COVID-19 as a Transboundary Risk: Some Risk Management Implications for Asia

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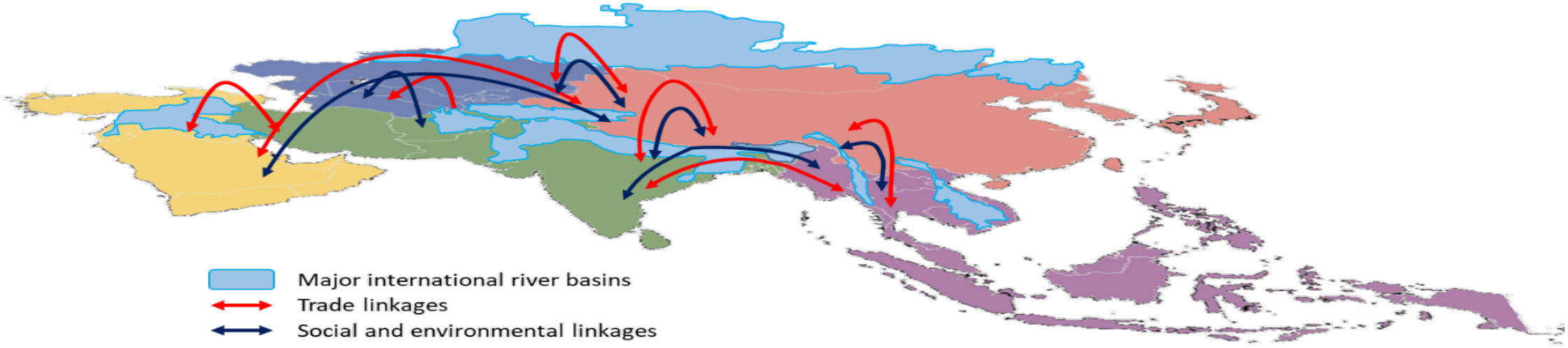

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"A risk that is not systemic cannot be transboundary in nature"

SVRK Prabhakar

Outline

- Why COVID is a systemic risk?
- Why COVID is a transboundary risk?
  - What are the transboundary impacts of COVID?
- Some transboundary risks of climate change
- Similarities between COVID and climate change as transboundary risks
- Transboundary risk management approaches

Systemic Risk

- The type of risk that threatens the entire system
- The risk usually starts at a small scale, usually at a micro scale and small geographical unit or a sub-sector
- It rapidly evolves into affecting the entire system, country or even the world with cascading effects
- The risk transmission is much more pervasive that it is either not clearly visible or is not effectively isolated at the early stages
- This makes the risk to take a bigger shape by the time the risk is realized and mitigation actions are put in place.

Why COVID-19 is a systemic risk?

- We know that COVID-19 started at a small scale.
- The evolution of COVID-19 from within China to a pandemic took three months (from Dec 2019 to March 2020 for the disease to be declared as pandemic by WHO)
- The disease was a health risk initially, a public health concern. It became the economic and security concern in less than 3 months when the social life and eventually the economic mission started stalling. Thanks to lockdowns and cross-border travel restrictions.

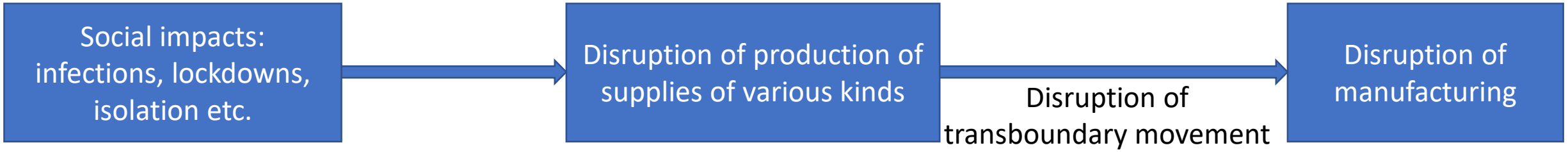
Transboundary Risks

- Transboundary risks are risks that emanate from outside the boundaries of a country or region.
- Countries have always faced transboundary risks. Wars for example are a typical example of a transboundary risk as opposed to an internal conflict of a country.
- Climate change impacts can be transboundary in nature. For example, a drought or extreme flood event in a food exporting country can impact not only the food security of that country but will also impact the food security of the importing countries.

Why COVID-19 is a Transboundary Risk?

- Pandemics span across multiple countries, multiple continents, and even worldwide. COVID-19 is a perfect example of a pandemic, it evolved into a global pandemic.
  - COVID-19 has affected 228 countries and territories infecting 642 million people and killing nearly 6.6 million people.
- While COVID has affected the individual countries due to infections within that country, COVID emerged as a transboundary risk for several reasons.
  - In-country impacts
  - Transboundary impacts>>A lot of these impacts have similarities with climate change impacts
    - Disruption of global industrial supply chains
    - Increase in global food prices
    - Disruption of global tourism industry

