International Council for Science

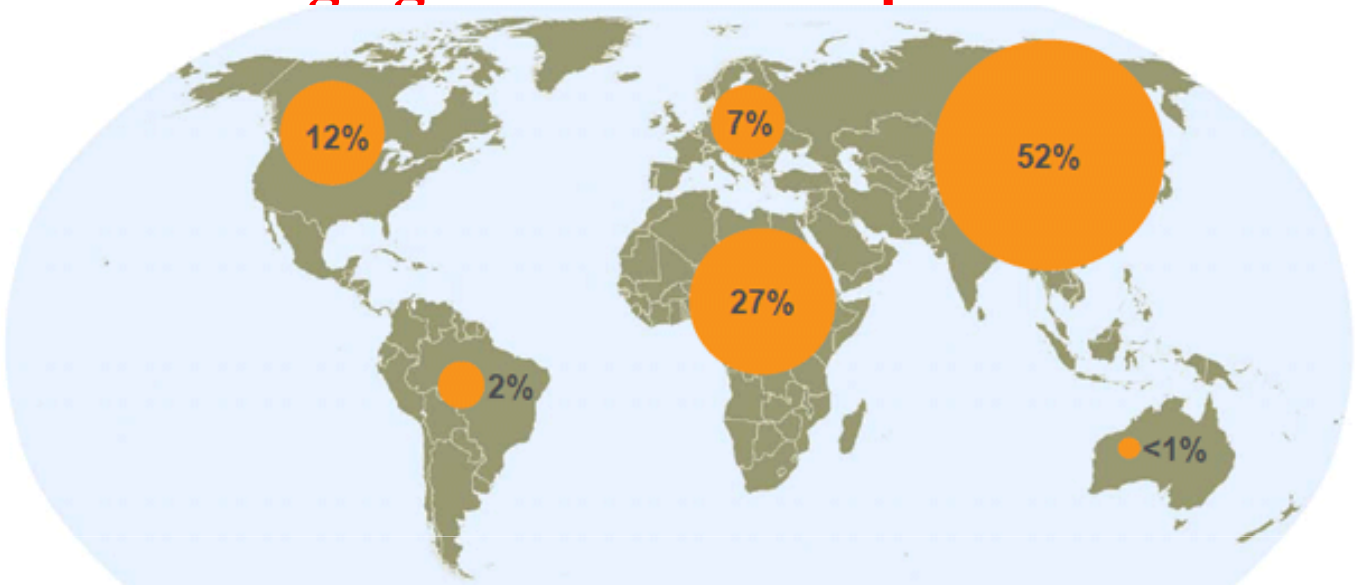
global change SysTem for Analysis, Research and Training

Natural Hazards and Climate Change

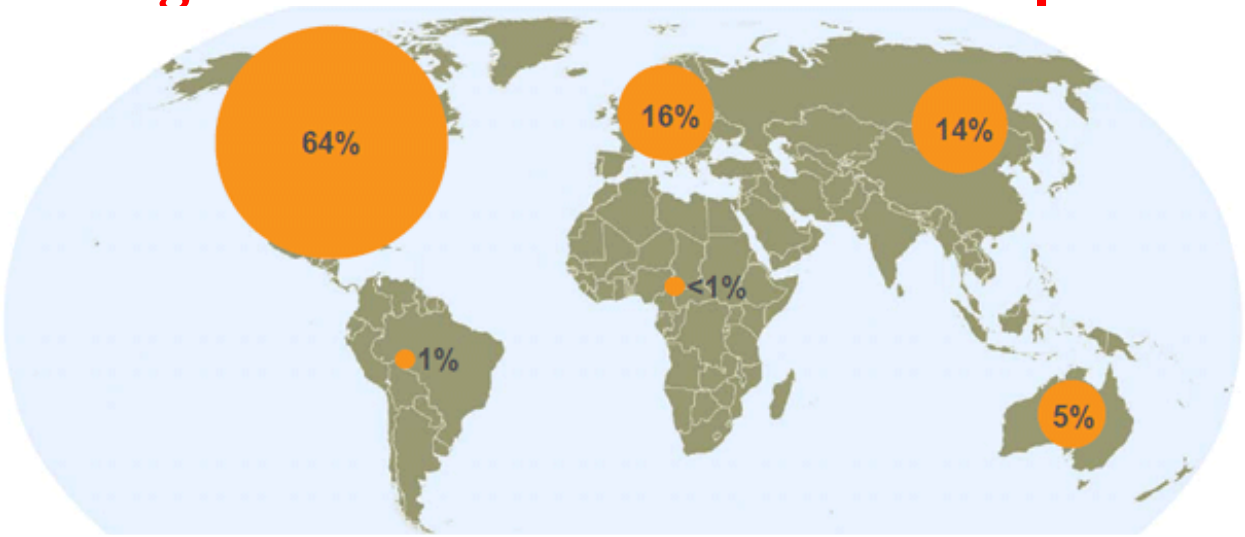
Presentation to Science and Technology in the Service of Disaster Risk Reduction
World Science Forum, Rio, 2013

