



*Special Session 1: Extreme Events and Climate Change,  
IDRC Davos 25 August 2008, Switzerland*

# Climate Change, Vulnerability Reduction and Adaptation – New Challenges for Spatial & Urban Planning

**Dr.-Ing. Jörn BIRKMANN**

**UNITED NATIONS UNIVERSITY –  
Head of Section Vulnerability Assessment**



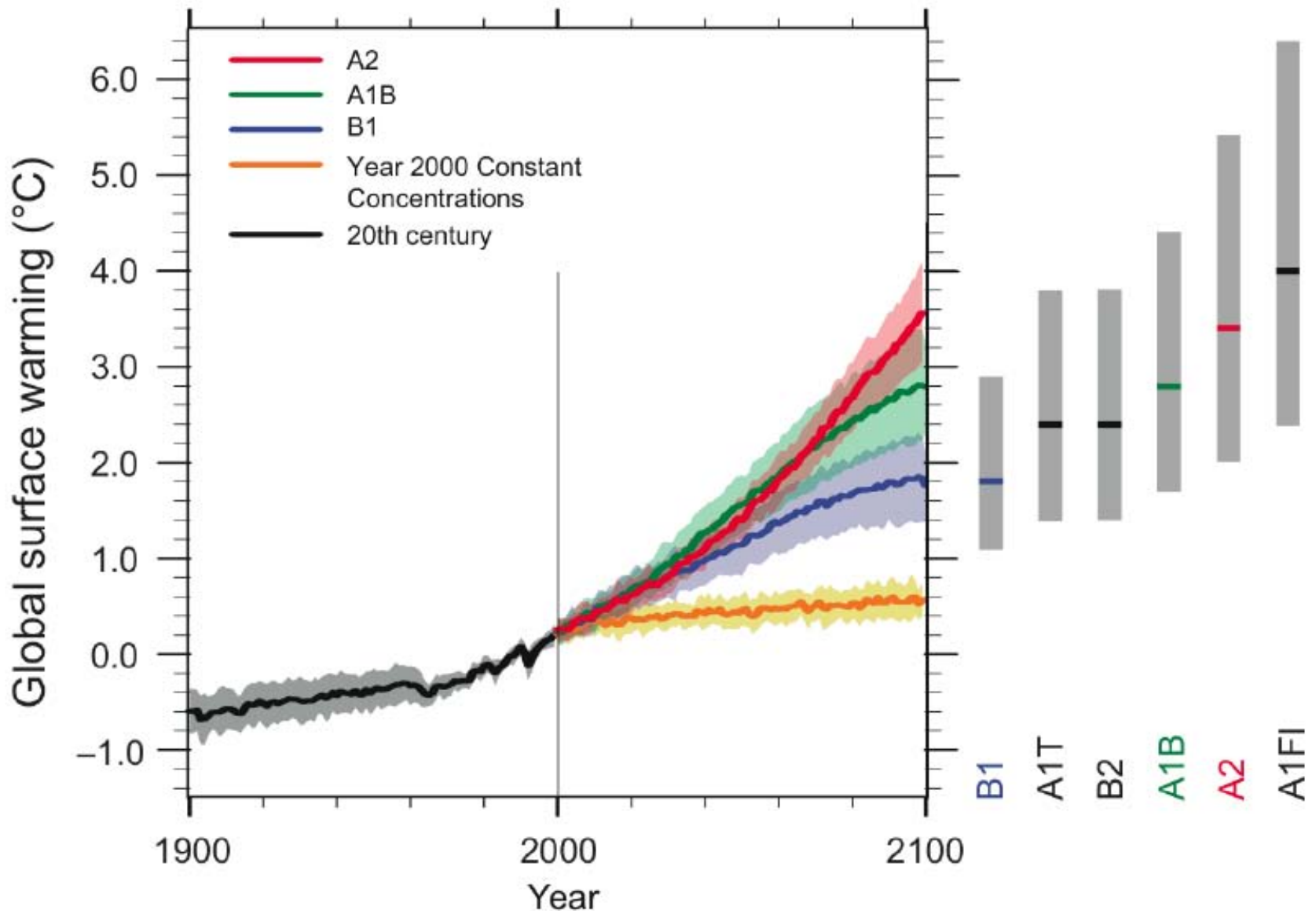
**UNITED NATIONS  
UNIVERSITY**

**UNU-EHS**

Institute for Environment  
and Human Security



