

8 JUNE 2022

# Investment and Finance

Dipak Dasgupta, Distinguished Fellow TERI  
IPCC Lead Author Chapter 15

# Ch. 15 Investment and finance

IPCC WGIII REPORT

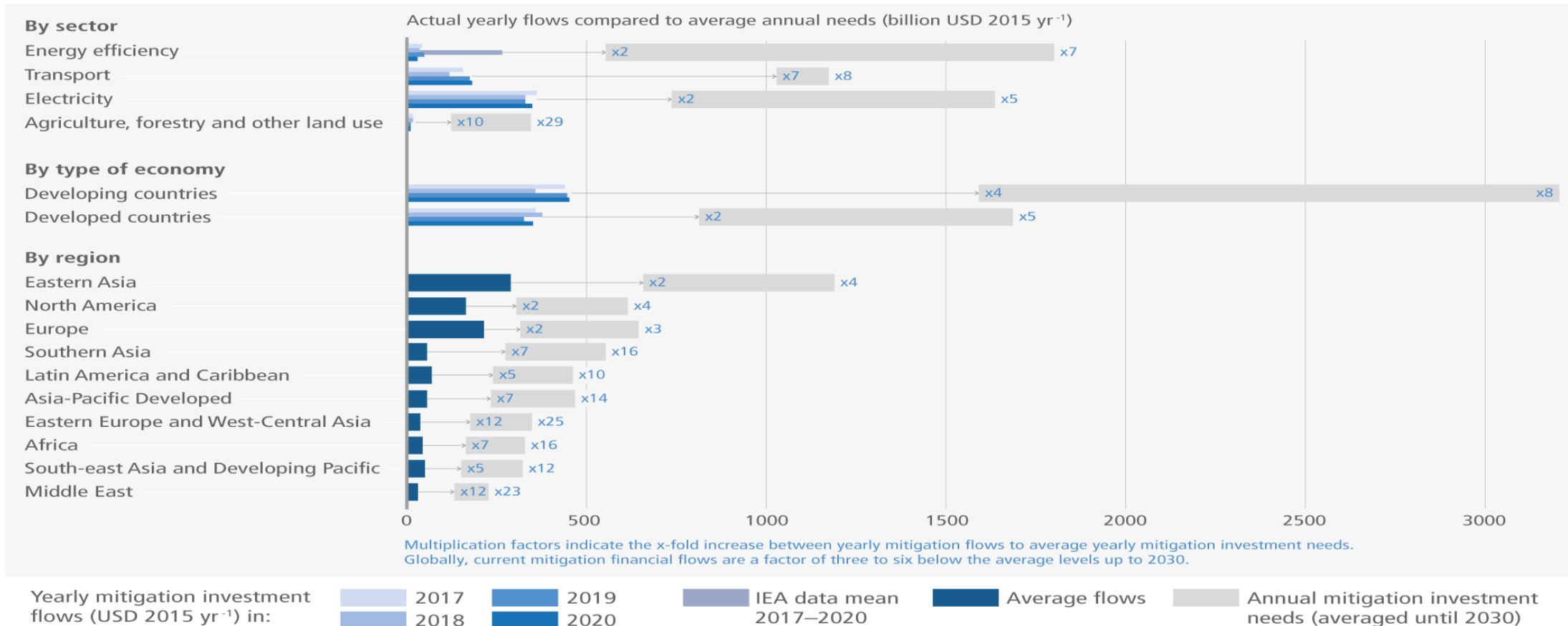
Included

- 26 experts: 11 lead authors, 10 contributing authors, 3 Chapter scientists and 3 Review Editors
- 2-year period contributions + reviews, 4 Lead Author Meetings
- Literature cut-off: 11 October 2021
- 1000+ published literature cited (5 time greater than 2014 AR15 chapter)