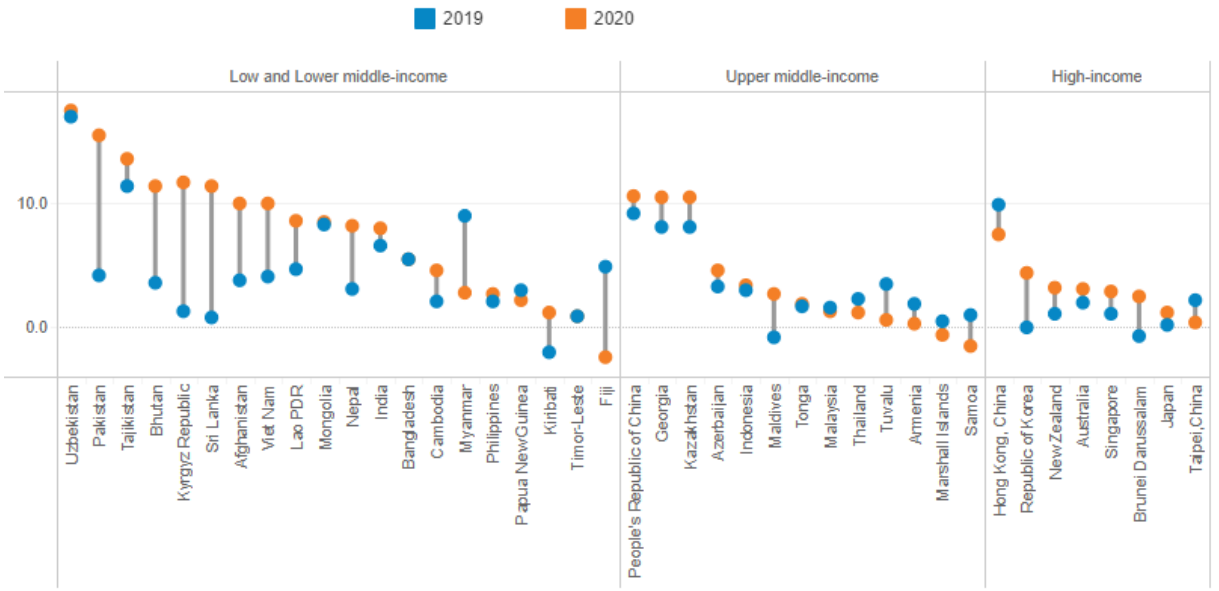
Disruption of Industrial Supply Chains



- Disruption of production of various kinds goods and services.
- Disruption of transboundary movement of goods and supplies resulted in shortage of goods in importing countries including raw materials and machinery used in manufacturing.
- Disruption of manufacturing due to lack of supply of industrial supplies/inputs.
- Underestimation of demand by manufacturers contributed to further effects (e.g. semi-conductors which take time to produce)
- Lockdowns and restricted movements resulted in loss of sales and unsold inventory affecting the business revenue. Businesses had to sale off at low prices especially for perishable goods resulting in losses.
- Supply chains disruptions were in the following order: manufacturing>construction>retail
- Consequently, the global trade declined by 8.5 % during 2020 (OECD 2021)

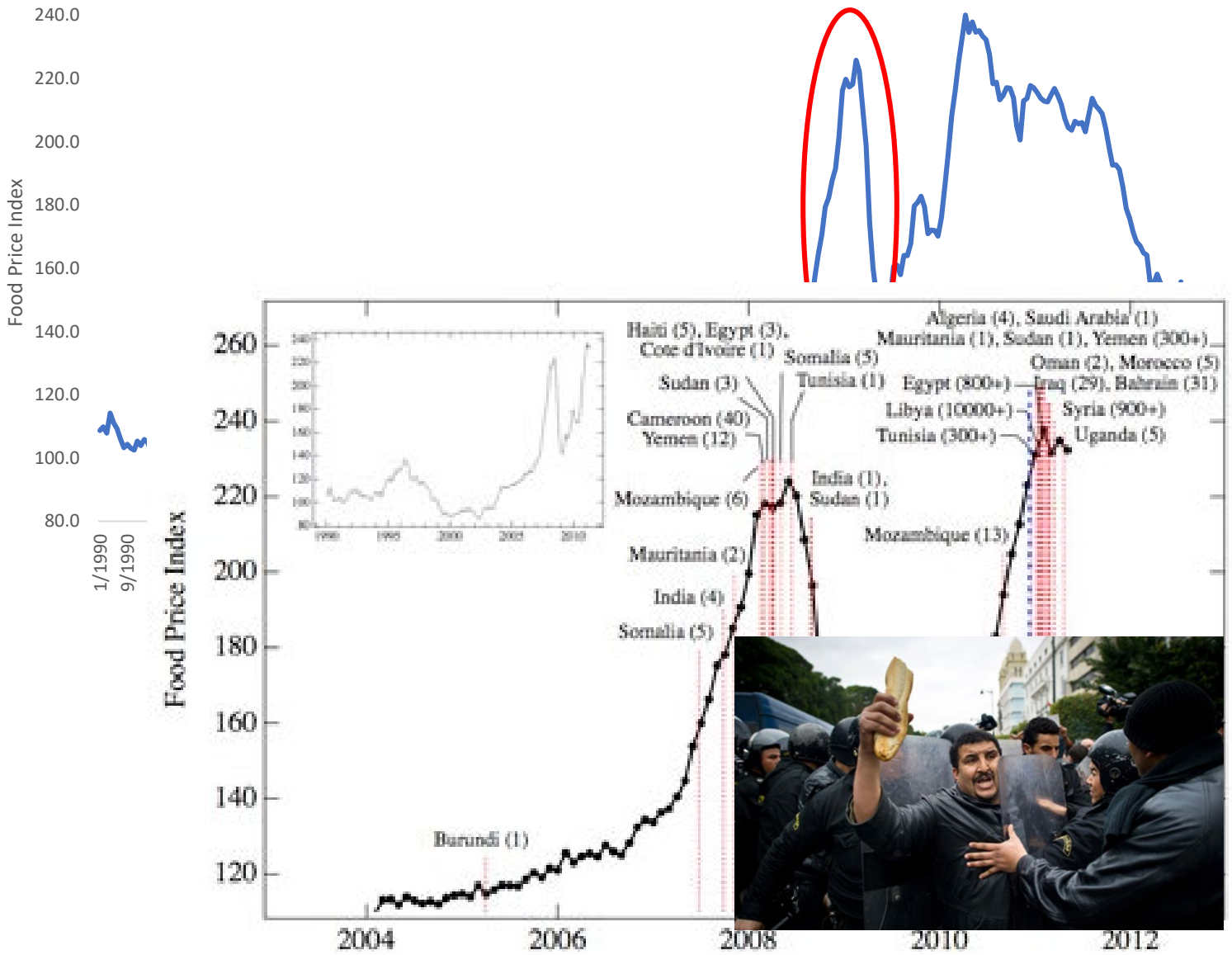
Increase in food prices: Compounded by domestic and transboundary causes