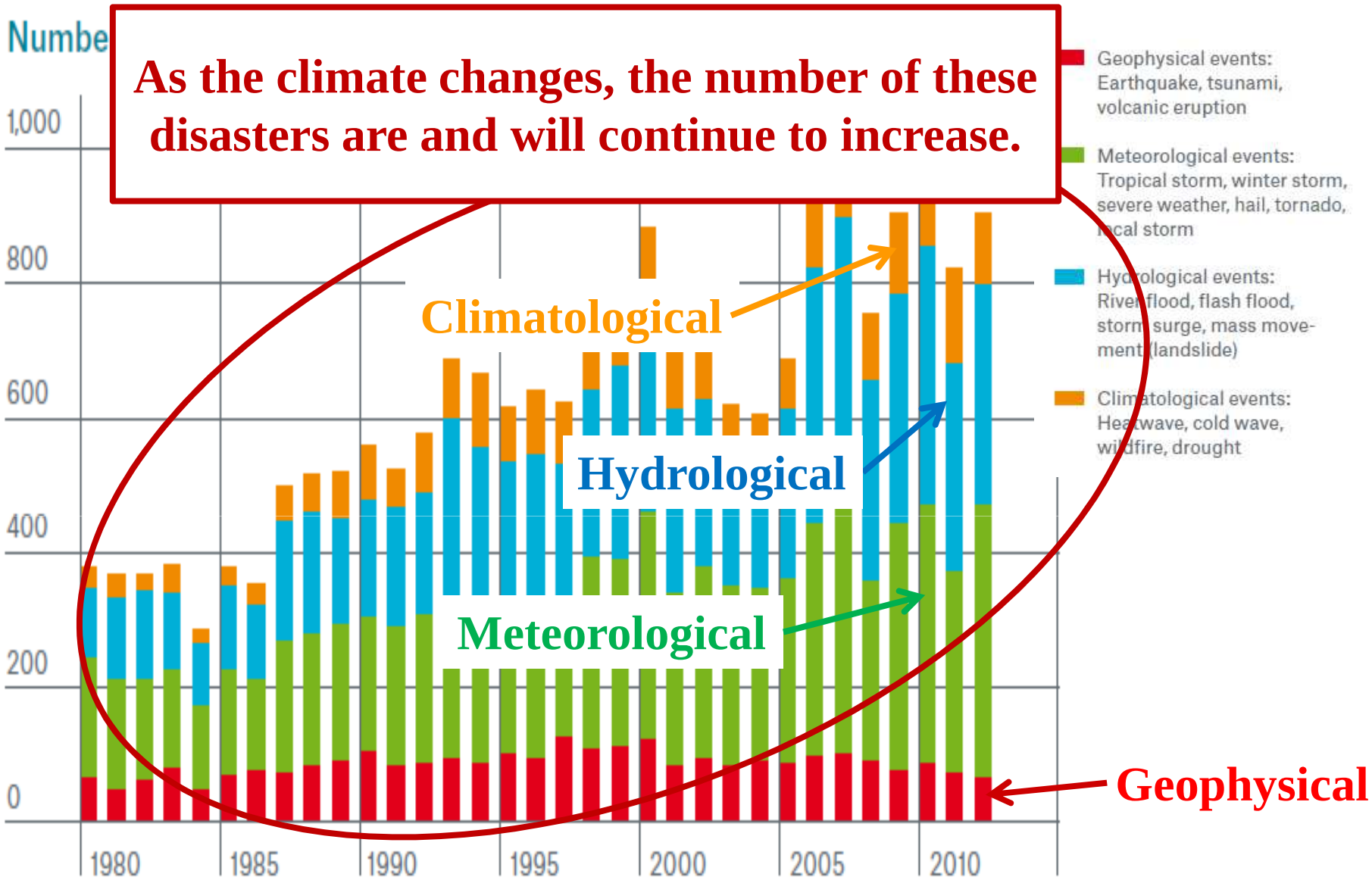
Professor Gordon McBean
President-elect, International Council for Science
President, START International
Western University, Canada