# Projection of Future Changes in Climate



Source: IPCC Working Group I Technical Summary 2007: 79



# Extreme Weather Event



Duesseldorf 2003

Dr.-Ing. JOERN BIRKMAN



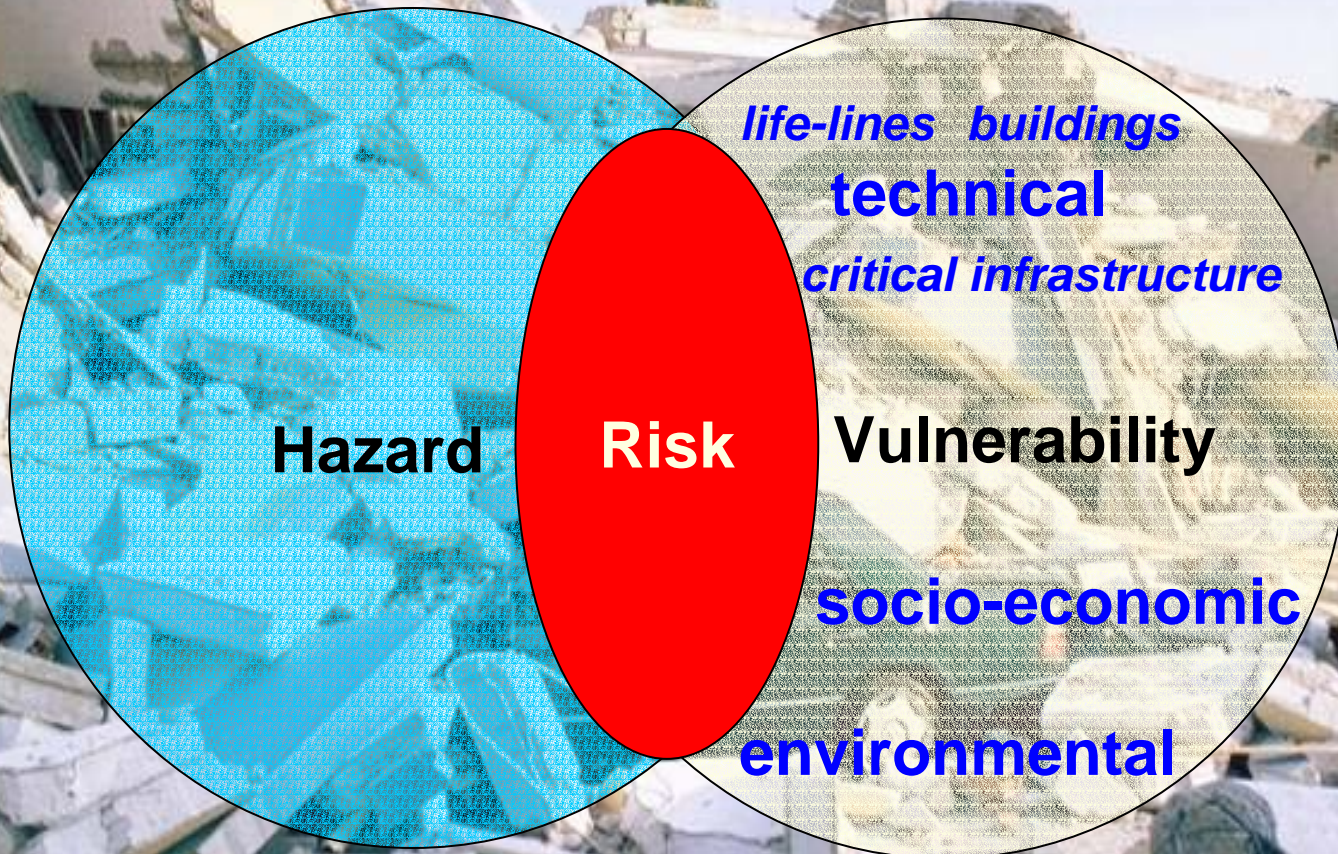
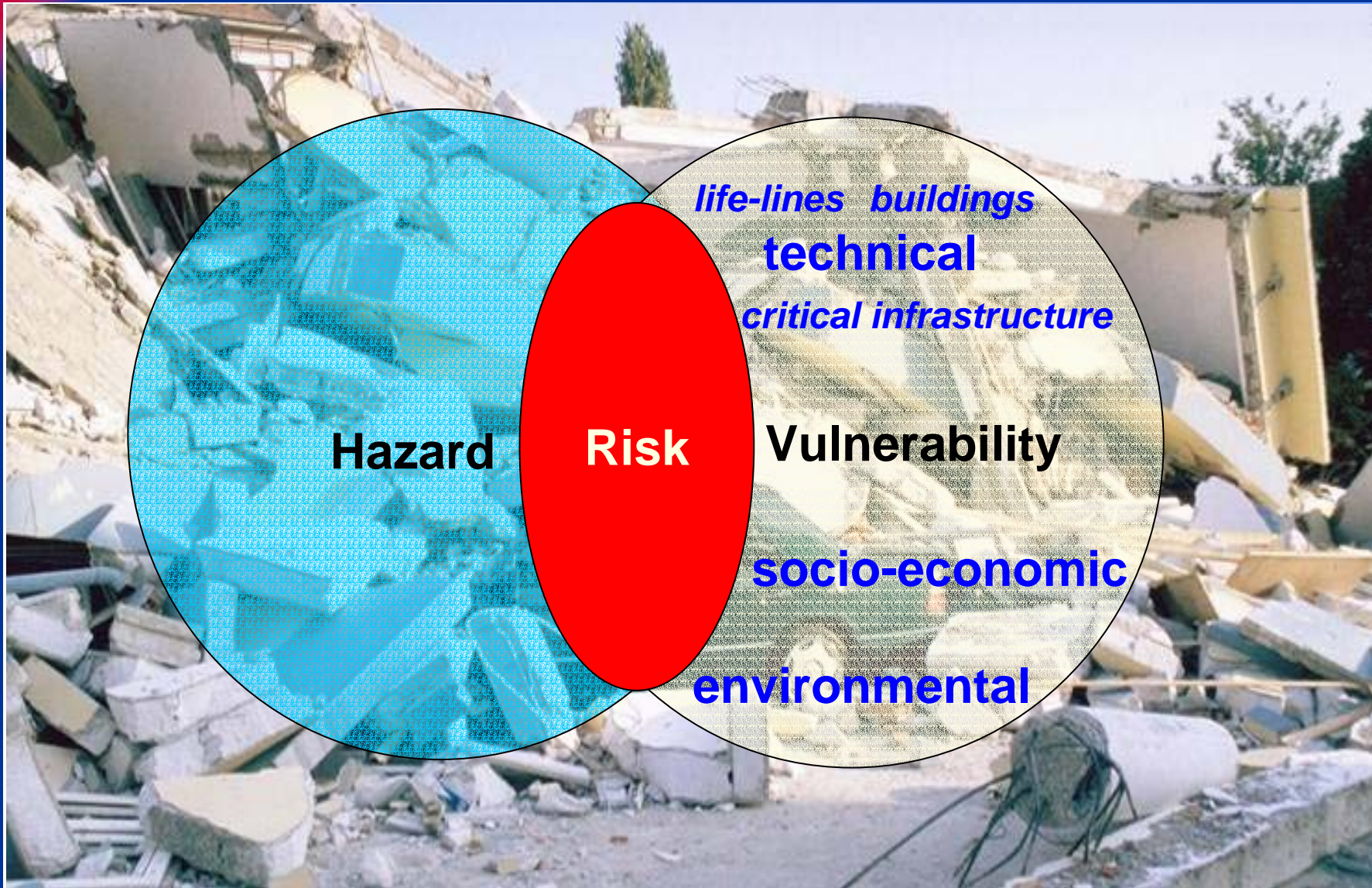
Dresden 2006