# Finance: Key Questions, 2022 (AR6) versus 2014 (AR5)

- ***How Big are measured annual climate finance flows?*** Public and private (USD 685 billion 2018, versus USD 359 billion 2012) (multiple sources)
- ***How Big are the Gaps in Financing?*** Investment Needs versus Flows to Achieve the Low-Carbon Transition (USD 3-5 trillion a year, versus est. USD 1.2 trillion earlier). Biggest gap in developing countries.
- ***What are the Barriers and Enabling Opportunities?***
  - *Crises and Macroeconomic Headwinds* (2020 Pandemic+ debt+ climate effects; versus 2008 GFC),
  - *Progress in USD 100 Billion Goal to Developing Countries* (Weak, earlier n.a.)
  - *Progress in Aligning the Financial System* (Weak, earlier n.a.)
    - \* Continuing high fossil fuel investments which exceed low-carbon
    - \* Gaps in financing and costs in developing countries highest
    - \* Flows to low-income and vulnerable countries weakest (Just Transition)
    - \* Credible signals required from governments (+ climate risk disclosure)
    - \* ***Many Immediate and actionable steps/options feasible***

# Tracked financial flows fall short of levels needed (3-6 times bigger annually for 2020-2030) to achieve mitigation goals



# Seven Urgent Options > Scaling Up Climate Finance to Developing Regions

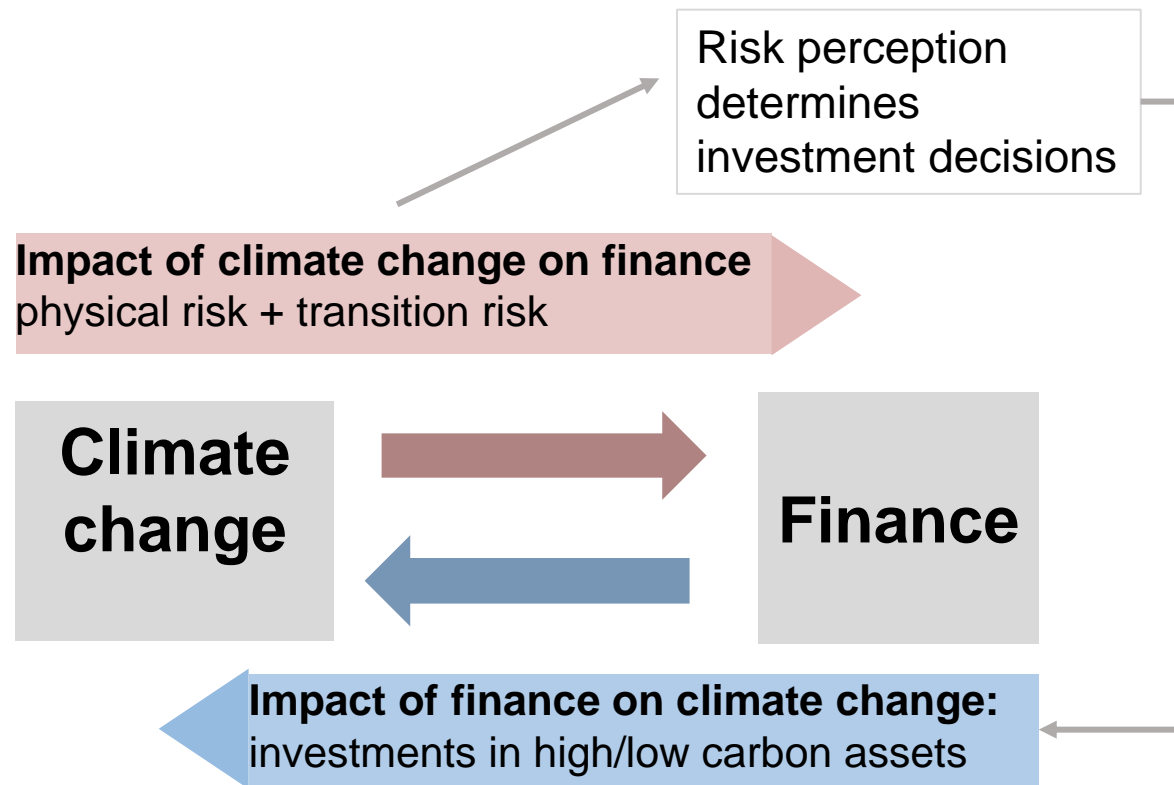
- **Accelerated financial support from developed to developing countries is critical enabler** of low-GHG and just transitions: address high costs, terms and conditions of finance, and vulnerability to climate change
- **Scaled up public grants** for mitigation and adaptation funding for vulnerable countries, especially in Sub-Saharan Africa; cost-effective and high social returns in access to basic energy and related SDG goals
- **Increased levels of public and publicly mobilized private finance** in the context of unmet USD 100 billion-a-year goal, a ‘redesigned USD 100 billion-a-year goal’ essential in scale, priorities, instruments and transparency in context of escalating gaps (‘trillions, not billions’) and macro-financial headwinds
- **Public guarantees** to reduce risks, lower budgetary cost and leverage private flows at lower cost underused
- **Support local capital markets development**
- **Build greater trust** in international cooperation **processes** (definitions, information, capacity, conditions, partners)
- **Coordinated post-pandemic recovery** with increased climate finance flows, in developing regions facing high debt costs, debt distress and macroeconomic headwinds

