



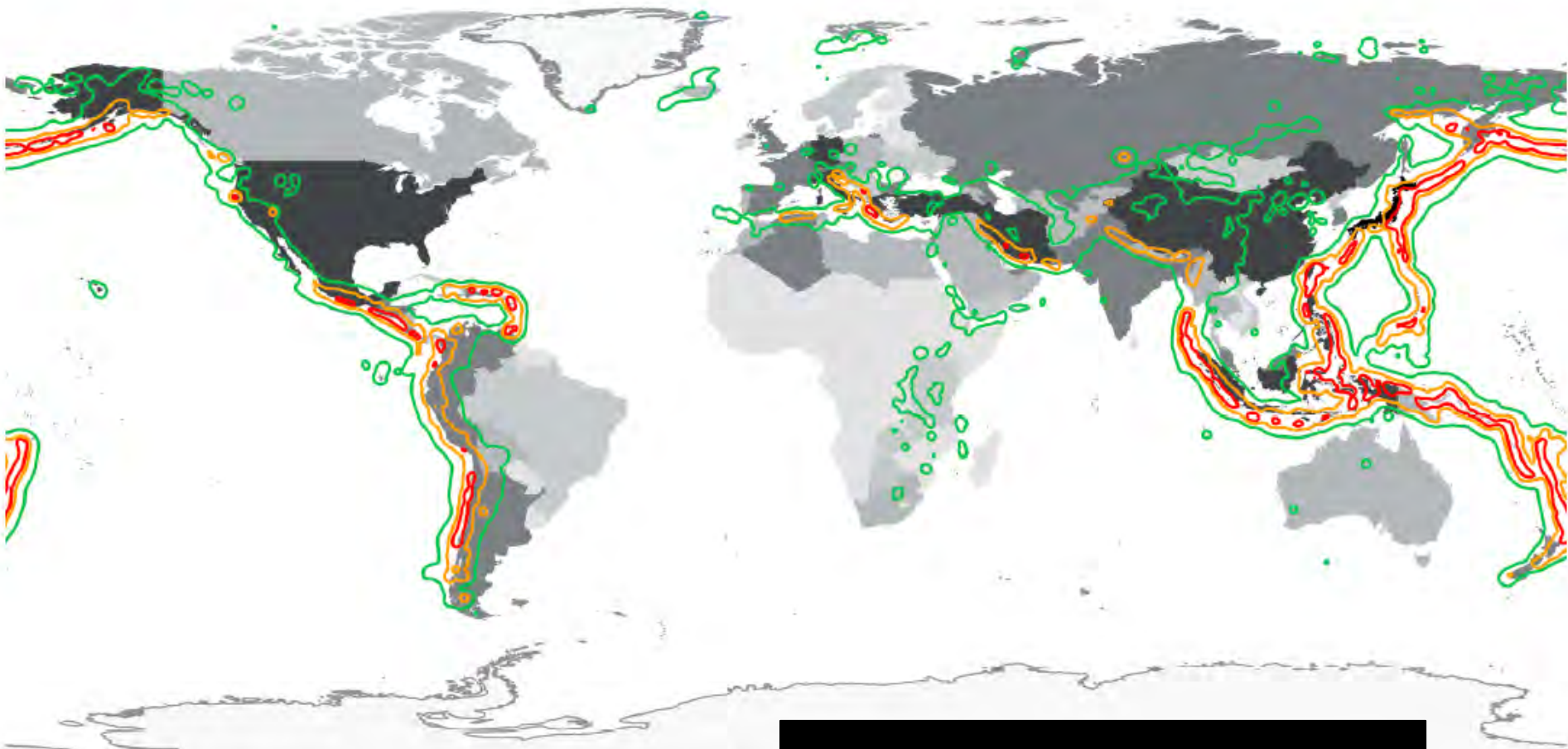
# Disaster Risk and Social Transformation

Yuan Tseh Lee

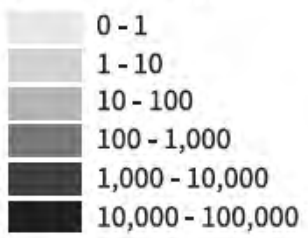
# The Power of Disasters



- **>\$100 billion** a year in direct economic loss from disasters, 3 straight years
- **>\$71 trillion** in assets exposed to 1-in-250 year earthquakes, globally
- **>\$180 billion** in expected annual loss from cyclones and earthquakes



Earthquake annual average losses  
(in million US\$)



Earthquake hazard (Peak Ground Acceleration)  
250 year return period



Source: UNISDR

Asia suffers **76%**  
of annual global  
earthquake loss

0 2,000  
Kilometres

There's no natural disaster

Disasters are **social**

Risks are **political**

“In order to overcome and regenerate from the consequences of this disaster, it is essential to **re-inspect and re-evaluate the relevance of the socio-economic systems of Japan.**”

-- *Science Council of Japan*  
*March 2011*

But the **entire world**  
should re-evaluate, too.



