FIG SEMINAR ON E-LAND ADMINISTRATION
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Links between Land Administration and Risk Management

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Links between Land Administration and Risk Management

- Introduction
- Types, reasons and impacts of disasters
- Strategies and tasks of risk management
- Contributions of the land administration
- Conclusions

Disaster

„A disaster is any occurrence that causes damage, ecological disruption, loss of human life, determination of health and health services on a scale sufficient to warrant an extraordinary response from outside the effected areas“

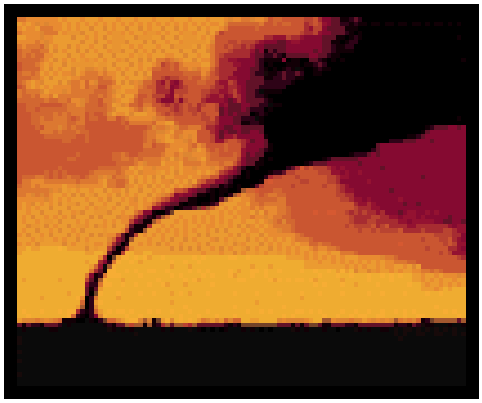
(W.H.O.)

Disaster is a serious disruption of the functioning of a society, causing widespread human, material or environmental losses, caused by hazards, which exceed the ability of affected society (community) to cope using only its own resources.

