

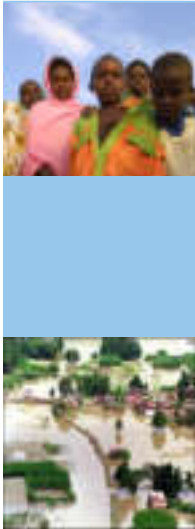


# Disaster impacts and climate change: implications and policy responses

**Silvia Llosa**

UN International Strategy for Disaster Reduction

[www.unisdr.org](http://www.unisdr.org)



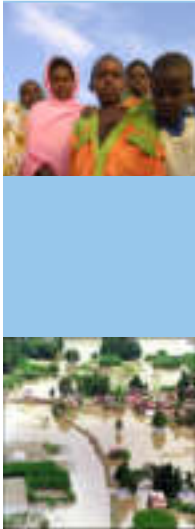
## Overview of the problem

- **Disasters affect millions, cause big losses, hinder the achievement of MDGs**
- **Key issue is human vulnerability. Root causes of risk are social and economic**
- **Main problem is awareness and political commitment - risk is not well factored in**
- **Knowledge, tools and policy frameworks are readily available**
- **Climate change makes a bad situation worse, adds to the urgency**



# Disaster characteristics

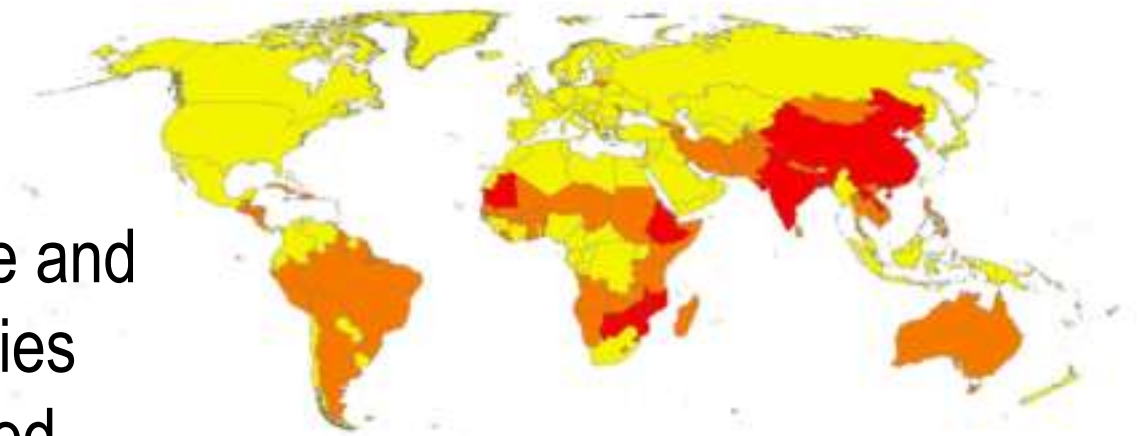
## Patterns, trends, concepts



## Basic patterns - 1995-2004

- ❑ 2,500 million people affected
- ❑ 890,000 dead
- ❑ US\$ 570 billion losses,
- ❑ Most disasters are weather- or climate-related

