

# Adopting a transboundary risk management paradigm in a world of multi-hazard risks

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## Introduction

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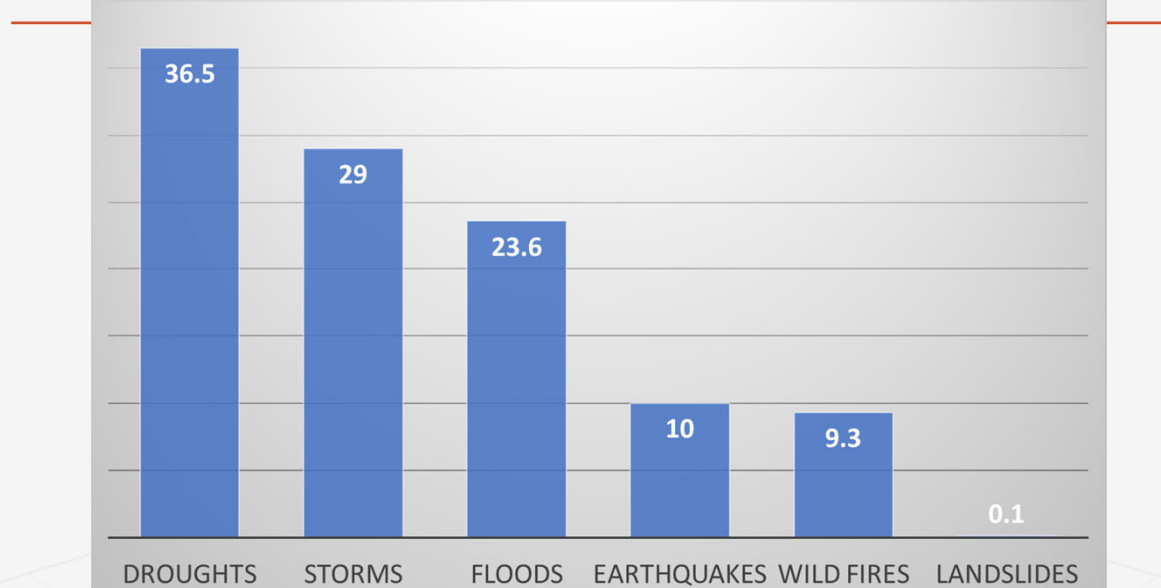
- In a globalized world, disaster impacts seldom remain within political boundaries but often spill over beyond national boundaries.
- These transboundary risks bring an added complexity to the way the multi-hazard risks impact society.
- Until now, most risk assessments are focused within one's political boundaries and that worked with limited effectiveness.
- Without considering the transboundary aspects of risks, any multi-hazard risk assessments will result in the underestimation of risks, and lead to the identification of ineffective and insufficient solutions, resulting in failures in risk reduction.

## Multi-hazard Risks and Transboundary Risks

- 'multi-hazard risk' refers to risks emanating from multiple hazards.
- Often, risks in multi-hazard contexts show interactions over time and space dimensions.
- Multi-hazard risk assessments within a given political boundary are poorly developed in most countries.
  - Droughts and floods occurring in different parts of a region in the same season.
  - Droughts and floods occurring in different seasons in the same year in the same location.
- Risk assessments become even more complicated if the risks emanating from disasters across the boundaries is to be considered.
- Often, political boundaries, not surprisingly, can either act as isolators of impacts across borders or lead to accumulators of risks.

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**% of Disasters that are Transboundary**



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## Transboundary Risk Transmission Pathways

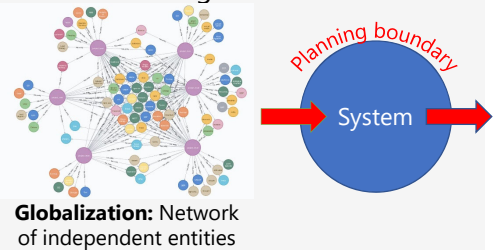
- Transboundary risks (TBRs) are defined as those risks that originate from outside the planning boundary of a system in question and or those risks that originate from the system affecting entities beyond its boundaries (Auth

- TBRs are often ignored due to**

- Lack of understanding and or information
- Difficult to quantify

- Four major risk transmission pathways:**

- Movement of goods and services (e.g. global & regional trade)
- Movement of people
- Movement of natural resources (e.g. transboundary rivers)
- Financial markets and related instruments (e.g. insurance & financial markets)



Aided by global and regional integration processes

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## The Two Phenomenon Associated with Multi-hazard Transboundary Risks

- Globalization of local risks**

- Developing countries are increasingly attracting foreign direct investments
- They are producing goods and services for the world
- Any disaster impacts in these countries affect the world at large.

