

Research Plans and Collaboration Schemes in Mumbai Base, KU- GCOE-HSE Program

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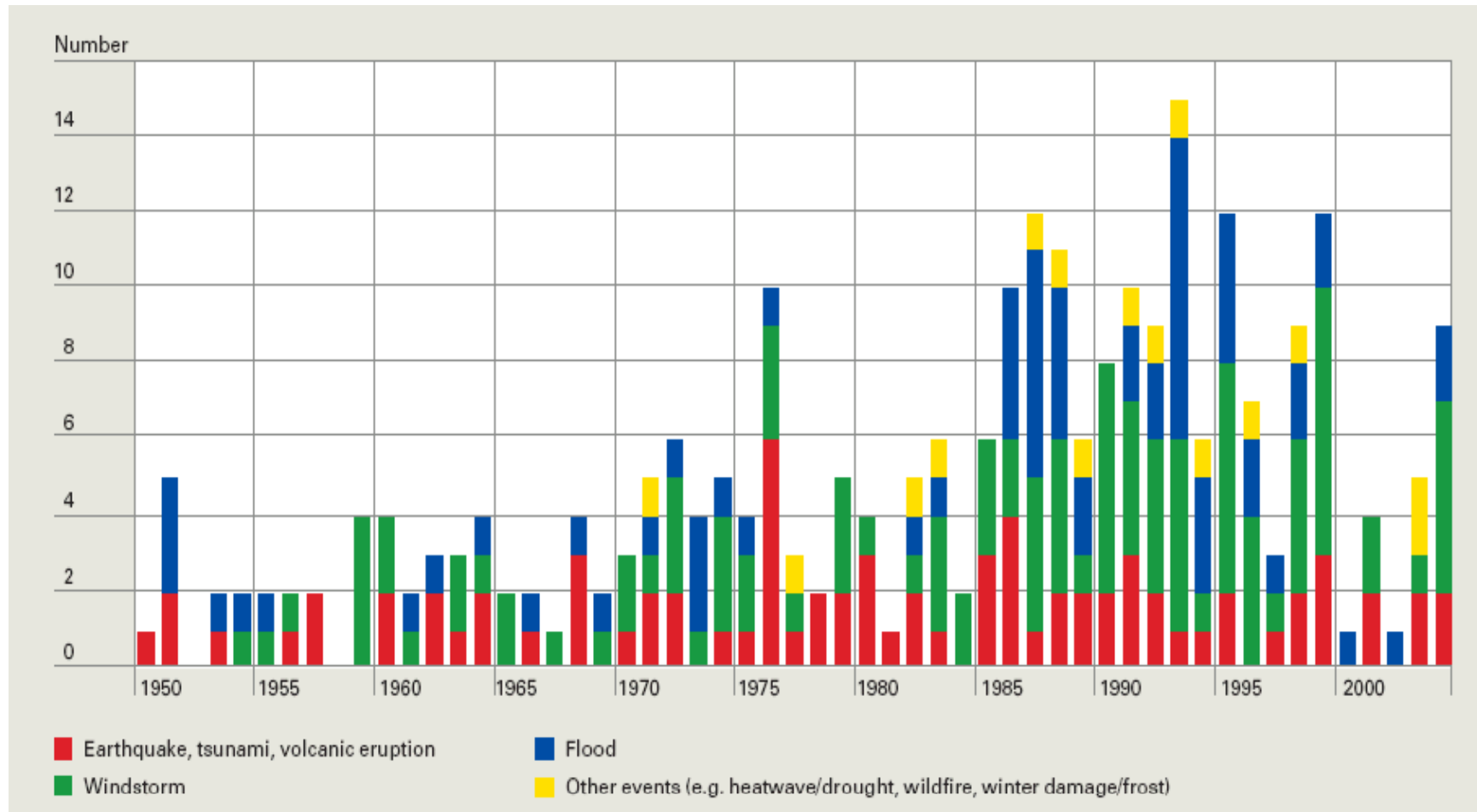


Start-up Meeting for GCOE program on Human Security Engineering
for Asian Mega Cities, Funai Auditorium/ Katsura Hall, Kyoto University

Contents

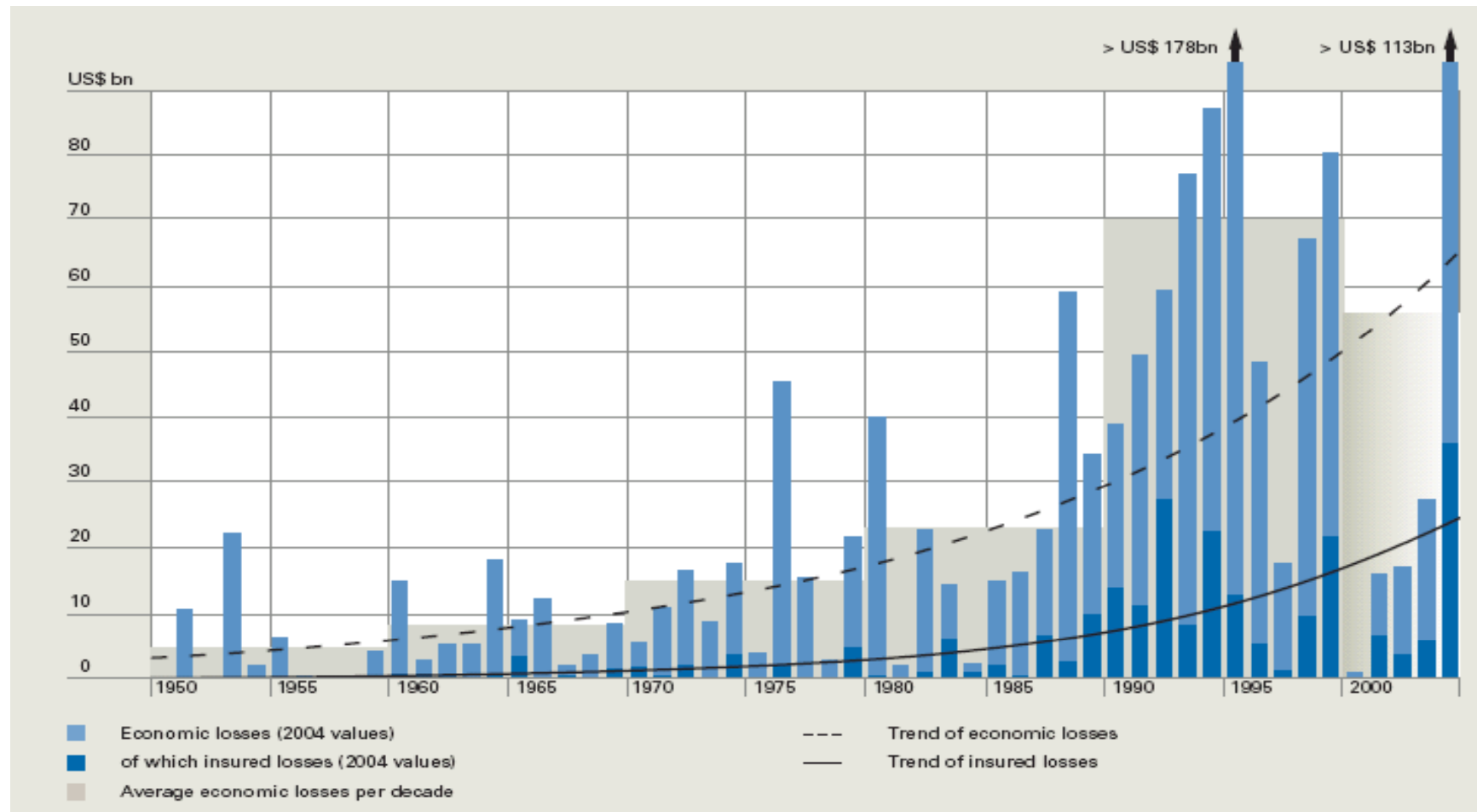
- Natural Disasters in the World
- Natural Disasters in Asia
- Urbanization and Disaster
- Issues and Challenges

Great Natural Disasters in the World



Source: Munich RE. 2005

Economic losses and insured losses with trend



Source: Munich RE. 2005

Trend of Natural Disaster in the world

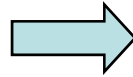
- **Larger catastrophic disaster is more likely to occur.**
 - Number of Disaster for which some international aid is executed.
 - 60s : 90s = 1 : 3
- **Economic losses glowed in high rate**
 - 60s : 90s = 1 : 9
- **Insured losses increased in higher rate**
 - Anti-catastrophe insurance available in high-income countries
 - 60s : 90s = 1 : 16

What is happening?

