

Risk, Resilience and Climate Change

The Cyprus Economic Society: Discussion Forum

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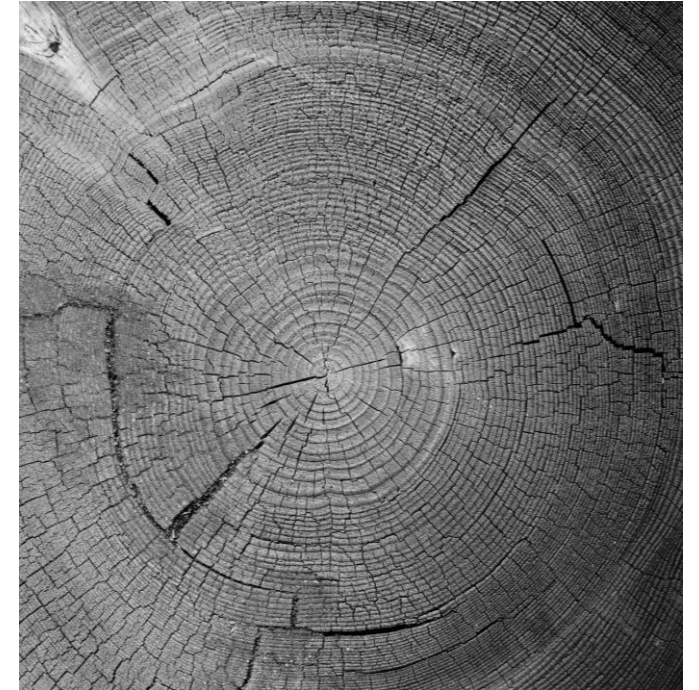


Reversing an Unsustainable Trajectory

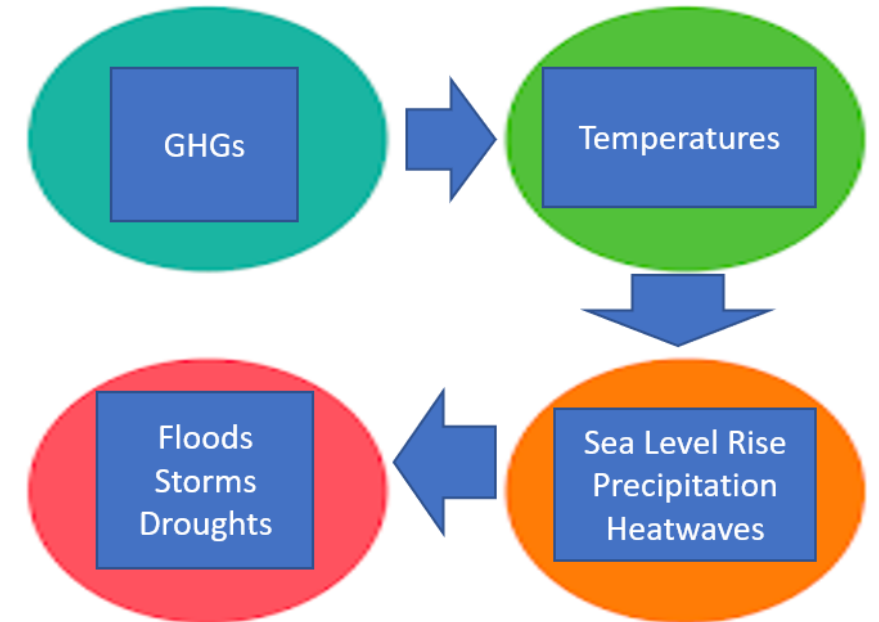
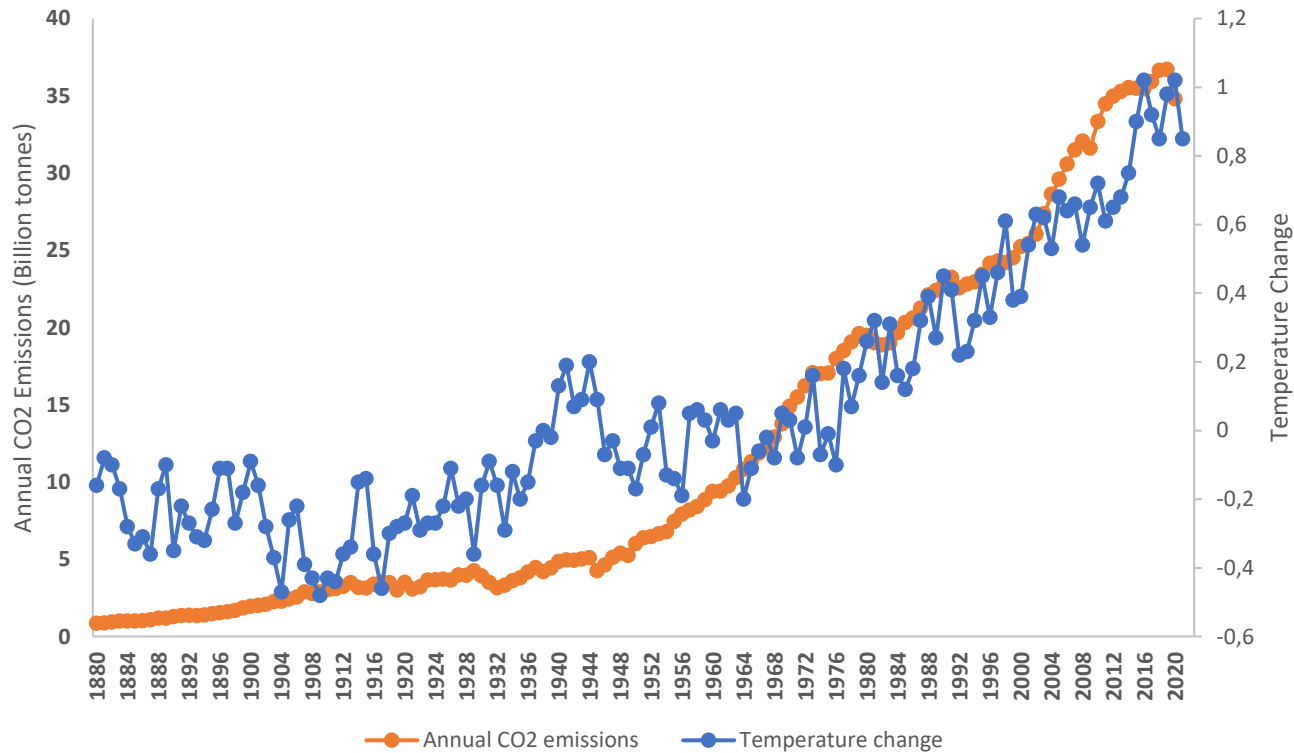
1. We must attribute damages to emissions and communicate this link to find traction for climate action.
2. To motivate climate response, socio-environment damage must be deducted from GDP growth.
3. With the exponential rise in the price of delay, resilience building in countries ought to be stepped up raised vastly.