- The undernourished increased from 361.3 million to 418.0 million between 2019 and 2020 in Asia (ADB, 2021).
- A large part of this increase in undernourished is attributed to increase in food prices, and reduced access to food.
- Food inflation in Asian countries ranged between 1 to 11% within a span of a year (ADB 2021).



- Restricted movement of migrant workers affected the farm operations leading to production disruptions and even food loss due to untimely harvests.
- The combined impact of reduced food production, disruption of transportation, severe labour shortages negatively impacted the overall food economy.

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

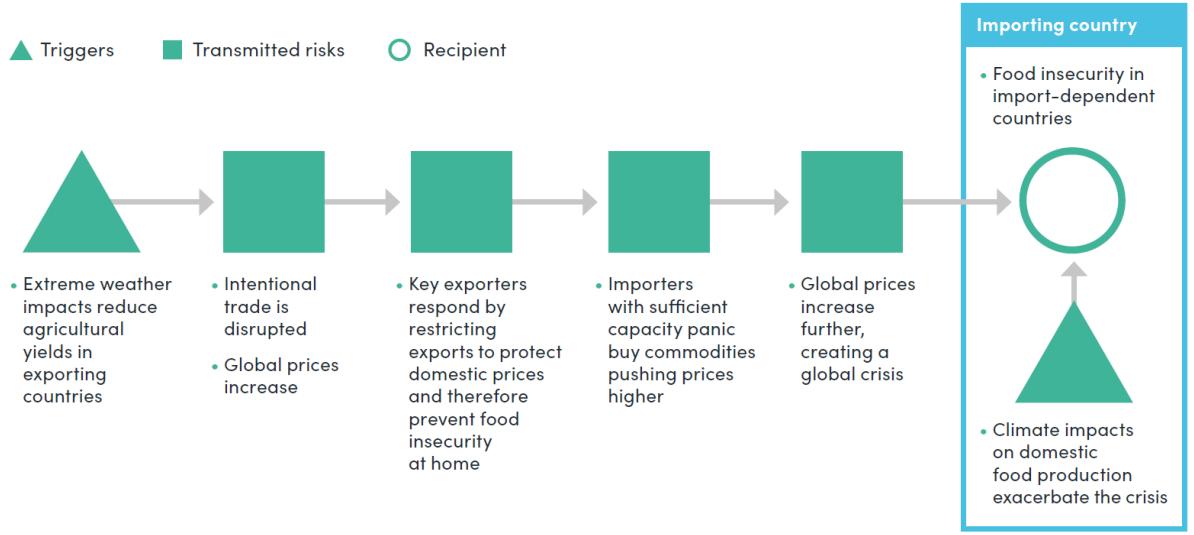
USDA 2009; UNCTAD 2009

2008 and 2012 global food price crisis

- Thailand's long-grain rice prices exceeded $1,000 per ton in late April 2008, more than double of prices in early February and triple of prices in November 2007.

Major short-term factors for price rise

- **Floods:** Thailand, Vietnam, Lao PDR experienced heavy rainfall events leading to floods



IDDRI, 2022

- Export bans and restrictions by rice exporters: Vietnam, Cambodia
- Panic buying by several large rice importers: The Philippines
- Flow of funds into commodity markets from stocks and real estate in 2007 and early 2008 that added to price volatility and may have temporarily boosted prices.
- A sharp decline in the value of dollar in fall 2007 and winter 2008

USDA 2009; FAO 2009; UNCTAD 2009

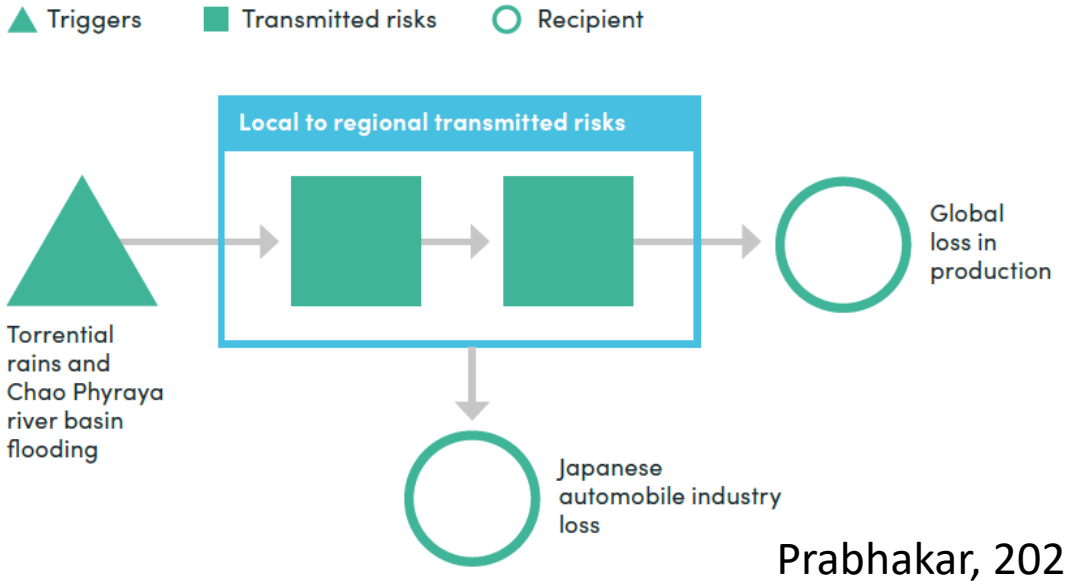
2008 Global food price crisis: Major long-term factors