Natural catastrophe fatalities were highest in developing and emerging countries in the period 1980–2012



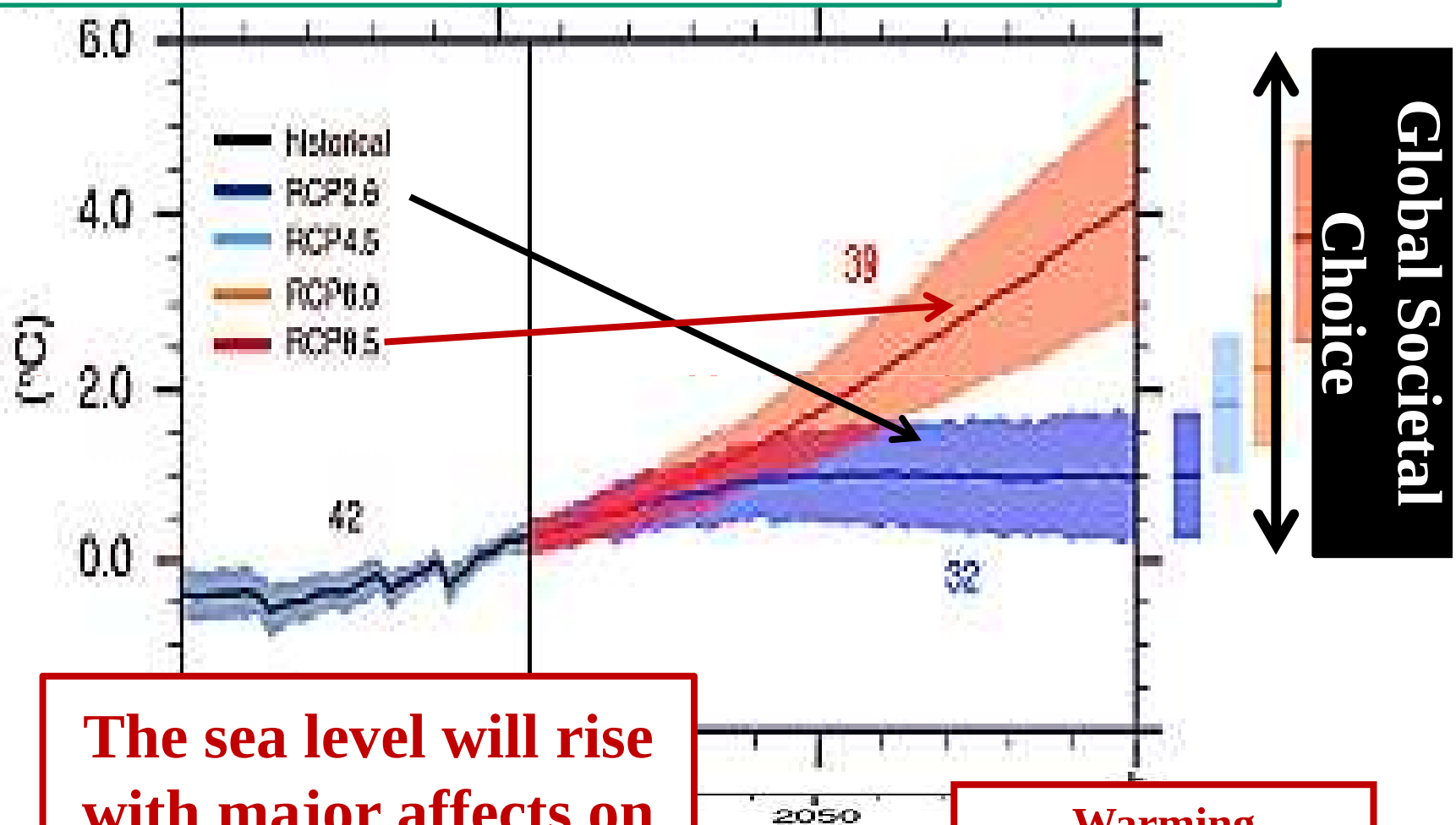
Natural catastrophes worldwide 1980 – 2012
Percentage distribution of insured losses per continent