Poor people and  
poor countries  
most affected

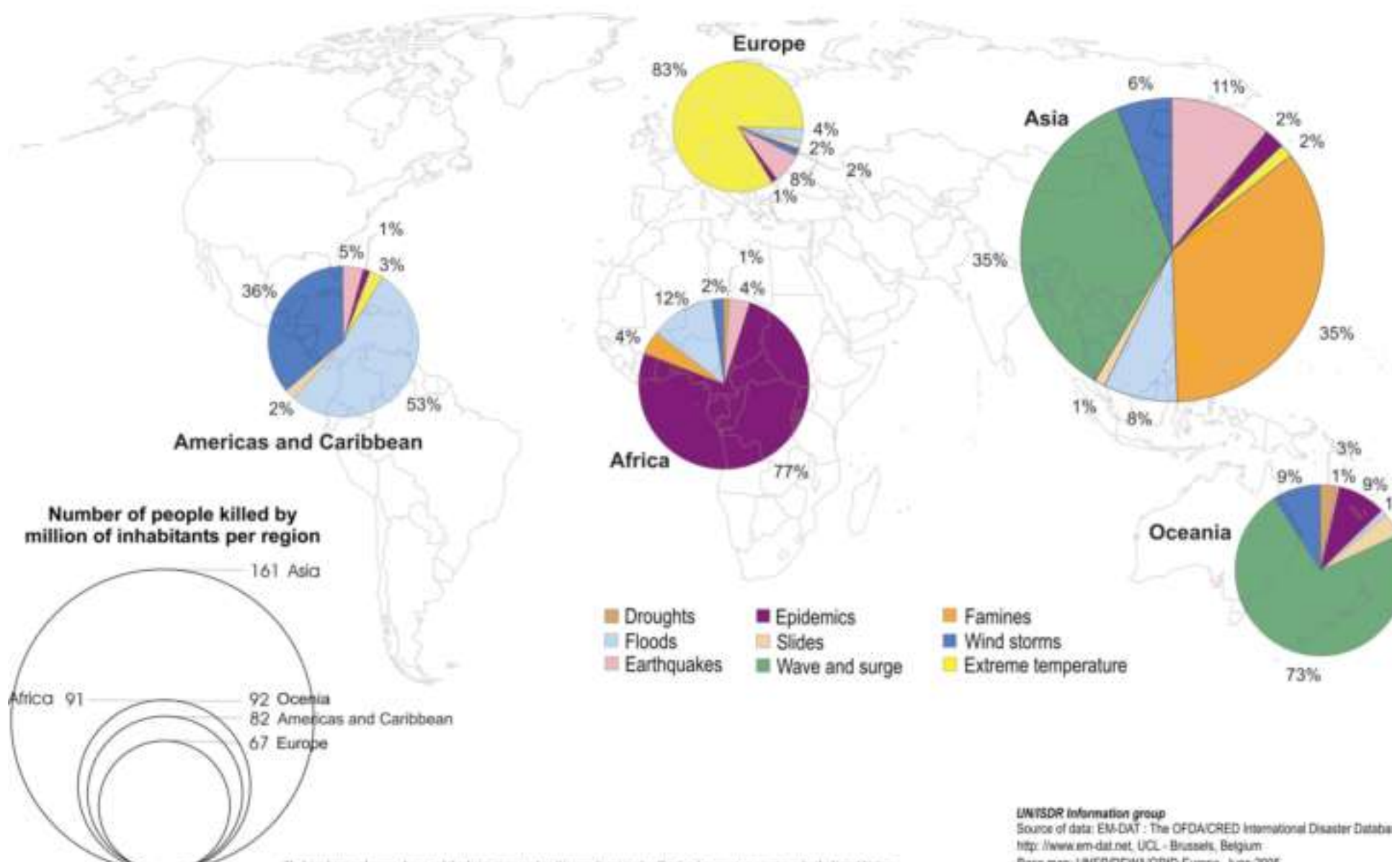


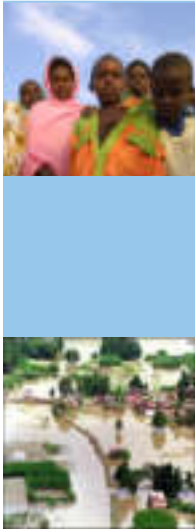
Deaths + Persons Affected by 100,000 Inhabitants



EM-DAT: The OFDA/CRED International Disaster Database  
www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium

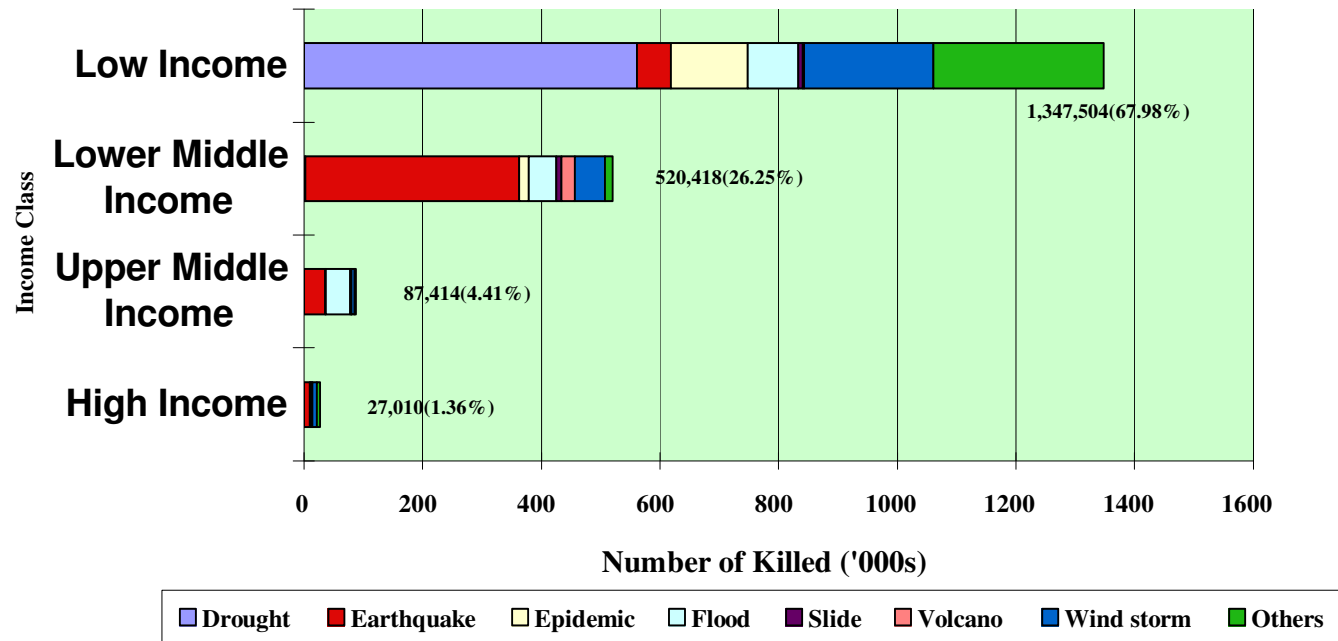
# Deaths per million by region and hazard type (1994-2004)