- Extremely **high nominal crude oil fuel** and fertilizer prices (conflict in Middle East, Iran nuclear plans, Hurricane Katrina etc)
- **Increased biofuel use** of corn and oilseeds, food-fuel conflict of associated agricultural land use for biofuels
- The **depletion of excess global rice** stocks
- Negligible yield growth for rice over the past decade
- Sharply rising incomes in developing Asian countries
- Very high prices for other foods

USDA 2009

Bangkok Floods and Industrial Supply Chain Disruptions

- A total estimated loss of 47 billion USD, 90% of the losses were accrued to Japanese companies and related investments.
- More than 550 Japanese affiliate firms were affected by these floods, production facilities such as buildings and machinery were severely affected.



Prabhakar, 2022

- Supply chain impacts: As these firms provide supplies to other factories in Malaysia, Vietnam and Indonesia and other parts of the world, the production of these factories were also affected due to the shock to the supply chains.
- The loss borne by the Japanese insurance companies stood at about 1.8 billion USD.
- The impact on the industrial production of the world was estimated to be 2.5% (Haraguchi & Lall, 2015).

Commonalities Behind COVID and Climate Change as Transboundary Risks

- Interconnectedness of our socio-political and economic systems
  - Regional and global economic and social integration.
  - Distributed manufacturing/production systems with fragile connections
- Risk governance structures that doesn't govern the entire system within which risks operate leaving 'risk islands' where disruptions can take place (typically and easily visualized in the case of supply chains that span across multiple countries and continents)
- Common exposures: A lot of similarities can be found among the exposure elements by both the COVID and climatic events as discussed before (supply chains e.g.). Both have affected countries with high socio-economic inequalities (Ringsmuth et al. 2022).
- Information failure: Lack of sufficient information for decision making and on the risk progression
- Due to information imperfection, we can observe either excessive risk taking or excessive risk aversion in both the cases.

The Boon and Bane of Integration in Asia

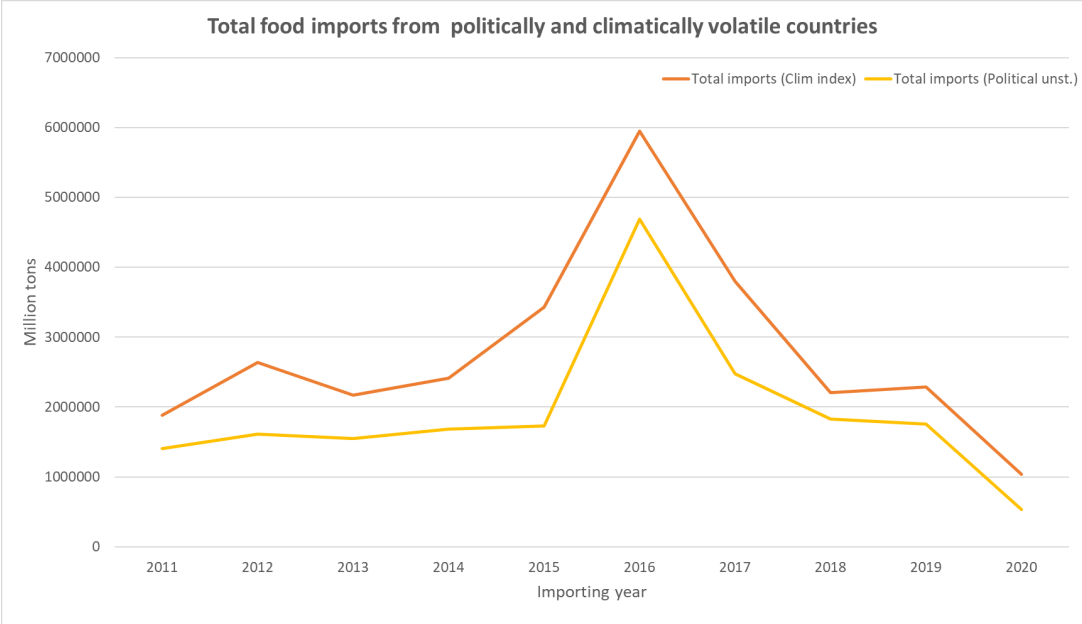
- Asia, the Southeast Asia followed by Hindu Kush Himalaya Region, are rapidly undergoing regional and global integration. We are more interconnected today than ever before.
- Benefits these interconnectedness: The reduction in poverty, increase in standard of life, and increased employment opportunities due to freedom of movement across the region (especially ASEAN) are some of the immediate benefits that people in the region have benefited from, increased resilience to shocks.
- On the contrary, regional integration has also brought distinct risks closer. Countries with under-developed risk management systems are the most affected, resulting in the globalization of local risks, and greater exposure to global risks.
- With greater dependency on transboundary natural resources, the natural resources in the region are coming under immense pressure because of the regional integration. With natural resource governance poorly developed, this could mean a significant impact for all the countries in the region.