# Aligning the Financial System (Art. 2.1 (c)) will need more than ‘climate risk disclosure’

- **Green bonds, ESG** (environmental, social and governance) and sustainable finance products have expanded since AR5, but finance flows remain below needs in all sectors and regions, transparency/taxonomy missing
- **Finance flows for fossil fuels** are still greater than those for climate adaptation and mitigation
- **Sufficient global capital and liquidity** to close global investment gaps, given the size of the global financial system (USD 225 trillion, growing by 7% annually)
- **But Deep barriers to redirect capital** to climate action both within and outside the global financial sector and given macroeconomic headwinds (IPCC scenarios/models do not include a ‘financial sector’, nor impacts of periodic macro-financial cycles, ‘shocks’ and ‘monetized damages’\*)
- **Clear signaling** by governments>stronger alignment of public finance and policy essential>reduce risk and uncertainty for investors
- **Central banks** and financial regulators can do much more to support climate action
- **Technology development**, diffusion and transfer
- **Climate funds** and MDBs/development banks role still modest
- **Lowering financing costs** for underserved groups, communities, gender-responsive such as green banks, funds and risk-sharing mechanisms
- **Enhanced international cooperation** partnerships, including sub-national regions, cities, and state and non-state actors

# Climate and finance: risks and impacts

A TWO-SIDED RELATION: 1. RISK



Source: author's illustration based on AR6 WGIII Ch.15

## Climate-financial risk

**Physical risk:** Mitigation report 'overemphasizes' late (2050-2100) risks, beyond NT financial horizons; Adaptation Report has NT risks but non-monetized

- **Direct:** increased frequency/magnitude of climate-related hazards and chronic impacts → losses on physical assets and human lives
- **Indirect:** reduced food and water security → increased risk of conflicts → decreased value of land and businesses in affected areas

