 1) Build a comprehensive understanding of TCR in Southeast Asia, 2) Develop a framework that encourages collective action, and 3) Catalyze high-impact transboundary climate adaptation projects



 Climate adaptation is mainly planned at the national level and implemented at the local level ...



The primary mechanism for adaptation planning takes place at the national level via National Adaptation Plans (NAP)

- The NAP process aims to identify a country's adaptation needs using the latest climate science and develop corresponding strategies to address them
- In some instances, the NAP provides more granular guidance on a city or province's adaptation needs



Locally-Led Adaptation (LLA) centers implementation of adaptation measures at the community level

- LLA is an internationally-recognized approach which empowers local leaders to lead the implementation of adaptation projects
- Potentially narrowing the lens of adaptation, LLA aims to devolve decision-making to the lowest appropriate level



Majority of climate financing goes to national governments or specific local projects

- Existing funds, typically used for development finance, and newer climate funds are predominantly structured for single country financing
- Only a few funds, such as the Adaptation Fund and Green Climate Fund, allow for multi-country projects, and they represent only a minority share of their portfolio (i.e., 20% of AF's portfolio)

1. UNFCCC Report of the Adaptation Committee 2022 2. IPCC Sixth Assessment Report
 Source: Stockholm Environment Institute 'Multilateral adaptation finance for systemic resilience' 2022, World Bank 'Financing Climate Adaptation in Transboundary Basins' 2019, Adaptation Fund 'Transboundary Approaches to Climate Adaptation' 2022, NAP Global Network 'Transboundary Climate Risks and the National Adaptation Planning Process' 2023



... leaving gaps in addressing regional adaptation issues, particularly concerning transboundary climate risks



Transboundary climate risks (TCR)– risks introduced by climate impacts outside of one's own borders – are significant and increasing

- Available analysis have shown that transboundary climate risks can be 10x greater than national climate risks¹
- Transboundary risks are expected to increase across water, energy and food sectors²



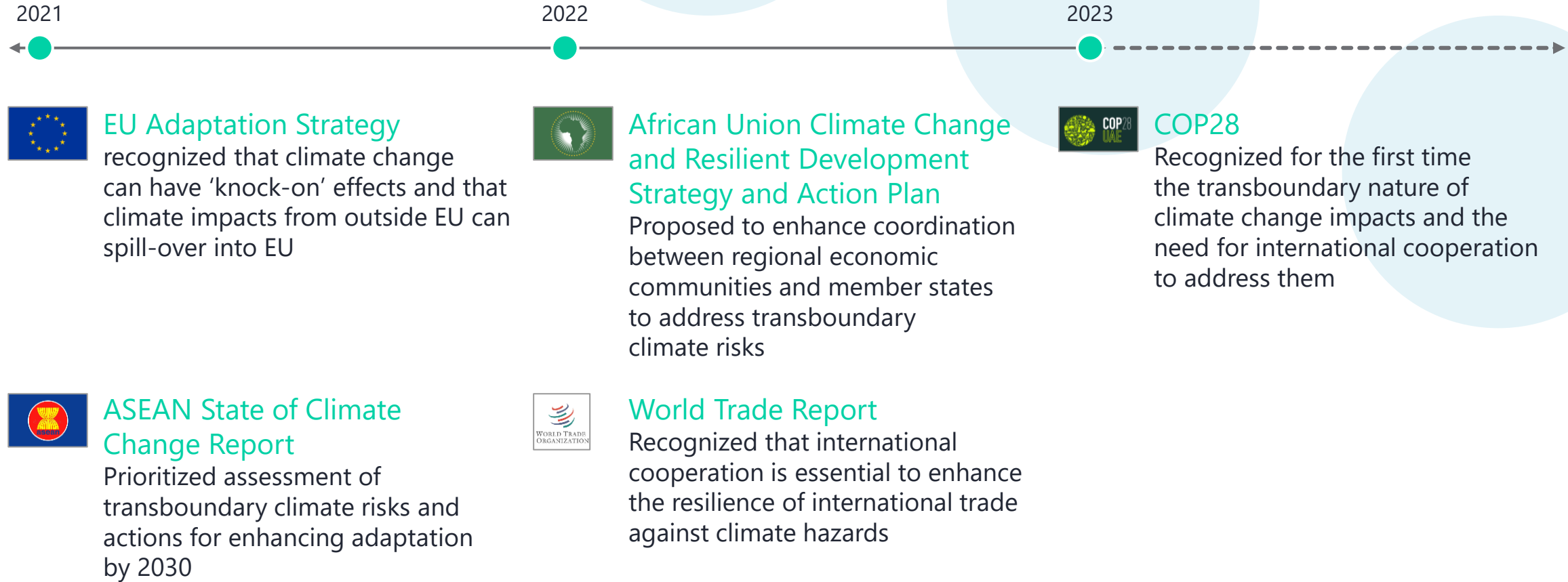
Current NAPs do not sufficiently cover TCR