1. Rising Impacts

- **DROUGHTS, WATER SCARCITY, RISING SEA LEVELS:** Worrisome projections for the Mediterranean.
- **RISING TEMPERATURES:** By 2100, hot days in Nicosia will increase by two months a year, resembling Cairo or Bahrain.
- **FOOD INSECURITY:** Drought across Sahel is causing a major slump in food production.
- **INVOLUNTARY MIGRATION:** 1.2 billion people could be displaced globally by 2050 due to climate change.



Connecting the Climate Dots



Source: Andrew and Peters 2021; Global Carbon Project 2021; NASA 2022.

Evidence from Attribution Reports

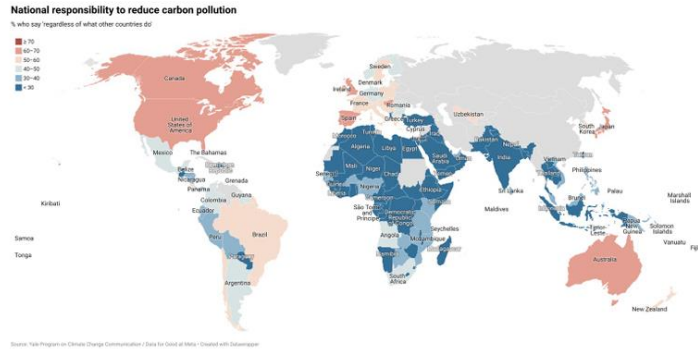
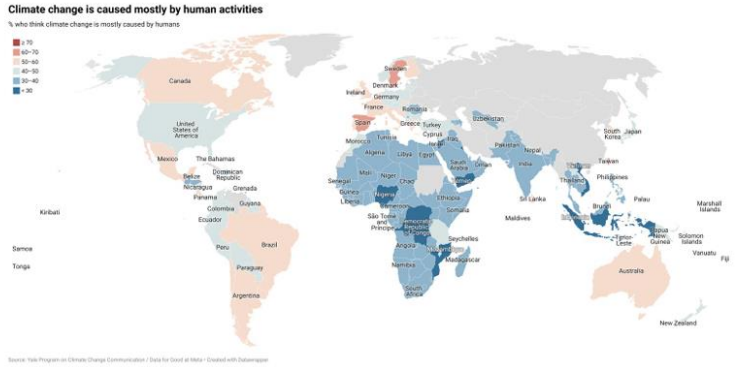
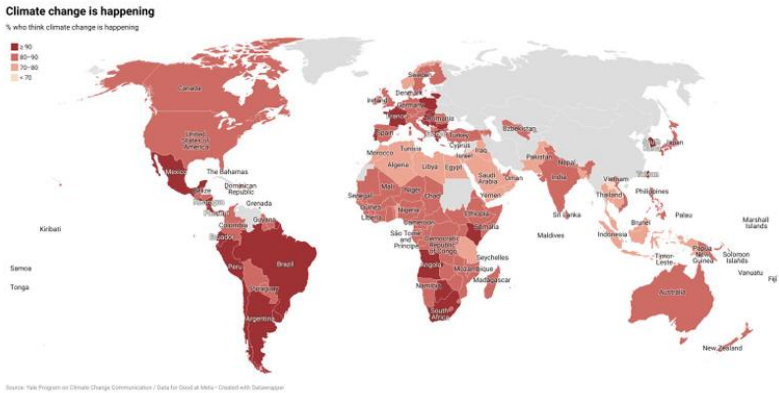
- The deadly floods in Belgium and Germany in 2021 were 1-9.0 times more likely compared to when temperatures had not risen 1.2°C from pre-industrial levels (Hodgson and Heal 2021).
- Unprecedented fires in Canada, Chile, Cyprus, Greece (2023): Climate change made the Québec's 2023 fires 50% more intense, and 7 times more likely.
- Human-induced climate change made the 2022 heatwave in India and Pakistan “30 times more likely” (World Weather Attribution 2022).
- The weather would have been 2-4°C cooler during the 2022 heatwave in the UK if not for climate change (Rannard 2022).

The Greatest Knowledge-Action Divide

Is it real? Yes

Human caused? Partly

National agenda? Unsure



Source: Yale Program on Climate Change Communication. 2022

2. Economics of Climate Action

Cost of Action

- Keeping temperatures below 1.5°C would cost in energy alone of US\$ 2010 2.4 trillion a year (from 2016) through 2035, with US\$36 trillion in total (IPCC 2019).
- US\$6.3 trillion will be needed globally each year until 2030 to build climate infrastructure (OECD 2022).

Cost of Inaction

- Averted global indemnities with 1.5 degrees centigrade could be [US\\$150-800 trillion](#) by 2100 (Wei et al 2020).
- Global real GDP per capita would fall by 7% by 2100 with a 0.04°C a year temperature rise in contrast to a 1% loss with a temperature rise of 0.01% under the Paris agreement (Kahn et.al. 2019).



But GDP Sends Wrong Signals

- Countries must replace the gross measure of growth, GDP, by one that nets out damages from externalities.
- Eliminate subsidies for fossil fuels and redirect them to solar and wind.
- All countries should adopt carbon pricing; plus, a quantitative restriction on fossil fuels.