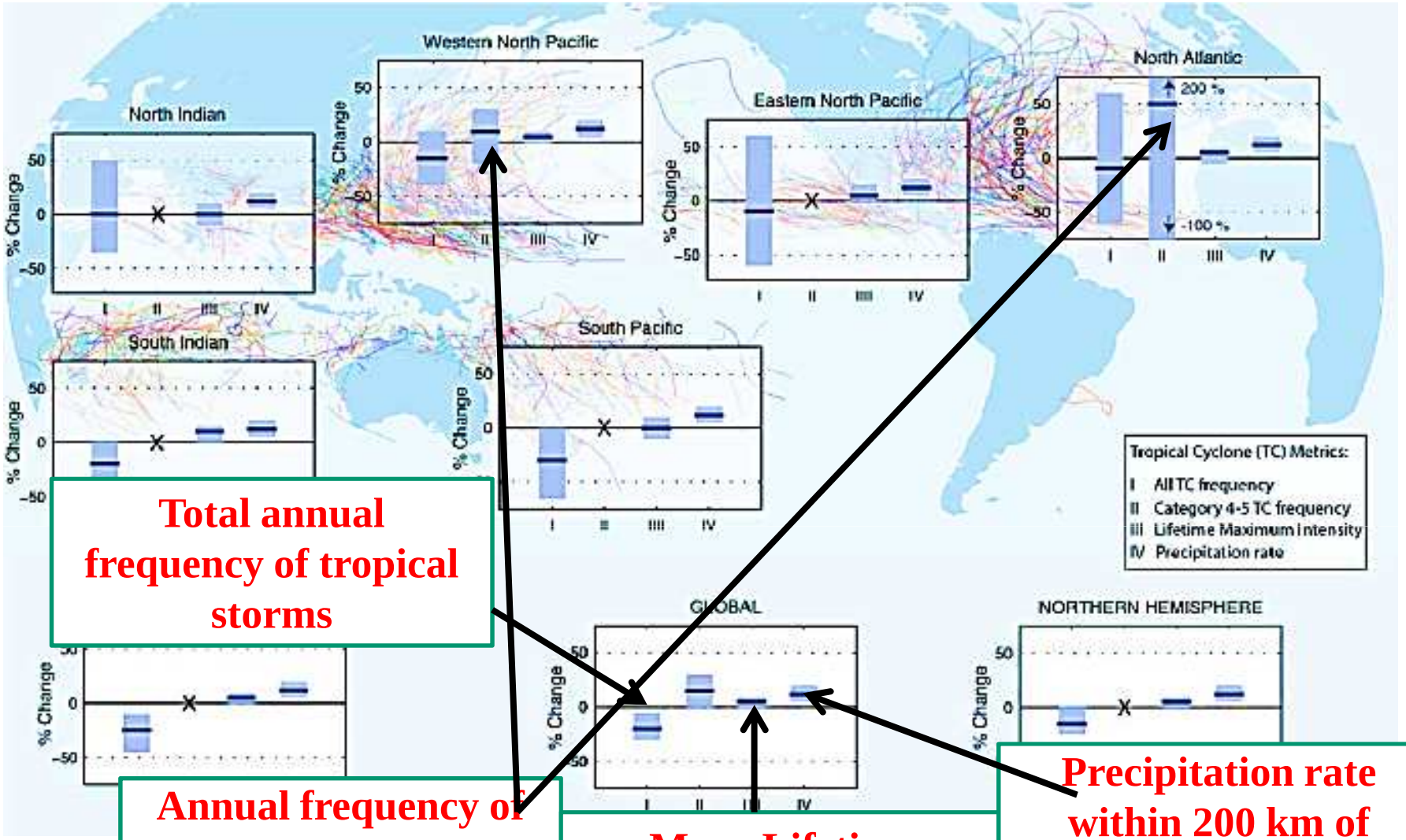
Munich Re – Topics Geo

Global Average Surface Temperature Change



The sea level will rise with major affects on coastal communities