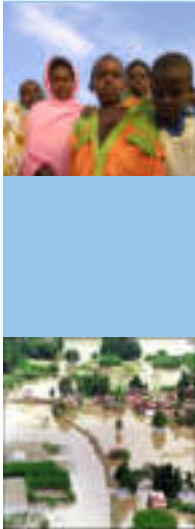




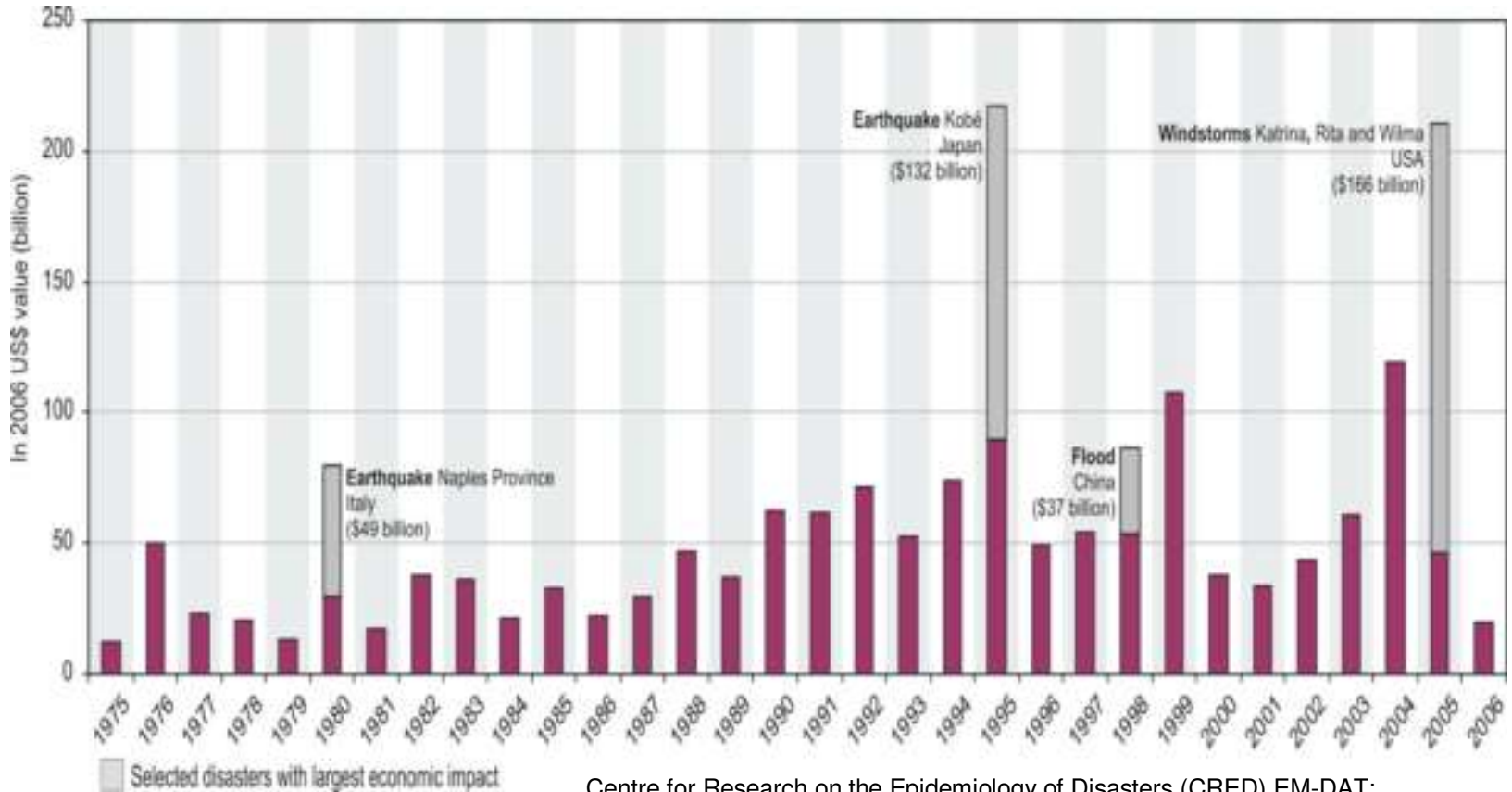
# Disasters afflict poor people and countries most .... they are a development issue

**Number of People Killed  
by Income Class/Disaster Type, 1975-2000, World Summary**





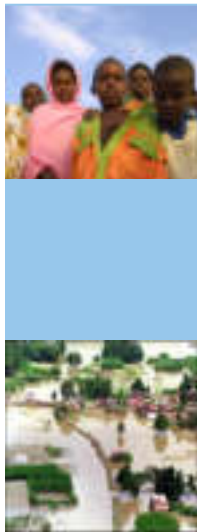
# Selected disasters with large economic impact (1975-2006)