Risk Management Implications

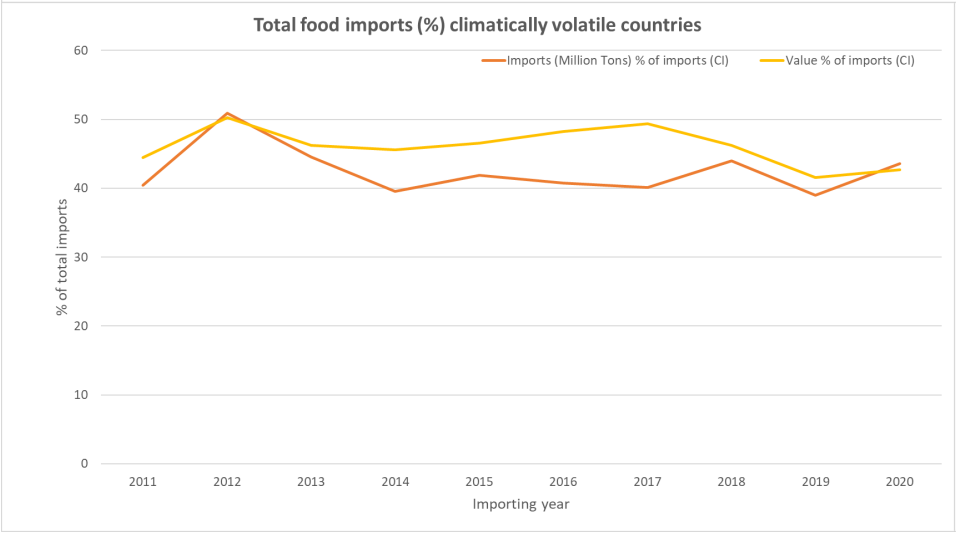
Embracing Uncertainty

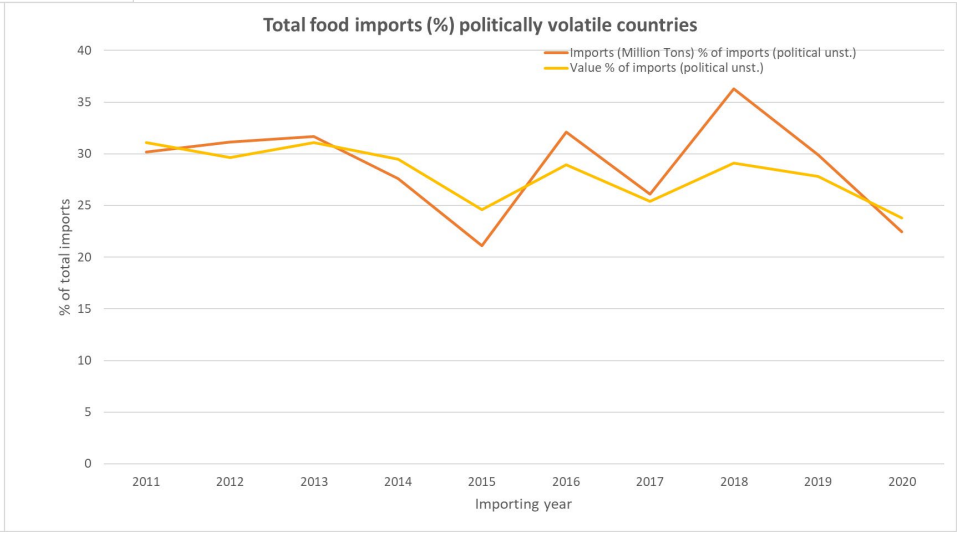
- Understand that not all risks are understood, quantified, and replicated in our simulation exercises (e.g. Dr Eric talked about external shocks with regard to policies and projects).
- Develop adaptive risk management systems that constantly evolve with iterative efforts. This also means constantly improving our risk assessment methods.
- More reliance on policy simulations, mock drills and scenario exercises to understand implications of unexperienced extremes
- At the institutional level, it means more independence of institutions and incentivizing institutional innovation, for e.g. to encourage them think long-term

Reduce Food Import Dependency on Fragile Countries: India



- 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?)