Warming will continue for centuries to follow



Total annual frequency of tropical storms

Annual frequency of Category 4 and 5 storms

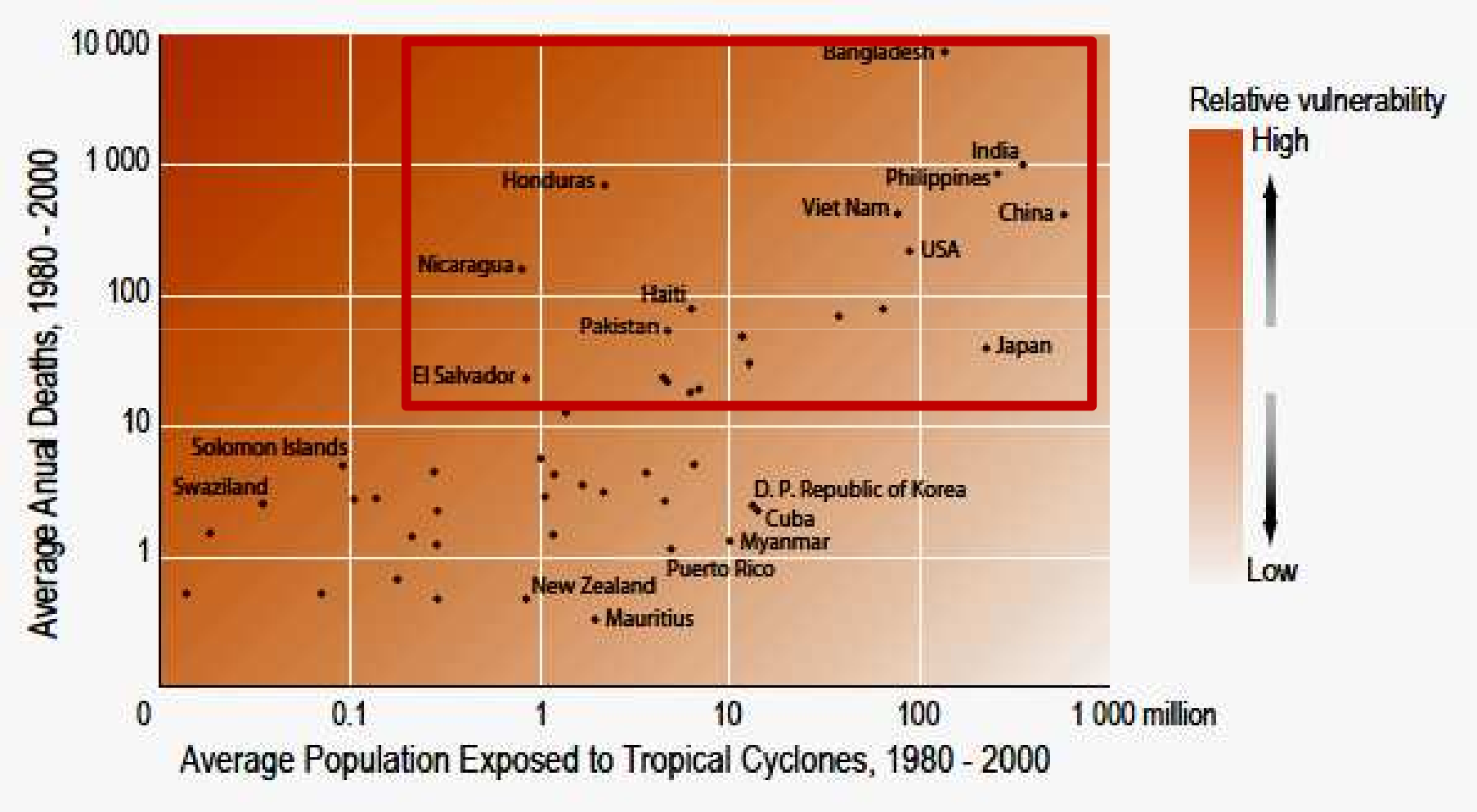
