

Changing crisis landscape and implications for sustainable development

Input to UN DESA Expert Group Meeting

Åsa Persson

Research Director & Deputy Director, SEI

Member of the Independent Group of Scientists

Environmental impacts of crises

Comparing examples of environmental impacts of crises

- COVID-19 pandemic
- Ukraine war
- Climate change

Eroding resilience to crises

Options for crisis response

COVID-19 pandemic: lost time, lost opportunity

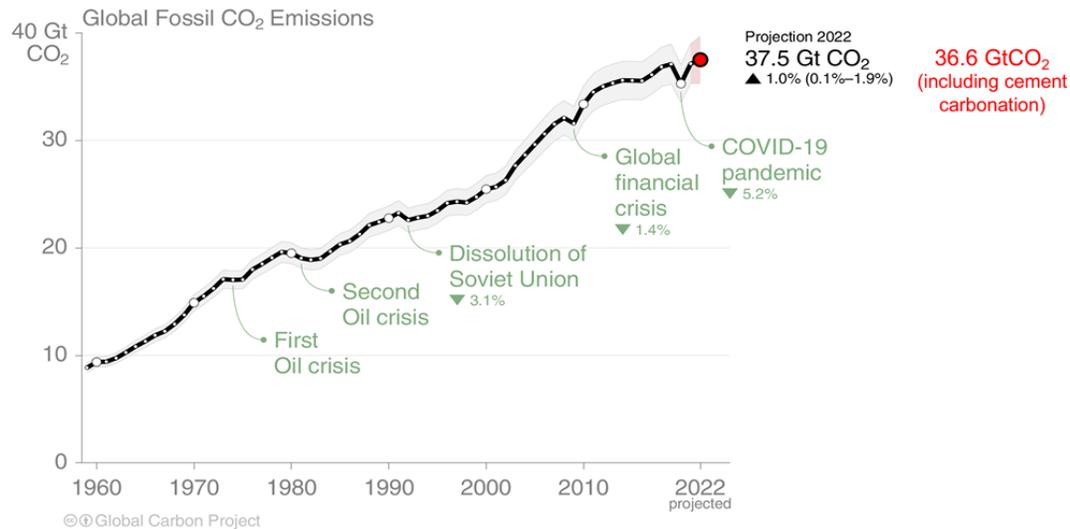
Direct impact:

- Economic pause
- Recovery packages were not sufficiently green
- Behaviour change
- No net change in CO2 trajectory