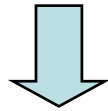
- **Increase in exposure** : Population and assets are concentrating to hazardous area
- **Vulnerability** : Population and assets have not enough resistance against natural hazards

Natural Hazard → Disaster

Consequences of Human Behavior



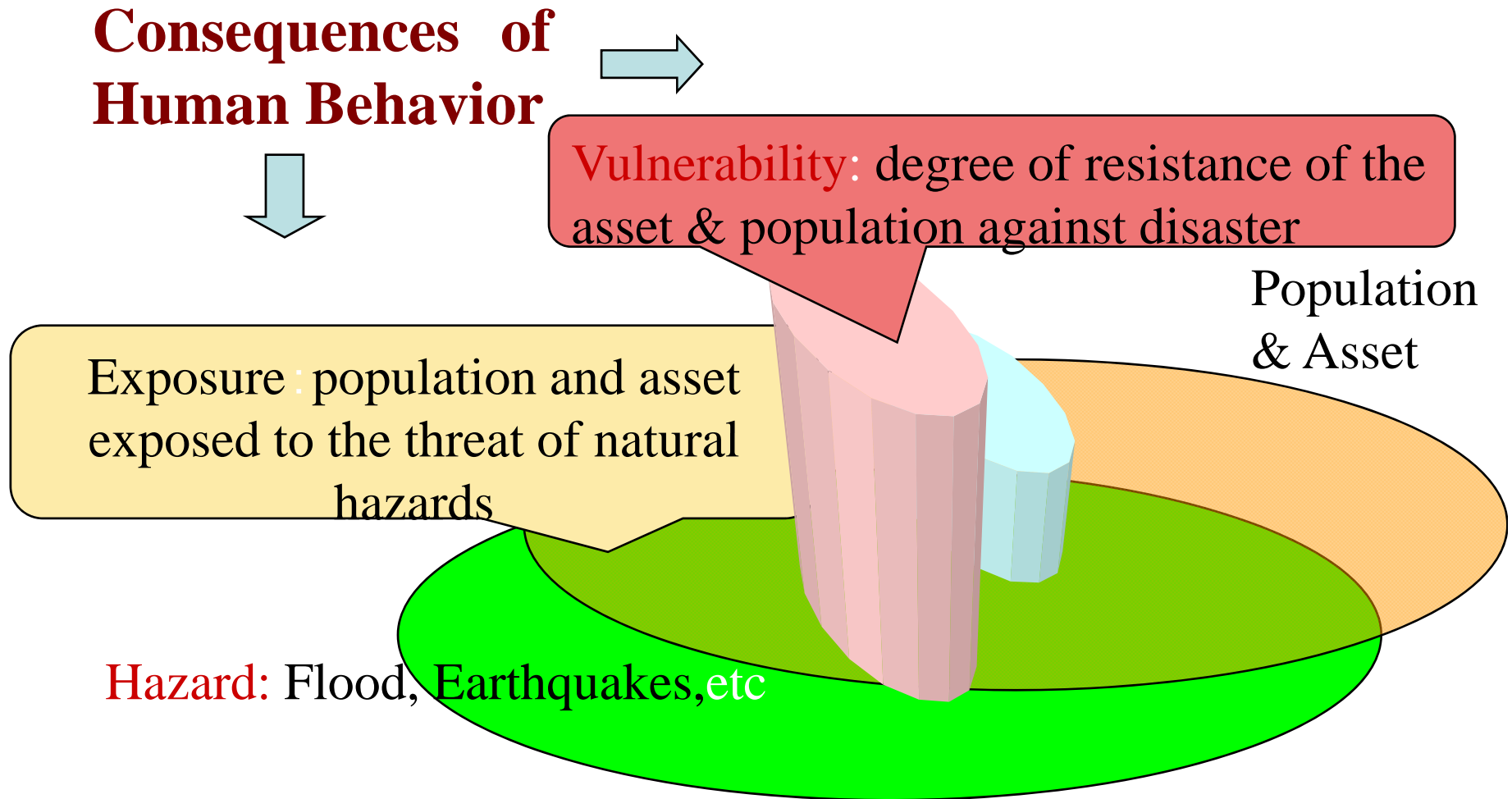
Vulnerability: degree of resistance of the asset & population against disaster



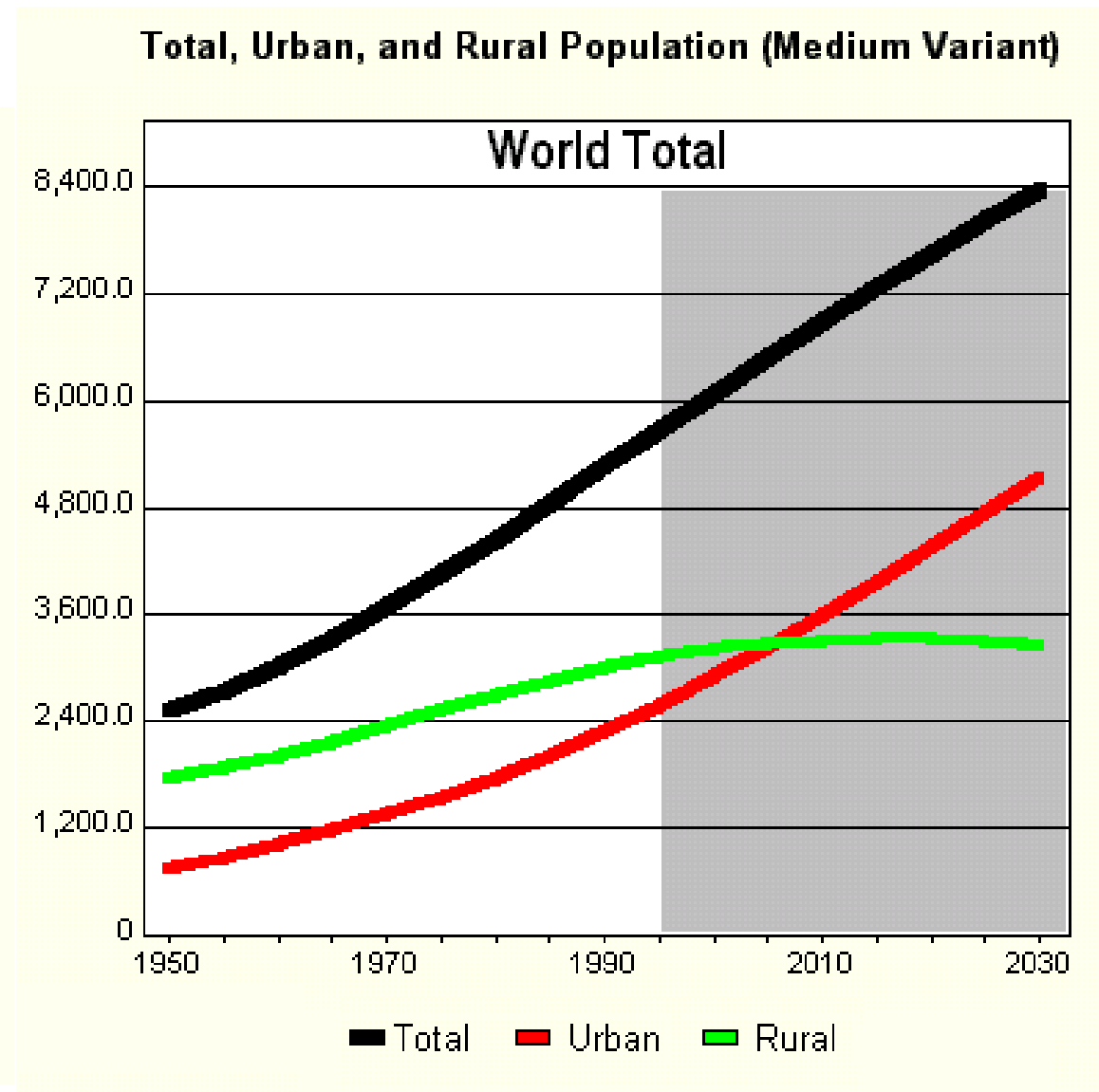
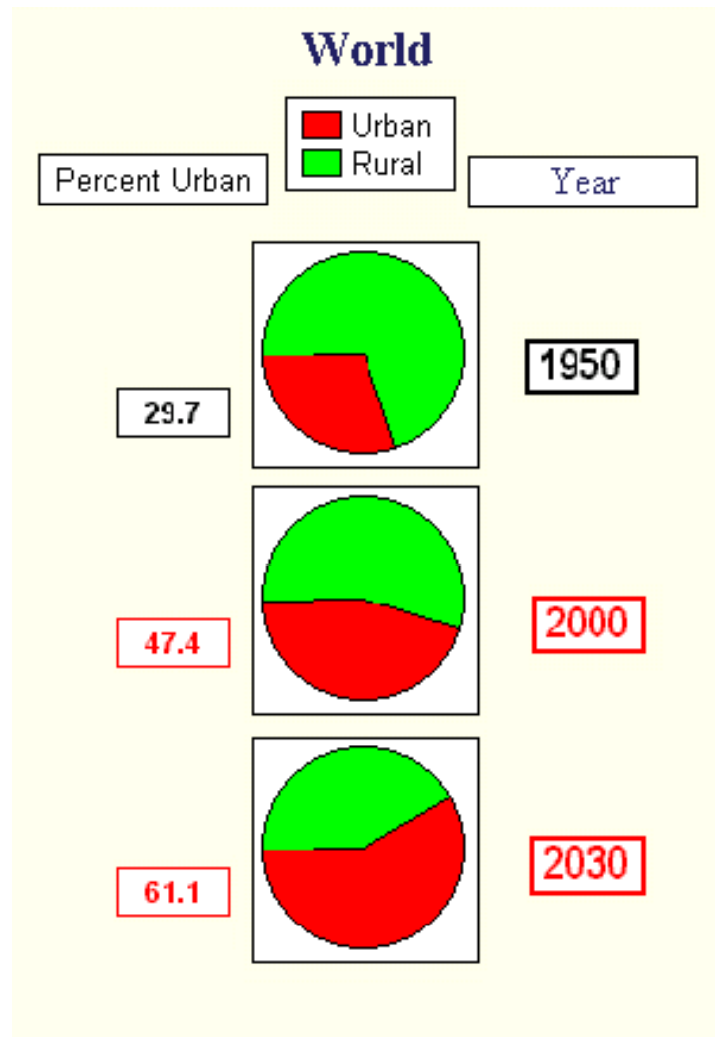
Exposure: population and asset exposed to the threat of natural hazards