- In the 41 NAP documents submitted to UNFCCC in 2023, only South Sudan and Timor-Leste have dedicated chapters to TCR

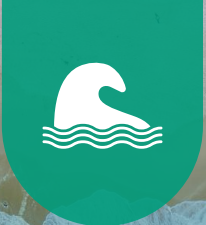


While there is growing recognition of transboundary risks among regional intergovernmental organizations such as the European Union, ASEAN and African Union, there is still no clear path to collective action

Regional and global organizations and processes have recognized the transboundary nature of climate effects




Transboundary climate risks can be categorized according to 4 main transmission channels



Biophysical connections

Direct climate impacts on shared river basins, ocean and coastal resources, mountains, forests, and air


Projected **annual loss of USD16b in Lower Mekong Basin** by 2050 due to climate hazards¹; impacting Laos, Cambodia, Thailand and Vietnam



Trade links

Global and regional supply chains impacted by climate hazards in one or several parts of the value chain


Bangkok floods impacted auto industry of Japan, Indonesia, Malaysia and Vietnam; **losses of USD10-15b** from Japanese firms alone



Financial flows

Climate impacts on foreign direct investments (e.g., physical assets) or portfolio investments (e.g., bond yields, interest rates)

FDI most at risk of climate impacts are agriculture, forestry & fishing, mining & manufacturing, representing **37% of ASEAN's GDP**



Human mobility

Socio-economic impacts of climate migration, forced displacement and changing flows of tourism

Transboundary climate migration is projected to increase by 3% by 2050; potentially representing more than **800k people in SEA²**

1. Impacts on worker productivity, infrastructure services, agricultural output, hydroelectric power and ecosystem services 2. Due to climate-related water risks
 Source: Adaptation Without Borders, World Resources Institute 2015, Nature "Assessing the climate change exposure of foreign direct investment" 2022, BCG and University of Cambridge Judge Business School report 'To Understand Climate Mobility, Follow the Water' 2024

Transboundary climate risks in Southeast Asia

Not exhaustive

Mekong River: Increasing stress on shared water resource and climate migration

Biophysical connection, human mobility

- SEA's largest river
- Supports 18m livelihoods in agriculture and aquaculture

Climate impacts: Drought, flooding, sea level rise

- Projected annual loss of USD16b in economic productivity by 2050; stemming from farm inundations, saltwater intrusions, etc.
- Projected 3.3 to 6.3m new climate migrants within national borders between now and 2050; expected to extend to cross-border migration in Vietnam, Cambodia, Thailand and Laos

ASEAN: Investment flows at risk in key economic sectors

Financial flows

- Record investment flows due to positive investor sentiment, the move to diversify supply chains, etc.
- Intra-ASEAN investment is second largest FDI source in the region

Climate impacts: Drought, flooding, sea level rise

- Investments are at most risk in 3 sectors: agriculture, forestry and fishing, mining and manufacturing, representing 37% of ASEAN's GDP
- Climate impacts negatively impact ODA and migrants' remittances (77% of migrant workers in ASEAN are from other ASEAN member countries)

Bangkok: Global auto supply chain affected by flooding

Trade links

- Thailand is the region's leader in automobile manufacturing; produces over 200m vehicles annually and exports over half to more than 100 countries

Climate impacts: Flooding

- Floods caused by extreme rainfall and overflows from Chao Phraya River damaged production facilities
- Impacted Japanese car industry as well as Indonesia, Malaysia and Vietnam
- Estimated insured losses up to USD10-15b from Japanese firms alone