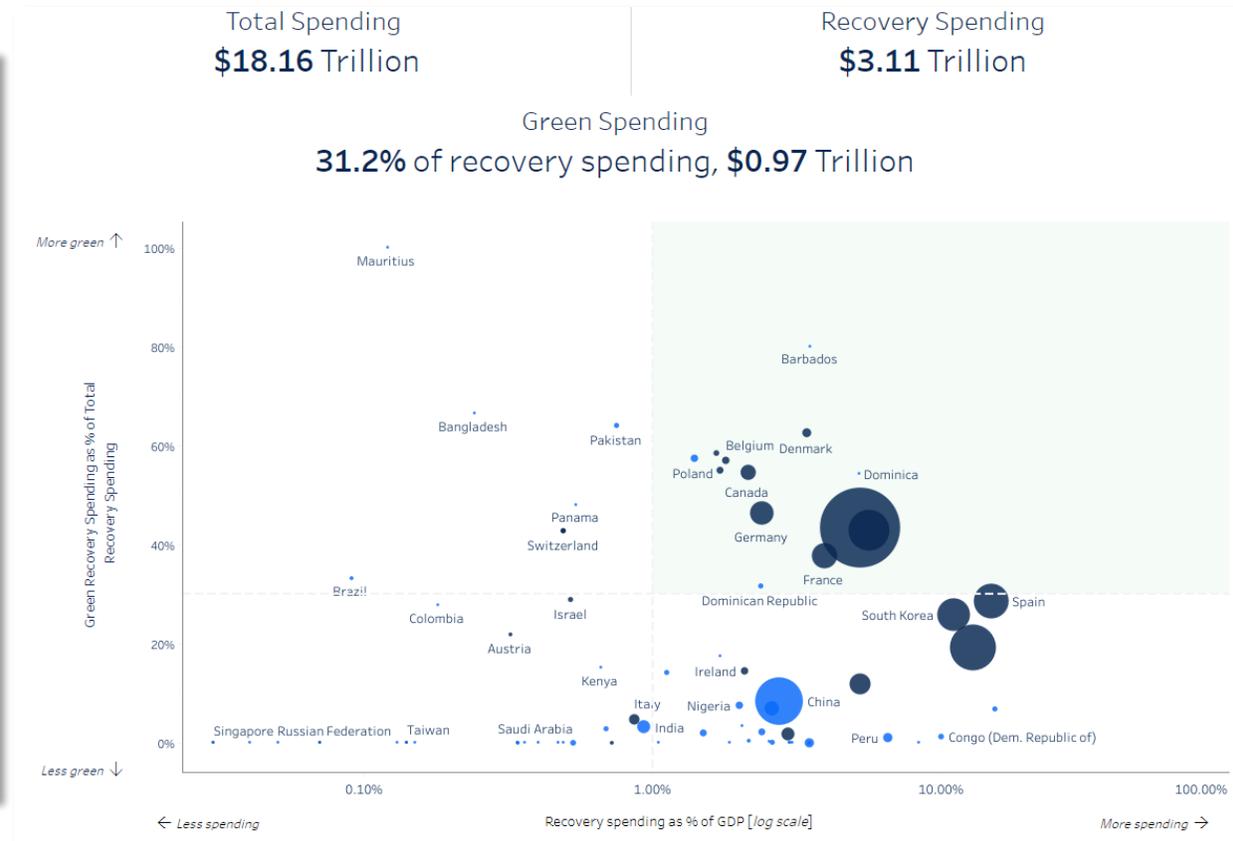
Indirect impact:

- Poverty and lost education
- Pressure on natural resources?

Emissions are set to grow 1% [0.1 to 1.9%] in 2022.
The rate of increase has slowed from 3% per year in the 2000s to about 0.5% per year in the past decade.



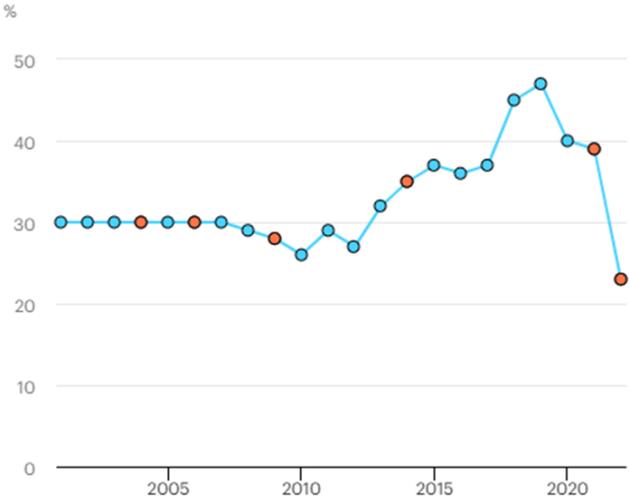
The 2022 projection is based on preliminary monthly data and modelling
When including cement carbonation, projected 2022 fossil emissions reach 36.6 GtCO₂
Source: [Friedlingstein et al 2022](#); [Global Carbon Project 2022](#)