Mitigation Shortfall and Lack of Financing

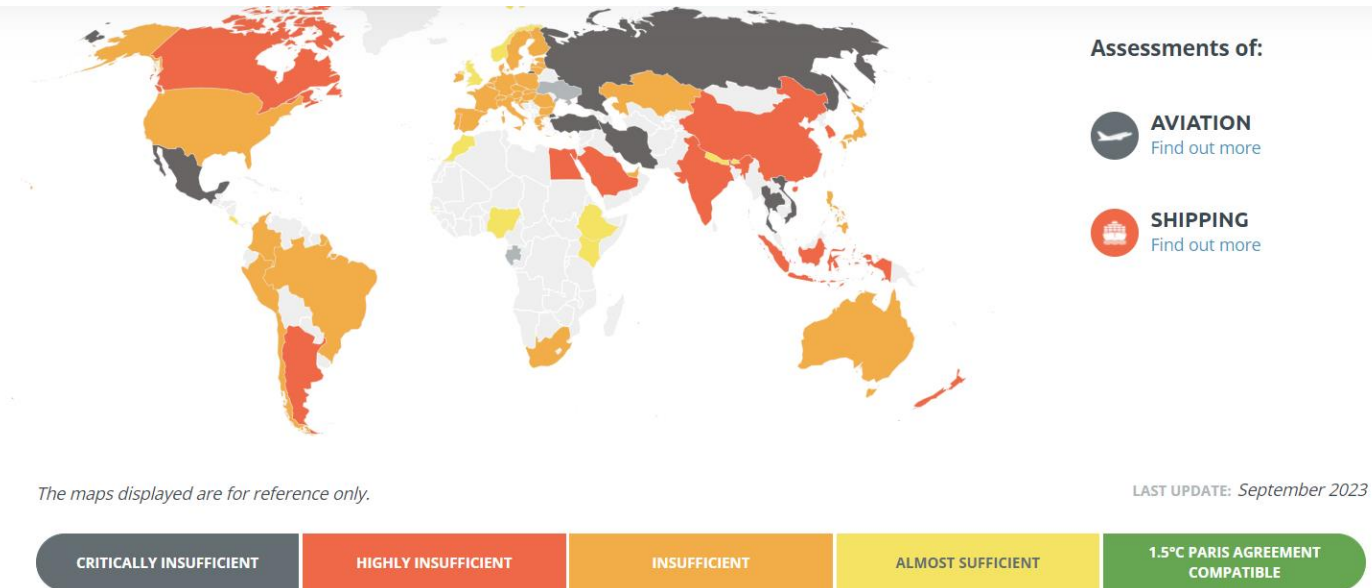
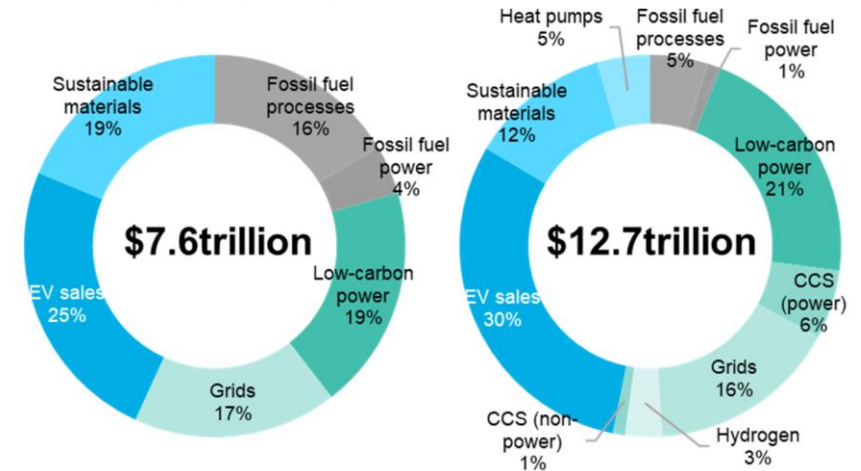


Figure 2: India investment in energy supply and demand, 2022-2050
Economic Transition Scenario



Source: BloombergNEF. Note: Majority of investment in low-carbon power includes wind and solar.