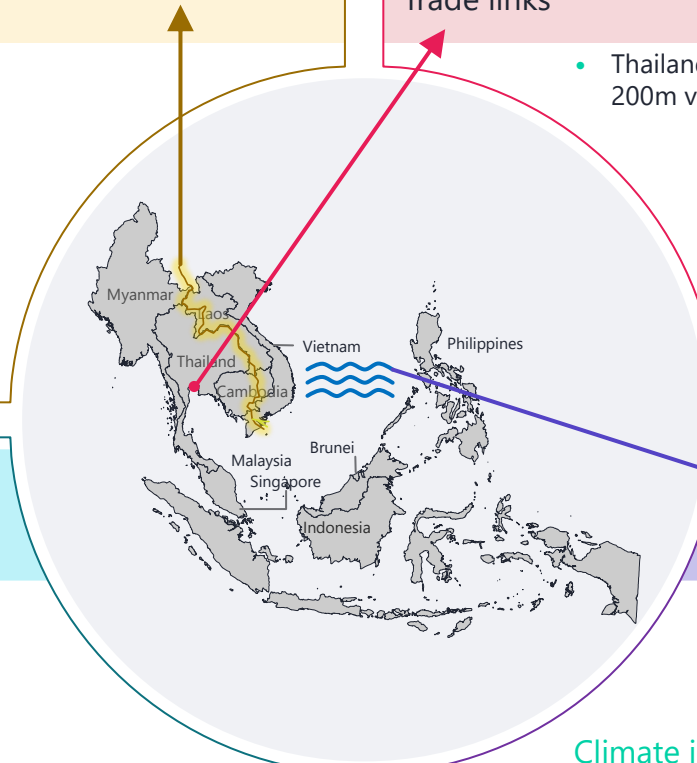
South China Sea: Further collapse on shared fish stocks

Biophysical connection

- Houses the most diverse marine habitats, represents \$49b of SEA economy
- Provides livelihoods to Philippines, Indonesia, Malaysia, Thailand and Vietnam

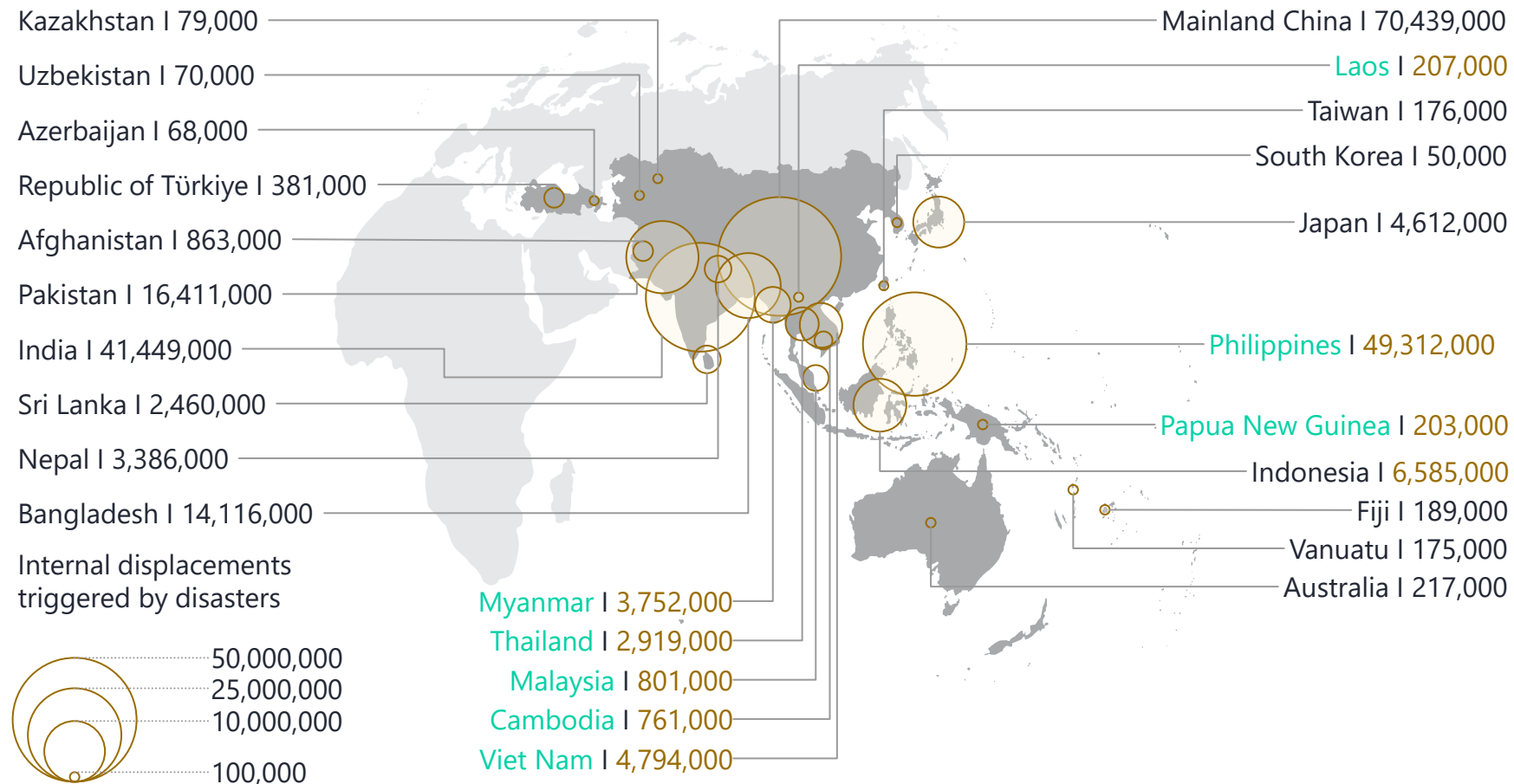
Climate impacts: Ocean warming, ocean acidification