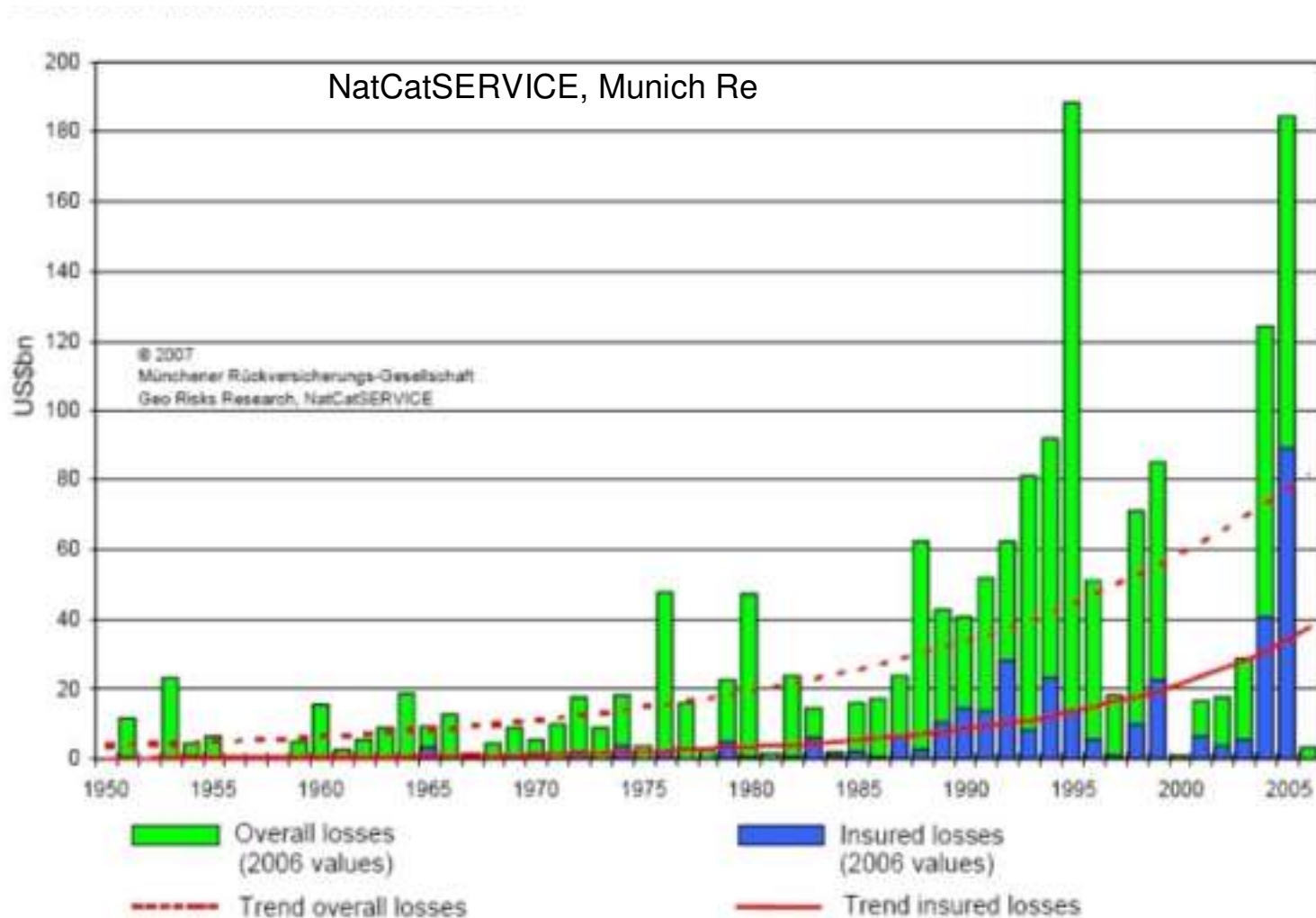
www.unisdr.org

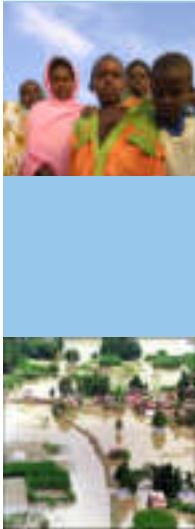
Centre for Research on the Epidemiology of Disasters (CRED) EM-DAT:  
The OFDA/CRED International Disaster Database

