Understanding Risks:
From Future Earth to Future World

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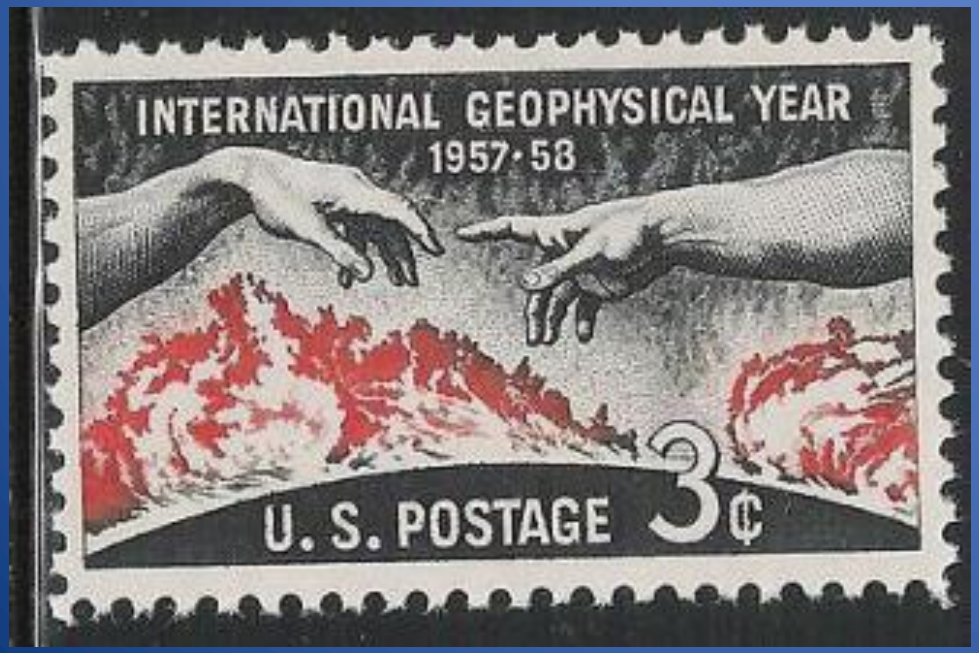
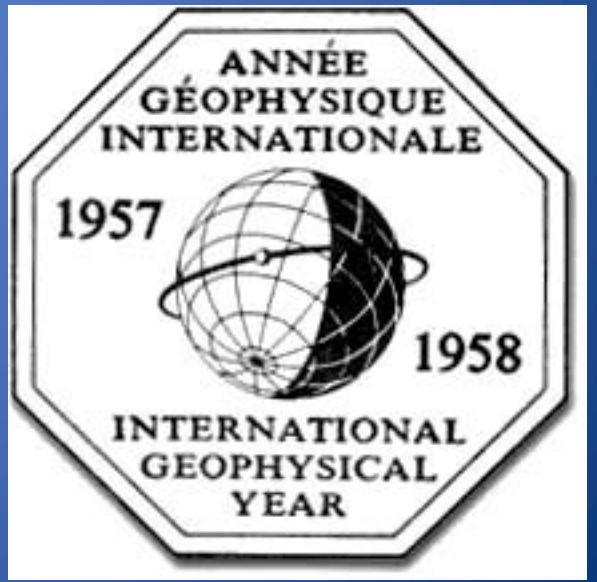
1） Understanding Climate System
International Geophysical Year(1957-1958)

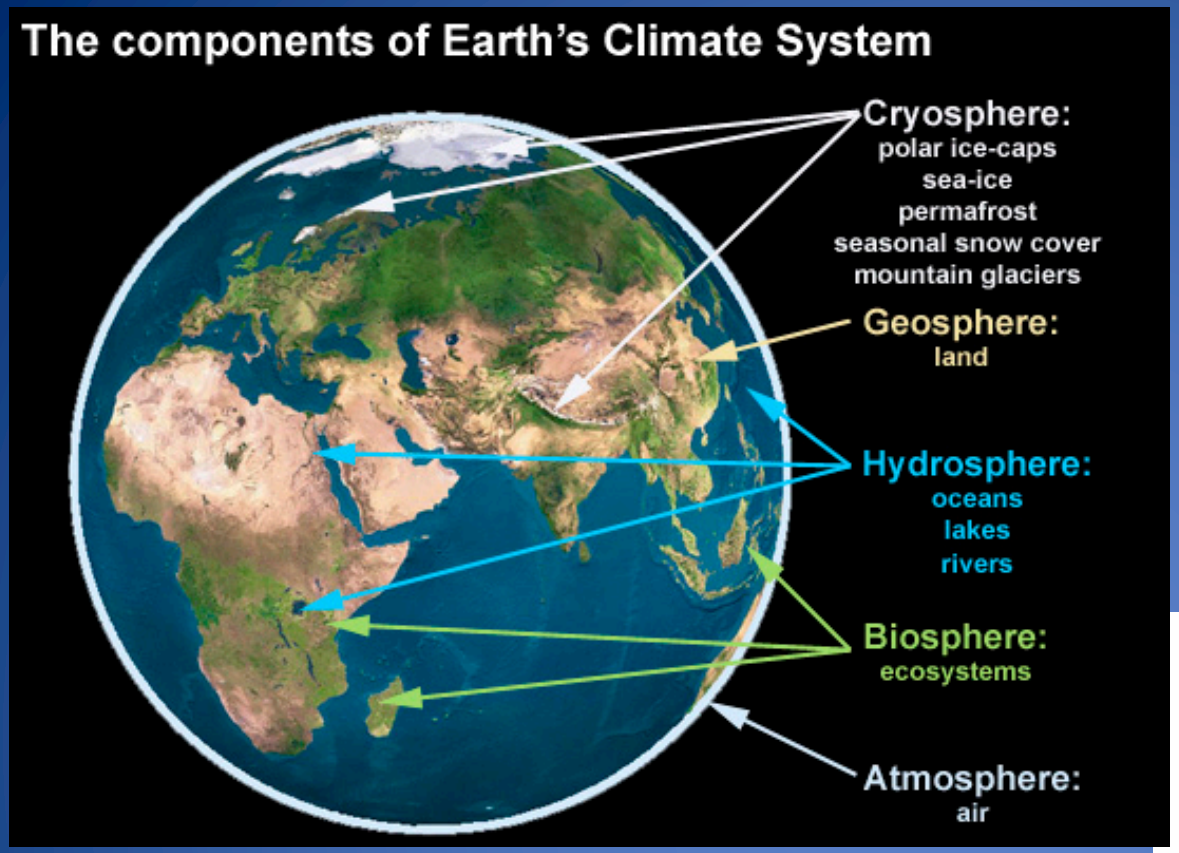
Proposed by the International Council of Scientific Unions (ICSU) in 1952