Population & Asset

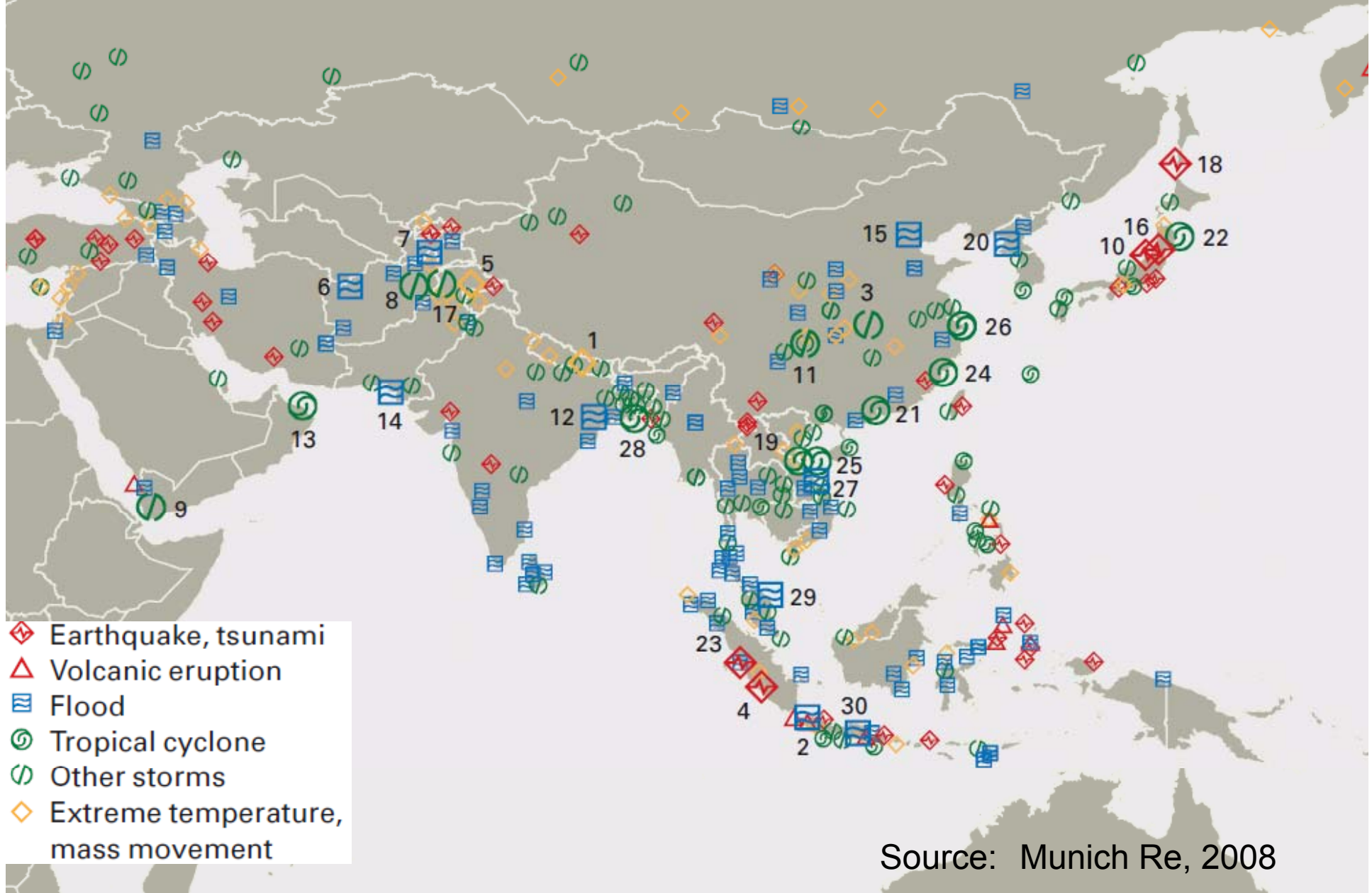
Hazard: Flood, Earthquakes, etc



Urban population is dominating in the world



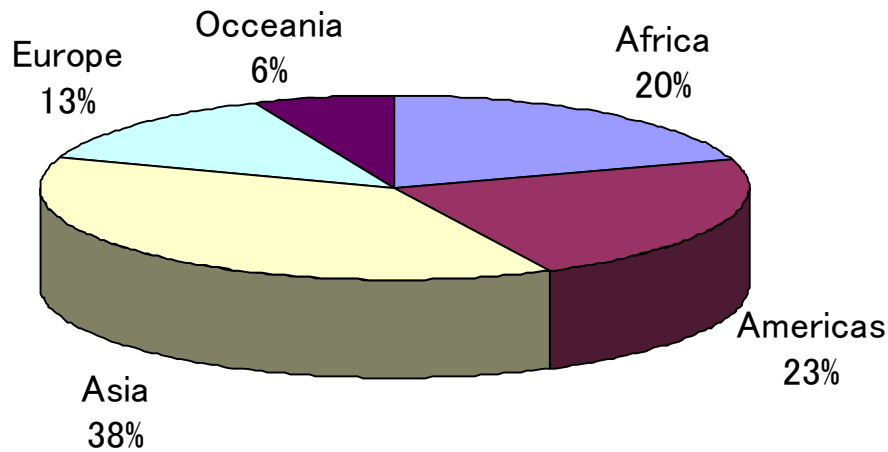
Disasters in Asia, 2007



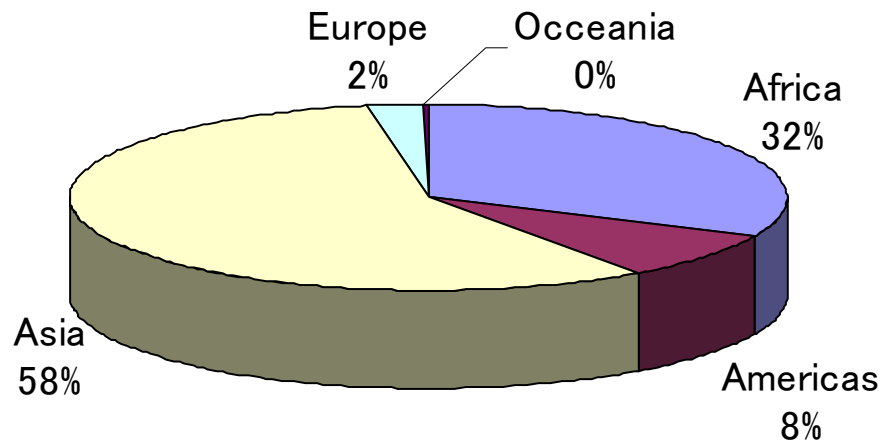
Source: Munich Re, 2008

1975-2006 Disasters and Impacts by Region

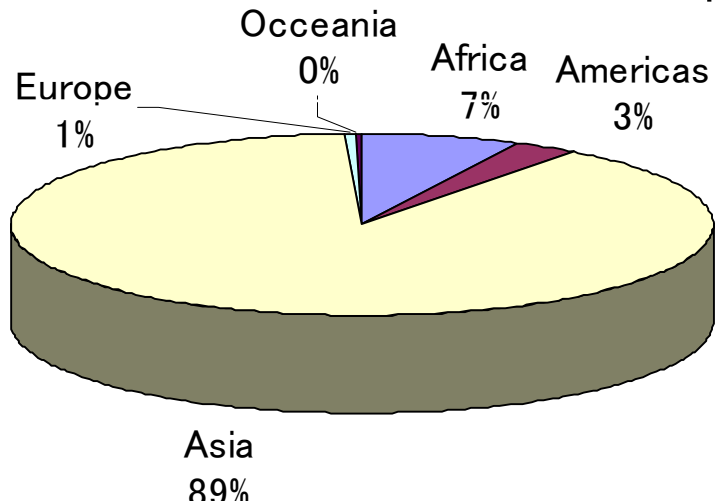
Number of Disasters



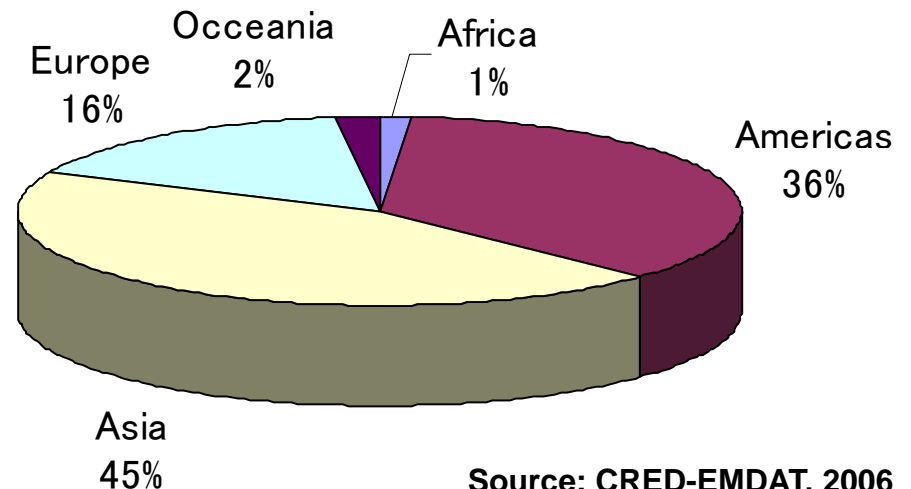