# Great natural disasters 1950-2006: overall losses and insured losses

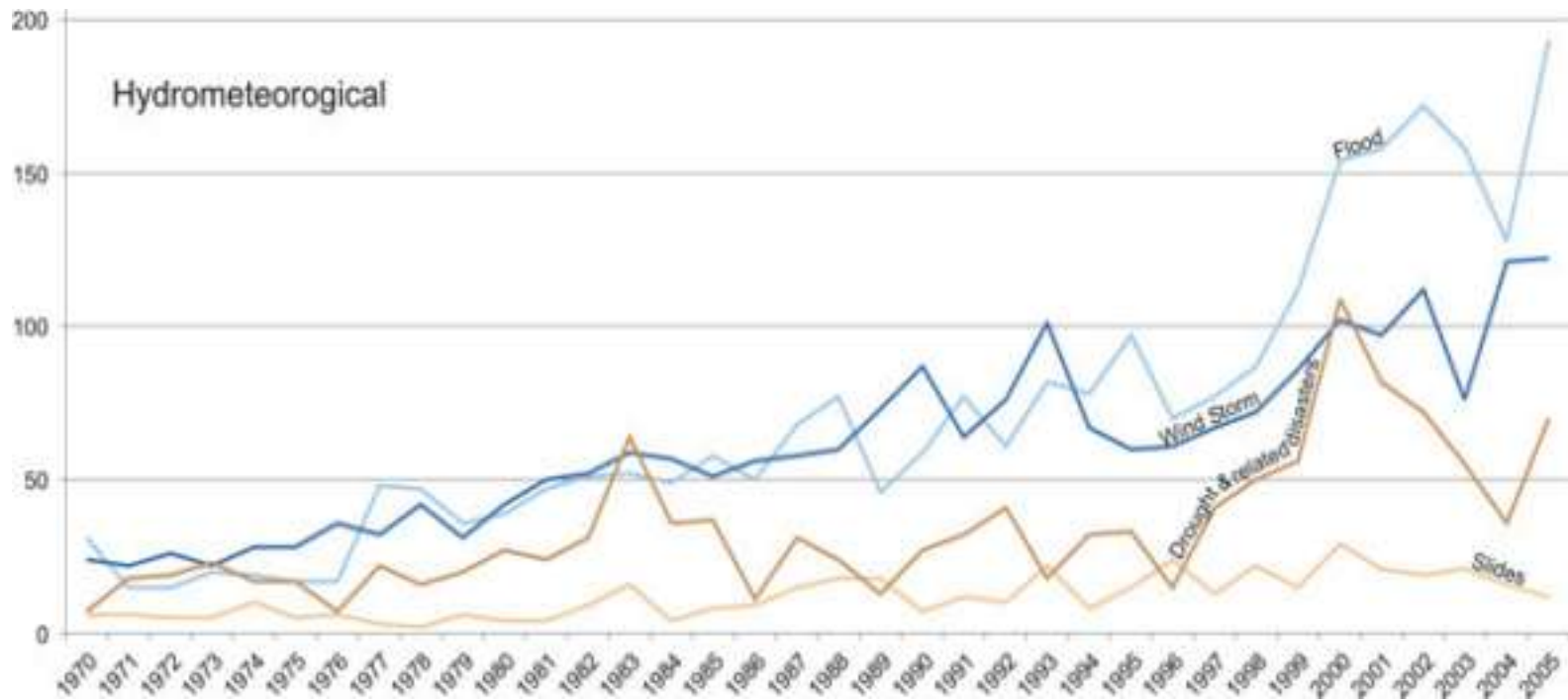


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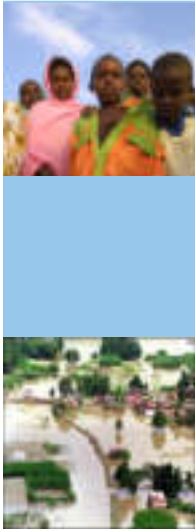


# Upward trend in hydro-meteorological hazard events, (1970-2006)

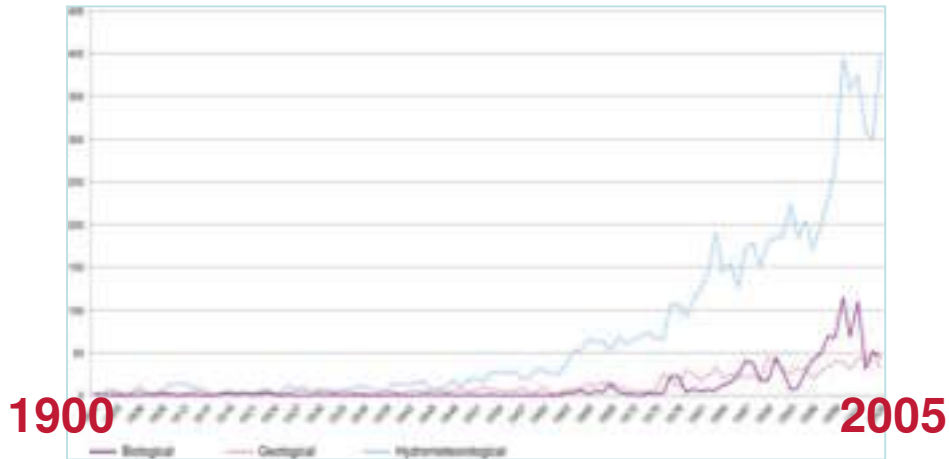


www.unisdr.org

EM-DAT: The OFDA/CRED, International Disaster Database, Université catholique de Louvain Brussels - Belgium



## But beware of simple interpretations!



**Upward trend - but also in information capture rate**

**But big decline in big fatality events - e.g. flood deaths in China**

**1931: 3,700,000**

**1959: 2,003,396**

**1960-2000: <35,000 p.a.**

**2006-7: <2,000 p.a.**

Source of data: EM-DAT: The OFDA/CRED International Disaster Database

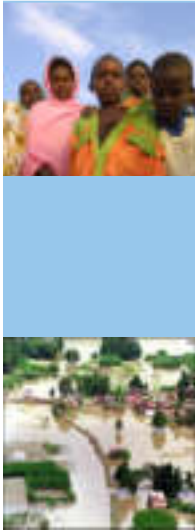


## Conceptual basis (1) Pre-science view

**Natural hazard**

**Unpredictable,  
immense power, little  
one can do to prepare,  
fatalism, Act of God?**

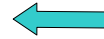




# Conceptual basis (1) - Engineering view

**Natural hazard**

Understand the physics, and probabilities, do risk assessments, monitor the hazards



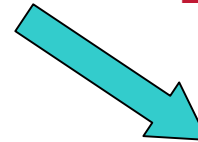
+

**Vulnerability**

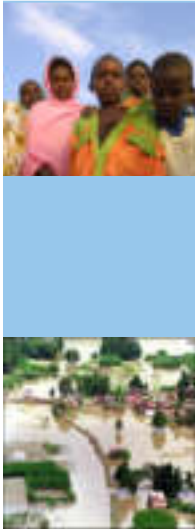
Avoid risky situations, build well, be prepared, have early warnings