Mean Lifetime Maximum Intensity

Precipitation rate within 200 km of storm center at the time of LMI

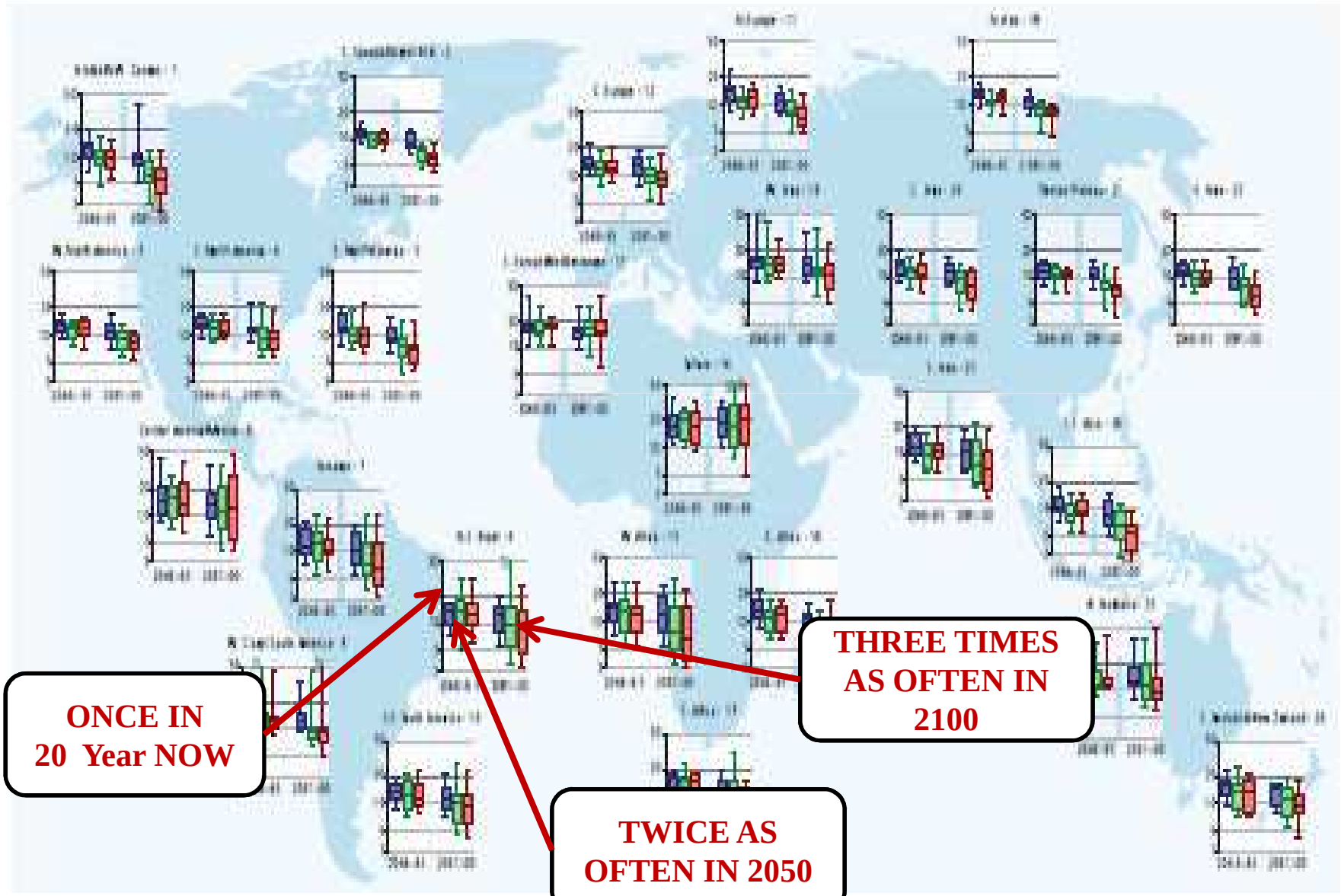
More intense tropical cyclones.