Number of Killed



Number of Total Affected People

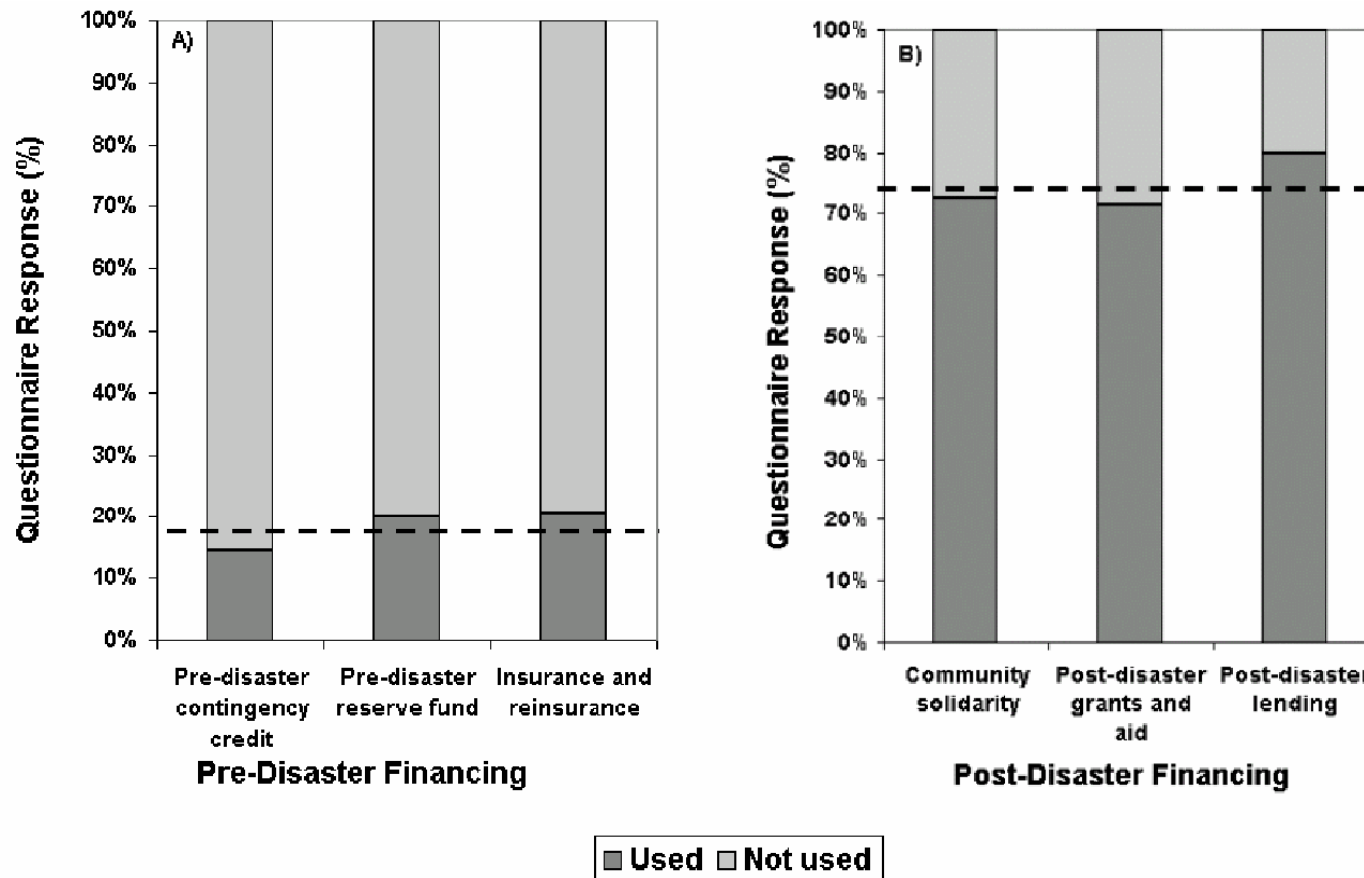


Economic Loss (2000's Value)



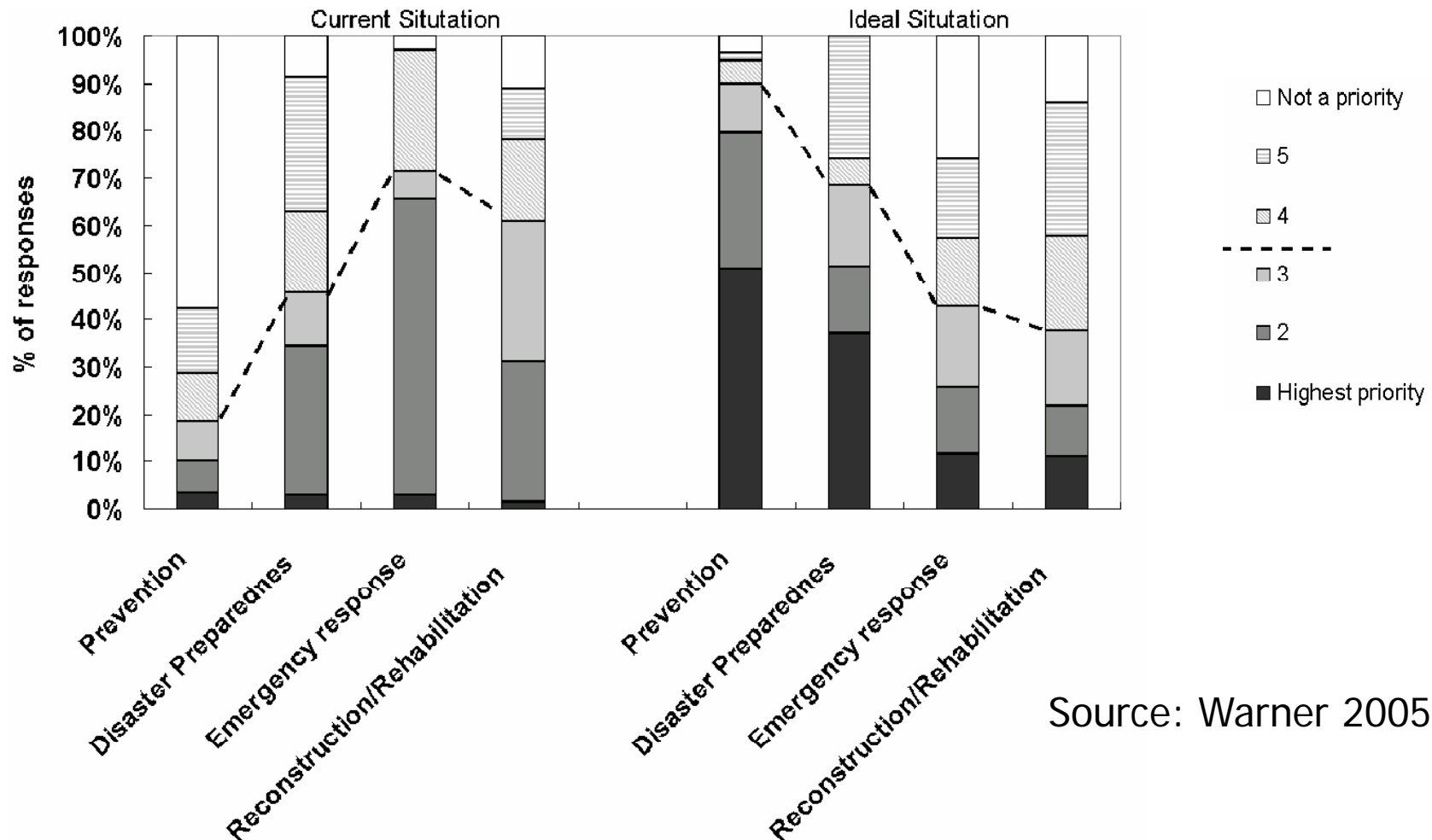
Source: CRED-EMDAT, 2006

Proactive risk financing is less used in developing countries



Source: Warner 2005.

Current and ideal disaster risk management counter measures in developing countries

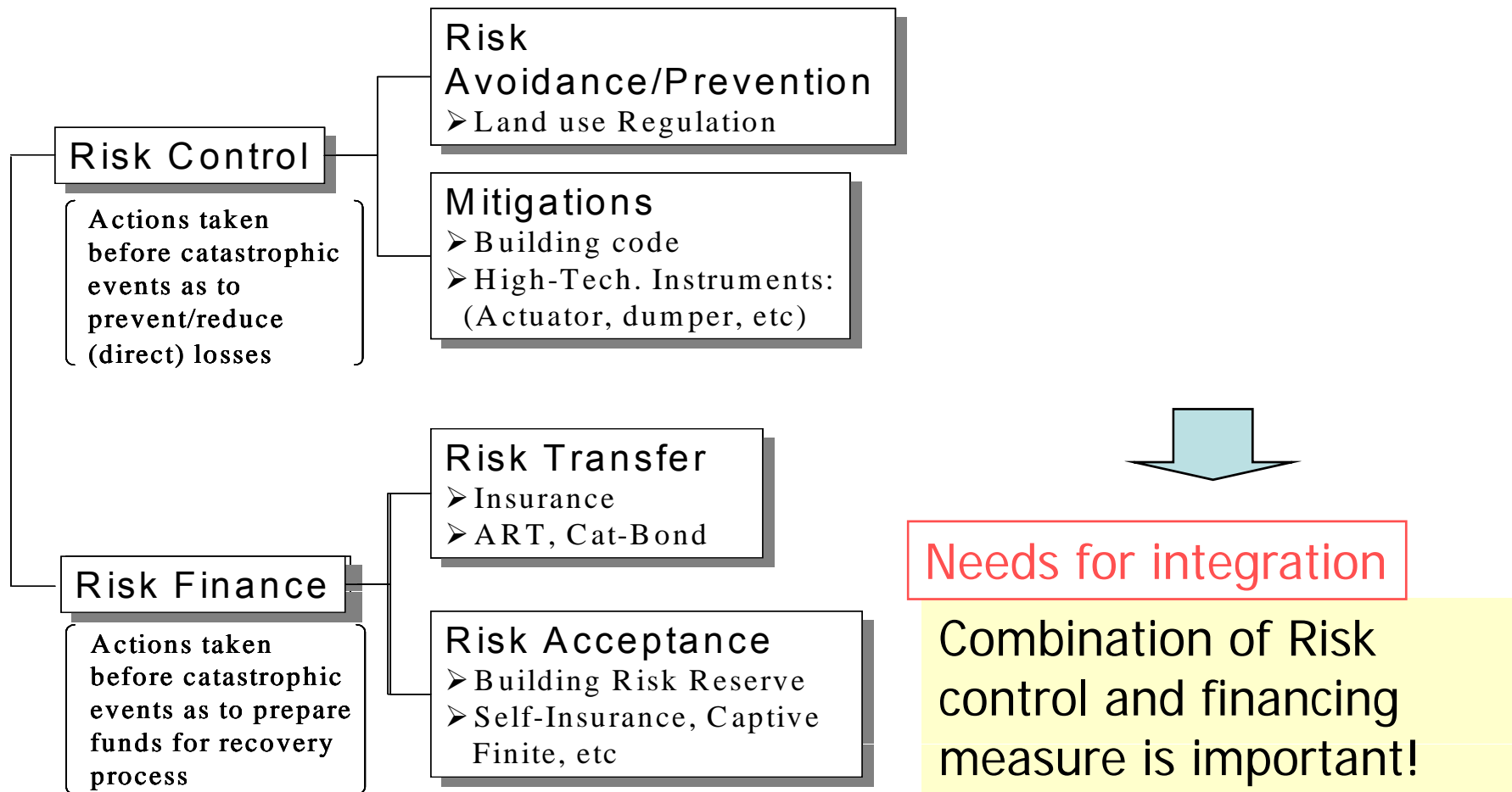


Source: Warner 2005.