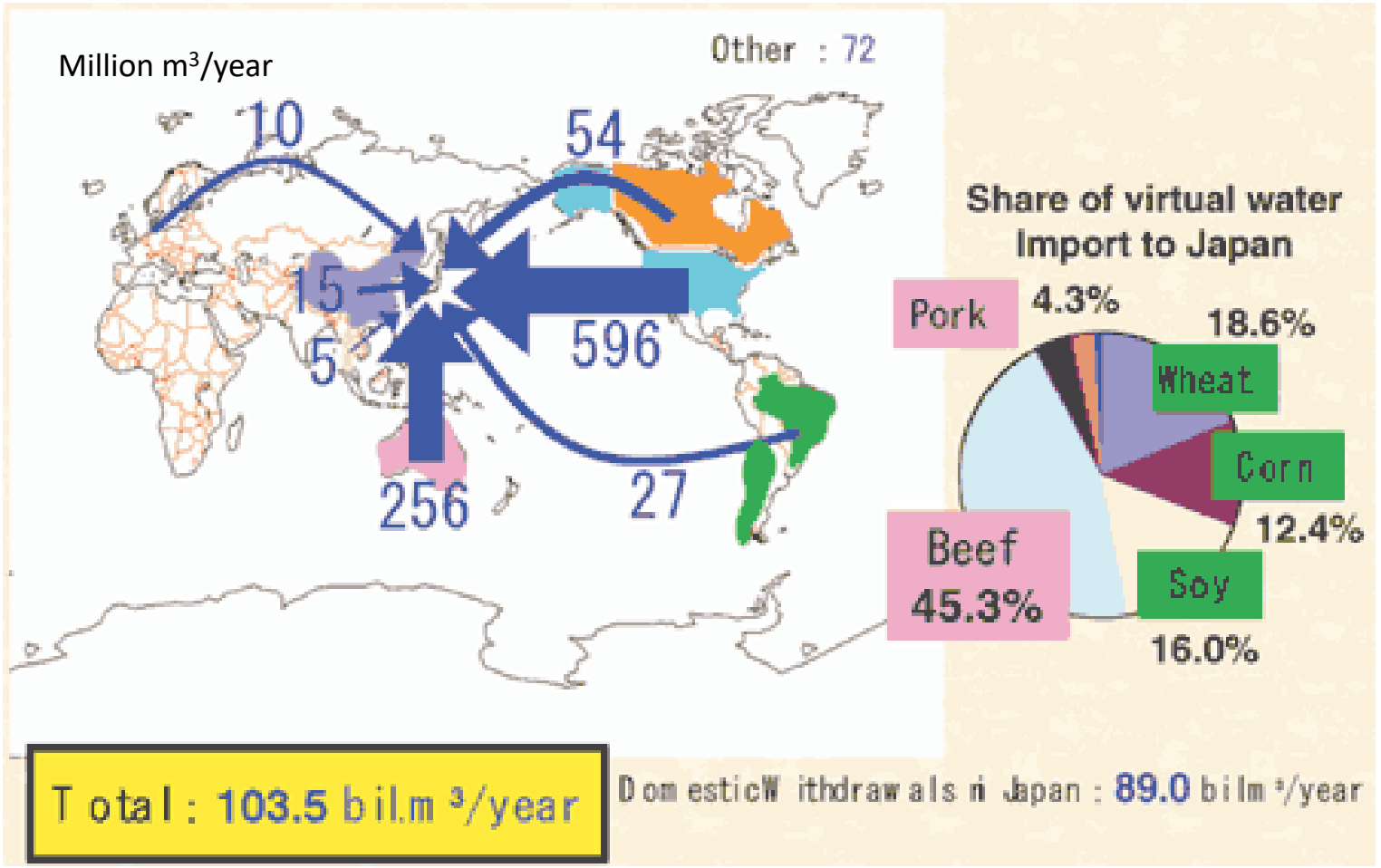




India also exports food to several of these countries in significant quantities.

Source: data from APEDA and Germanwatch, 2021

Reduce Food Import Dependency: Japan



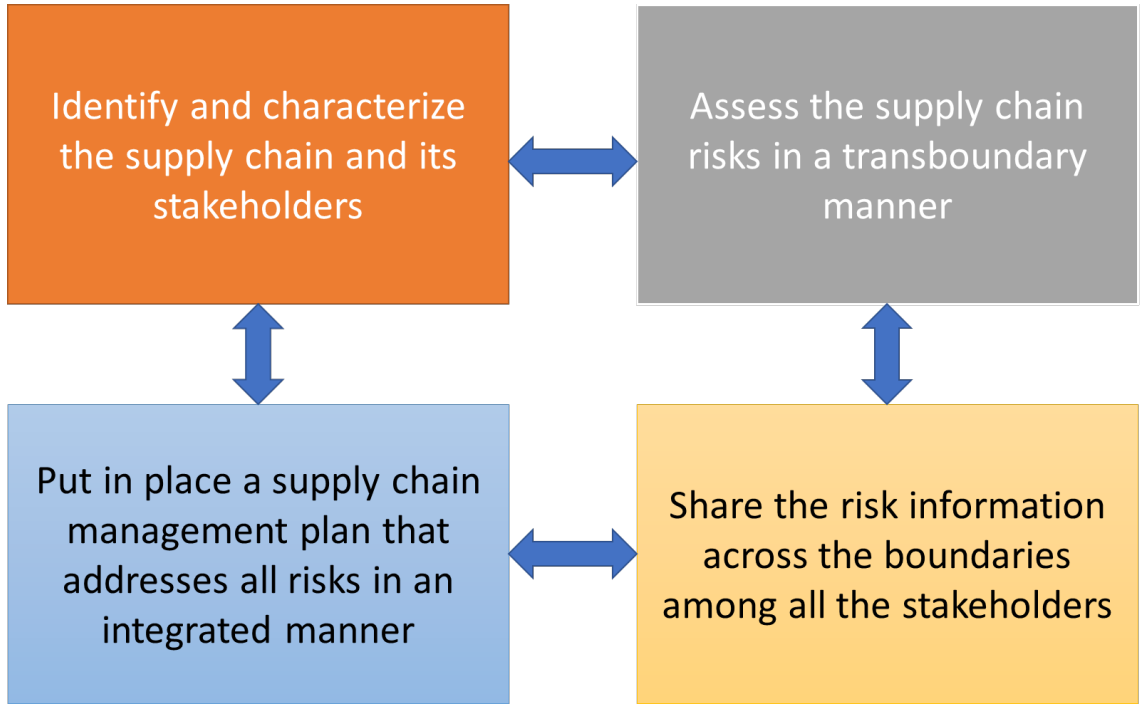
Inuzuka et al., 2008

- 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^3 of water by importing food per annum.
- Climate change impacts on countries from where Japan imports food means food and water insecurity for Japan.