Ukraine war: direct, indirect, and displacement effects

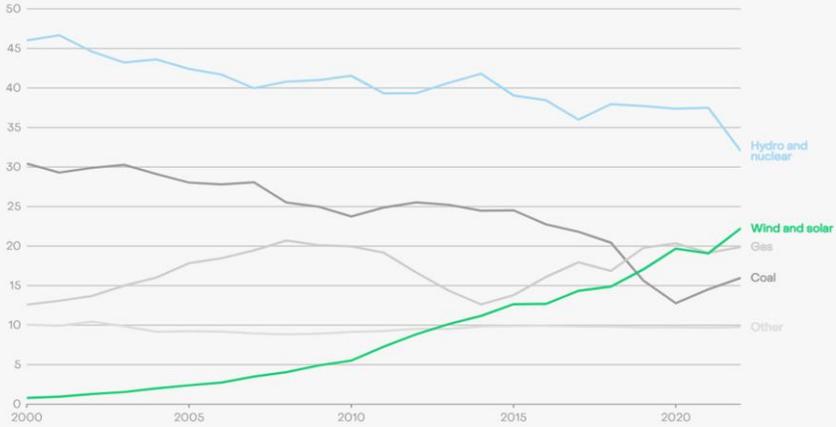


Share of European Union gas demand met by Russian supply, 2001-2022



IEA, Licence: CC BY 4.0

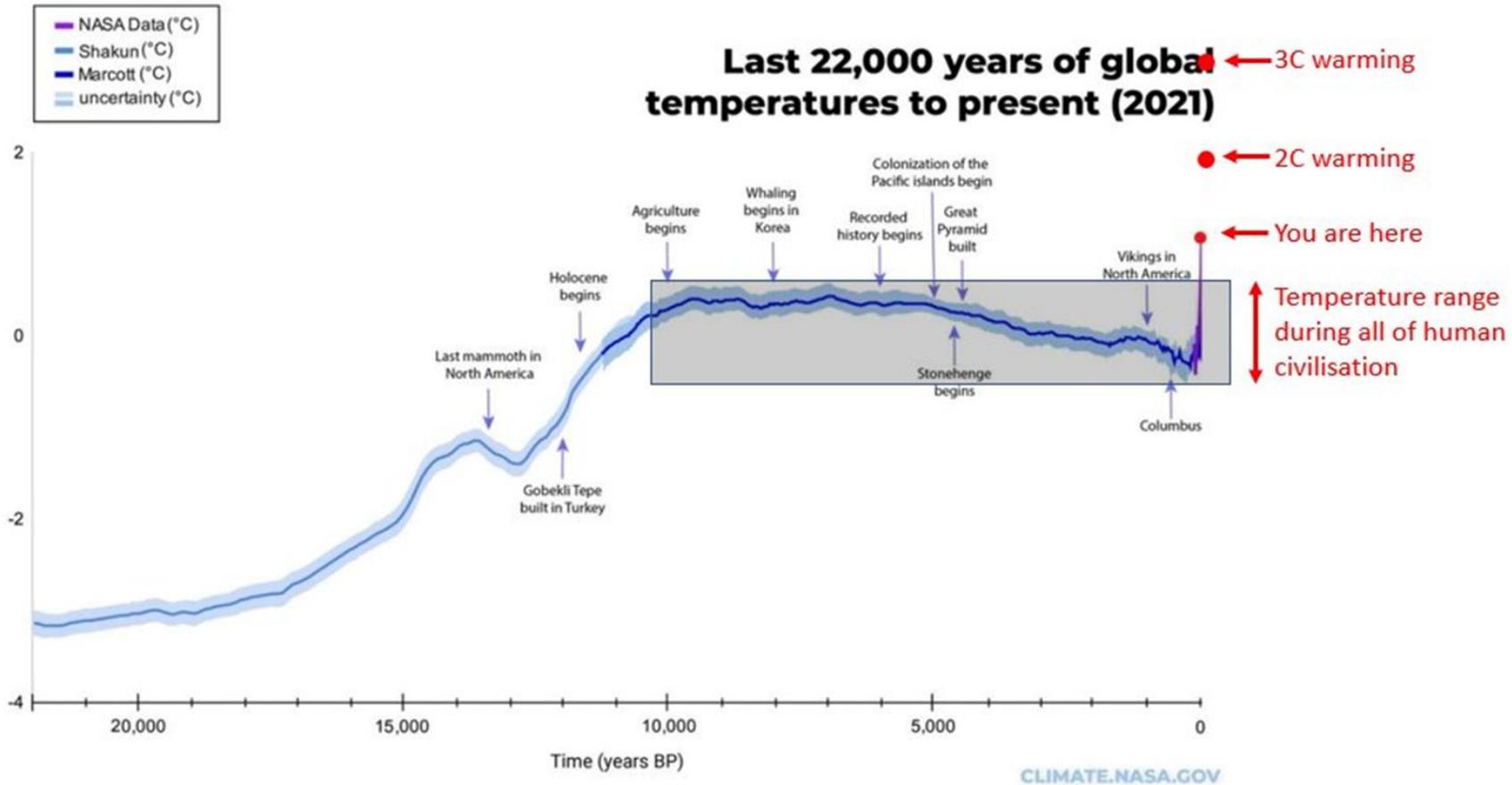
EU wind and solar generated more than gas for the first time
Share of electricity generation (%)