Relative Vulnerability to Tropical Cyclones

Global Assessment Report (2007)

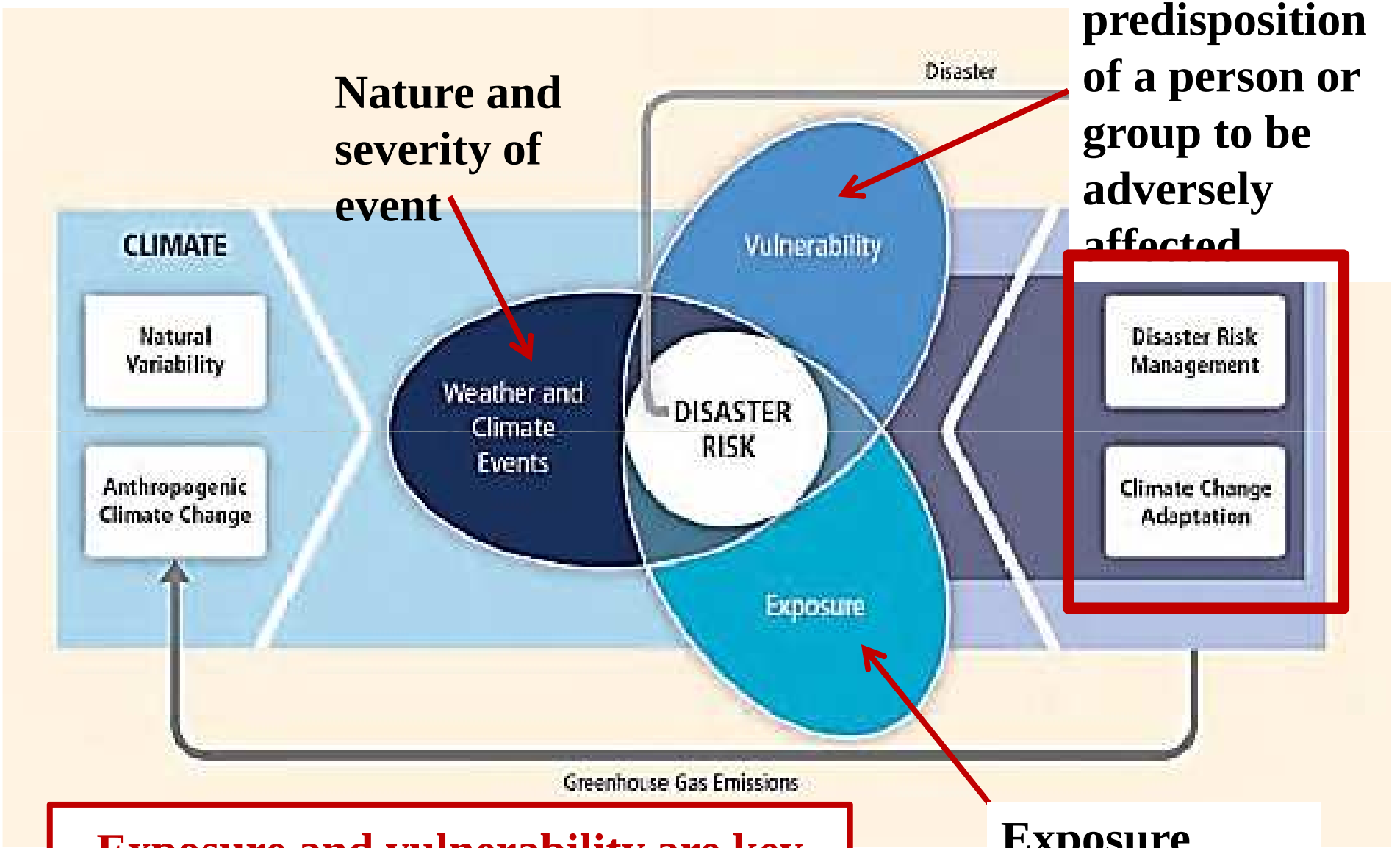


MORE PRECIPITATION – with it falling in more “deluges”



Vulnerability: predisposition of a person or group to be adversely affected

Nature and severity of event



Exposure

Exposure and vulnerability are key determinants of disaster risk.

SREX - Summary for Policy Makers

- **Economic losses from weather- and climate-related disasters have increased, but with large spatial and interannual variability.**
  - **Economic disaster losses … higher in developed countries.**
  - **Fatality rates and economic losses/GDP … higher in developing countries**
- **Post-disaster recovery and reconstruction provide an opportunity for reducing weather- and climate-related disaster risk and for improving adaptive capacity (high agreement, robust evidence).**
- **NATIONAL SYSTEMS AND CLOSER INTEGRATION OF DISASTER RISK MANAGEMENT AND CLIMATE CHANGE ADAPTATION ARE NEEDED.**

Thank you for your attention