Technical Measures to Mitigate Transboundary Risks on Food

- A global **food price forecasting system** that takes all risk factors into consideration.
- **Flexible food supply chains:** Food supply chains tend to be fixed in a short term. There is a need to understand food supply chains, make them resilient by making them more organic/flexible to take advantage of short-term shifts in supply and demand.
- Rely on **local food supply chains** and phaseout dependency on global supply chains.
- **Smart food buffer stocks:** that are linked to the medium and long-term risk projections (including weather, climate and pandemic shocks)

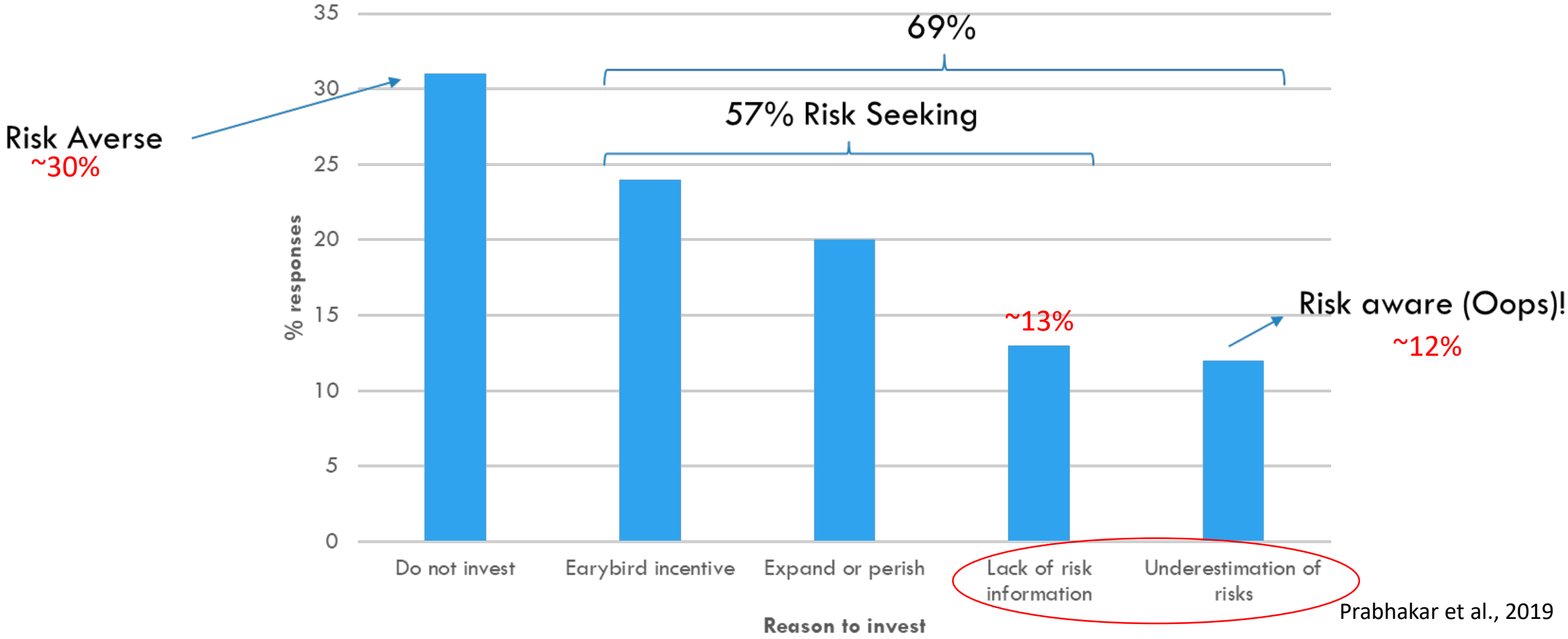
Supply Chain Risk Management



Prabhakar, 2022

- The current supply chains operate with high ‘secrecy’ with limited understanding of vulnerabilities of individual layers/tiers and entities.
- Conduct risk assessments at the whole supply chain level as opposed to individual tier/node level
- Share risk information within and beyond supply chains transparently.
- Supply chain risk management should be put in place and shared across the chain, and organize scenario exercises
- Supply chain risk insurance?

Risk Assessment and Risk Communication is the Key



Prabhakar et al., 2019

- Majority of foreign investing entities do not have deeper understanding of local risks!
- Transboundary climate risks are seldom considered.
- There is a poor risk communication between FDI recipient countries and investment entities.

Revisiting Risk Assessments

- **Integrated risk assessments:** fragmented risk assessments not recognizing links with other sectors and regions lead under estimation of risks and inefficient risk communication.
- Removing the **‘sensitivity’** attached to sharing risk information, can spark regional cooperation in risk management (Among all, corporate risk information is highly protected).

Bringing Systems Perspective to Risk Management

- What do we mean by systems perspective? Look at the whole rather than understanding the whole as a collection of individual components or looking at them separately.
  - Redundancy: Multiple pathways as in the case of identifying multiple supply chains to quickly shift sources in a short notice
  - Variety: Rely on a range of solutions, and engaging diverse stakeholders in the decision making can contribute to resilience by bringing more flexibility to the system
  - Modularity: Design components of the system such that they can work independently if the whole has to collapse or contain the shock within a cluster. This also means some amount of redundancy of functions built into each cluster.