A comprehensive series of global geophysical activities

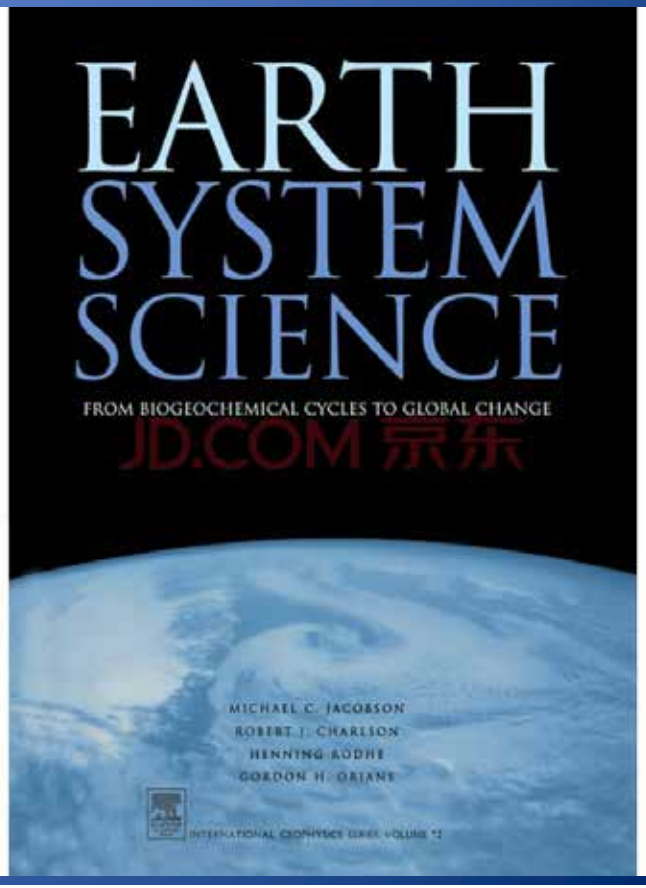
Sixty-seven （67） countries involved







Earth System Science



Nobel Peace Price 2007

Intergovernmental Panel on Climate Change (IPCC) and Mr. Gore for their efforts to build up and disseminate greater knowledge about

man-made climate change

and to lay the foundations for the measures that are needed to counteract such change.

INTERGOVERNMENTAL
PANEL ON
CLIMATE CHANGE

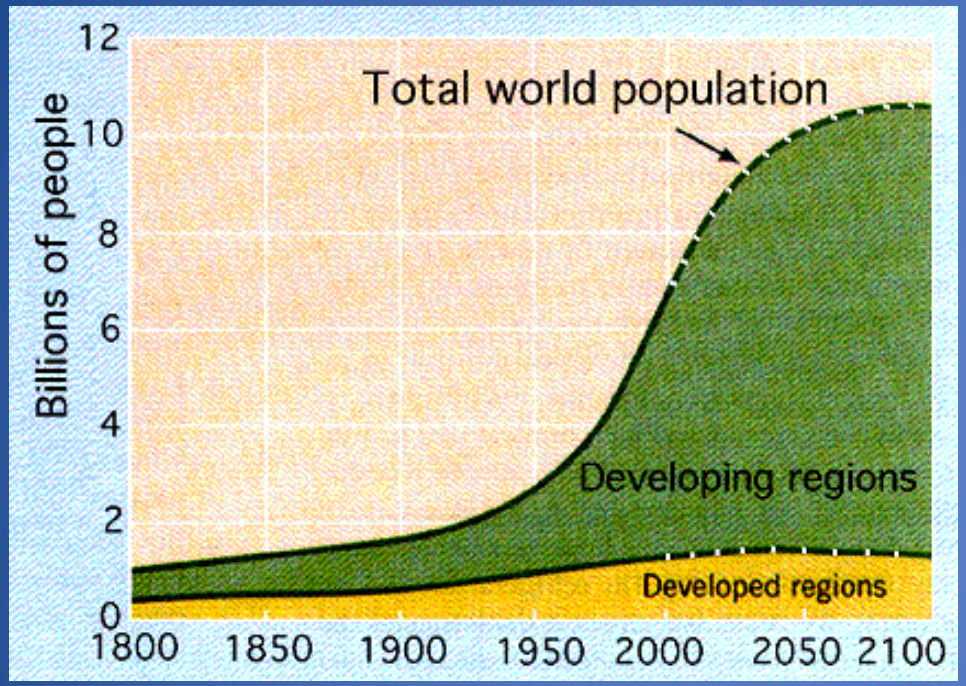
Nobel Price 2018

The Prize in Economic Sciences 2018 has been awarded to William D. Nordhaus "for **integrating climate change into long-run macroeconomic analysis**"

and Paul M. Romer "for integrating technological innovations into long-run macroeconomic analysis." Their findings have significantly broadened the scope of economic analysis by constructing models that explain how **the market economy interacts with nature and knowledge.**