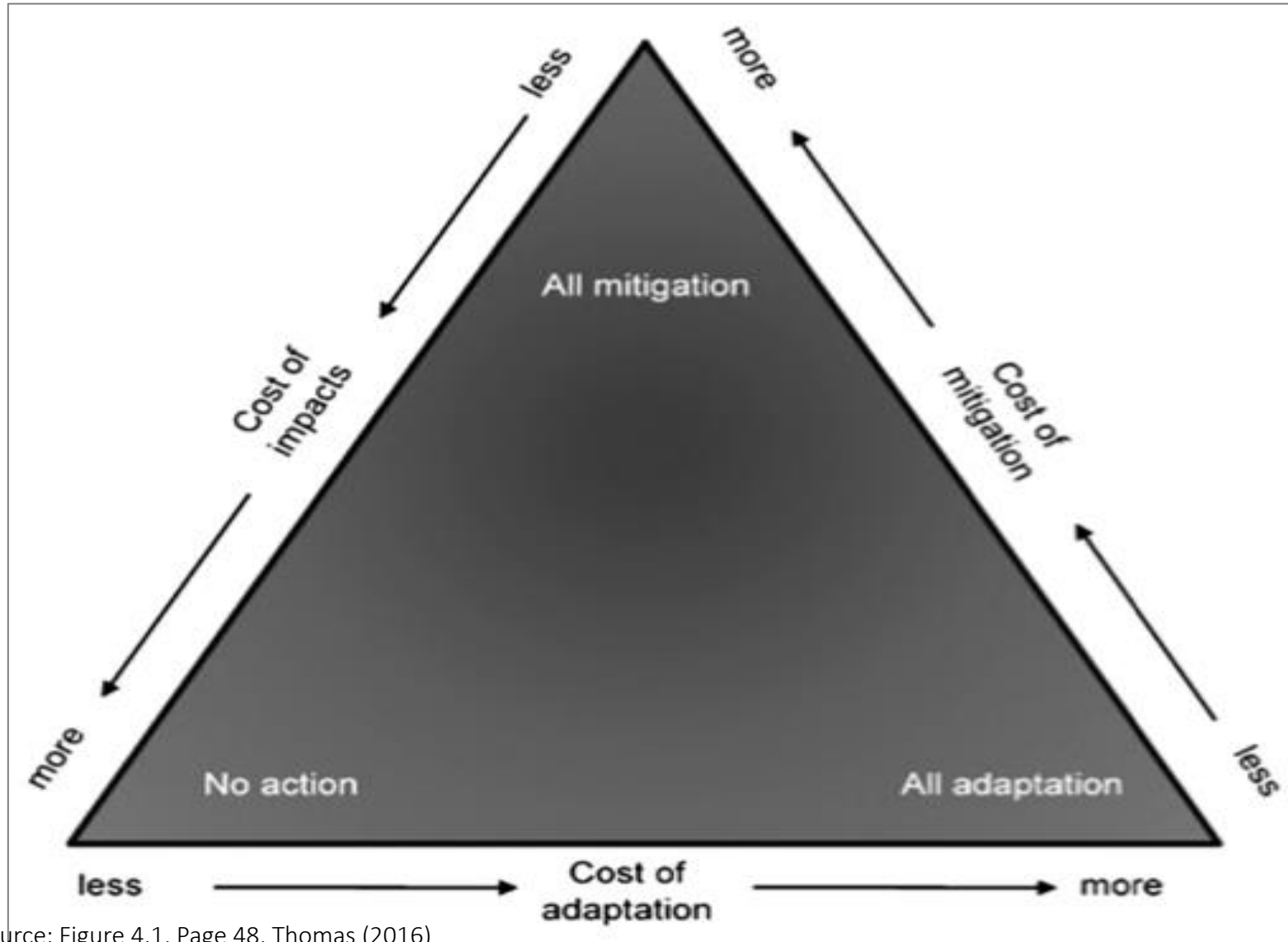
<https://about.bnef.com/blog/faster-deployment-of-clean-power-such-as-solar-wind-and-evs-can-enable-india-to-peak-emissions-before-2030/>

<https://climateactiontracker.org/countries/>

Ambitious Carbon Pricing?