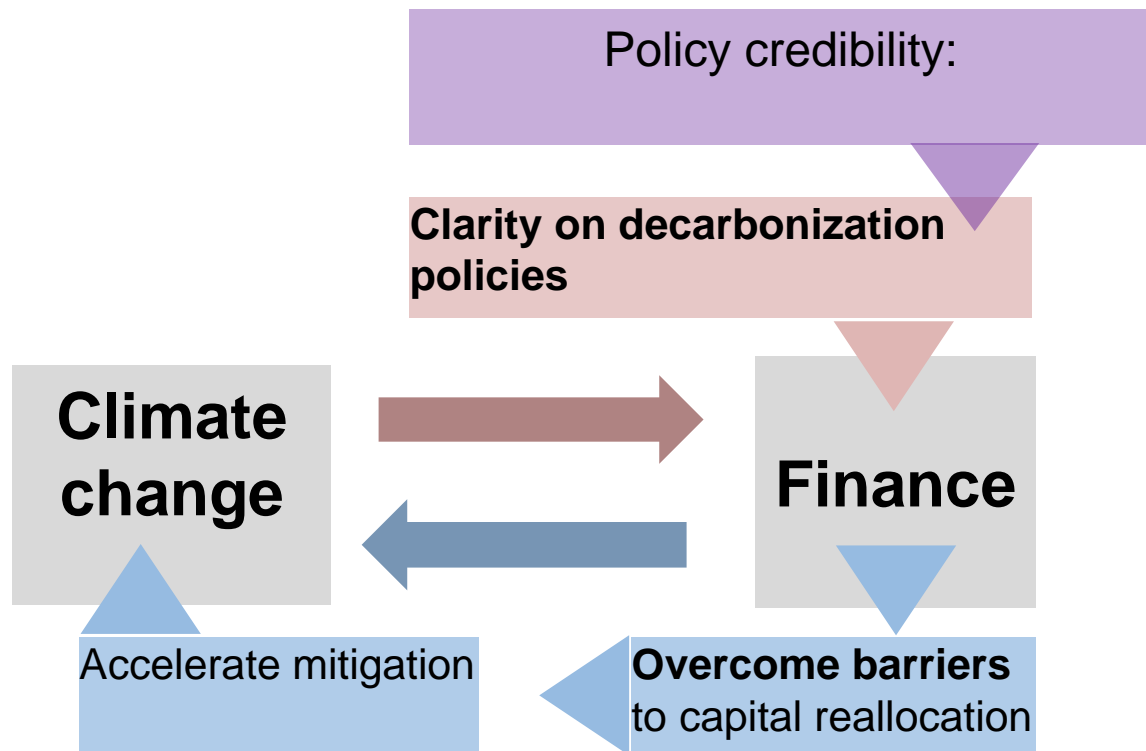
**Transition risk:** policy change & carbon price risks

- **Orderly** transition is ideal scenario.
- **Disorderly** transition: complexity of policy process implies possibility of late and sudden transition (+Stranded Assets) with unanticipated effects on prices and financial stability.
- The purpose of assessing transition risk is to avoid its materiality.

Source: AR6 WGIII Ch.15

# Policy ‘credibility’ is central

POLICY CREDIBILITY CAN REDUCE UNCERTAINTY IN DECISION MAKING



Source: author's illustration based on AR6 WGIII Ch.15

## Governments and Intern. Community

Clear policy signalling is the key to:

- reduce uncertainty on future scenarios
- instruments that are aligned with public finance constraints
- create incentives to reallocate capital towards climate-aligned investments for decision makers
  - in public and private financial institutions
  - Households
  - Political and social consensus