“[There is] a considerable body of empirical evidence that confirms: **disaster risk is fundamentally associated with poverty** at both the global and regional levels.”

*-- UN Global Assessment Report  
on Disaster Risk Reduction (2009)*

# Unsustainable Development Worsens Vulnerability



Mismanaged urban growth;  
inequality & vulnerable poor



Fragile food, water &  
energy systems



Degraded ecosystems &  
natural resources



# Unsustainable Development Strengthens Hazards



Stronger and more frequent storms

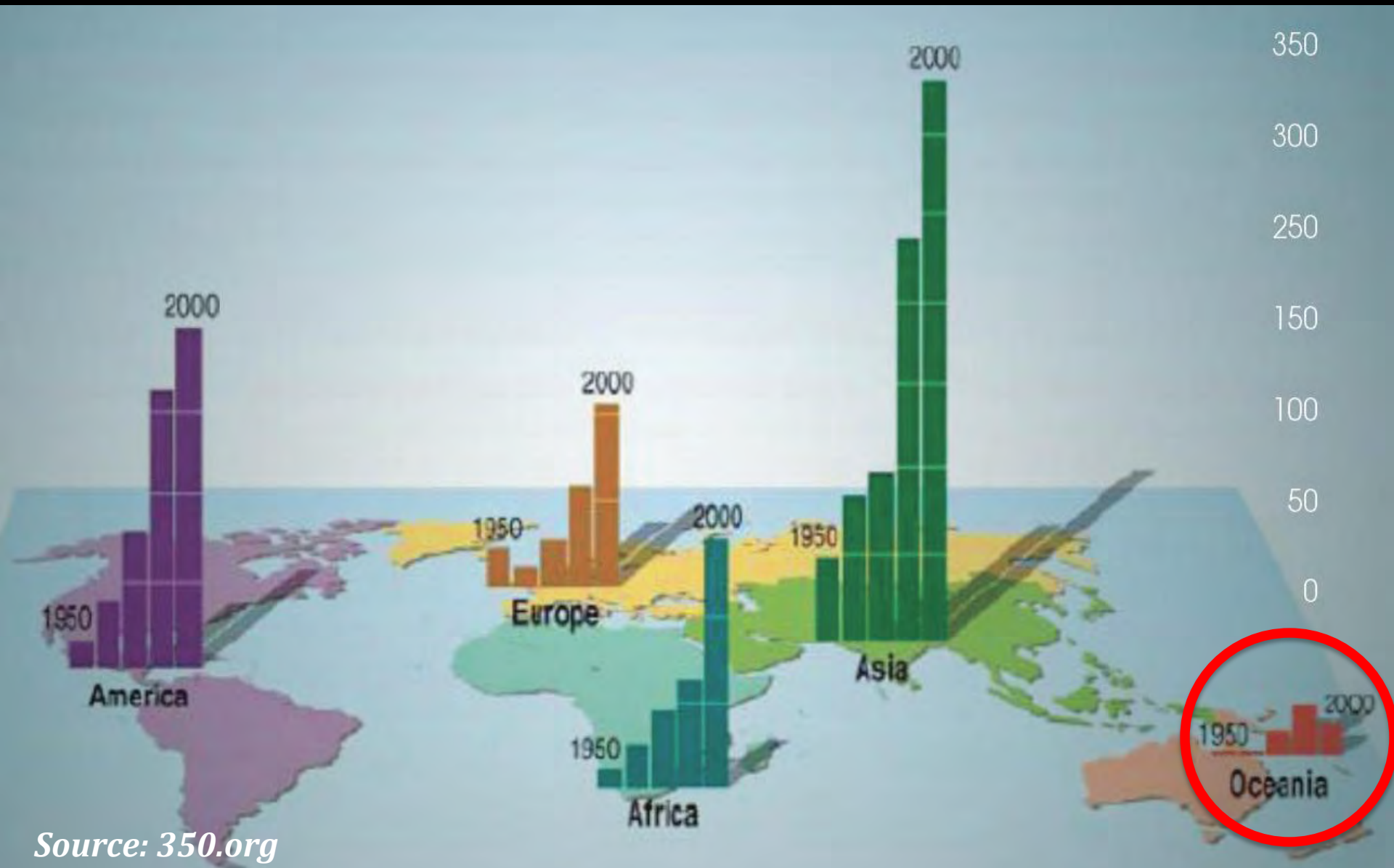


Heat waves & Droughts



Rising seas & Sinking coasts  
**Will island nations disappear?**

# Major **Floods** Per Decade

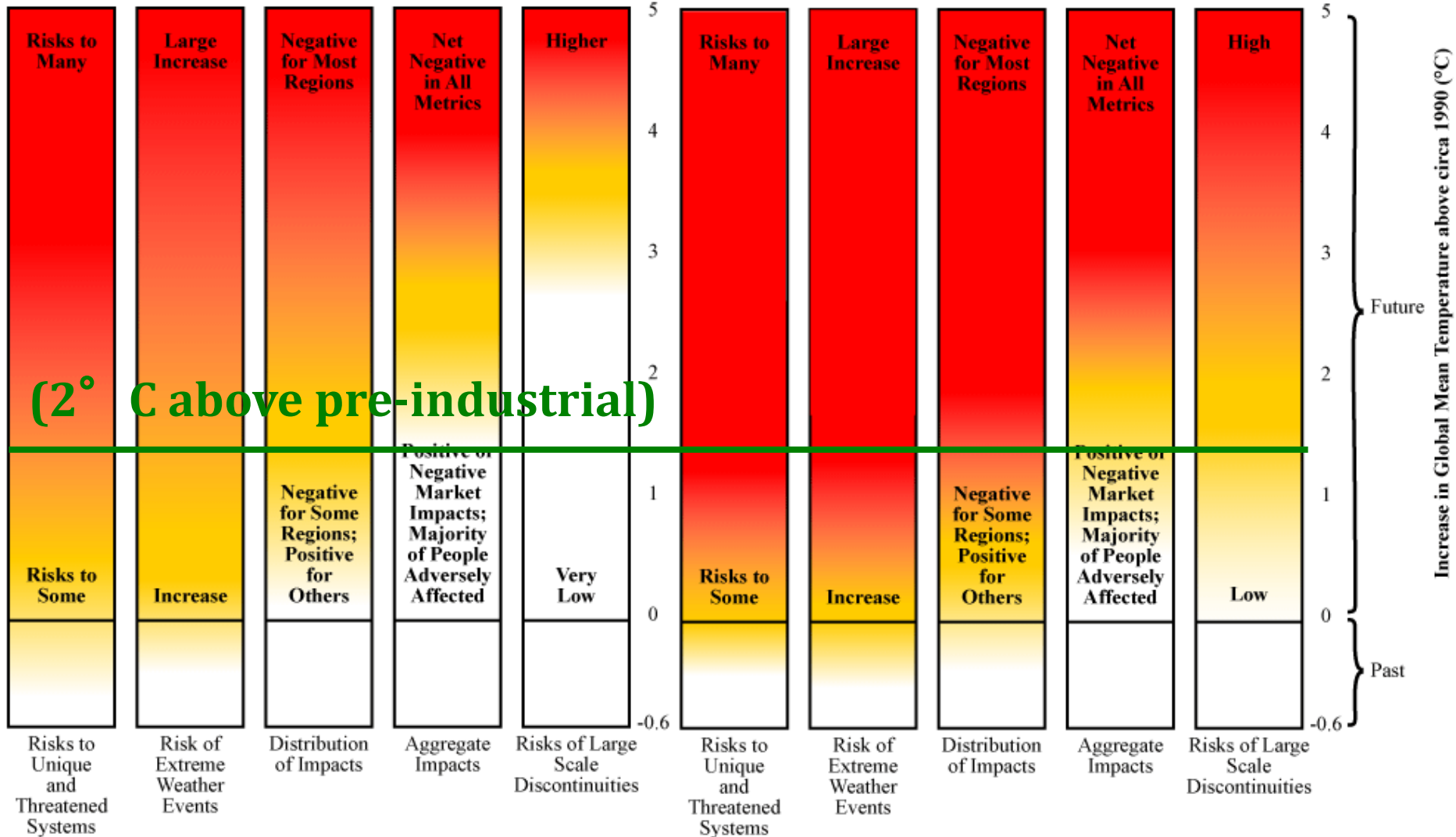


Source: 350.org

# Updated Reasons for Concern

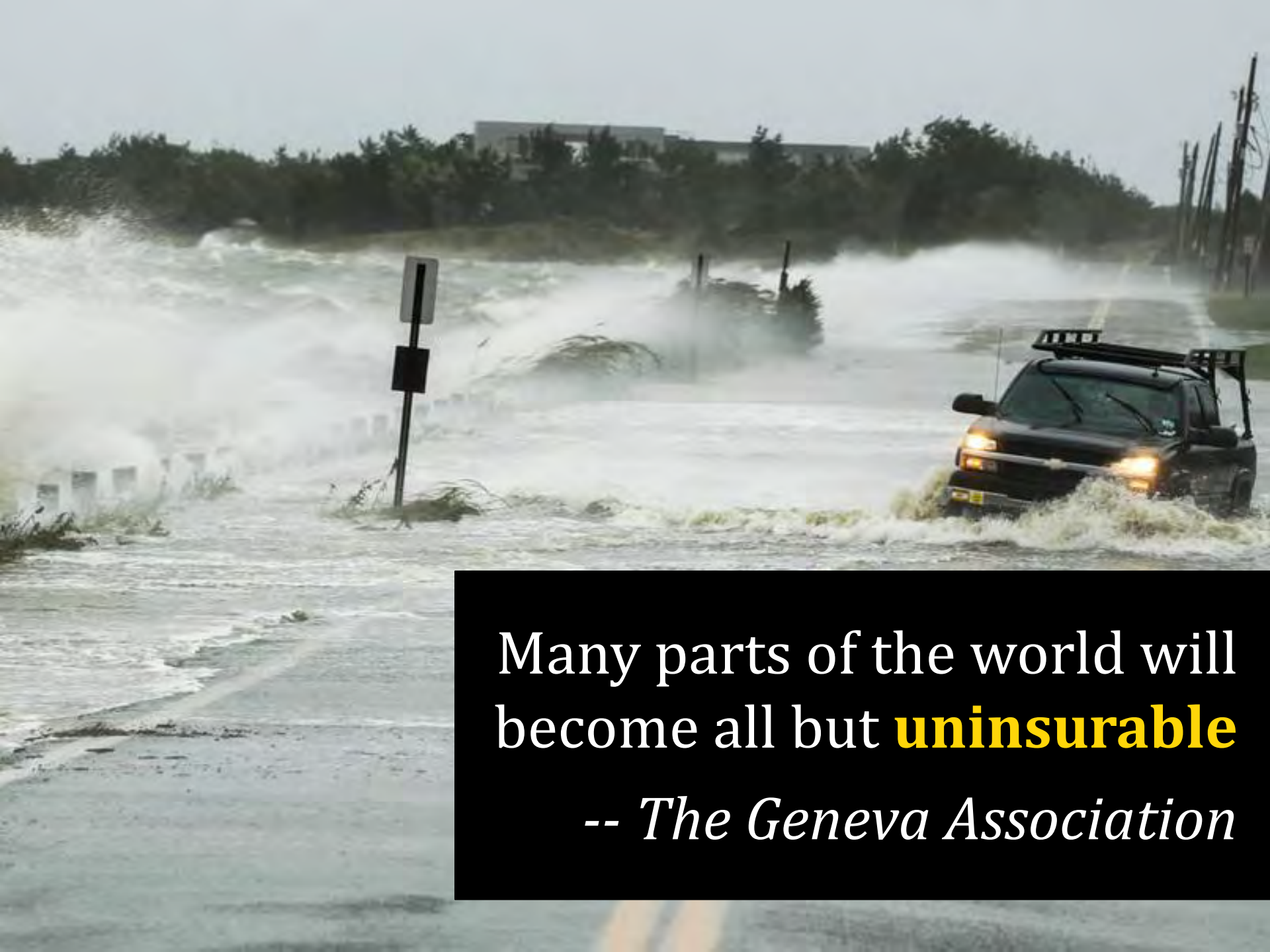
TAR (2001) Reasons For Concern