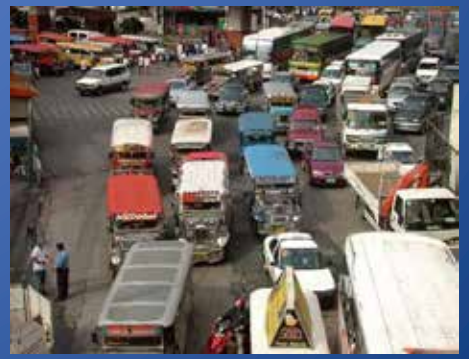
2) “Sustainable” Development

Population Growing particularly urban population

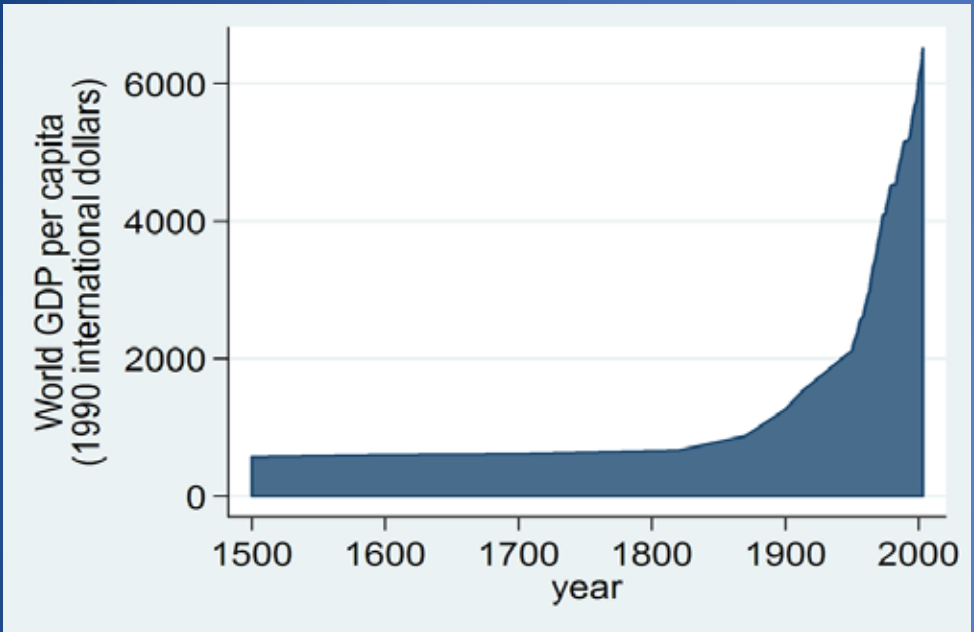


Not just total number but also **demographic structure changes**:

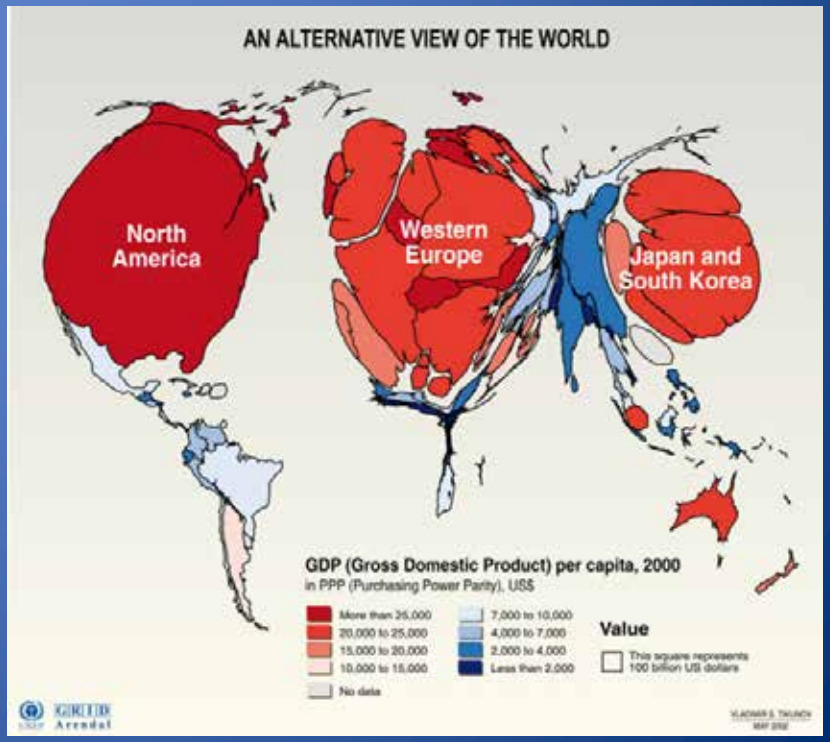
- poor vs. rich
- young vs. aging



Economic Change

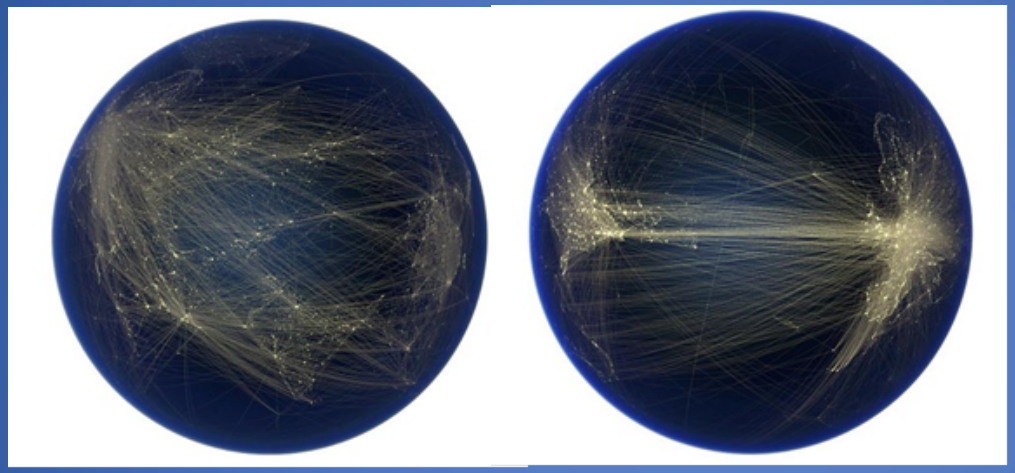


Total GDP grows but Gap is enlarging among nations and between regions

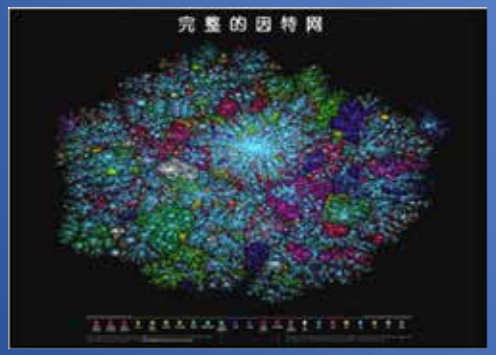