Types of natural disasters

1. Geophysical origin:

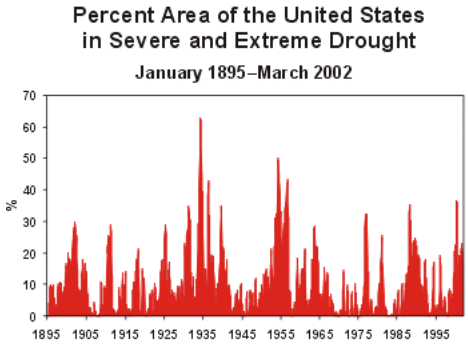
- Earthquake
- Vulcano
- Land Slides



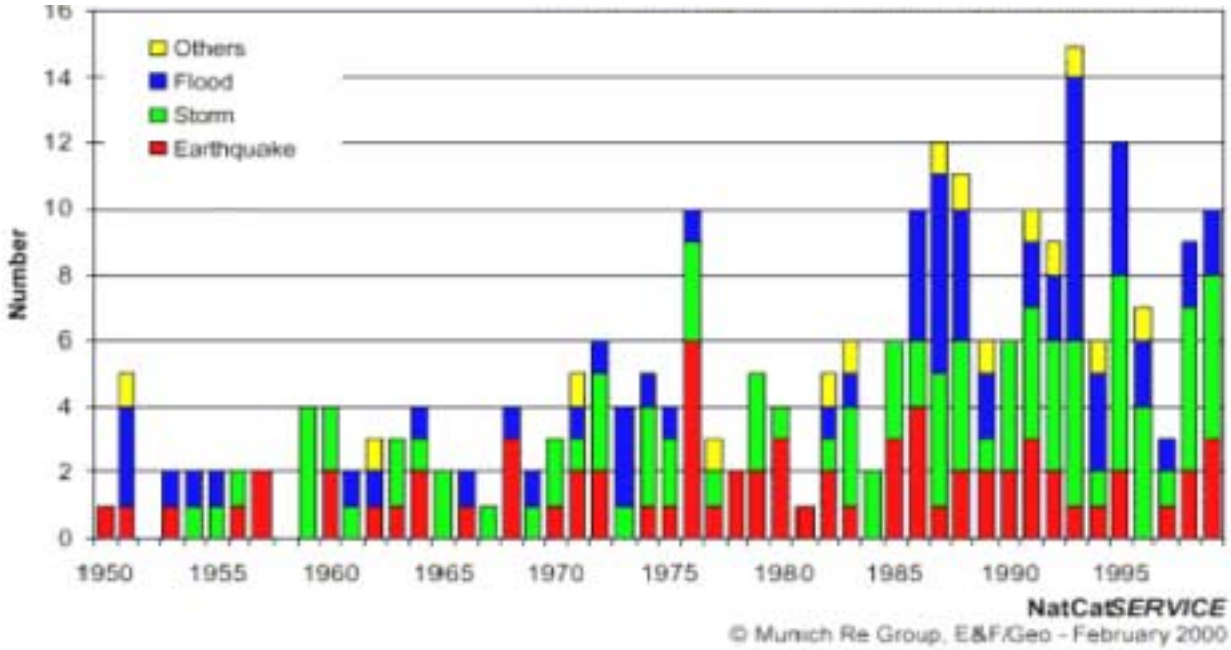
Types of natural disasters

2. Climatic origin:

- Flood
- Drought
- Wind Storms
- Fire
- *Avalanche*

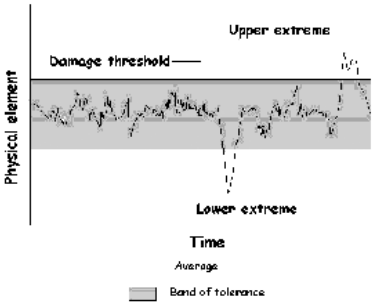


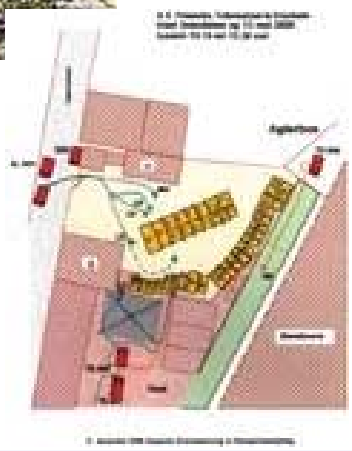
Great natural disasters 1950 – 1999



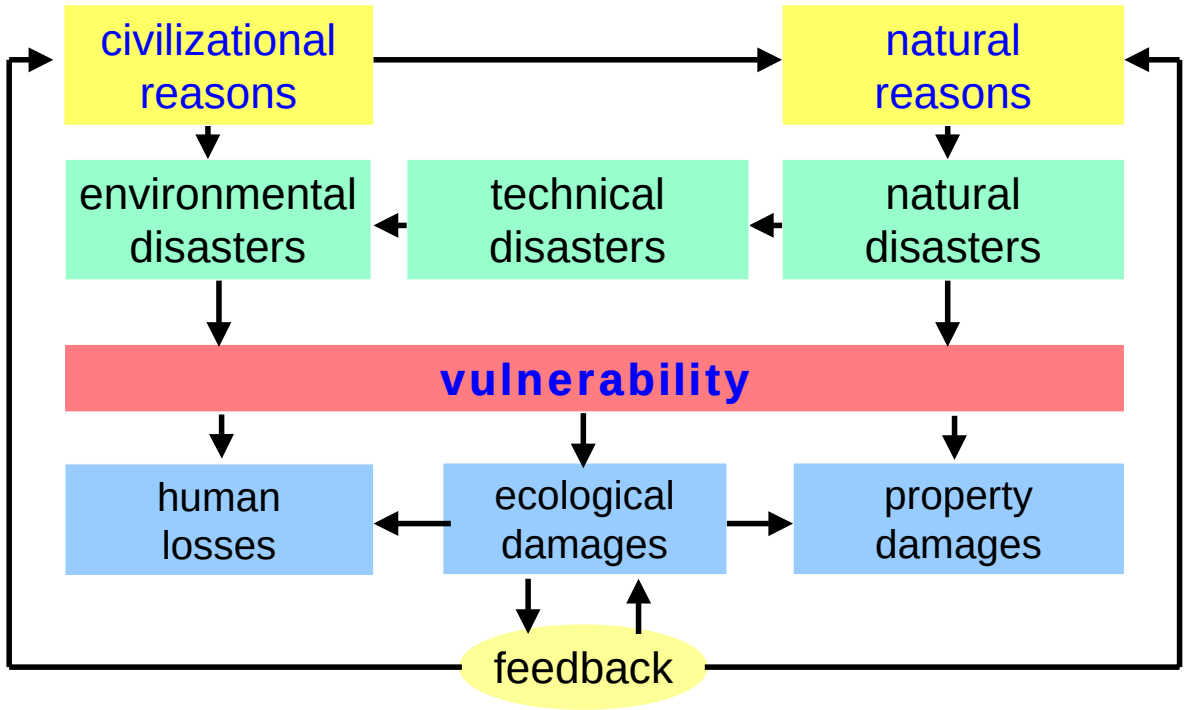
The chart shows for each year the number of events defined as great natural catastrophes, divided up by type of event.