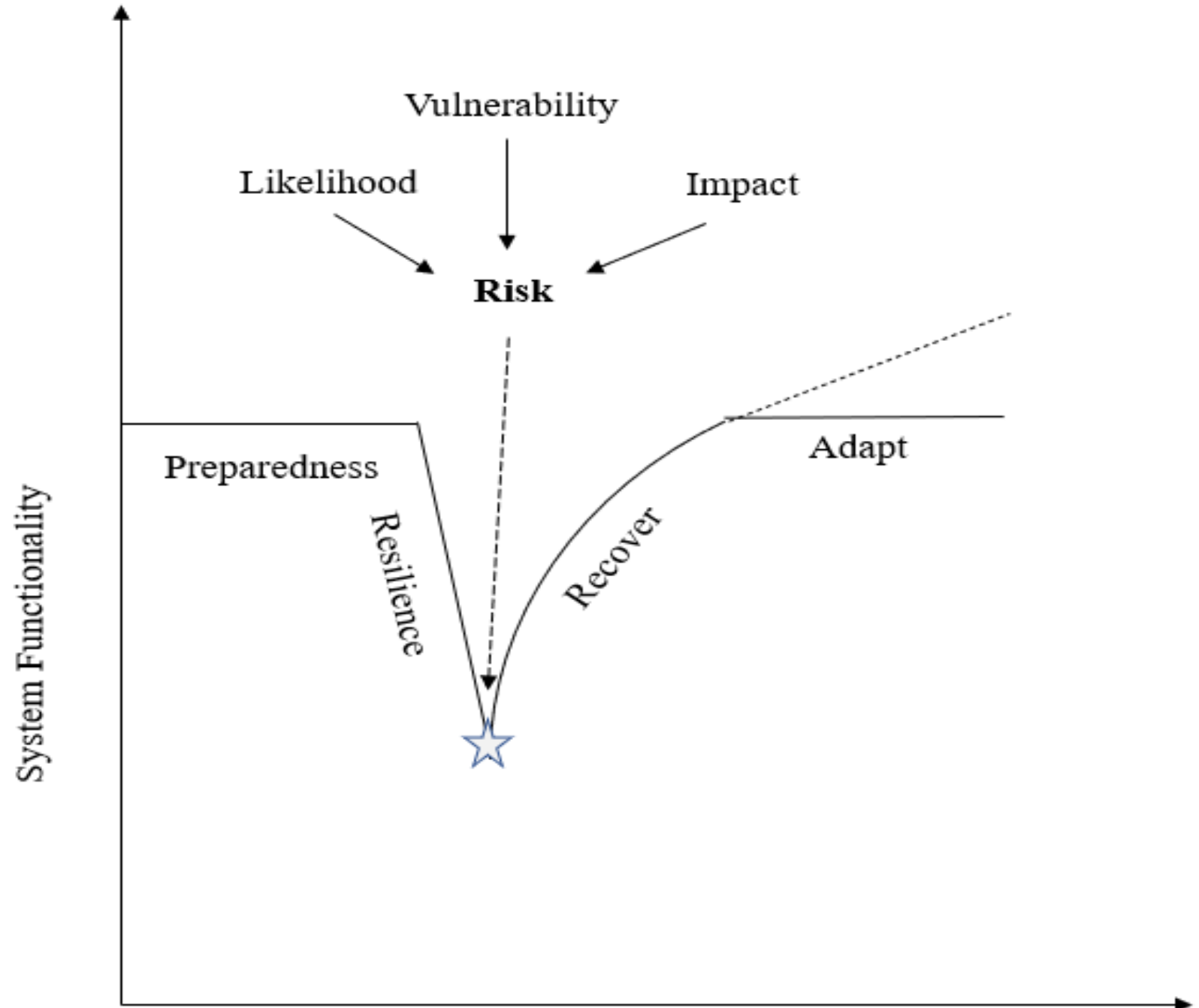
- Three ways: (i) carbon tax, as in Korea and Singapore; (ii) emission trading system, as in California and China; (iii) an import tariff on the carbon content as EU is proposing.
- [46](#) countries price carbon, covering 30% of GHGs and at an average price of only US\$6 a ton of carbon, but ranging from Japan's US\$2.65 a ton of CO₂ to [Denmark's](#) US\$165 (2030).
- EU, British Columbia, Canada, and Sweden [show](#) emission response and net benefits, but this needs strong pricing and [complementary](#) investments.
- [IMF's](#) proposal for price floors of US\$75, US\$50, and US\$25 per ton of carbon for the US, China, and India, respectively, which countries can apply using existing fiscal arrangements.

If Mitigation has Little Traction, Focus on Adaptation?



Source: Figure 4.1, Page 48, Thomas (2016)