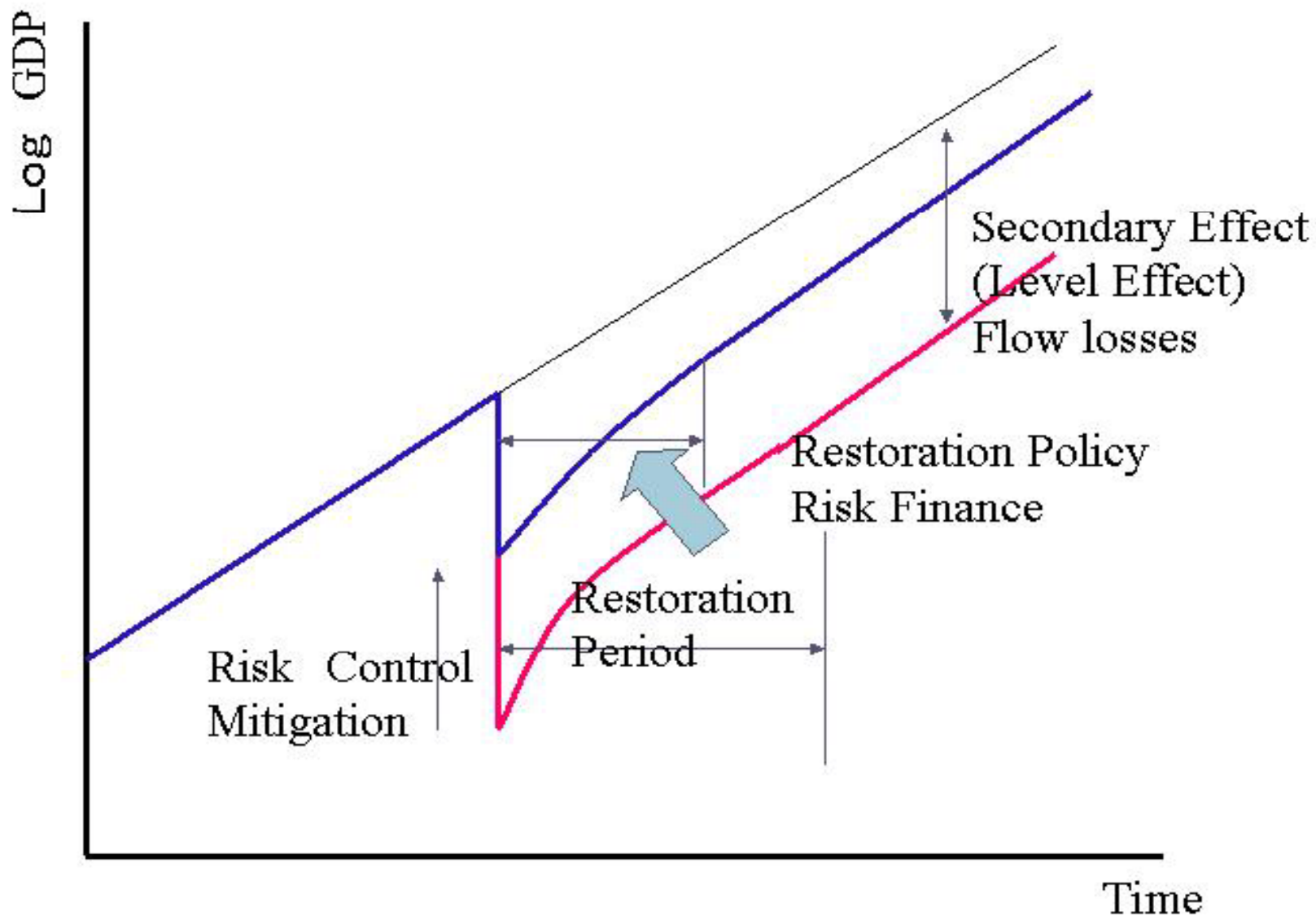
ISSUES

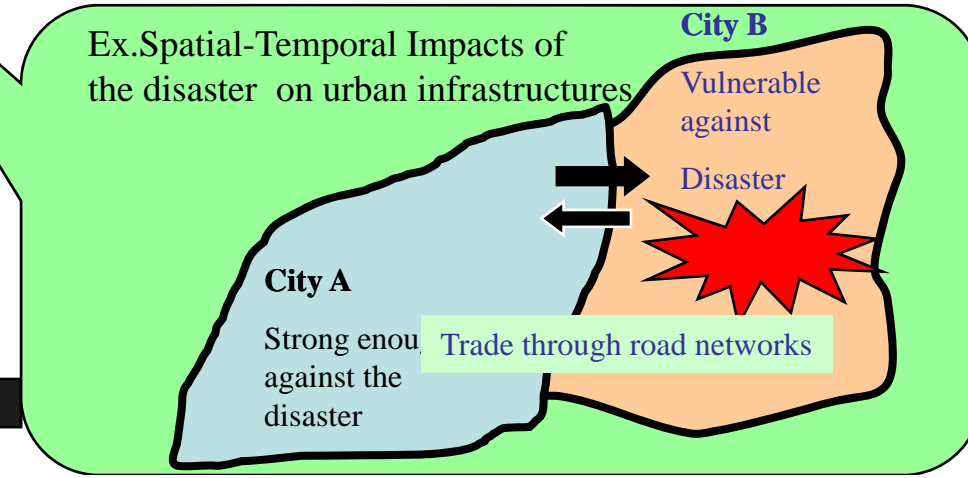
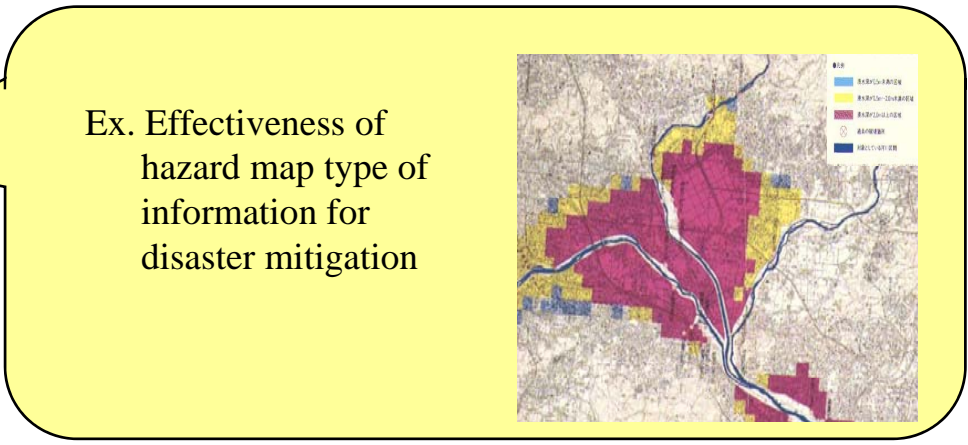
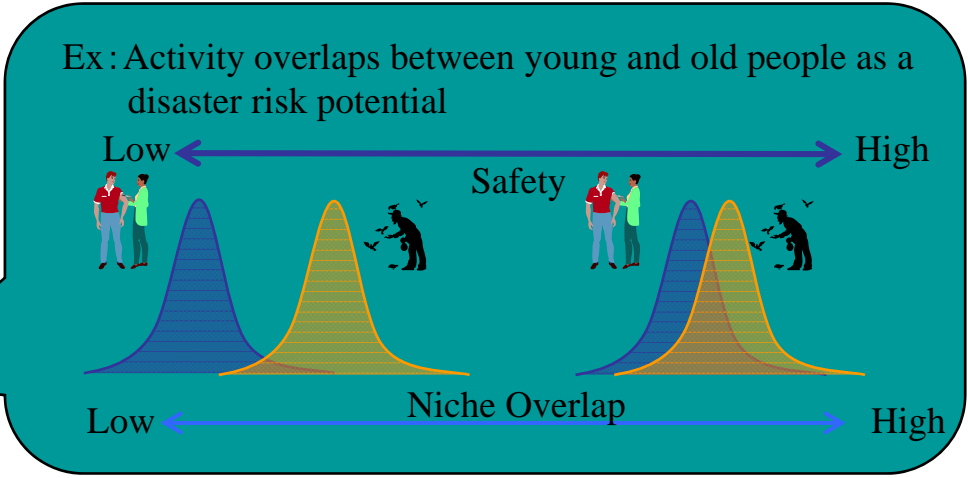
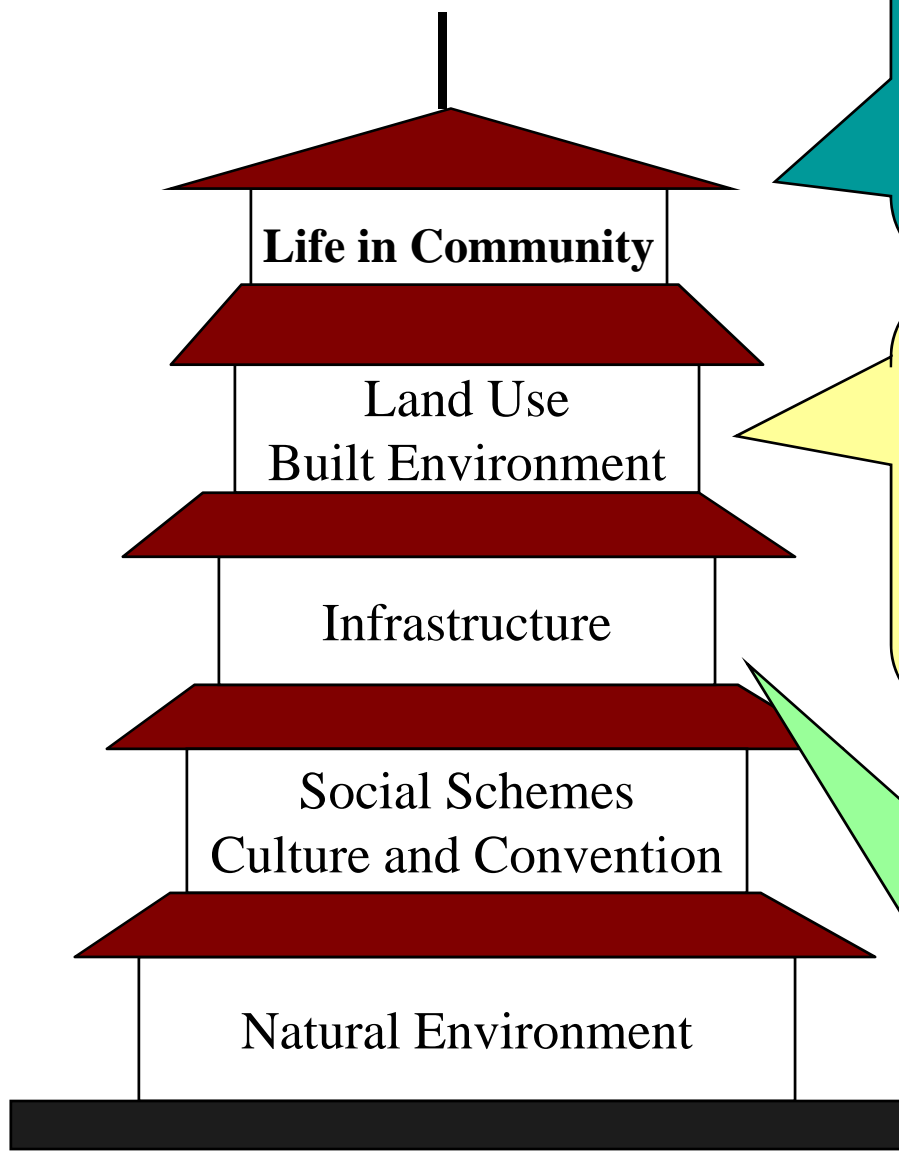
- Needs for Integrated Disaster Risk Management
- How to fill the gap in the last mile between knowledge and practice?