UNU-EHS

BIRKMAN@EHS.UNU.EDU



# Risk $f =$ (Hazard and Vulnerability)





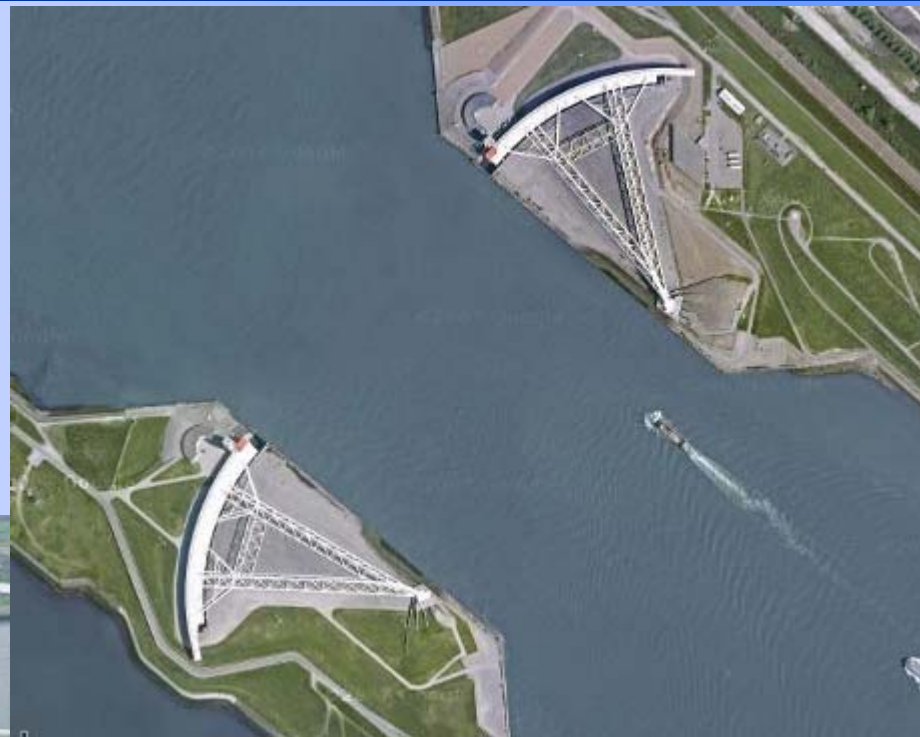
# Two Responses to Climate Change

1. Climate Change MITIGATION – Greenhouse Gas Reduction
  - Mixed land-use
  - Limit urban sprawl
  - Decentralized concentration
  - Urban development along public transport axes
  - Space for the production of renewable energy (water, wind-energy)
2. Climate Change ADAPTATION
  - Old measures/ tools – such as dykes??
  - New content?
  - New planning procedure?