Source: Annual electricity data, Ember
Other includes bioenergy, other fossil fuels and other renewables

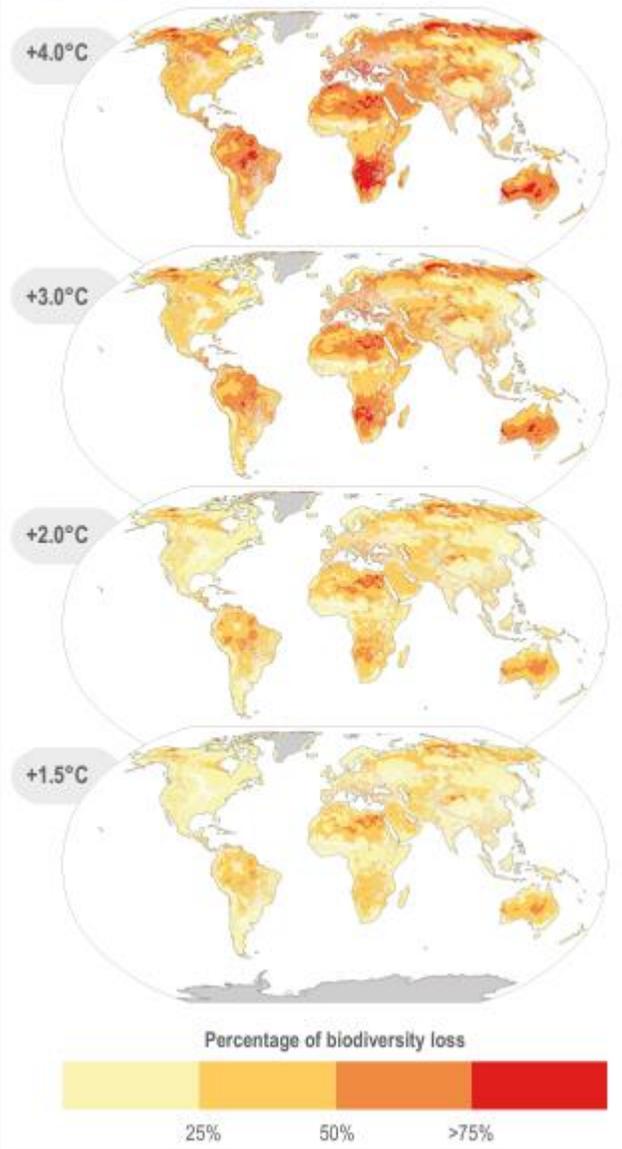
EMBER

Climate change: widening the risk corridor



Projected loss of terrestrial and freshwater biodiversity

compared to pre-industrial period



- Decreasing ecological resilience
- Exposure to climate risk through agricultural commodity flows