- Triggers migration of species away from traditional fishing grounds, further reducing an already overexploited fish stock
- \$6.5b to 11.4b projected losses, representing worst and best-case scenarios in both climate impact and fishing management



Double-click – Climate migration (I/II): Southeast Asia has the second highest internal displacement in Asia

Disaster displacements in the Asia and Pacific Region (2010-2021)



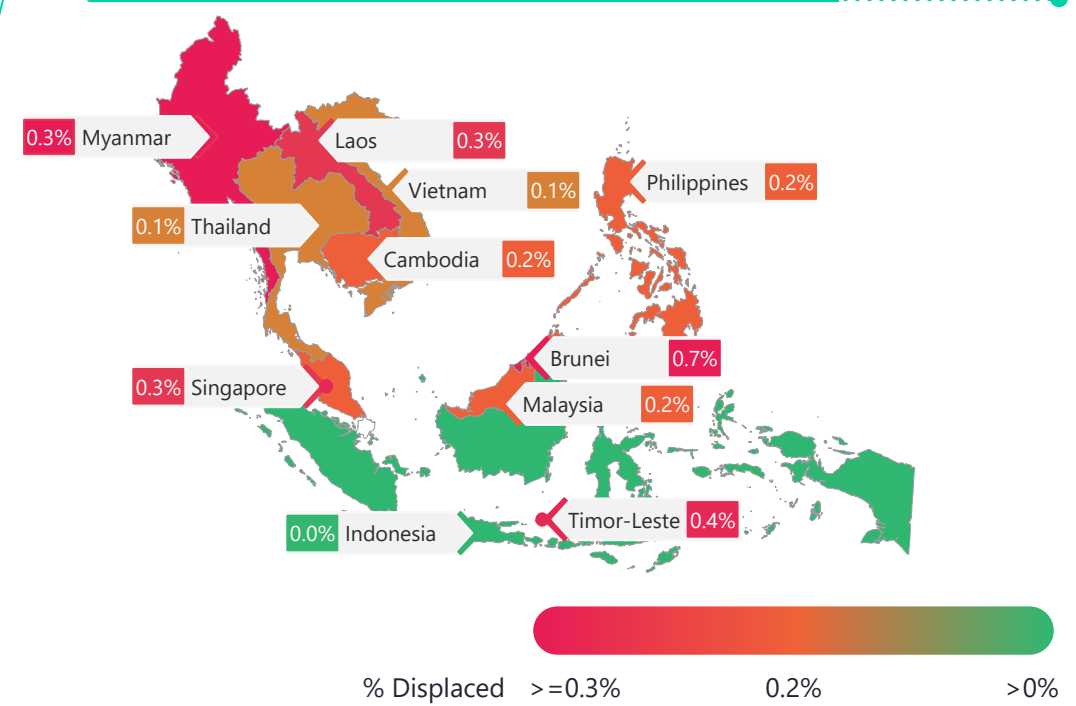
- The sub-region with the highest internal displacement is East Asia at 76m (34% of total), followed by SEA at 69m (31% of total)
- In SEA, 94% of displacement was caused by storms and floods

Double-click – Climate migration (II/II): Increasing pressures caused by climate-related water risks expected to drive external displacement as early as 2030