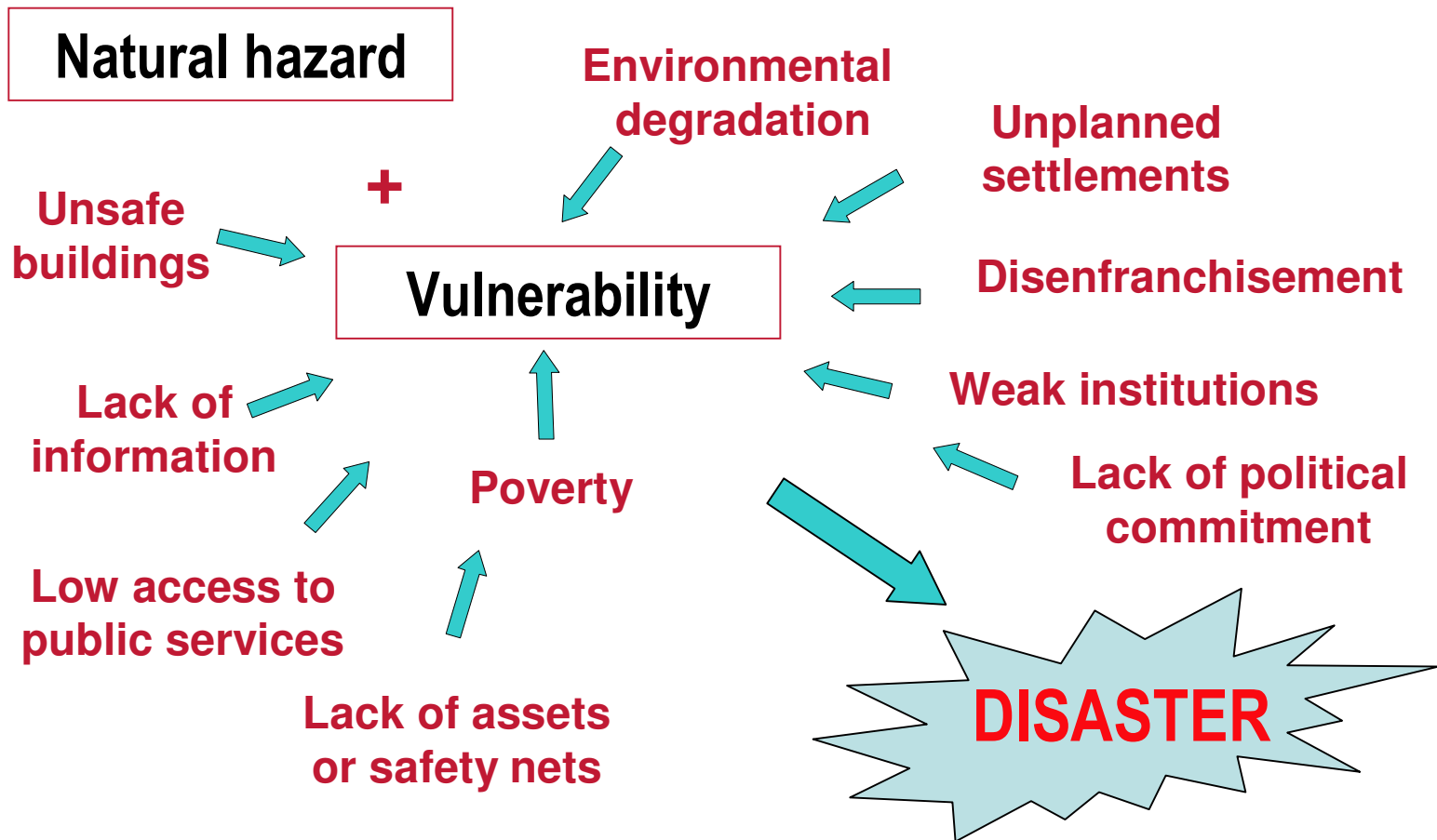
Lowered risk and impacts

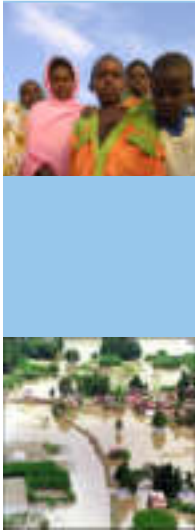


**DISASTER**

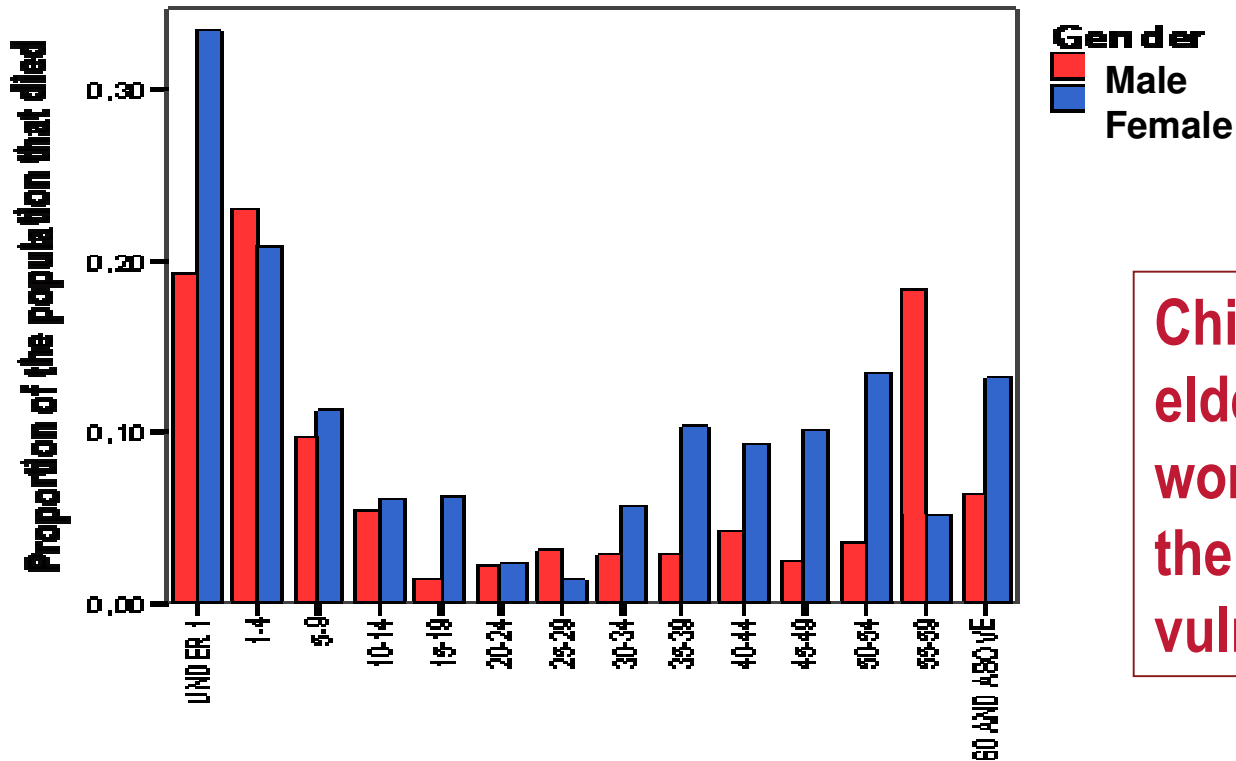


## Conceptual basis (3) - Social perspective





# Tsunami mortality in women and men, by age, December 2004, Tamil Nadu, India



**Children, elderly and women are the most vulnerable**

Courtesy Professor Deborati Guha-Sapir, Université catholique de Louvain Brussels - Belgium



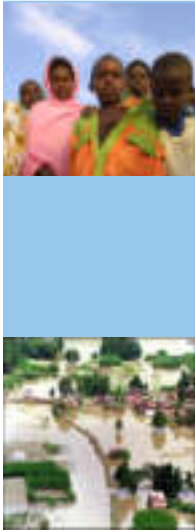
## The reasons for rising disaster risks ?

*.... Mostly increasing vulnerability worsened by climate change*

- ❑ More people and poor people in risky and unsustainable situations
- ❑ Unsafe development: floodplain settlement, coastal exploitation, mega-city growth, unsafe houses, wetland destruction, river channelling, deforestation, soil erosion and fertility decline
- ❑ Exacerbated by poverty and disease, conflict and population displacement

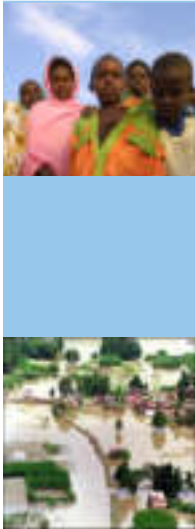


*Growing disasters are a sign of unsustainable development*