- Localization of global risks**

- Factors that operate behind globalization of local risks also work in favour of localization of global risks
- On the contrary, vulnerable countries are at the receiving end of risks emanating from elsewhere

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## FDI Flows are increasingly concentrated in vulnerable countries

Country	World Risk Index (Rank)	Climate Risk Index (Rank)	2016		
			FDI inflows (Billion USD)	ODA (% change)	Damage (million USD)
The Philippines	3	16	6.9	-3	185
Bangladesh	5	13	2.3	319	750
Cambodia	8	111	2.5	134	NA
Vietnam	18	5	12.6	35	846
Indonesia	33	37	3.9	-86	233
Myanmar	42	3	3	1423	16.6
Sri Lanka	63	4	0.9	-64	1220
Pakistan	73	40	2.5	38	2
India	75	6	44.5	70	2574
Malaysia	89	72	11.3	-135	132
Thailand	91	20	2	-140	145
Lao PDR	100	120	1	153	0.05

Top 20 WRI and CRI ranked countries in Asia (The Philippines, Bangladesh, Cambodia, Vietnam, Myanmar, Sri Lanka, India)

1. ODA has increased by **273%** from 2000
2. Received 78% (70 billion USD) of the total FDI (93.4 b USD)
3. The economic damage accounted 69% of 69% of total damages (5.6 b USD)

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## Examples of transboundary multi-hazard events

Transboundary disaster	Period	Multi-hazard and transboundary nature
<b>World food price crisis</b> (Localization of global risks)	2007-2008	A multi-year and multi-country event where natural hazards such as <b>droughts, cyclones, floods</b> at the time and geographical scales interacted with human interventions leading to the rise of food prices across the world
<b>Southeast Asia drought</b>	2019-2020	A multi-year and <b>multi-country drought</b> that interacted with COVID-19 and <b>the saline water intrusion</b> as a result of drought
<b>COVID-19 interaction with other climate events</b>	2019-2022	Disruption to global industrial supply chains due to COVID-19, typhoons and related flooding (e.g. Malaysia).

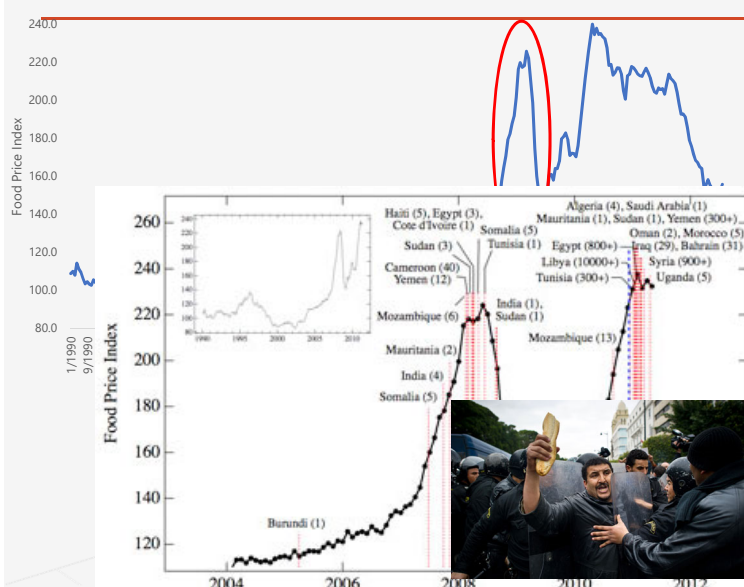
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## Global food price crisis (2007-2008)