- Most climate mobility is caused by changes in water patterns, which results in 6 water-related hazards: droughts, floods, storms, wildfires, extreme temperatures, and landslides
- These lead to crop failures, soil degradation, damage to property and major changes in ecosystems which increase a population's vulnerability to several socio-economic impacts (e.g., loss of income, food insecurity, conflict, etc.)
- By 2030, more than 780,000 people in Southeast Asia are projected to be externally displaced (i.e., involuntary mobility outside of national borders); representing 0.1% of the region's total population



Projected number of external displacement in 2030 by climate-related water risks over SSP5-8.5: Fossil fueled development



Case study | A roadmap for African resilience

Context

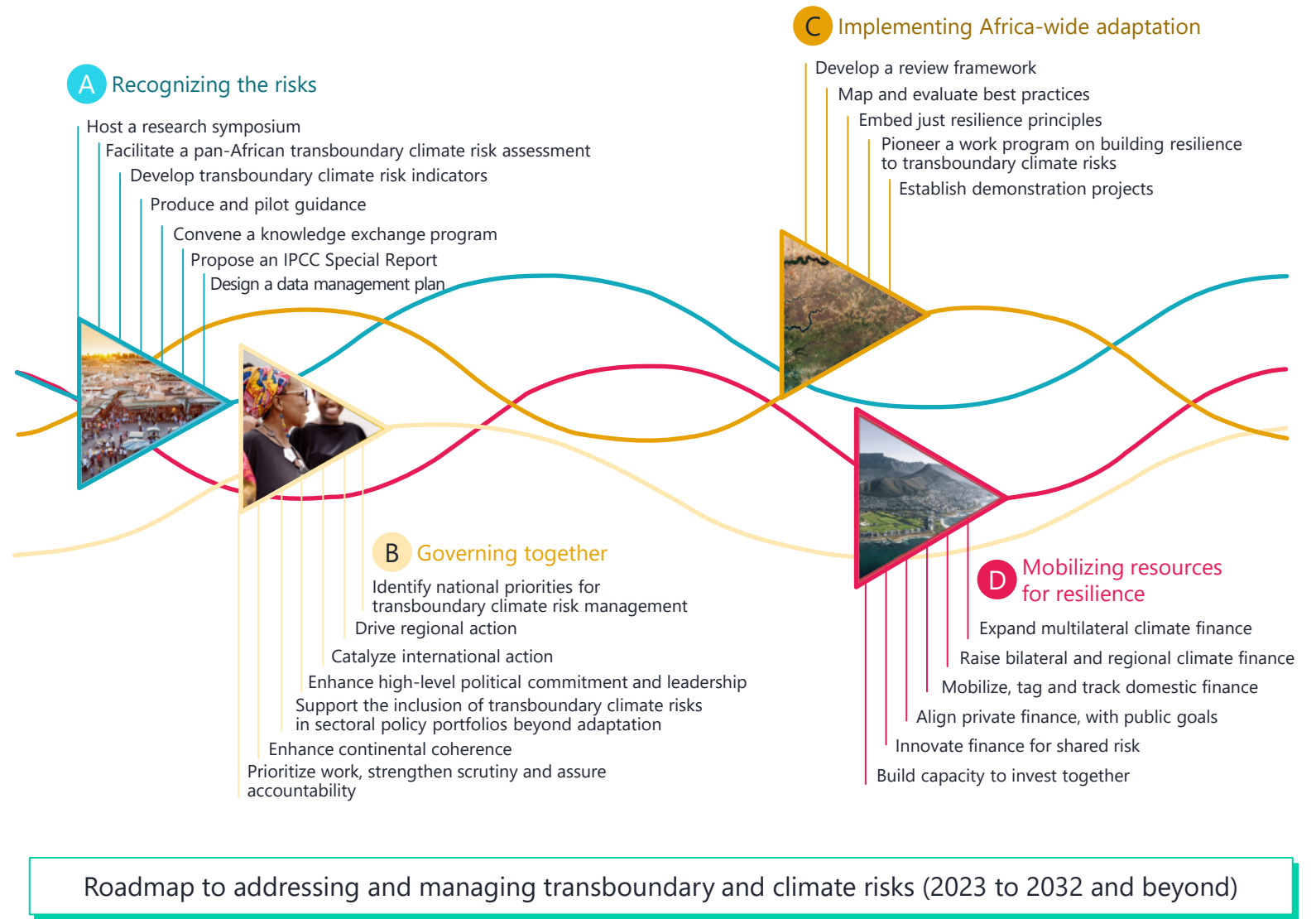
Adaptation Without Borders co-created the development of a proposed roadmap to address TCRs in Africa
 Supports an ambition of the African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032)