Urbanization

Technology: Faster and more dramatically



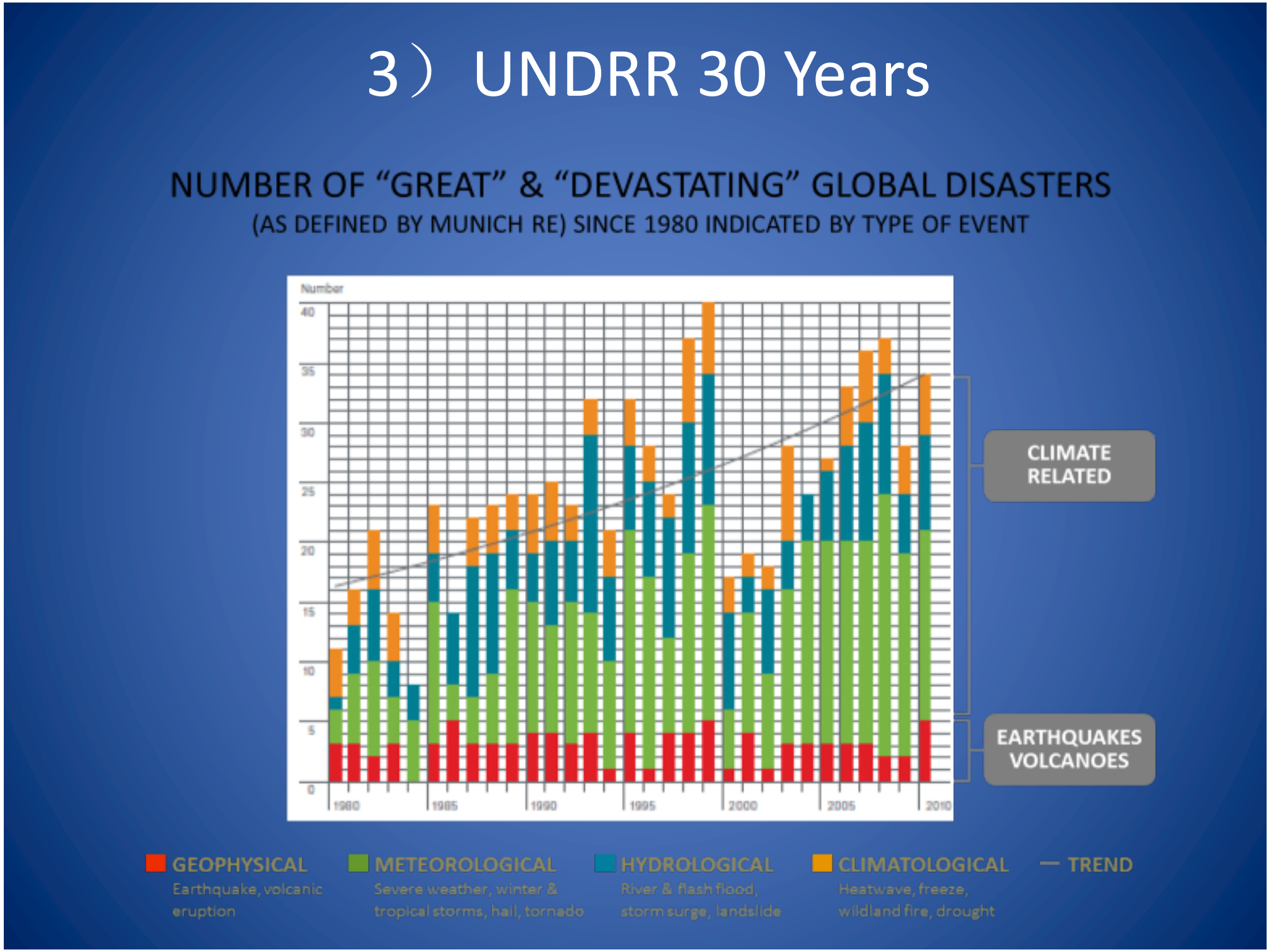
Global Transportation Systems



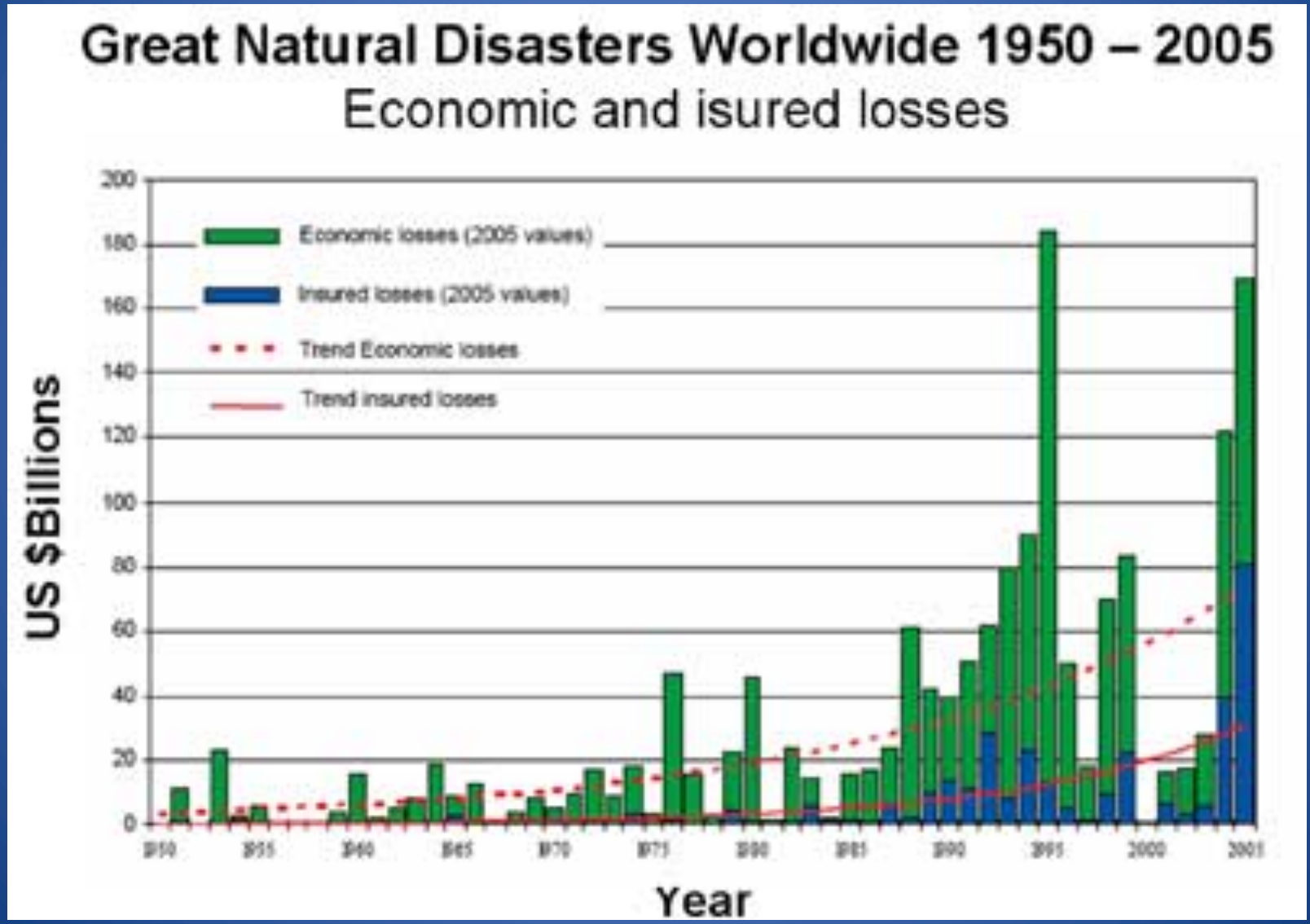
Global Internet Systems

Global Urban Development