Proactive Counter Measures of Disaster Risk Management



Economic loss caused by disasters can be reduced not only by mitigation but also financing!





Implementation

= Fill in (an unknown gap)

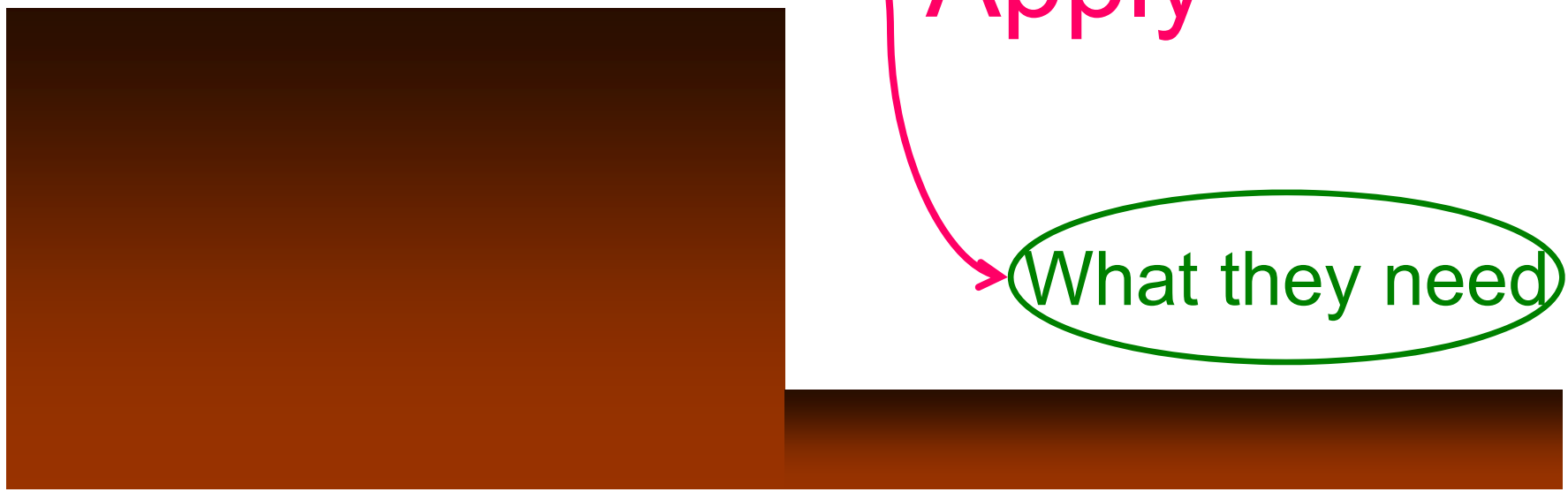
to complete at each end

(mutual efforts)