Figure 7. Top 50 high-risk bilateral trade relationships for maize



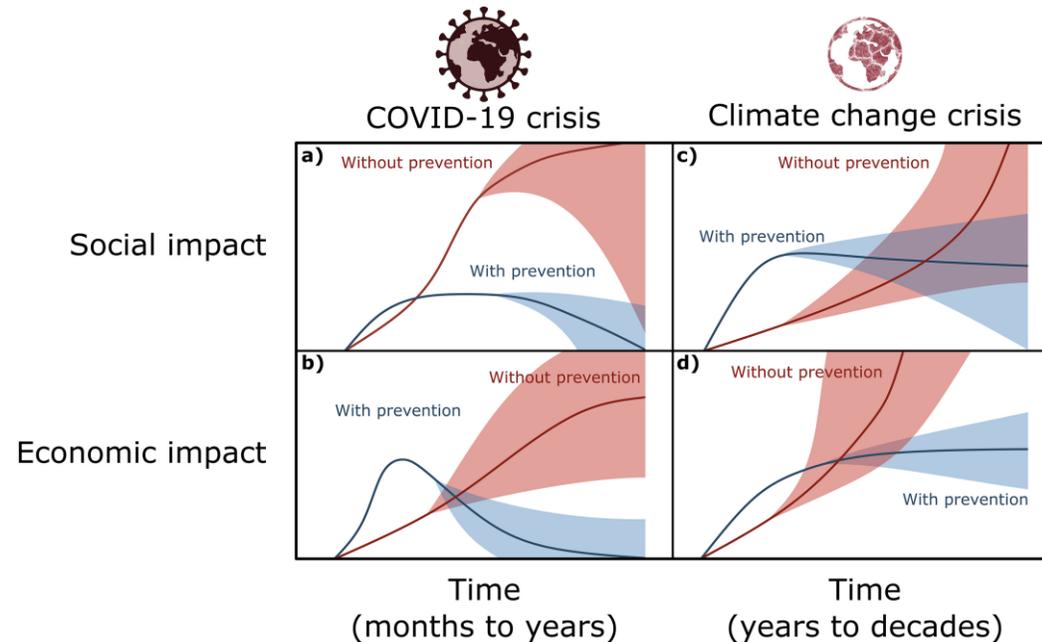
Perspectives for comparing crises

Characteristics of crises

- Immediacy
- Transience
- Visibility
- Proximity
- Accountability
- Universality
- Expertise
- Legibility

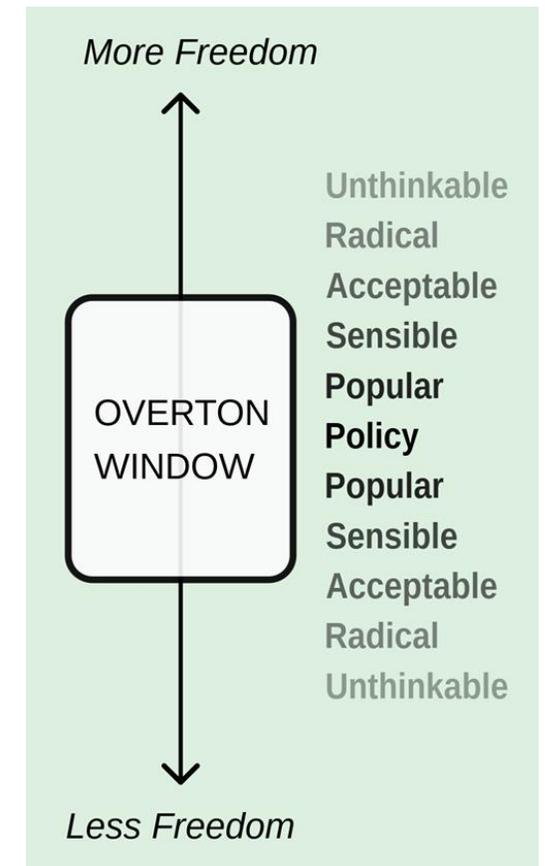
(van der Ven and Sun, 2021)