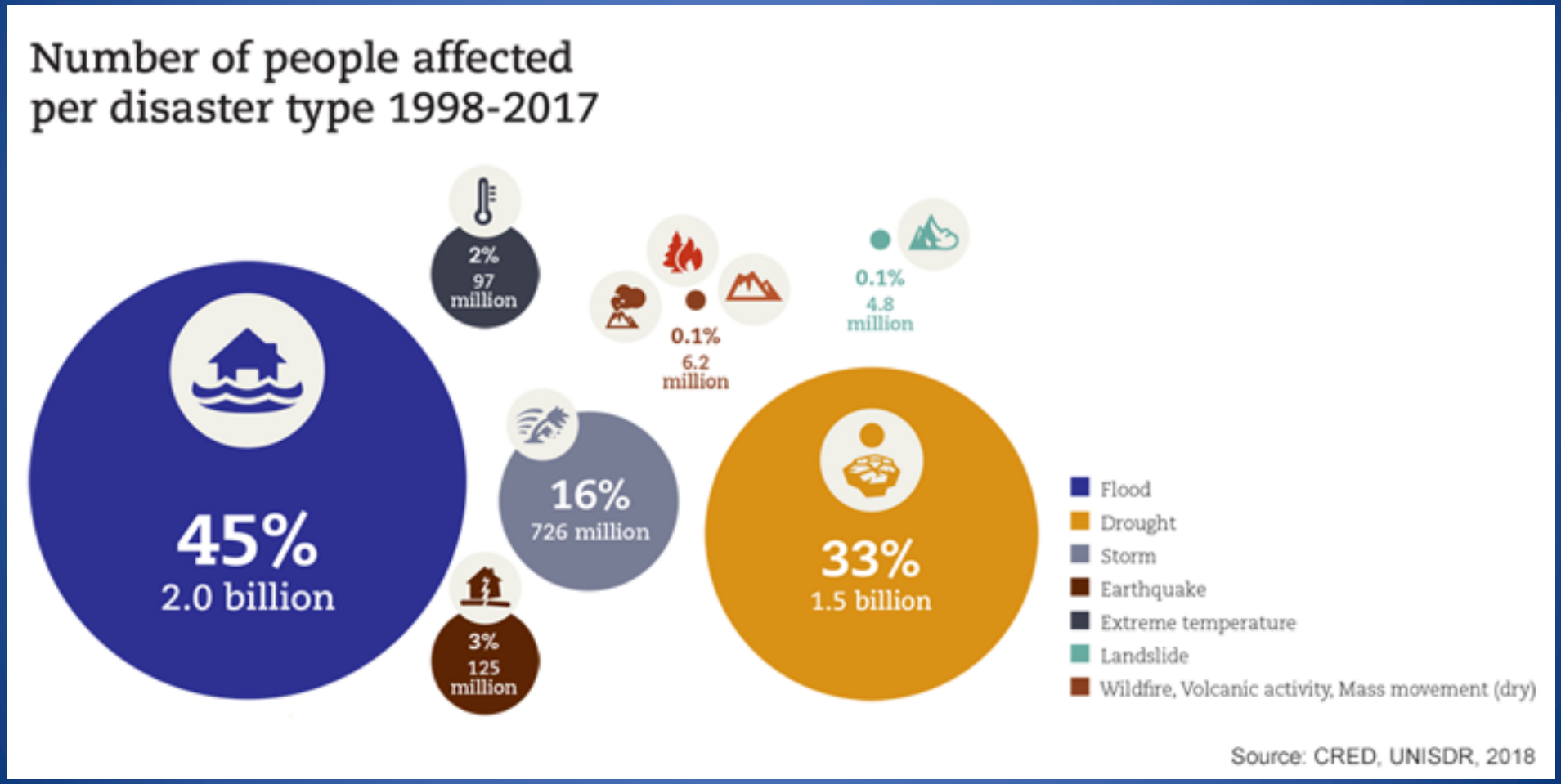
3） UNDRR 30 Years



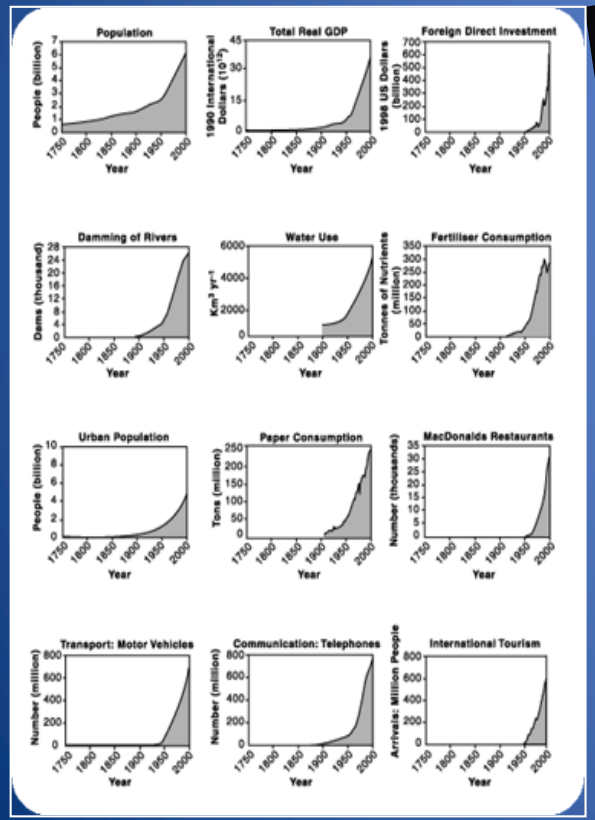
Economic Loss Increasing (Developed Countries)

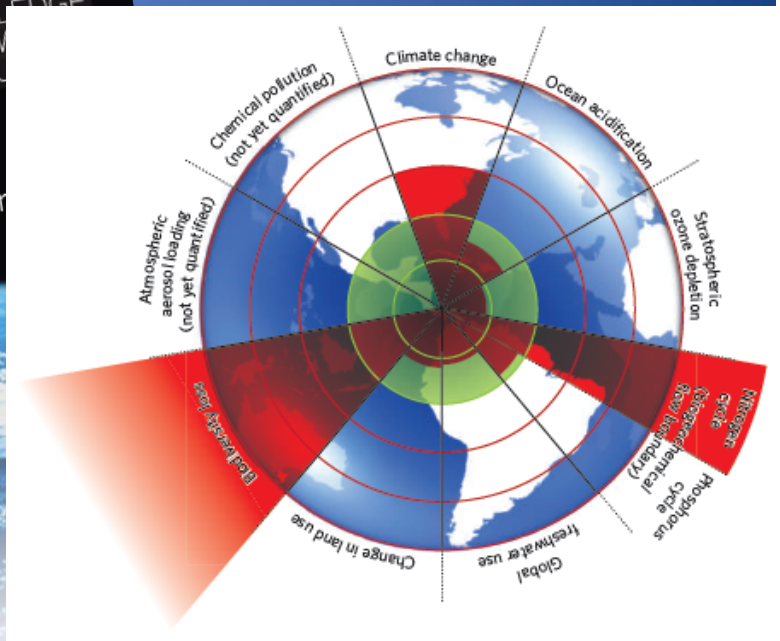


Affected Population (Developing Countries)