- The global food prices were significantly influenced by a combination of seemingly isolated factors, including natural hazard impacts and uncoordinated decisions made by multiple actors dispersed across the world in space and time dimensions, during 2008 and 2011 has signified the new normal that governments and other stakeholders have to deal with.
- Global food price crisis was contributed by factors such as droughts, floods and typhoons in grain-producing nations, and rising oil prices.
- Increased investments by hedge funds, pension funds and sovereign wealth funds in food commodity derivatives markets leading to major shifts in prices.
- Export restrictions by few food producing countries has further deteriorated the situation

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## 2008 and 2012 Global food price crisis

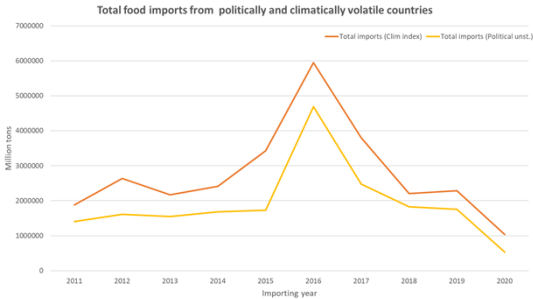


- 83 per cent increase in global food prices between 2005 and 2008
  - Maize prices: 300% increased
  - Wheat prices: 127% increased
  - Rice prices: 170% increased
- 10-15% decline in food consumption, 15-20% increase in food expenditure
- Affected 50-70% of poor households from 2007 to 2008
- Impact on livelihoods: petty traders & labourers

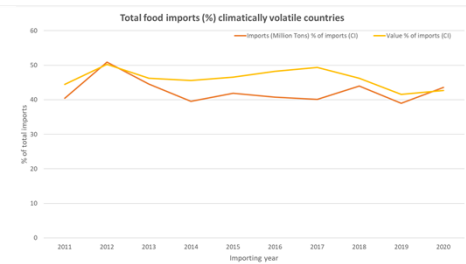
USDA 2009; UNCTAD 2009

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# India's Food Import Dependency on Fragile Countries



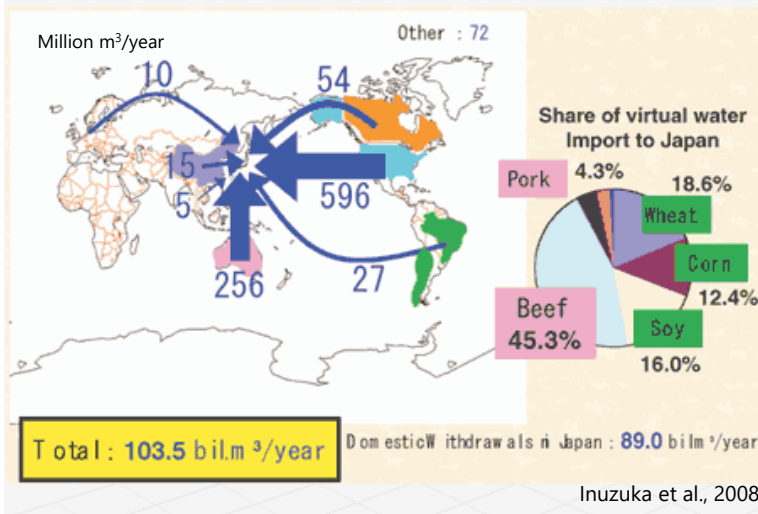
- India imported food from **23** of top 30 climatically and **11** politically unstable/vulnerable countries during 2011-2020.
- During 2011-2020, **42%** of total food imports came from climatically vulnerable countries, and **29%** from politically unstable countries.
- The nexus between political stability and climate change is well recognized globally. This puts India's food imports at risk (Ukraine-Russia war?)