Impact/cost curves over time



Manzanedo and Manning, 2020

How movable is the Overton window



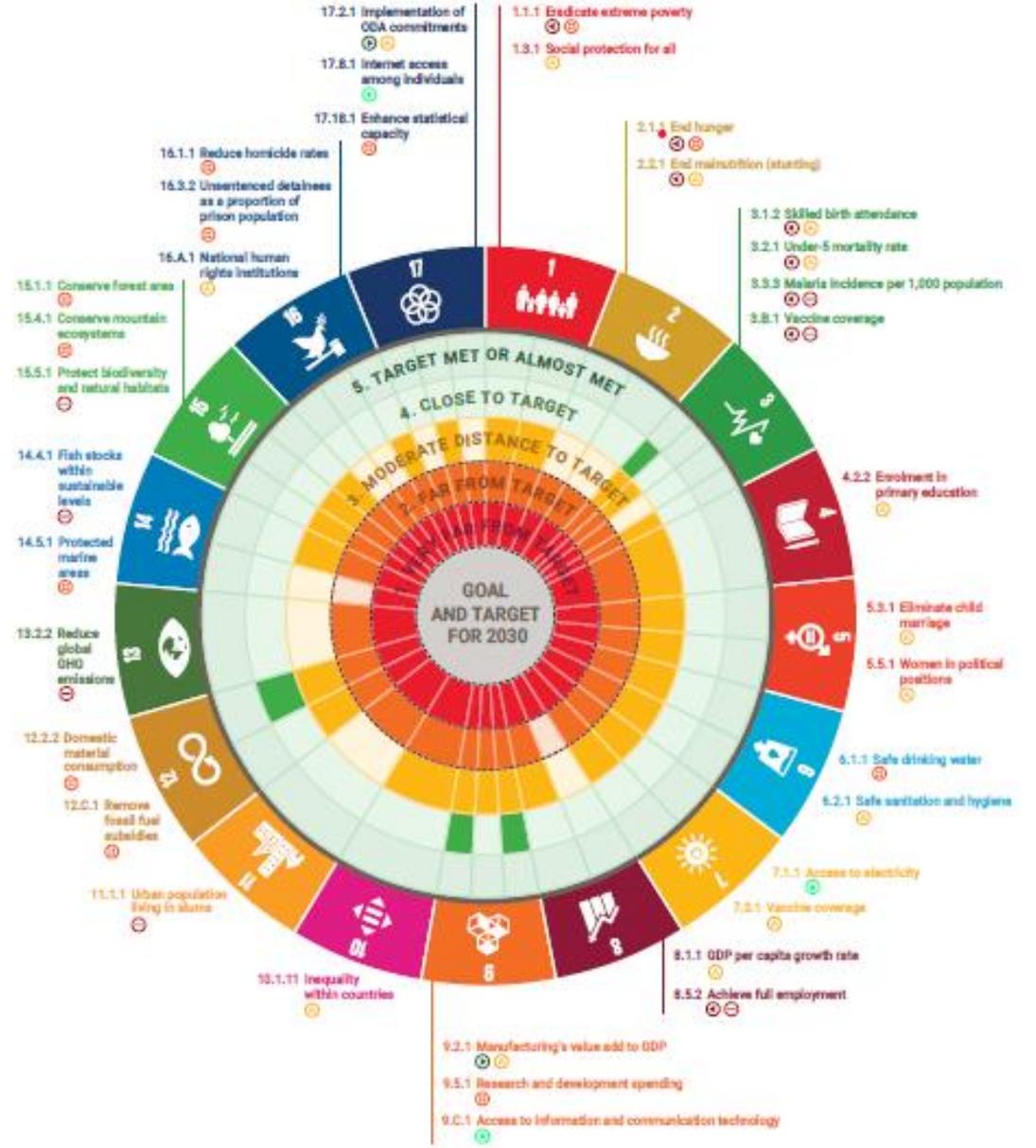


Poor progress on SDGs, means higher vulnerability to future crises.

Harmful environmental impacts – erodes natural capital base for development.

Higher poverty and inequality hinder environmental progress.

Government resources for relief rather than reform agenda – environmental opportunity cost.