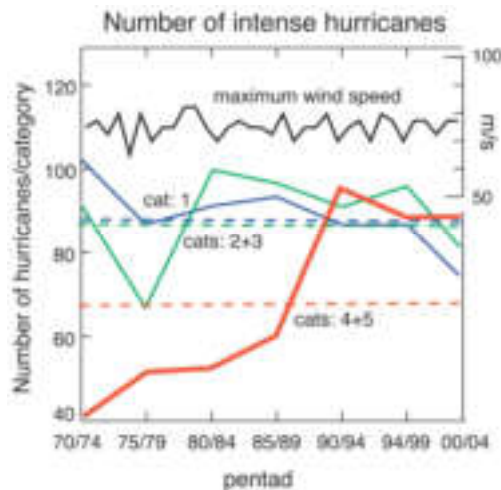
## **Climate change will increase disaster risks**

- **Mounting evidence - heatwaves, loss of glaciers and polar ice, record cyclone numbers**
- **4th IPCC Assessment: expect temperature increases, heatwaves, sea level rise, more intense rainfall and drought**
- **Vulnerable areas: Africa, mega-deltas of Asia, small island states, and the poor**
- **Record number of humanitarian Flash Appeals this year - most are for climate events**
- **A more extreme climate will expose and punish the most vulnerable**



# Climate change and disaster risk are now coupled issues

## Growth in frequency of intense hurricanes Peter Webster et al.



## Stern Review: The Economics of Climate Change, 2006

*“Climate change is happening and measures to help people adapt to it are essential.”*

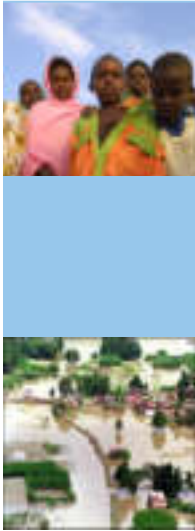
*“The costs of extreme weather alone could reach **0.5 - 1% of world GDP per annum by the middle of the century**, and will keep rising if the world continues to warm.”*