**India also exports food to several of these countries in significant quantities.**

Source: data from APEDA and Germanwatch, 2021

# Food Import Dependency of Japan



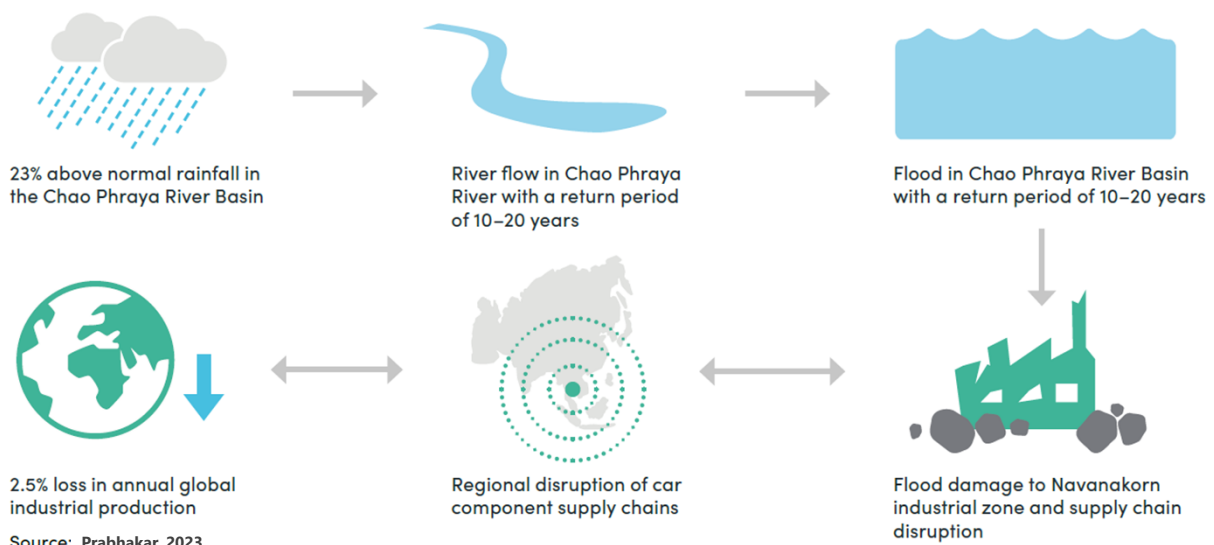
- Japan's climate security concerns originate both from within and across its borders.
- Food and water:** Japan imports more freshwater than the water withdrawn within its borders.
- Japan saves nearly **20 km<sup>3</sup>** of water by importing food per annum.
- Climate change impacts on countries from where Japan imports food means food and water insecurity for Japan.

## Measures to avoid such future events: Global Food Price Crisis

Category	Measures
Mitigation measures	<ul style="list-style-type: none"> <li>• Strengthening agricultural production systems in vulnerable countries</li> <li>• Expanded support to research and extension services</li> <li>• Revisiting food security policies from the perspective of their vulnerability to global processes</li> <li>• Improving the food self-sufficiency of countries</li> <li>• Uncoupling agriculture performance and weather</li> <li>• Developing food price monitoring and early warning tools</li> <li>• Sharing data on risk factors by countries</li> <li>• Disincentivising and decoupling risky investments in agriculture and food markets</li> <li>• Social safety nets include public food distribution systems, insurance, conditional cash transfer etc.</li> <li>• Revisiting vulnerability and risk assessments for integrating relevant global and regional factors</li> <li>• Reducing pressure on agricultural land including from biofuels</li> </ul>
Response	<ul style="list-style-type: none"> <li>• Global and regional food stocks</li> <li>• Enhanced cooperation and coordination among countries</li> <li>• Critical thresholds to kick inappropriate response measures</li> <li>• An early warning system based on the food-water-energy nexus</li> </ul>

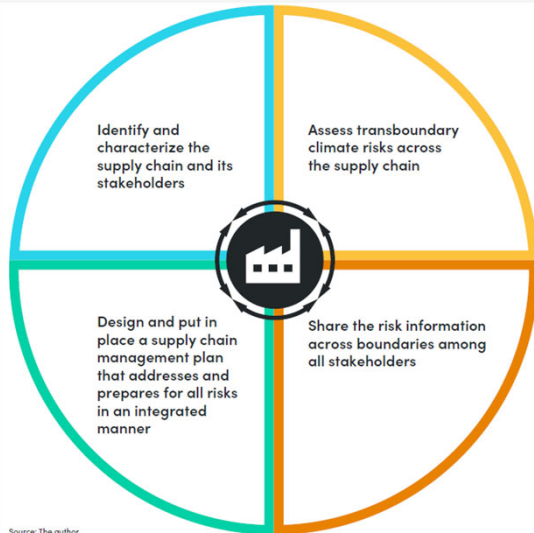
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## The Bangkok Floods 2011 was a Supply Chains Disaster as Well!