Inter-scale Coordinated Risk Management

Regional level risk management planning

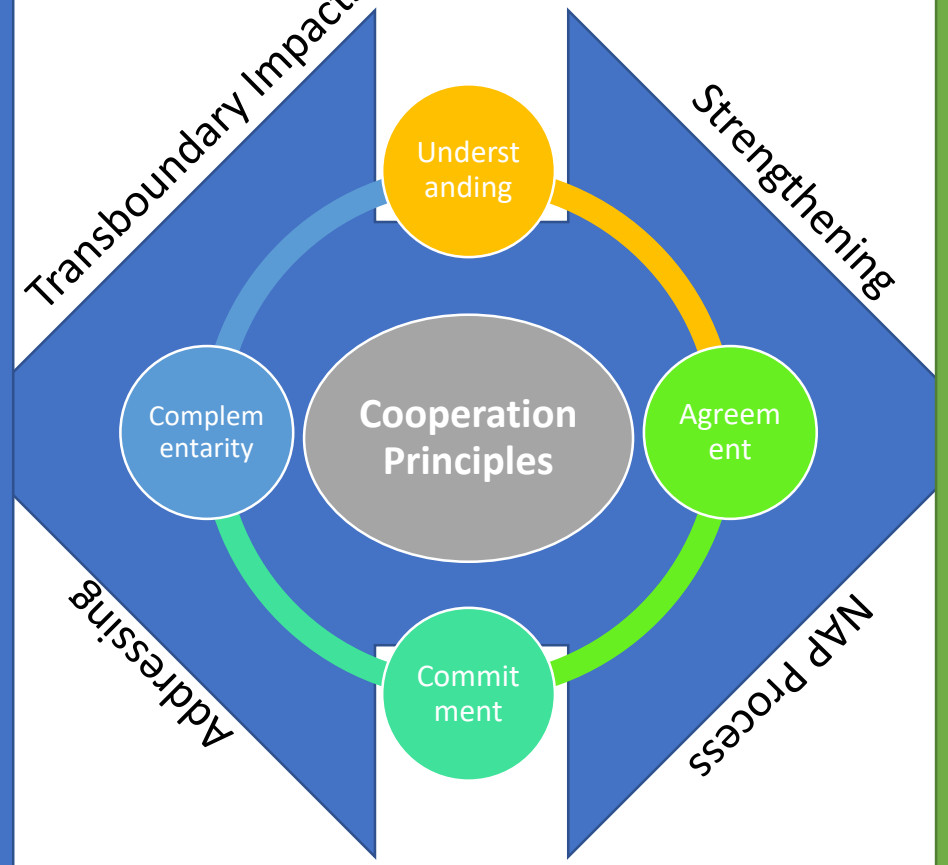
Characterize and agree on regional natural resources and flows

Mapping of inter-country/inter-regional dependencies

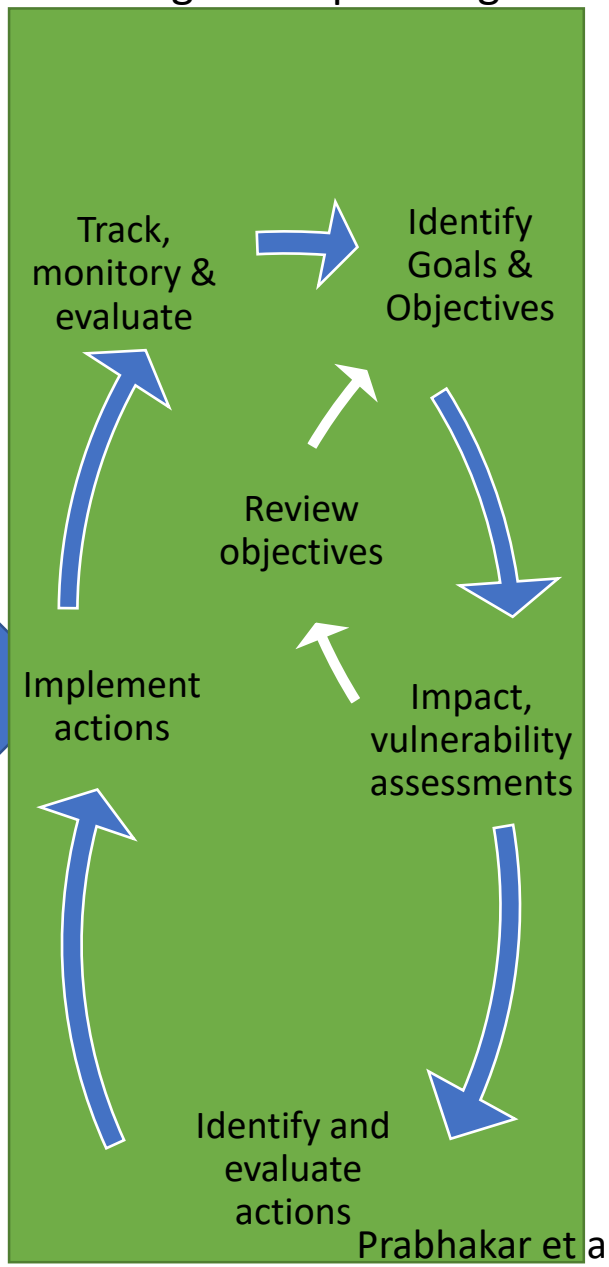
Characterization and quantification of transboundary impacts of climate change

Regional and national adaptation goals

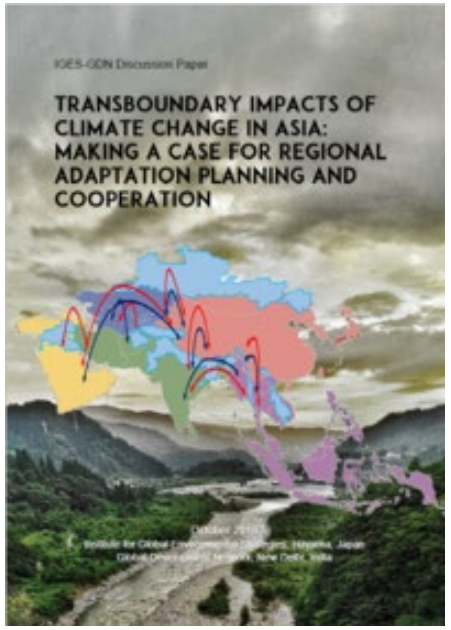
Implementation & benefit sharing: Characterization and quantification of benefits of interventions



National level risk management planning



Prabhakar et al., 2020



https://pub.iges.or.jp/pub/transboundary-impacts-climate-change-asia

Transboundary Impacts of Climate Change in Asia: Making a Case for Regional Adaptation Planning and Cooperation

https://www.iges.or.jp/en/pub/globallocal/en

International investments and businesses as enablers of globalization of local risks: A case for risk communication and climate fragility reduction

Thank You!

For more information, please contact prabhakar@iges.or.jp