# Dealing with disaster vulnerability

Tools, policies, links with climate change

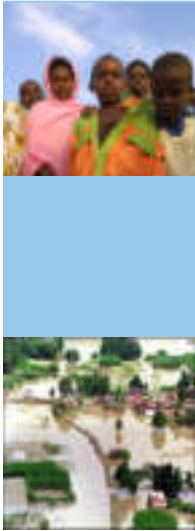




## Disaster reduction - practical actions to reduce vulnerability

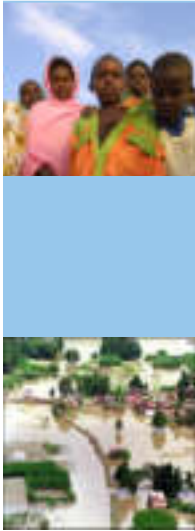
- ❑ Map and avoid high-risk zones
- ❑ Build hazard-resistant structures and houses
- ❑ Protect and develop hazard buffers (forests, reefs, etc)
- ❑ Develop culture of prevention and resilience
- ❑ Improve early warning and response systems
- ❑ Build institutions, and development policies and plans, to actively contribute to these goals





## The disaster reduction triage

- A.** Accumulated risk: invest selectively in critical facilities - hospitals, schools, infrastructure lifelines
- B.** New developments: ensure land uses, environmental management, building designs, reduce not increase risk
- C.** Post-event recovery: “build back better”, advocate and organise to reduce future risks



## Evolution of disaster reduction frameworks

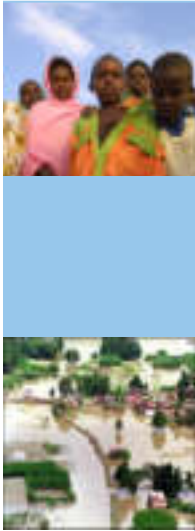
**1990-1999: International Decade for Natural Disaster Reduction** – *Promotion of disaster reduction, technical and scientific buy-in*

**1994: Yokohama Strategy and Plan of Action** – *First blueprint for disaster reduction policy (social and community orientation)*

**2000: International Strategy for Disaster Reduction (ISDR)** – *Oriented to increasing public commitment and linkage to sustainable development, enlarged networking and partnerships.*

**2002: Johannesburg Plan of Implementation, WSSD** – *Notes need for “integrated, multi-hazard, inclusive approach to address vulnerability, risk assessment and disaster management...”*

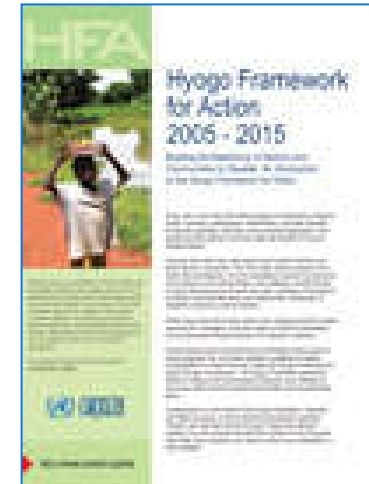
**2005-2015: Hyogo Framework for Action, WCDR** – *Profile boosted by tsunami experience. Comprehensive voluntary map of action, stresses responsibilities of States and other parties*



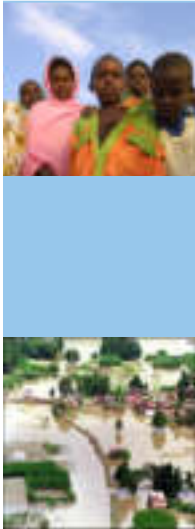
# The Hyogo Framework for Action 2005-2015: *Building the resilience of nations and communities to disasters*

*Agreed by 168 governments at the World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18 – 22 January, 2005*

**Seeks to achieve a  
“substantial  
reduction in losses”**



- ❑ Disaster reduction as part of sustainable development
- ❑ Strengthen institutions (especially in communities) to build resilience
- ❑ Build risk reduction into emergency management and recovery



# The Hyogo Framework

## Priorities for action

- ❑ Disaster risk reduction as a priority with strong institutional basis for action
- ❑ Identify, assess and monitor disaster risks and enhance early warning
- ❑ Knowledge, innovation, education for culture of safety and resilience
- ❑ Reduce the underlying risk factors
- ❑ Strengthen disaster preparedness for effective response

## Implementation and follow-up

- ❑ Primary role of the State; supporting roles for international and regional organisations, ISDR secretariat
- ❑ Monitoring and reporting, and indicators of progress in risk reduction
- ❑ Resources needs

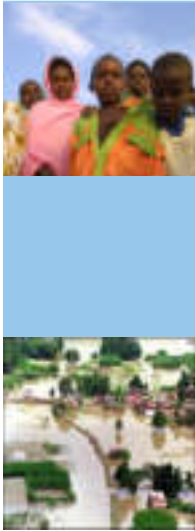


## People are central actors – living with risk

- Extensive practical experience in living with risk
- Growing recognition of disaster risks and action by public, businesses, NGOs, communities, cities and Governments
- Initiatives of SG and General Assembly on climate change
- ISDR system as global multi-partner forum for reviewing progress and guiding action

*Children playing with “Riskland” board game*





## Key steps to reduce future disaster risks

- Forge coherent policy approaches to adaptation and disaster risk reduction
- Make risk reduction a core part of the post-2012 regime
- Scale up the use of risk reduction tools as a feature of current adaptation policies
- Use the ISDR system to boost efforts to reduce and manage risk
- Make risk reduction a central issue in development policy and programmes, from international to local levels