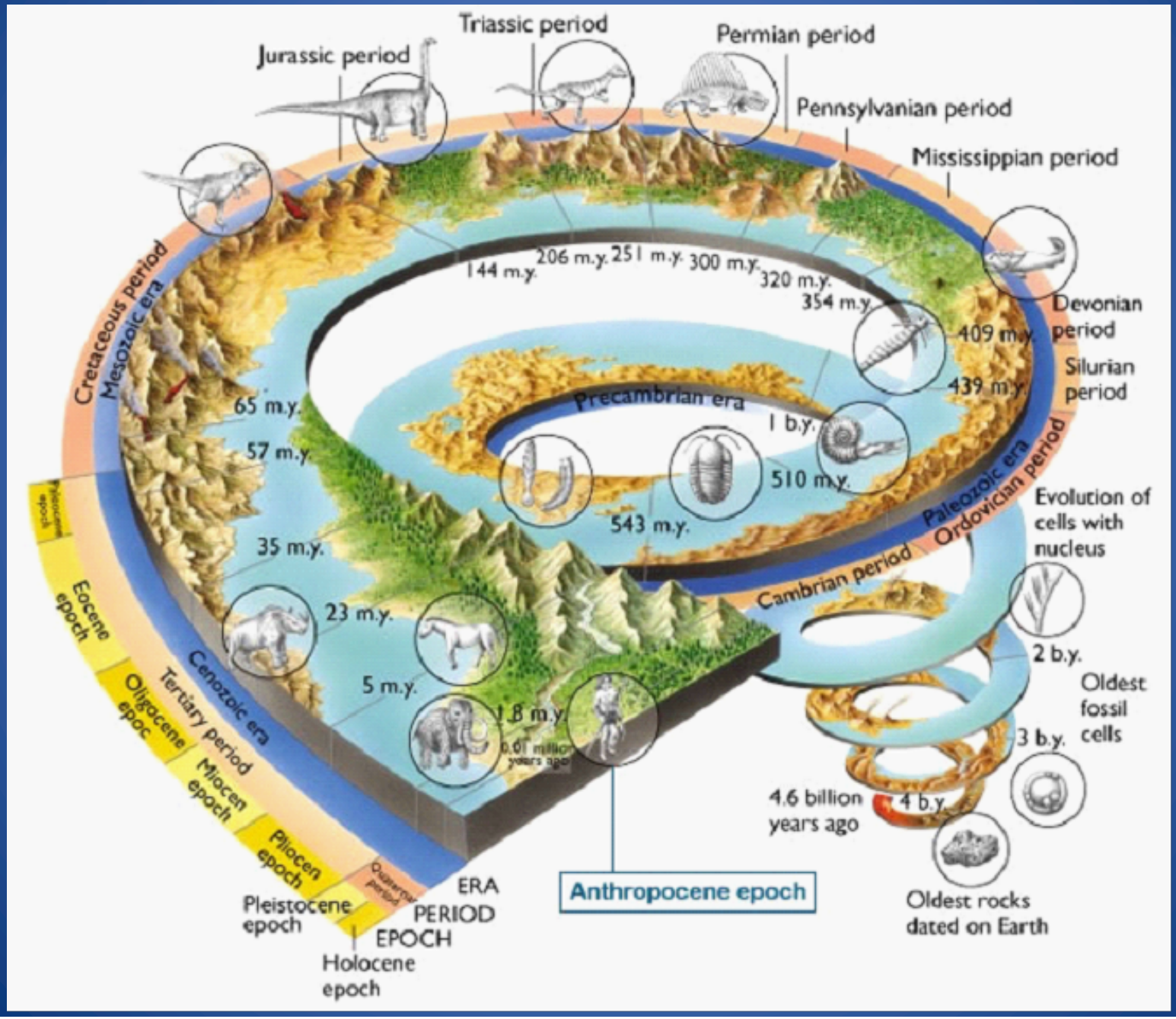


A critical juncture for humanity:
pace and scale of change exceed
safe planetary boundaries

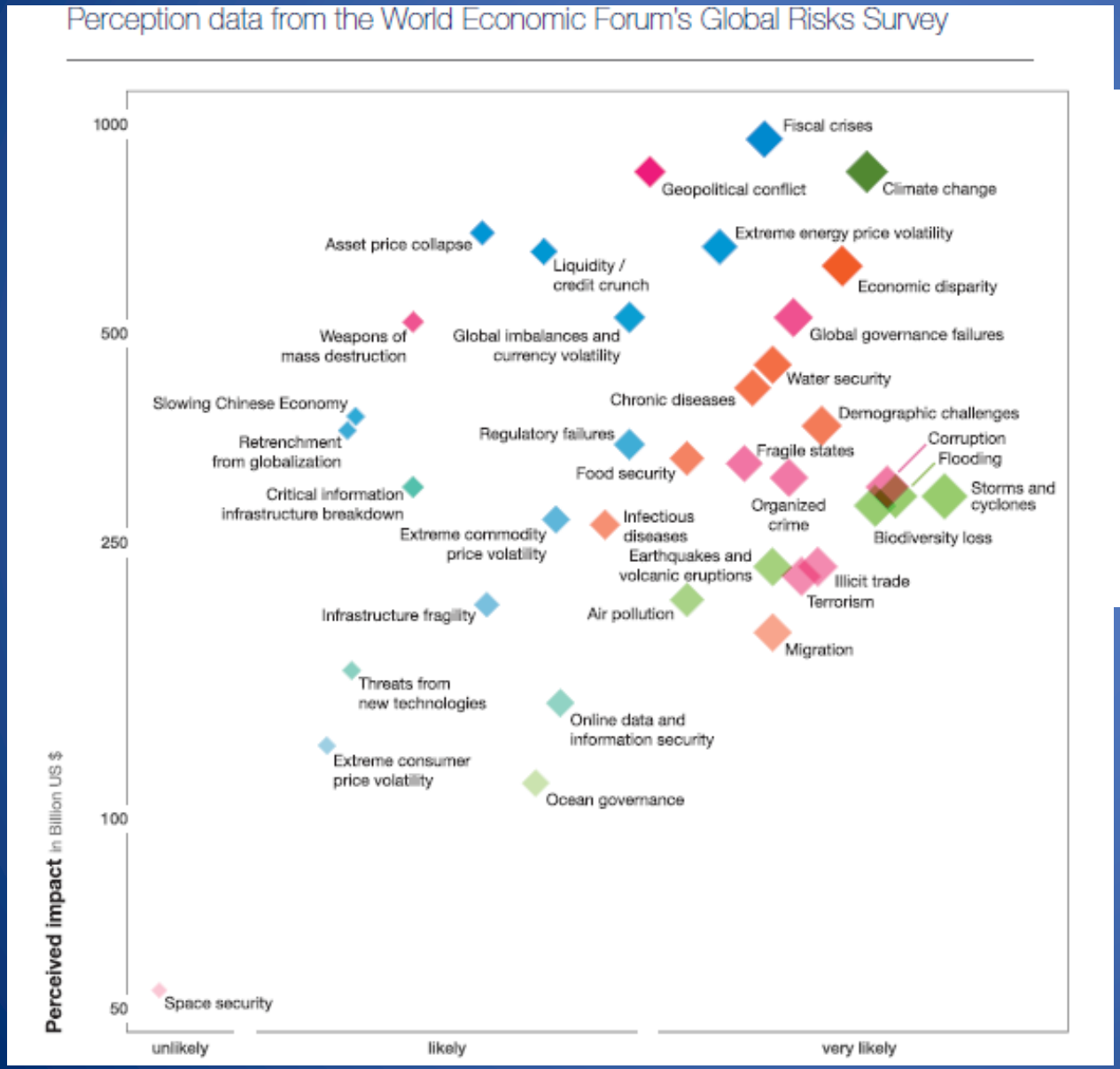




人类世（Anthropocene）



Complexity (Driving Factors)



Economic Risks

- Asset price collapse
- Extreme commodity price volatility
- Extreme consumer price volatility
- Extreme energy price volatility
- Fiscal crises
- Global imbalances and currency volatility
- Infrastructure fragility
- Liquidity/credit crunch
- Regulatory failures
- Retrenchment from globalization
- Slowing Chinese economy (<6%)

Environmental Risks

- Air pollution
- Biodiversity loss
- Climate change
- Earthquakes and volcanic eruptions
- Flooding
- Ocean governance
- Storms and cyclones

Societal Risks

- Chronic diseases
- Demographic challenges
- Economic disparity
- Food security
- Infectious diseases
- Migration
- Water security