3. Need Greater Preparedness



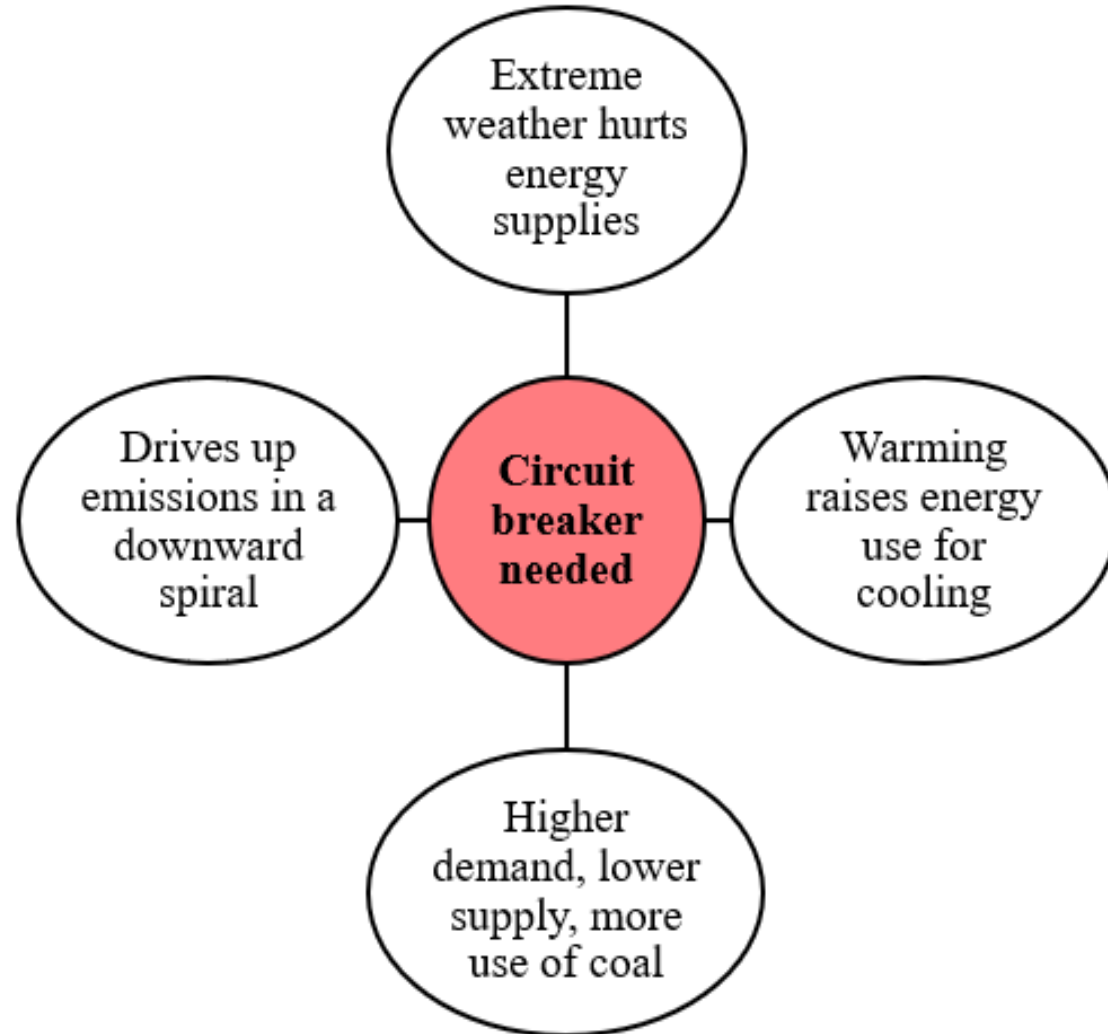
Innovative Resilience Building

- Experience may not be a sufficient guide, as in the unprecedented fires and floods of 2023.
- Need to innovate, and even break rules, as with junior high school students in Kamaishi City during the 2011 Tōhoku tsunami.
- [Dike](#) systems in Europe that elevate the riverbanks and increase the streamflow found efficient.
- Disaster-resilient housing in South Asia.



Non-Convergence of the Crisis

Energy deficit, driven by climate change, increased fossil fuels in 2023, raising emissions.