# Critical Infrastructures

- Rotterdam: Maeslant Barrier
- Takes 2 hours to close the Barrier

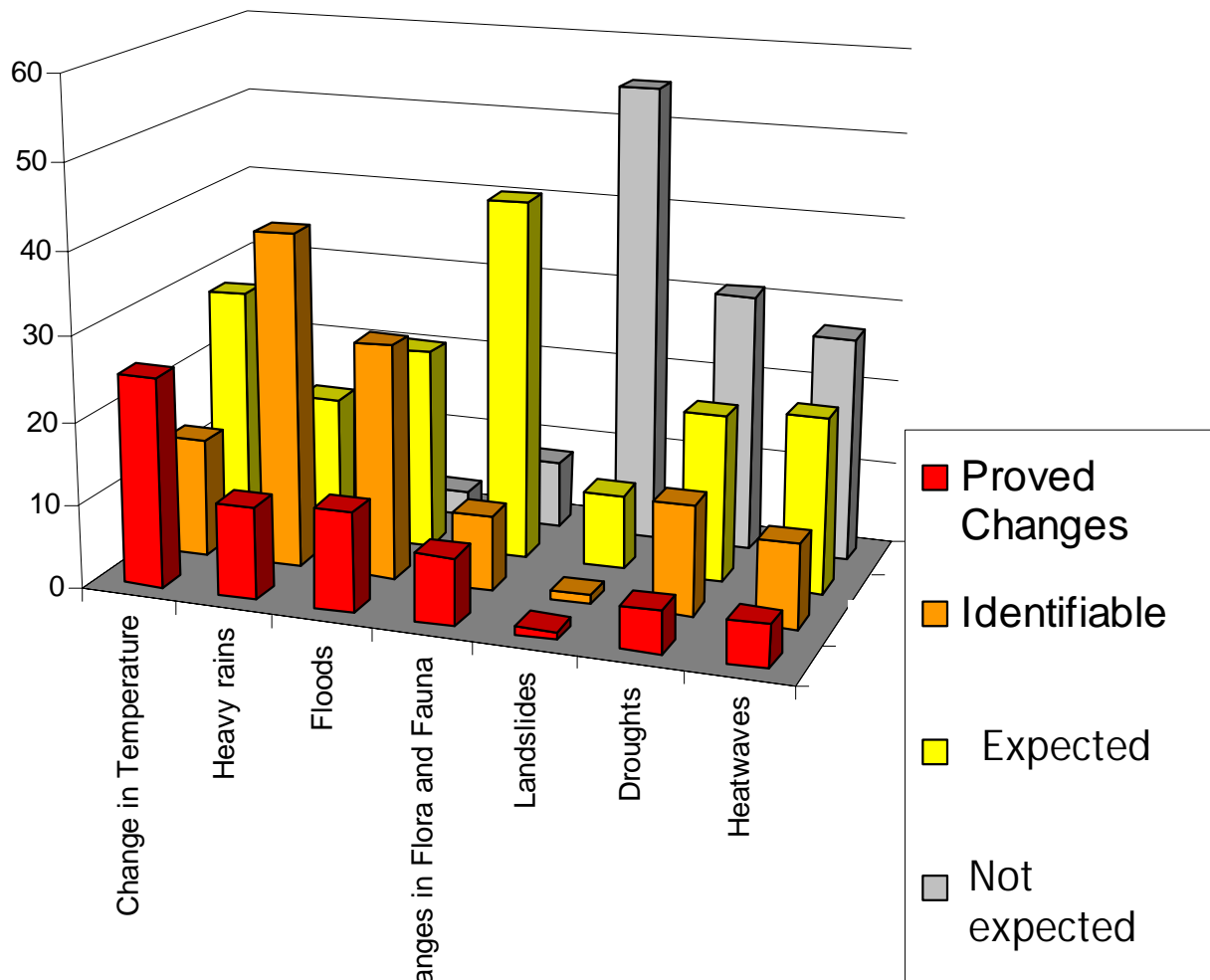


<http://www.keringhuis.nl>



# Symptoms of Climate Change

## Symptomes of