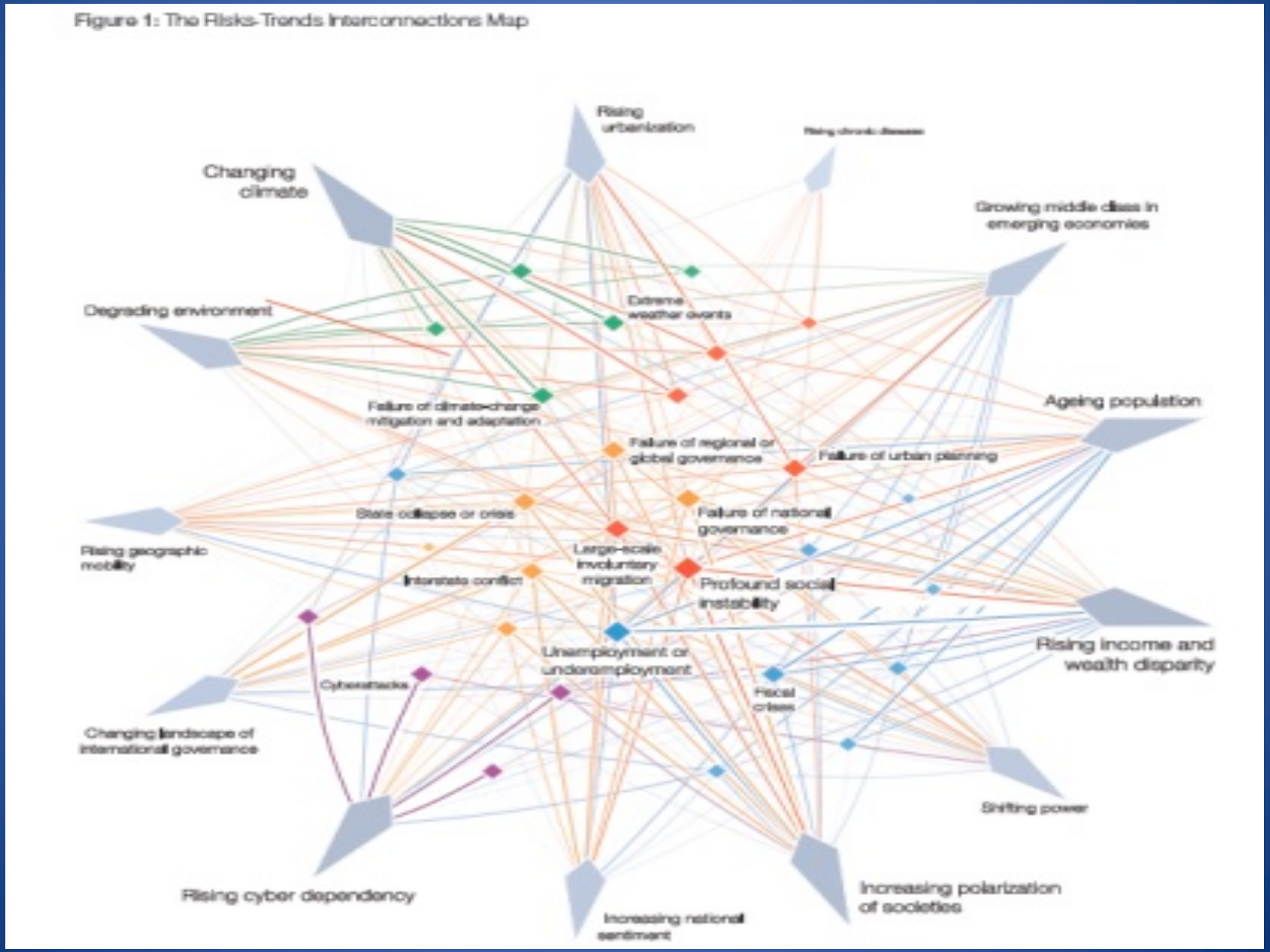
Geopolitical Risks

- Corruption
- Fragile states
- Geopolitical conflict
- Global governance failures
- Illicit trade
- Organized crime
- Space security
- Terrorism
- Weapons of mass destruction

Technological Risks

- Critical information infrastructure breakdown
- Online data and information security
- Threats from new technologies

All Risks are Highly Interconnected-Risk Society



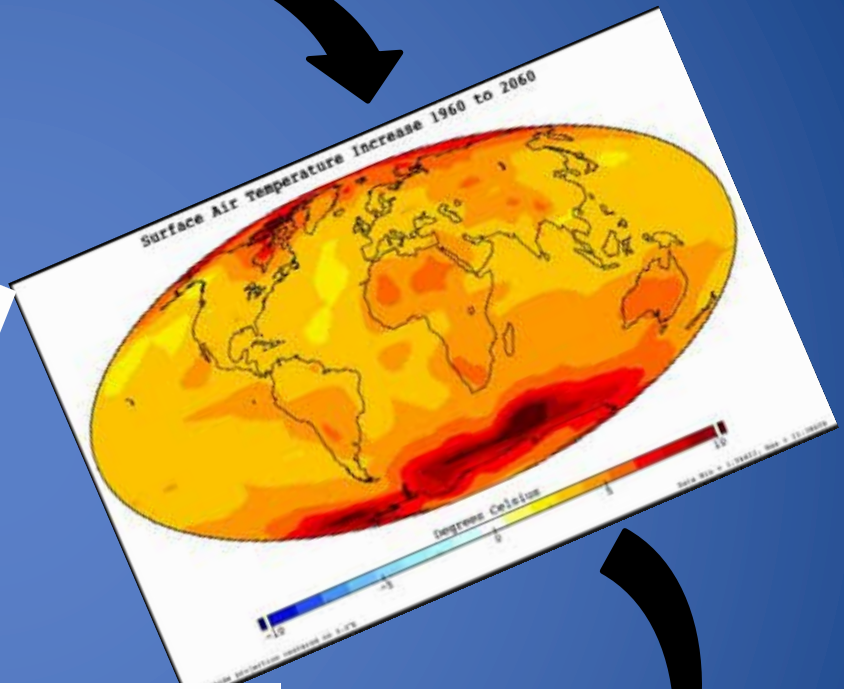
Impacts – Disaster Chains

311 Triple Disaster

Now is a time of heightened global urgency, and the need for ambitious collective action to ***reduce disaster risk, build resilience and achieve sustainable development*** has never been greater.

- 5th Edition of the United Nations Global Assessment Report on Disaster Risk Reduction (GAR, 2019)

Integrating Disaster Risk Reduction, Climate Change Adaptation and Sustainable Development



Future Earth Future World