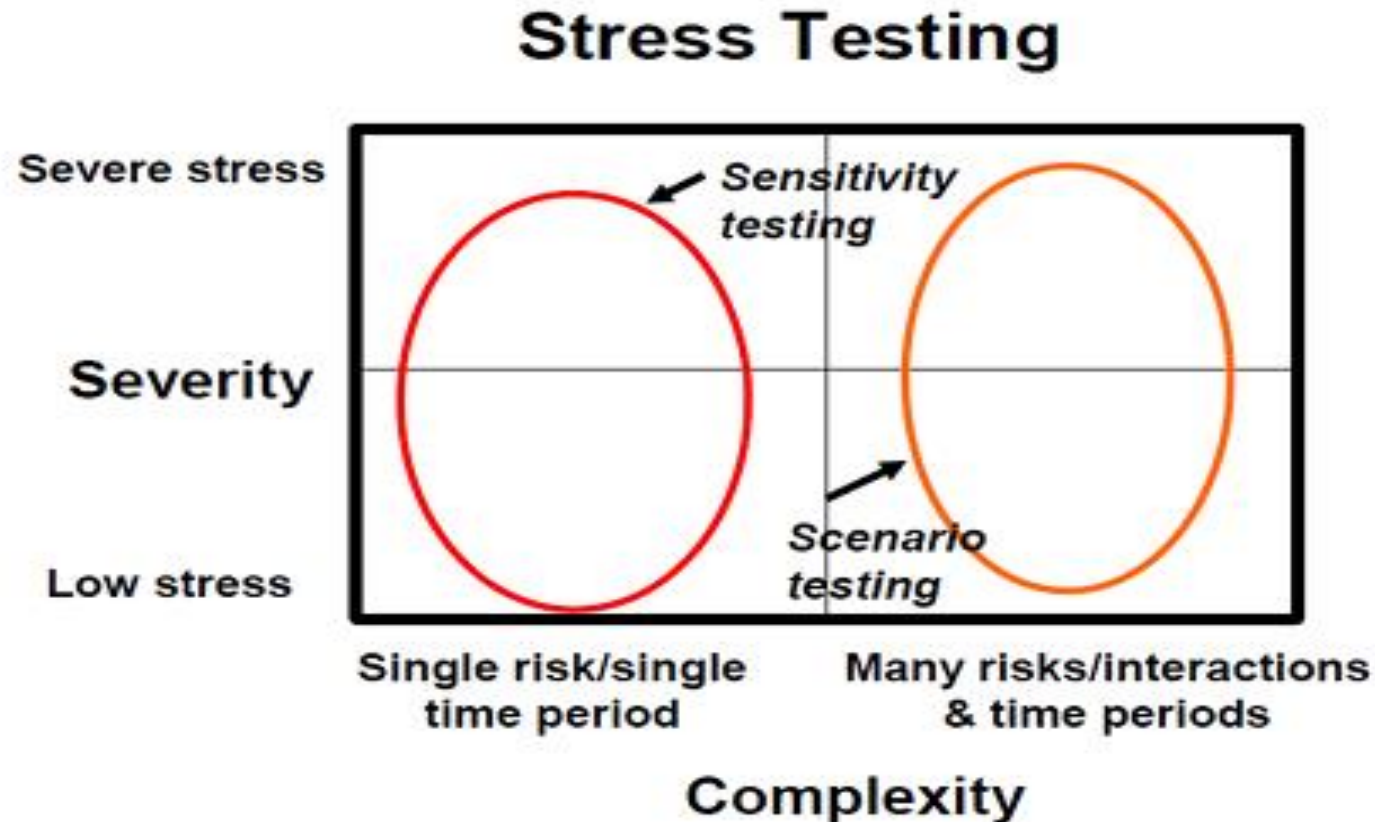


Cascading Financial & Climate Impacts

- Climate damages are translating into billions of dollars of unpriced losses globally.
- Central banks to integrate climate liability risks into market data to ensure a lower cost of capital for securities with low climate exposure.
- Why not the COP28 presidency syndicate a \$100bn adaptation fund among Opec countries?

Urgency for Climate Stress Tests

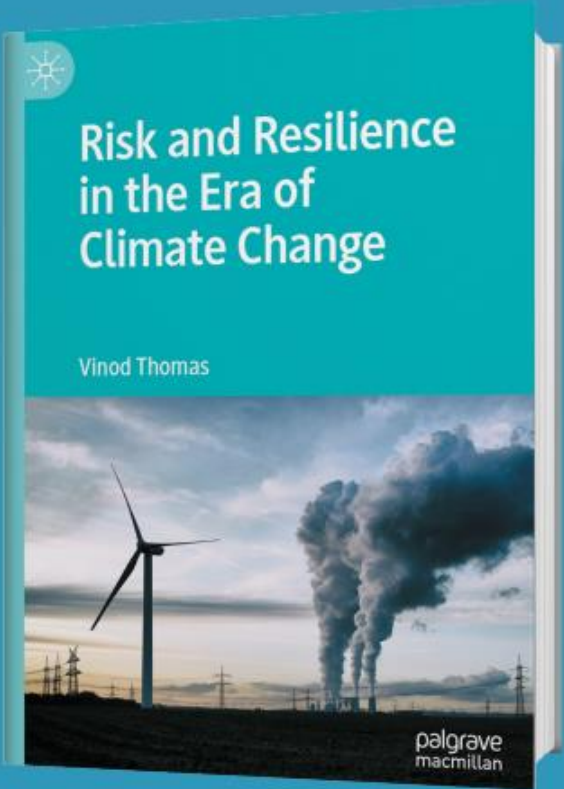
Figure 1. Sensitivity testing vs. scenario analysis



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