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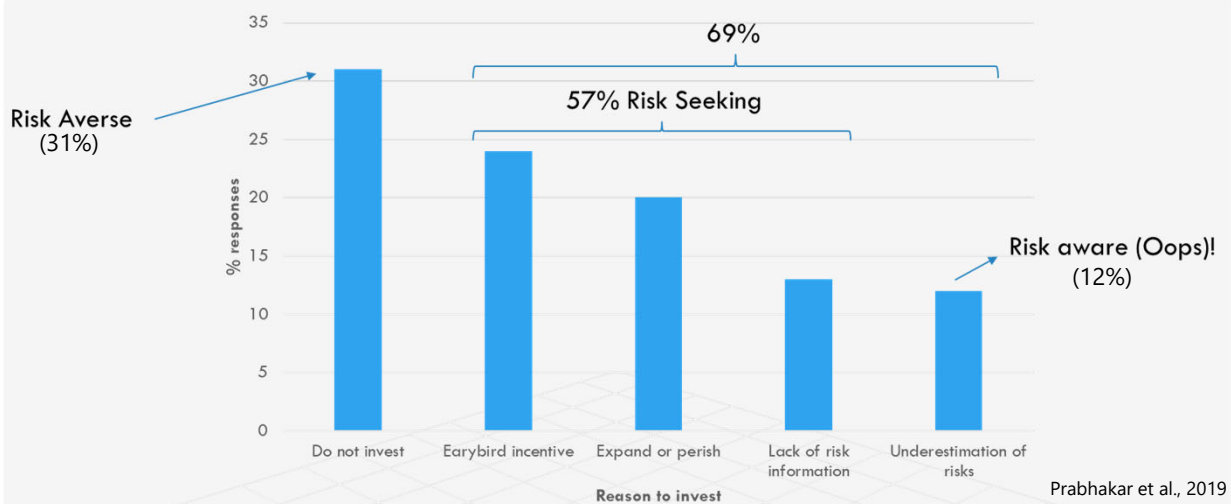
## Managing Supply Chain Risks Where One's Risk is Everybody's Risk!



- Risk assessments must move beyond input shortages, labour shortages etc and cover interactions with financial markets and bio-physical hazards.
- Risk insurance:
  - Encouraging suppliers to buy a risk insurance.
  - Insurance companies developing a tailored insurance products
- Risk communication >> Next slide

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## Risk Assessment and Communication is the Key



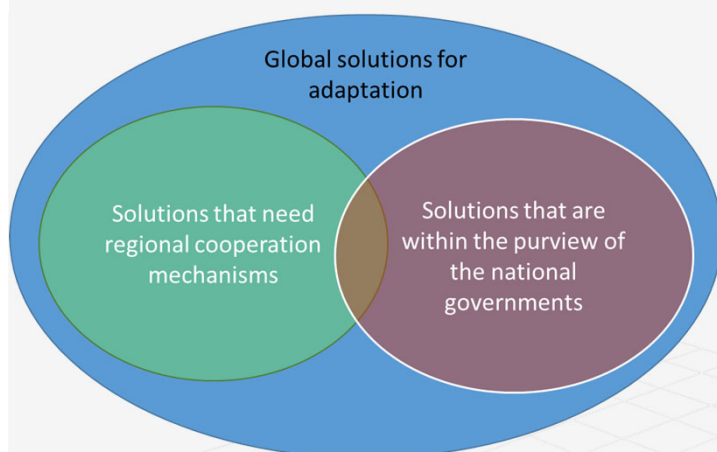
Majority of foreign investing entities do not have deeper understanding of local risks!