Proposed AR4 (2007) Reasons For Concern



(Smith et al. 2009 PNAS)

Multiple **colossal** disasters  
of unforeseeable **magnitude**  
acting together



Many parts of the world will  
become all but **uninsurable**

-- *The Geneva Association*

We cannot just adapt  
**We must Transform**

Sustainability is  
The **Best Defense**

**A New Japanese  
Society** that can be  
confidently handed  
over to future  
generations



*Image: Skyseeker on Flickr*



# Pathways to Global Sustainability

- a. Global Responses to Global Problems
- b. Back to nature, back to sunshine
- c. Live better... for less
- d. Control population explosion
- e. Improve equality around the world

# a. Global Responses



- Global cooperation to reduce GHG emissions and other footprint
- Global cooperation to advance science and share solutions

## b. Back to Nature



- Withdraw from high-risk zones
- Understand nature & develop in accordance with its principles
- Restore ecosystems & biodiversity so they can protect & provide for us

## b. Back to Sunshine



- Decentralized and resilient renewable energy systems
- Much lower emissions & impact

## c. Live Better for Less



- Simpler life, less dependent on material supplies, less vulnerable
- Less damaging towards nature

## d. Control Population Explosion



- Reduce excessive concentration of people & economic value (Tokyo)
- Reduce population growth, reduce human impact, reduce future hazards

## e. Greater Equality



- Strengthen communities
- “We are all in the same boat”
- Take care of the most vulnerable, such as the elderly, children, disabled, etc.

Let's **transform our societies**  
Rather than erect walls  
to protect business as usual