Approach

Gathered inputs from multi-stakeholder engagements with 30+ actors at the forefront of addressing TCRs in Africa
 Stakeholders include Regional Economic Communities, intergovernmental agencies, research institutions and global experts

Partners and collaborators

Stockholm Environment Institute, African Union, African Union Development Agency, International Livestock Research Institute, African Group of Negotiators Experts Support, Overseas Development Institute, Enda Energie



Recommended practices on tackling transboundary climate risks ...

Harness regional institutional mechanisms to accelerate coordination and cooperation

Understand the region's transboundary climate risks to establish a robust foundation for initiatives

Broker scientific and policy domains to enhance governance and raise the region's profile on the global stage

Leverage civil society organizations to accelerate program implementation



... can already be seen reflected in some of the region's initiatives

ASEAN Working Group on Climate Change

- Formulates the region's interests and priorities in the ASEAN Joint Statement on Climate Change reported to the UNFCCC
- Ties together various plans, e.g., ASEAN Agreement on Disaster Management and Emergency Response, ASEAN Declaration on Strengthening Adaptation to Drought

ASEAN Integrated River Management Project

- Aims to establish baseline data for 5 major transboundary rivers: Mekong River, Red River, Irrawaddy River, Salween River, Chao Phraya River
- Findings shall guide programs to protect and sustain shared water resources

The ASEAN Climate Resilience Network

- Links policymakers and national governments to scientific institutions for climate-smart agriculture
- Translates research to policy, by negotiating multilateral environmental agreements to protect the region's land use

Heart of Borneo Initiative

- Joint initiative led by governments of Brunei, Indonesia and Malaysia supported by WWF as implementation partner
- Promotes biodiversity conservation and livelihood creation

Southeast Asia must build on this momentum to systematically address TCR through a roadmap towards collective resilience



Build a comprehensive understanding of TCR in Southeast Asia

Facilitate transboundary climate modelling

- Leverage advanced climate models to forecast the transboundary impacts of key climate drivers (e.g., rising sea levels, flooding, heat, etc.) in Southeast Asia
- Collaborate with regional research institutions to ensure the models incorporate localized climate data for greater accuracy

Develop TCR case studies

- Curate real-world examples that highlight the economic, political, and social costs of neglecting TCRs in Southeast Asia

Collaborate with regional experts and governments

- Establish forums among governments, academic institutions, and international/regional climate organizations to gather and validate regional data
- Regularly update fact base to reflect emerging risks and improved data availability



Develop a framework that encourages collective action

Consider developing indicators for tracking TCR

- Provide an initial set of indicators for identifying and tracking TCRs
- Establish reporting mechanisms to measure and evaluate progress towards targets

Activate Regional Climate Action Mechanisms

- Leverage existing regional mechanisms to facilitate interventions to address TCRs (i.e., AWGCC)
- Engage other regional platforms across sectors to foster cooperation, knowledge sharing, and the co-development of adaptation projects

Explore and collaborate on long-term action plans

- Develop 5-, 10-, and 20-year TCR adaptation plans
- Ensure plans are adaptable to evolving climate models and geopolitical changes, and subject to regular reviews and updates



Catalyze high-impact transboundary climate adaptation projects

Co-develop a pipeline of TCR Projects

- Surface and prioritize TCR projects via calls for proposals, partnerships with research institutions, etc.

Encourage and promote demonstration projects

- Support implementation of pilot programs to demonstrate impact of addressing TCR and document learnings and processes

Mobilize Investments

- Collaborate with international donors, development banks, and private investors to fund projects
- Consider establishing regional adaptation funds dedicated to funding TCR projects

Support capacity-building efforts

- Partner with local govts and organizations on best practices for transboundary projects
- Provide ongoing technical assistance to ensure projects remain sustainable, effective, and scalable

Interested to find out more?