Climate Change in Regions in Germany

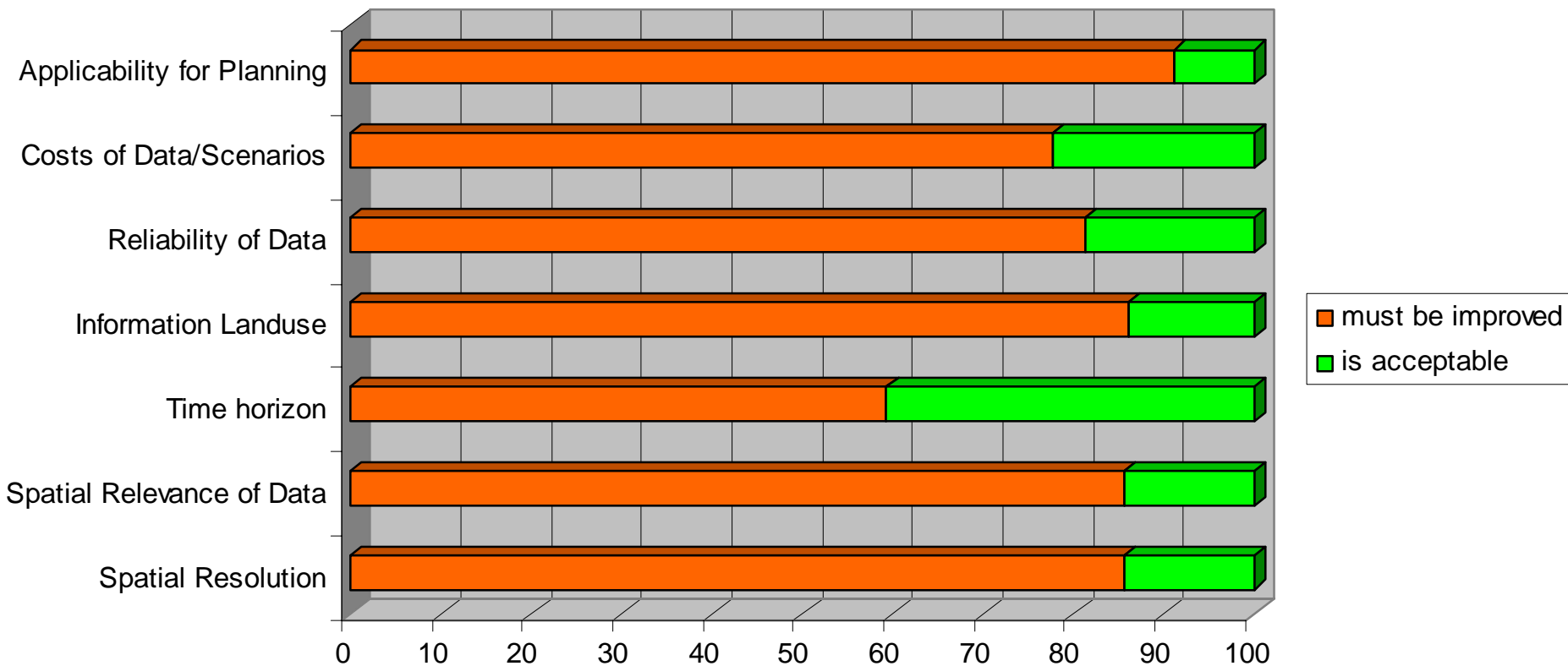


Source: Survey of the Expert Group on Climate Change and Spatial Planning / Academy of Regional Research and Regional Planning 2008