What We know

Apply

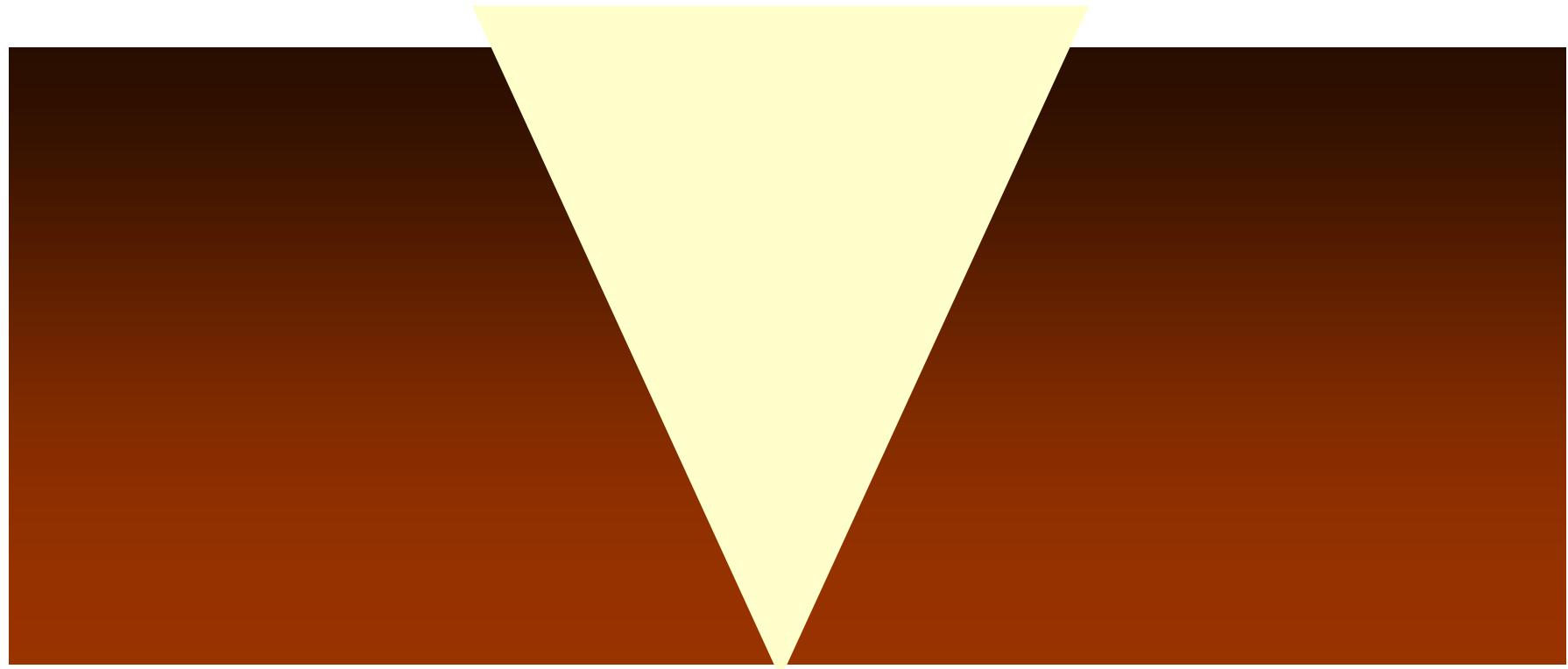
What they need



Foresight

What we
(they) may
know

What they
(we) may
need



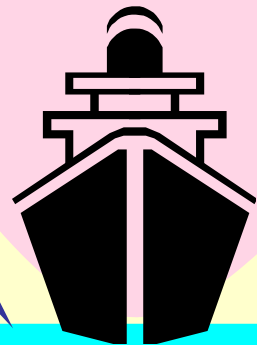
What **WE**
KNOW and CAN
ACT
TOGETHER

What we
know more
and can

act

What we
need more
and can

act



Okada,2005

IMPLEMENTATION DYNAMISM SYNERGY

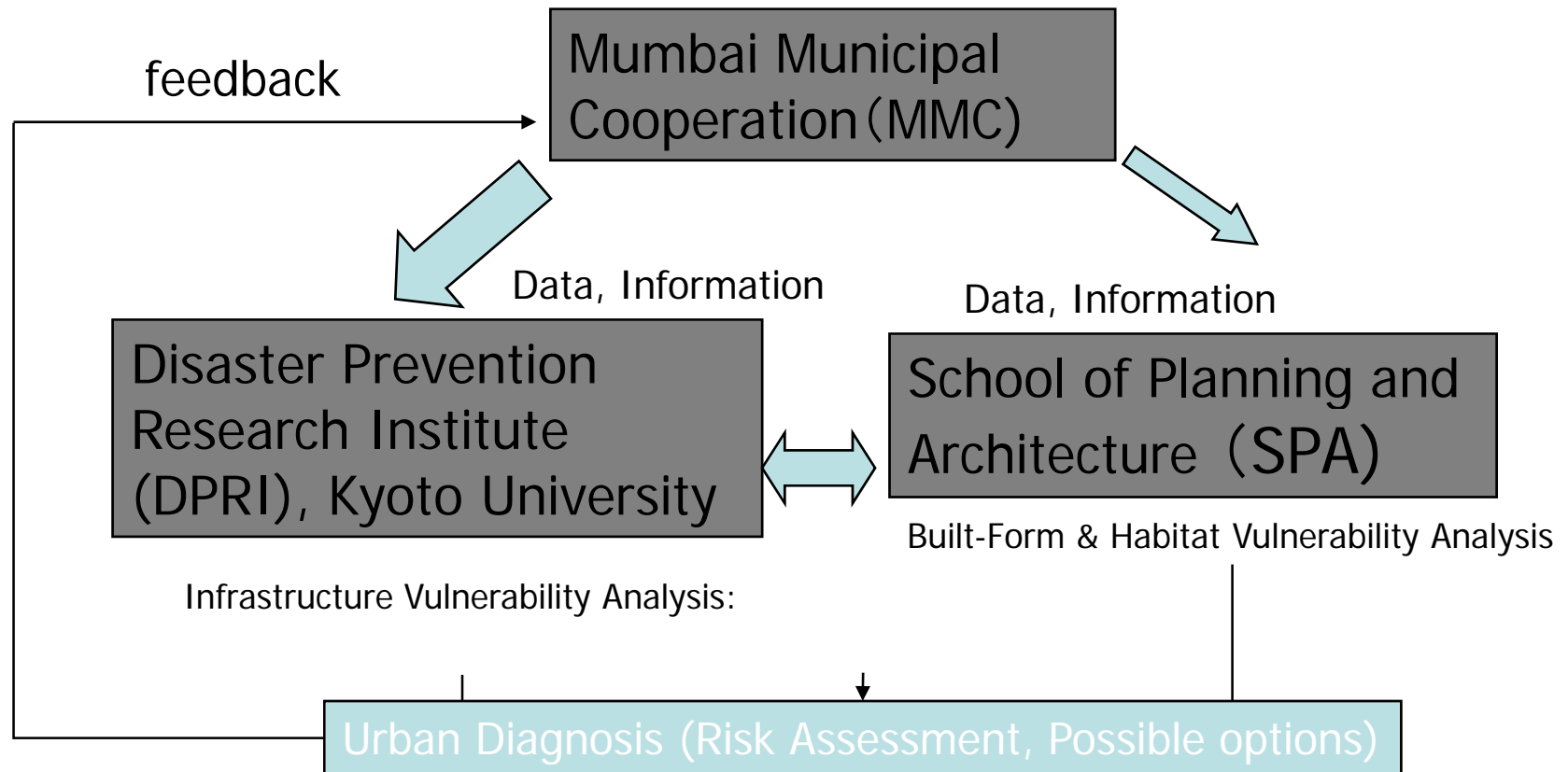
Projects of DRM in GCOE HSE

- Education and Research on Natural Disaster Risk Management: Flood, Earthquake and Tsunami , etc.
 - Ph.D students will take courses and conduct research related his/her interest belonging to a laboratory under supervision of expert in the natural disaster studies.
- Implementation Strategies of Disaster Risk Management in Asian Megacities: China, India, Vietnam, Malaysia, etc.
 - Problem oriented research in the specific fields are encouraged to find the way for filling the gaps between knowledge and practice.

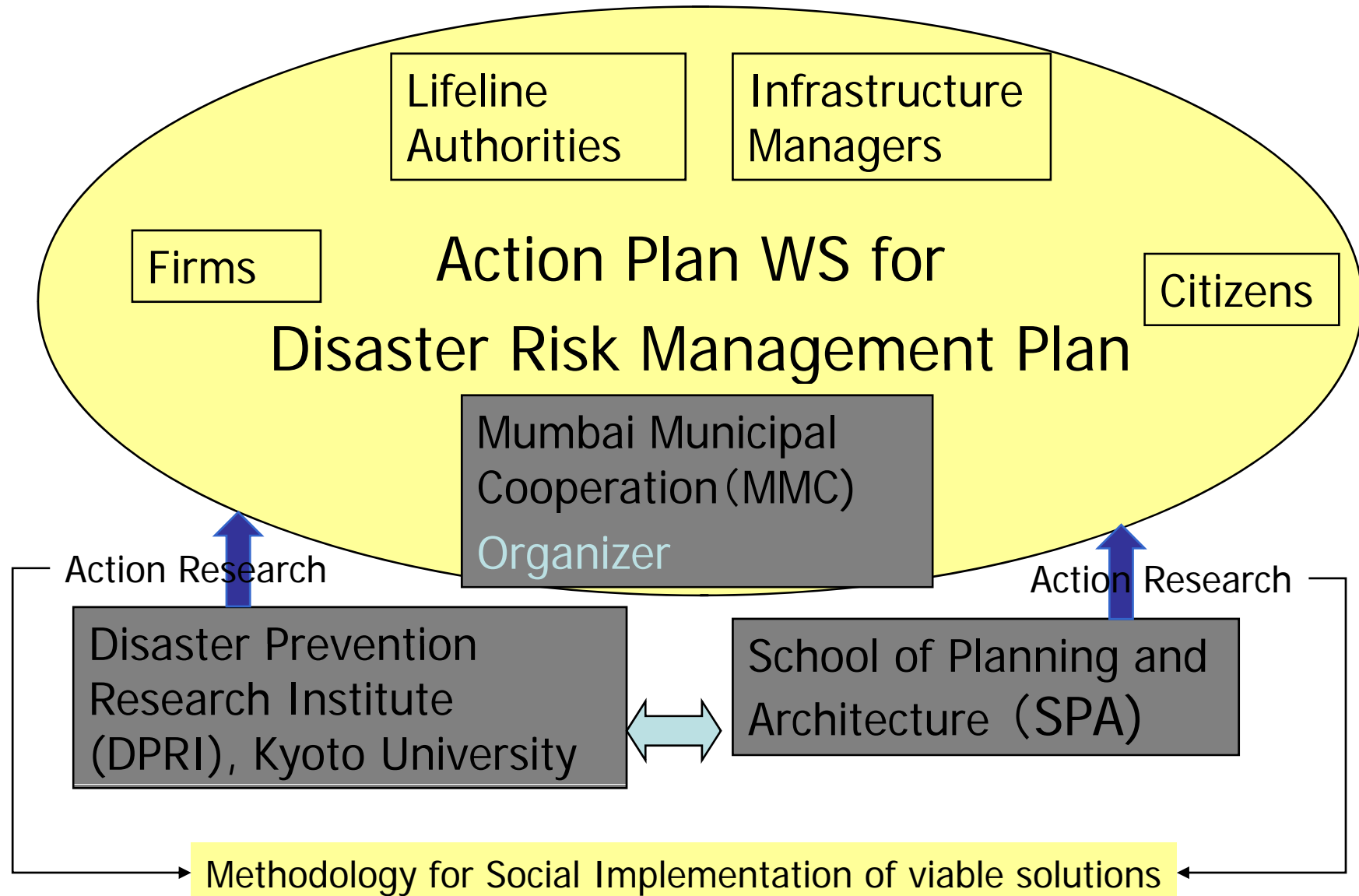
Research Purpose in Mumbai base

- Focusing on **Mumbai**, where is a Asian mega-city which exposed to natural hazards, the project aims at conducting an field research for developing methodologies on
 - (1) conducting **integrated urban diagnosis for Asian mega-cities** and
 - (2) developing **socially implementable prescriptions** for increasing coping capacity against natural disaster.
 - The project is expected to contribute for the advances of academic knowledge in implementation science which explain mechanism of social implementation.