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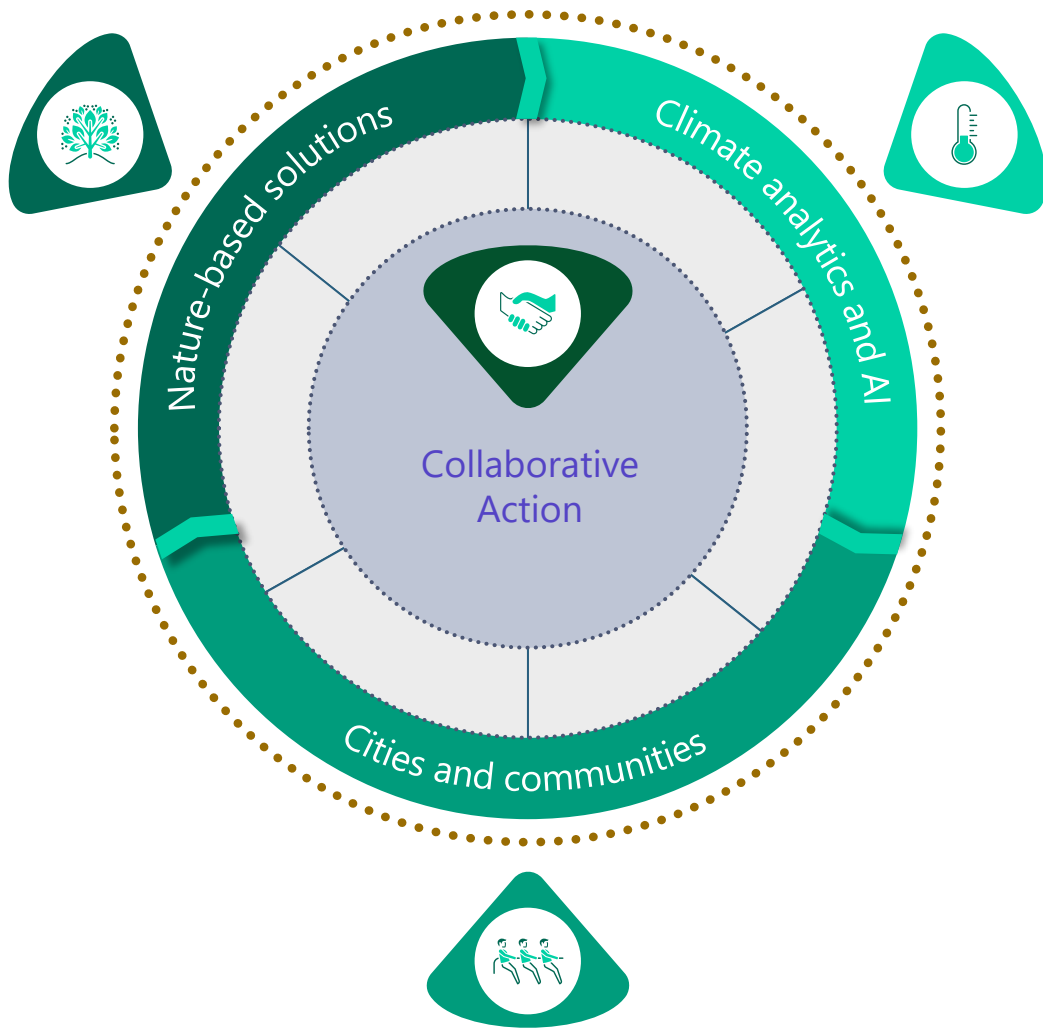
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Adaptation Without Borders is a global partnership working to strengthen systemic resilience to the cross-border impacts of climate change. We identify and assess transboundary climate risks, appraise the options to better manage those risks and support policymakers, planners and the private sector to develop climate-resilient and inclusive solutions. We catalyze new alliances and forms of cooperation on adaptation that pave the way towards a more sustainable and resilient world

Adaptation Without Borders is directed and managed by three founding members — Stockholm Environment Institute (SEI), Overseas Development Institute (ODI) and Institute for Sustainable Development and International Relations (IDDRI) — and supported by the contributions of a growing number of partners





Against the backdrop of Southeast Asia’s climate risks, BCG, Think City, WWF came together in 2023, to increase awareness and dialogue on the need for Adaptation & Resilience in SEA through the **Southeast Asia Climate Adaptation and Resilience (SEACAR) Alliance**

Join us in advancing Southeast Asia’s resilience – contact us:



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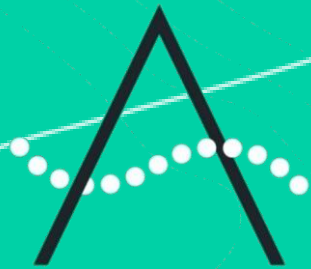
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