# Applicability of Climate Change Information

## Data / Information Requirements

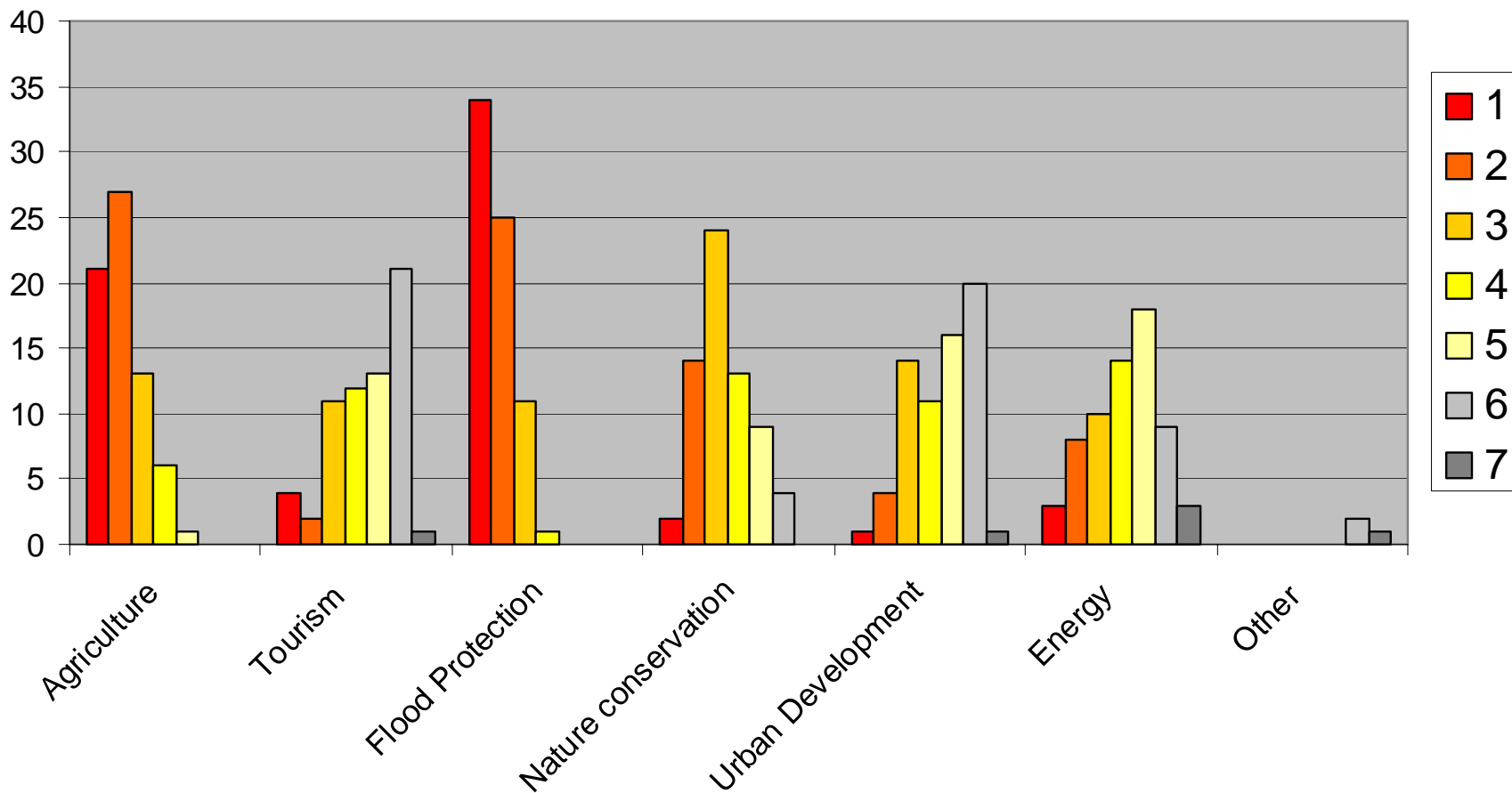


Source: Survey of the Expert Group on Climate Change and Spatial Planning / Academy of Regional Research and Regional Planning 2008



# Most Significant Changes Expected in:

## Most significant changes expected due to climate change - different sectors.



Source: Survey of the Expert Group on Climate Change and Spatial Planning / Academy of Regional Research and Regional Planning 2008





# Conclusions

- Awareness mainly exists for well-known frequent hazards.
- Risk assessment within spatial planning mainly focuses on the hazard component.
- Climate change and impact scenarios have a too coarse spatial resolution to be used for spatial and urban planning.
- Current “environmental assessments procedures/tools” account for climate change, however, the focus is often very limited.
- Climate Proofing is needed.



For Further Information:

[www.ehs.unu.edu](http://www.ehs.unu.edu)

[birkmann@ehs.unu.edu](mailto:birkmann@ehs.unu.edu)