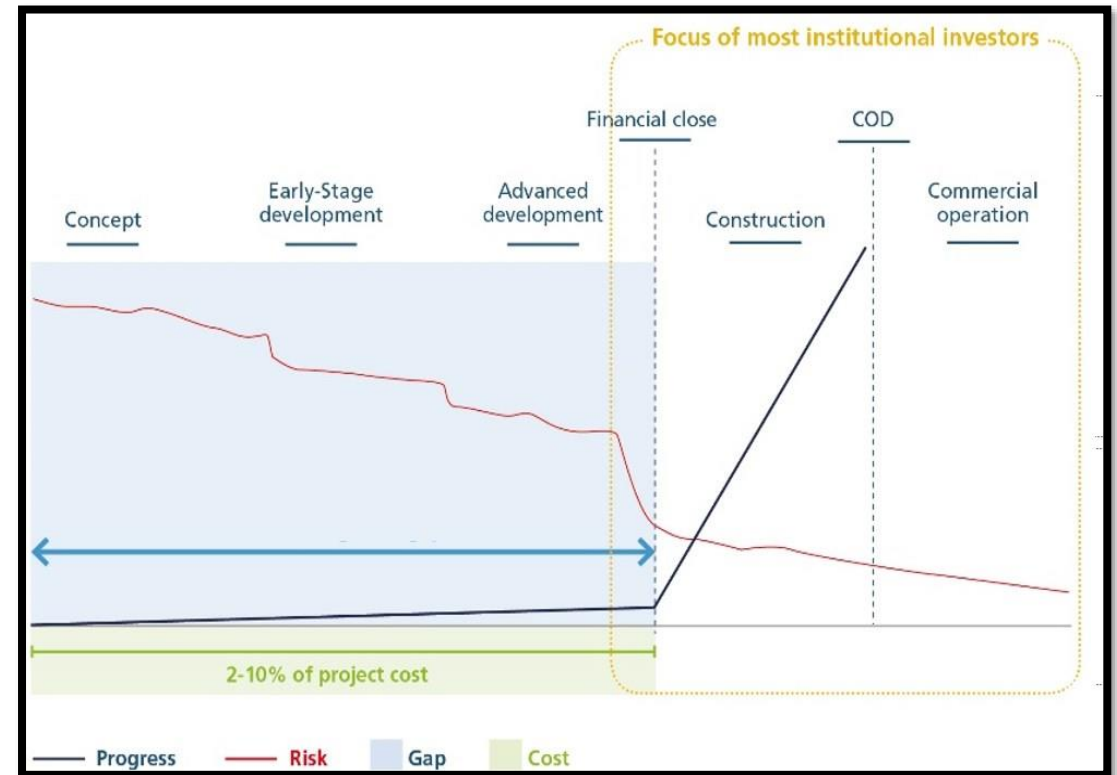
Source: AR6 WGIII Ch.15



# Early-Stage Risk Reduction in Capital Markets Critical

## Highest risks of failure are at initial stages

- Grants and technology support can de-risk early project preparation
- Concessional finance, grants and guarantees can de-risk second stage
- Institutional investors pick-up the later and mature financing stage
- Facilitated by standardised national infrastructure style bonds, funds
- Partial credit and sovereign guarantees can play a key role
- As well as overall policy support
- Cross-Border risks are the highest, because of 'home-bias' factors




# Recall WGII Report: Observed and projected Impacts and Risks, including Near-Term (2021-2040)

- **More frequent and extreme events causing** widespread adverse impacts (WGII non-monetized\*), and related losses and damages. Most vulnerable are disproportionately affected. Finance needs insufficiently internalized in planning and budgeting or flows
- **Extreme:** Heat-related events mortality, wildfires, tropical cyclones and heavy precipitation, attributed to human-induced climate change
- **Reduced food and water scarcity**, millions of people exposed. Roughly half of world's population currently experiences severe water scarcity for at least some part of the year
- Many eco-systems and human systems worldwide
- **Approximately 3.3 to 3.6 billion people highly vulnerable to climate change**, with hotspots in Africa, Central and South America, Small Island States
- \* [Monetized losses are climbing everywhere, with 'billion dollar' weather and climate disasters rising (USA ncdc/noaa/EEA). Globally, economic losses have increased seven-fold from 1970s to 2010s (WMO Atlas). Current levels of monetized damages about USD 0.3%GDP , or 0.25T annually. 66 out of 72 events studied between 2015-2017 had major human influence related (WMO)]. Current costs of adaptation are in range of USD140-300 billion a year, rising non-linearly with higher temperatures and risks to USD280-500 billion a year by 2050, half in DCs]
- **Global warming, reaching 1.5°C in the near-term**, will cause increased multiple climate hazards and risks—highest where species and people close to their upper thermal level, coastlines
- **Levels of risk for all Reasons for Concern (RFC)** (('burning embers') higher with 2 RFC shift to high to very high at lower global warming levels than in AR5: extreme weather events and unique and threatened systems at 1.5 [1.2 to 2.0] °C, some widespread and irreversible if adaptation low and exposure and vulnerability high
- **Beyond 2040**, numerous risks, multiple times higher than currently observed for 127 identified key risks—magnitude dependent on near-term mitigation and adaptation actions, and rapidly rising with temperatures. Food, diseases, coastal settlements, cities. **Non-linear damages\***
- \***[Alt Damage estimates** vary widely: 1.9-17.3% of GDP for 3C under IAMs. More careful meta-analysis removing statistical 'biases' suggest non-catastrophic damage estimates between 7-8% of GDP for a 3C temperature rise, 'optimal' temperature rise much less. Alt. peer-reviewed CGE article suggests damaged USD5 trillion annually in 2C, rising to USD 10T in 3C and 23T in 4C][insurance industry estimate: USD23T (10% GDP) by 2050 (SwissRe) Large uncertainties, itself raising the costs has been suggested.] [There are separate and large mortality related costs to human health outcomes, some 3.2% of GDP]. Transition risks highest in energy, utilities and industry/materials manufacturing. First utility bankruptcy (transient) with USD 25.5 billion losses already occurred