Crisis response – some options

Systematic foresight of emerging environmental risks

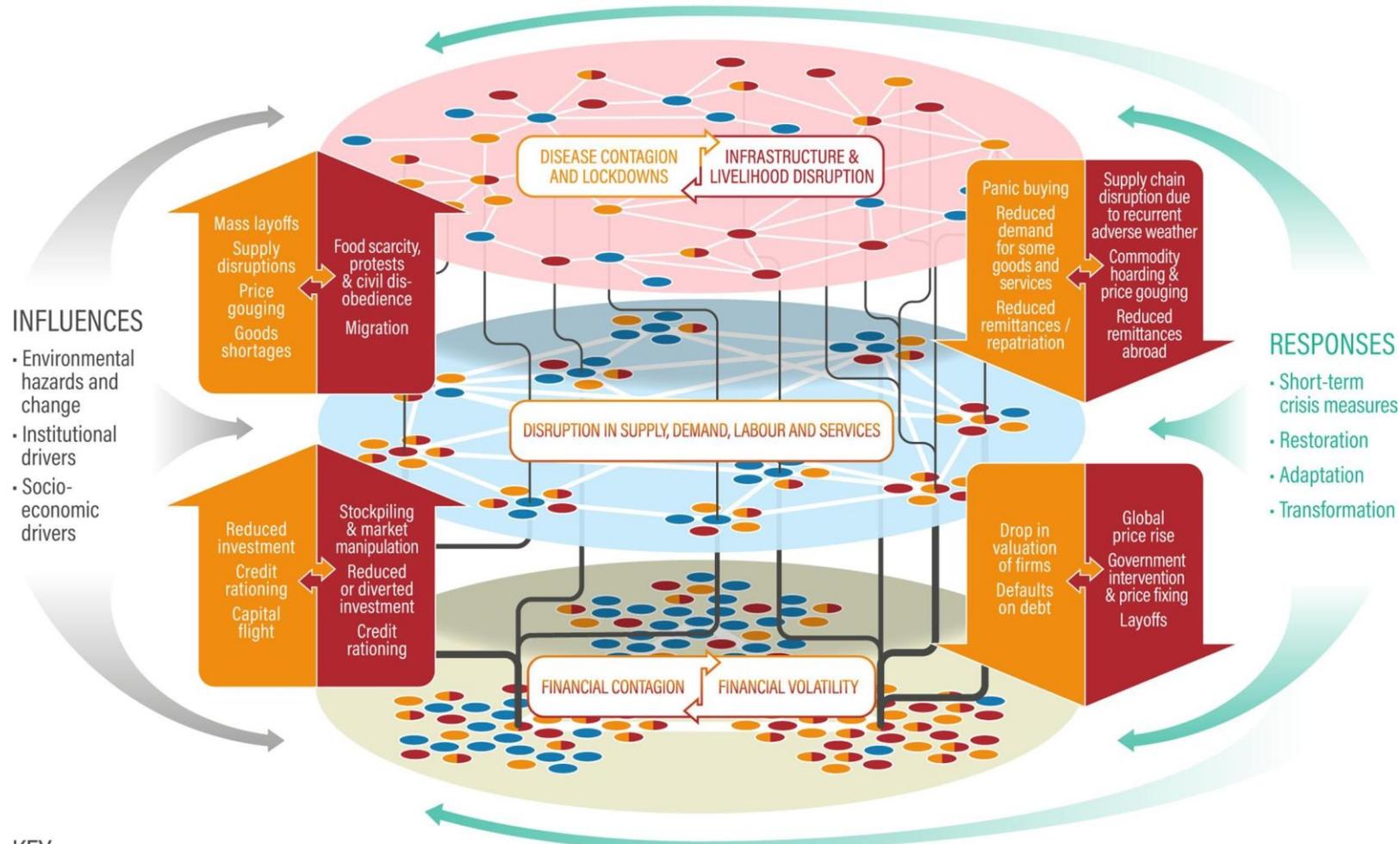
More rapid science-policy interface

Better data and monitoring (e.g. Climate TRACE), more open science

Real-time crisis response trackers enable accountability (e.g. Energy Policy Tracker)

Interconnected cascading crises of COVID-19 and illustrative climate change impacts

Systemic resilience – redundancy, diversity, modularity



KEY

- Operational / productive
- Negatively impacted by COVID-19
- Negatively impacted by climate change

- Citizen networks**
 - Individuals
 - Households and families
 - Social networks
- Production networks**
 - Manufacturing
 - Trade
 - Service industry
 - Agriculture
- Financial networks**
 - Economies
 - Global financial institutions
 - Insurance
 - Banks

Possible future risks and shocks?

Short-term

Ecological connectivity

Nitrogen cycle

AMR

Sand storms

Environmentally induced displacement

Backlash to climate policy

Long-term

Climate tipping points

Synthetic biology

Geoengineering