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## Regionalization of Risk Management is the Way Forward

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- Take the example of a transboundary river where a majority of the water-related risks that downstream countries face are originating from upstream.
- Hence, thinking of isolated adaptation planning in downstream and upstream countries doesn't make sense.

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## Three Requirements for Regional Risk Management to Work

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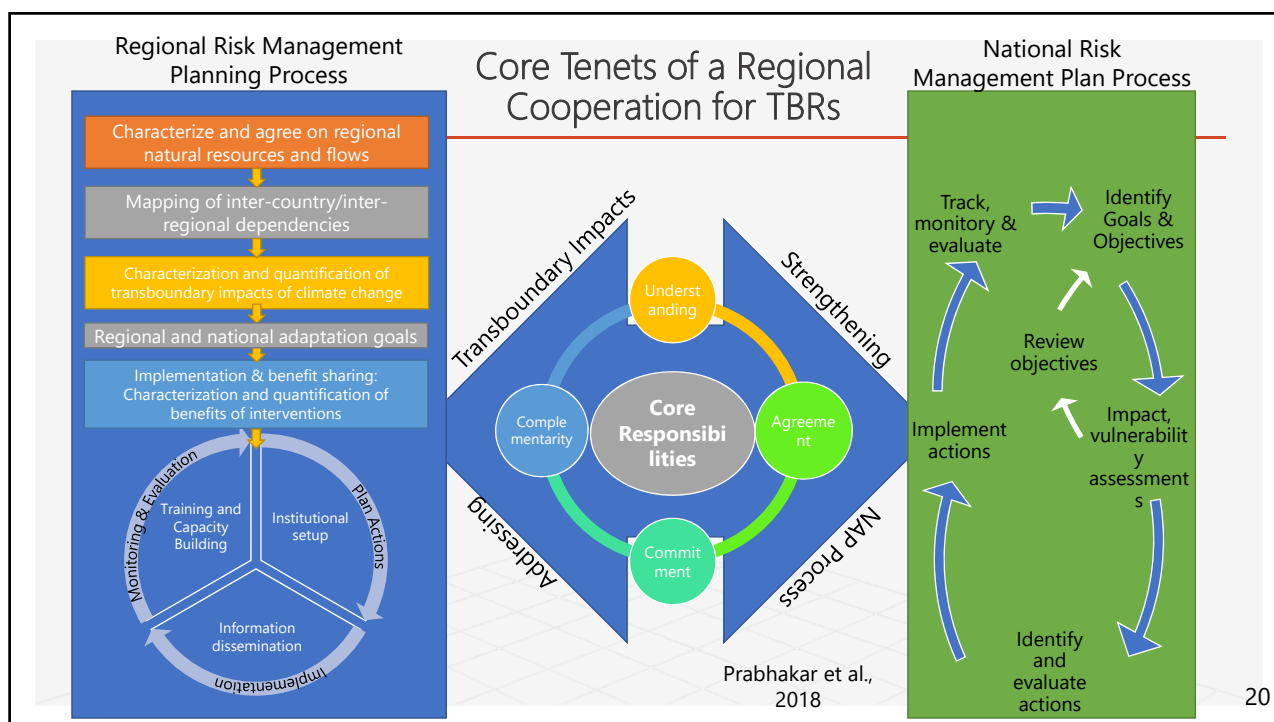
- **Recognition** of risk management as a regional issue
- **Integrated risk assessments:** fragmented risk assessments not recognizing links with other sectors and regions lead under estimation of risks and inefficient risk communication.
- Remove the '**sensitivity**' attached to sharing risk information, to kindle regional cooperation in adaptation.

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## Regional Cooperation in TBR Management

- There is a need for a collective effort of countries on a regional basis.
- This facilitates information sharing and identification of synergistic solutions
- For e.g. the Pacific regional adaptation plan (PACC) is galvanizing technical and financial resources that are available regionally and or those resources that are available internationally but are not easily accessible to individual countries.
- It is promoting 'self-help' among the countries as a form of south-south cooperation in addressing the transboundary risks.

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Thank You!

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