# WGII: Adaptation Measures and Enabling Conditions

- **Complex, Compound and Cascading Risks, Difficult to Manage.** Multiple hazards occur simultaneously and interact with multiple climate + non-climate risks. Heat, droughts and crop-losses, sea-level rise with storm surge and heavy rainfall, cascading impacts
- **If global warming transiently exceeds 1.5°C in coming decades (overshoot), many human and natural systems face severe risks, some irreversible. Progress in adaption, planning but uneven,** prioritizes immediate risk, not transformational
- **Widening disparities of costs of adaptation and finance allocated.** Adaptation options have long lead times and accelerated implementation critical. Only 4-8% of tracked finance for adaptation, and very low levels Africa and SIDS
- **There are many feasible and effective adaptation options.** In water-related, early warning systems, structural measures like levees, restoring wetlands, on-farm management, water storage, irrigation well-managed. Similarly for food systems, cultivar improvements, agroecological practices. Urban basic services, community-based adaptation. **Finance** globally more directed at physical infrastructure than social, and private finance very limited (tracked private adaptation flows 1% of adaptation finance), lack of innovative finance, health
- **Soft limits to adaptation** (financial constraints) across sectors and all regions, especially developing countries. Many natural systems are approaching **hard limits** with increasing global warming (warm water corals reefs, coastal wetlands). **Maladaptation**—responses locking-in vulnerability, exposure and risks. Multi-sector and inclusive planning needed
- **Key enabling Conditions:** Political commitment across all levels of government, upfront investments, institutional frameworks, **adaptation finance is fundamental**, especially for vulnerable groups, regions and sectors. Public finance to leverage private finance
- **Climate resilient development** is urgent in solutions framework—rapidly narrowing window of opportunity, to harness synergies and reduce tradeoffs between adaptation and mitigation and advance sustainable development. Governments and civil society. Wide-ranging knowledge system. Prioritise equity, eco-system stewardship. Planning processes, investment, 'low-regret' options, inclusive governance

# WGII: Cross-Chapter Boxes on Finance and Loss and Damage

- **Estimated cost of adaptation** in developing countries alone is 15-411 billion USD per year till 2030, well above USD 100 billion in majority
  - **The proportion of total tracked climate flows** allocated to adaptation is 4-8%, large majority from public sources
  - **Grant support** is the most appropriate for many investments that have inadequate financial returns such as capacity building, planning, disaster risk management and response, community engagement, safety nets and social vulnerabilities
  - **Current finance remains heavily skewed** towards mitigation and LDCs less able to access finance, and very little channeled to local communities
  
  - Without strong risk management and adaptation, **losses and damages** will continue to affect the poorest vulnerable communities, potentially creating poverty traps
  - many highly exposed developing countries remain financial constrained in capacity to attend residual impacts and risk management needs
  - Assessment of L&D finance needs remain highly uncertain, so long as its its exact remit in relation to adaptation has not been clarified politically
  - Litigation risks for governments and businesses may increase, as attribution science matures
- 

# Thankyou

**Dipak Dasgupta**

Lead Author AR6 WGIII Chapter 15 Finance and Investments

ddasgupta01@yahoo.com



@IPCC\_CH  
#IPCCReport



@IPCC



@IPCC



linkedin.com/  
company/ipcc