Phase 1: Urban Diagnosis

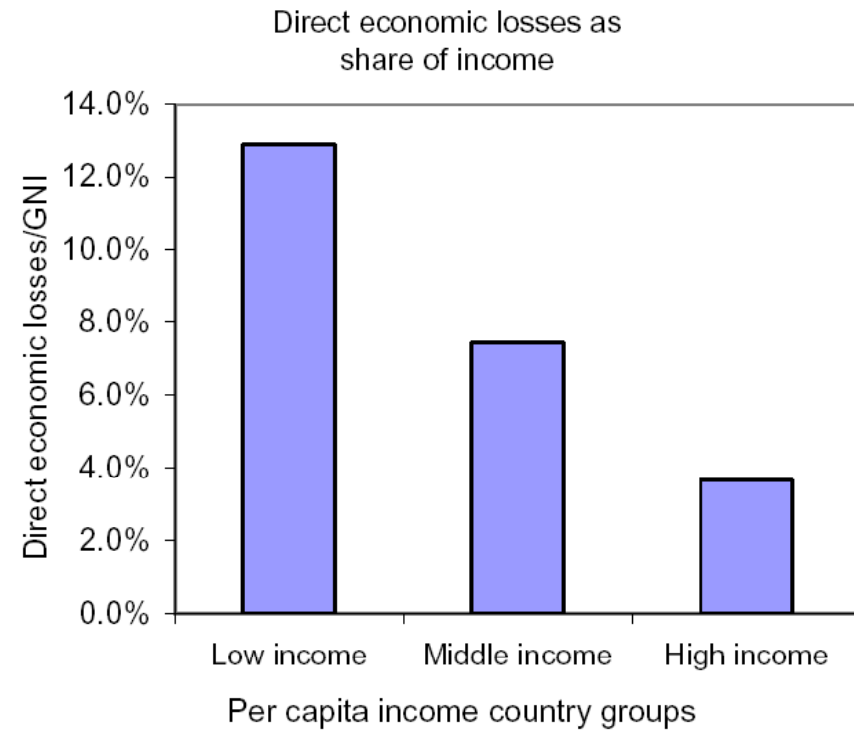
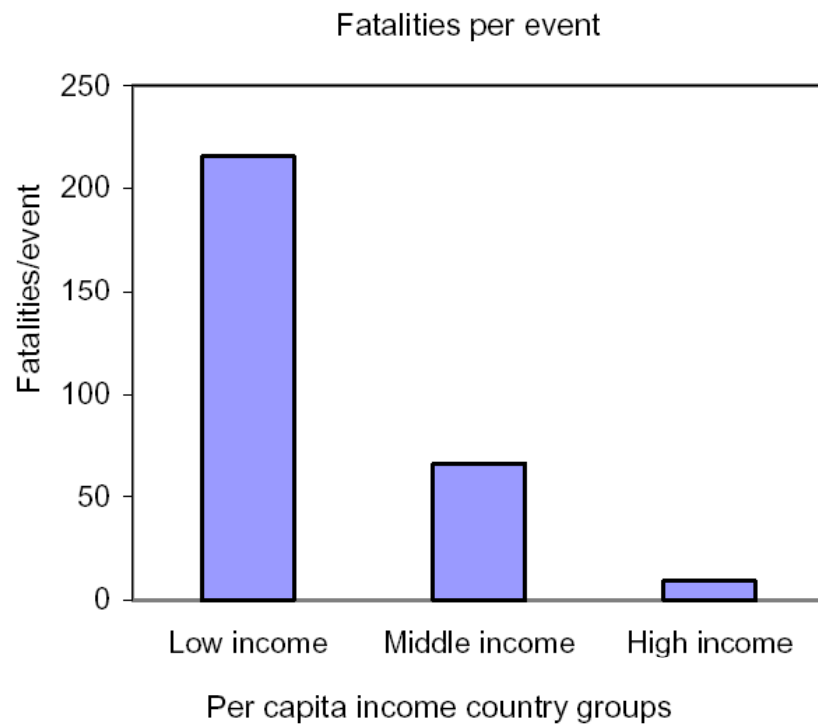


Phase 2: Implementable Action Plan Development



Thank you for your attention!

Higher vulnerability in less income countries

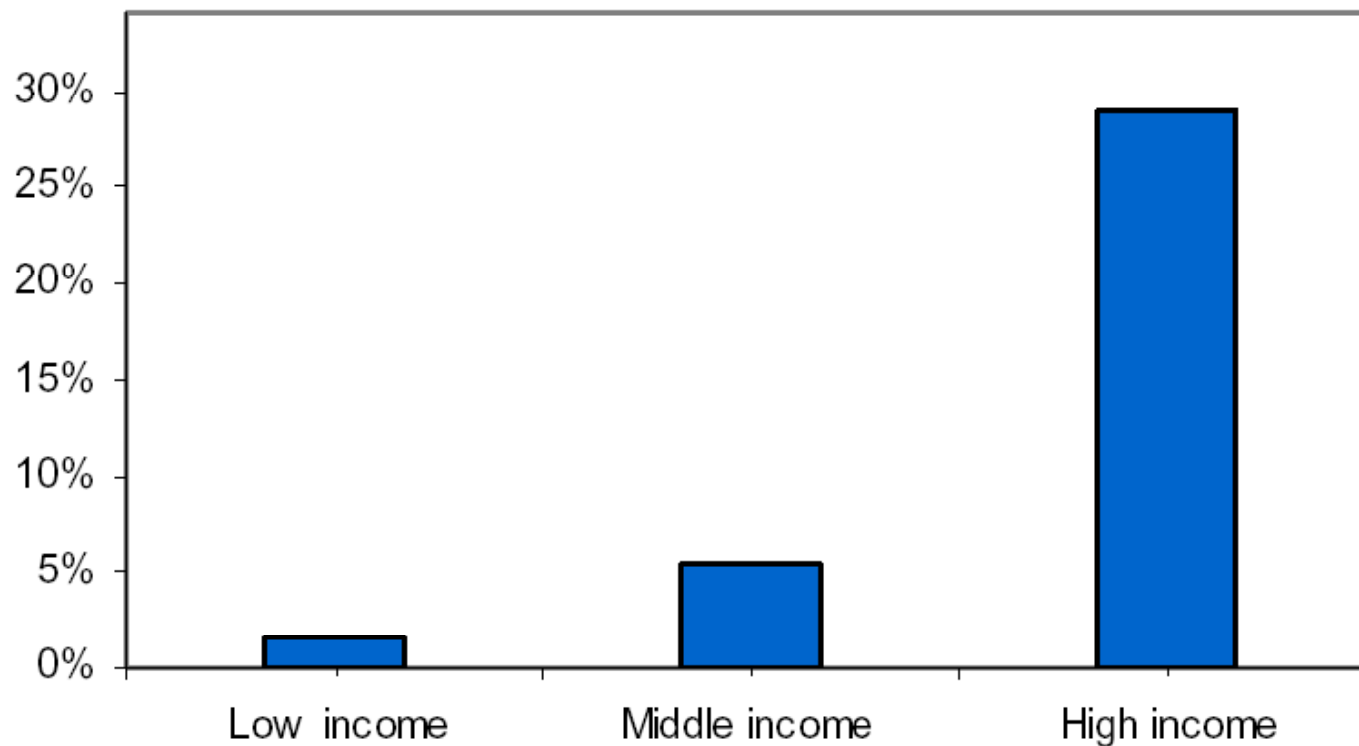


Large natural disasters over period 1980- 2005

Source: Munich Re. 2005

Smaller insurance coverage natural disaster losses in lower income countries

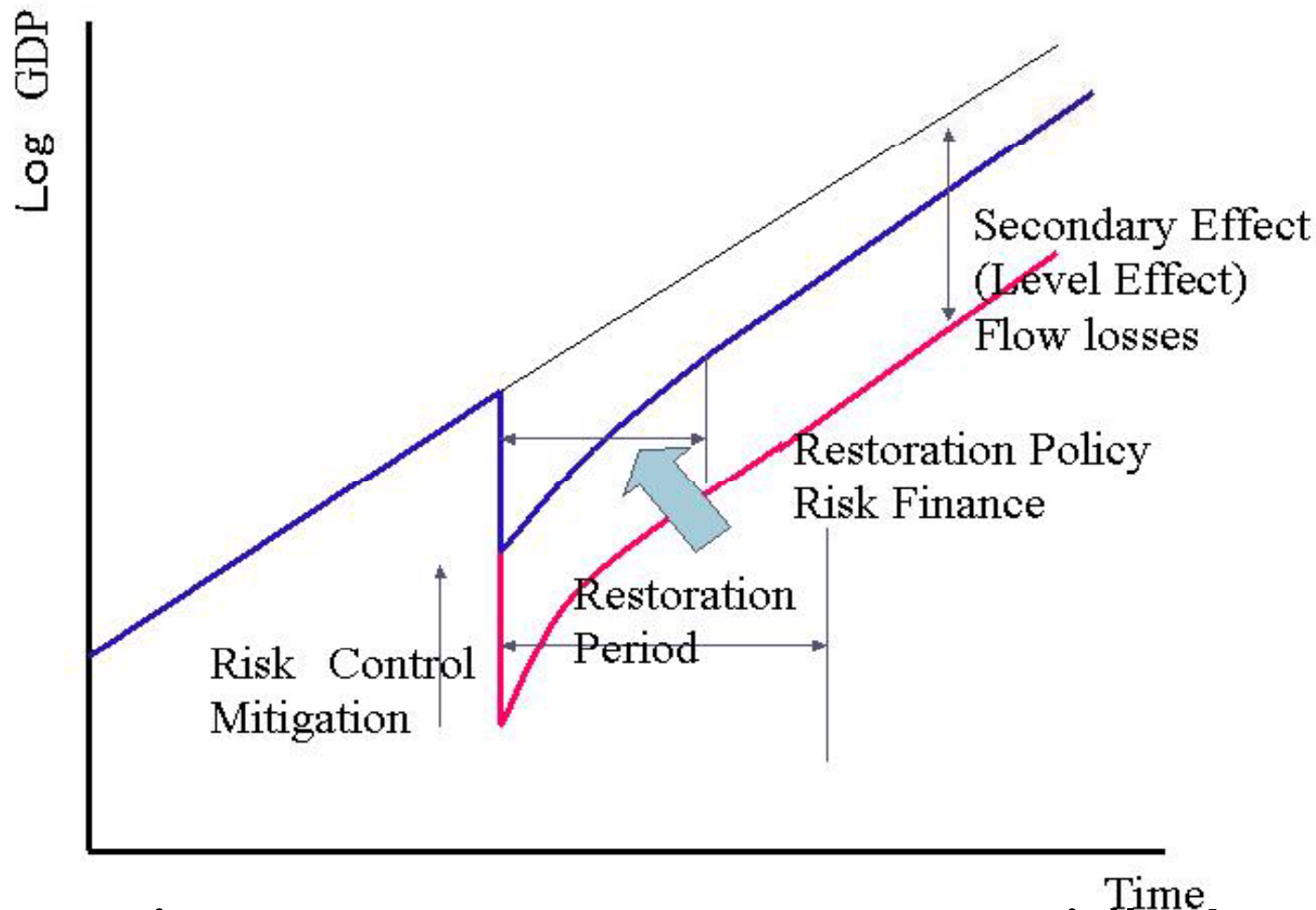
Ratio of insured losses to total losses according to country income groups for period 1985-1999



Large natural disasters over period 1980- 1999

Source: Munich Re. 2003

Heterogeneous Damages in Capital
= Existing capital in low productivity
because of the lack of the destroyed capital



Economic recovery occurs more rapidly !