Man-made disasters

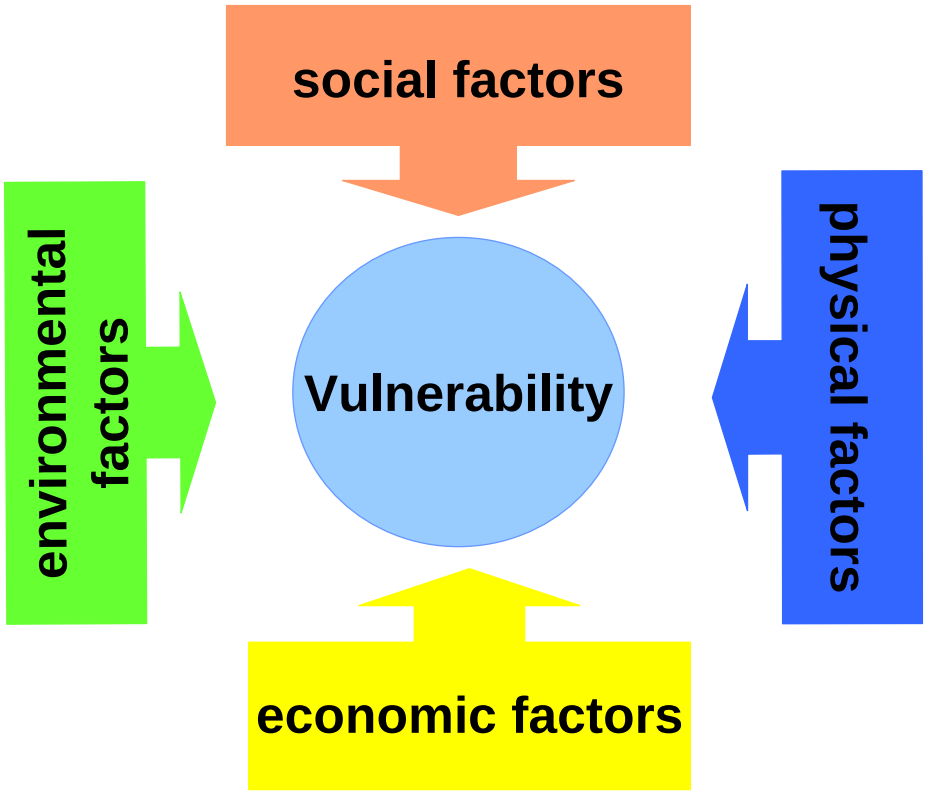




Reason-Effect-Interrelationship



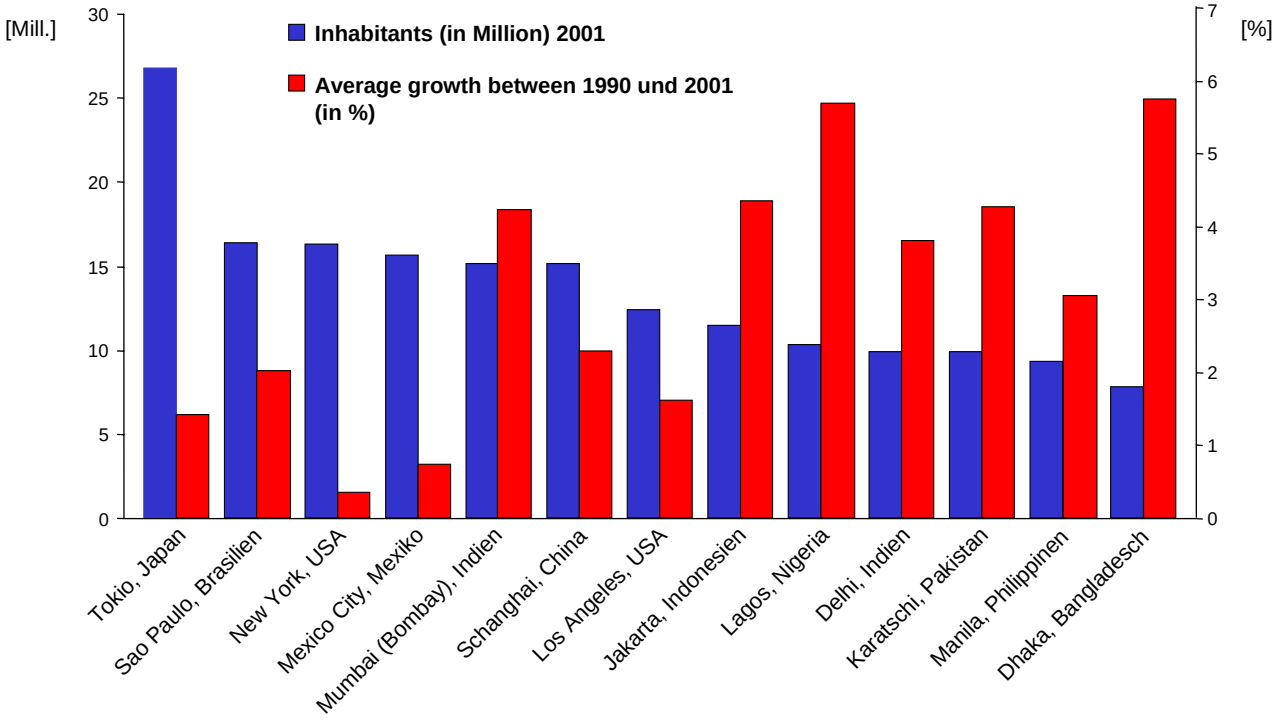
Vulnerability



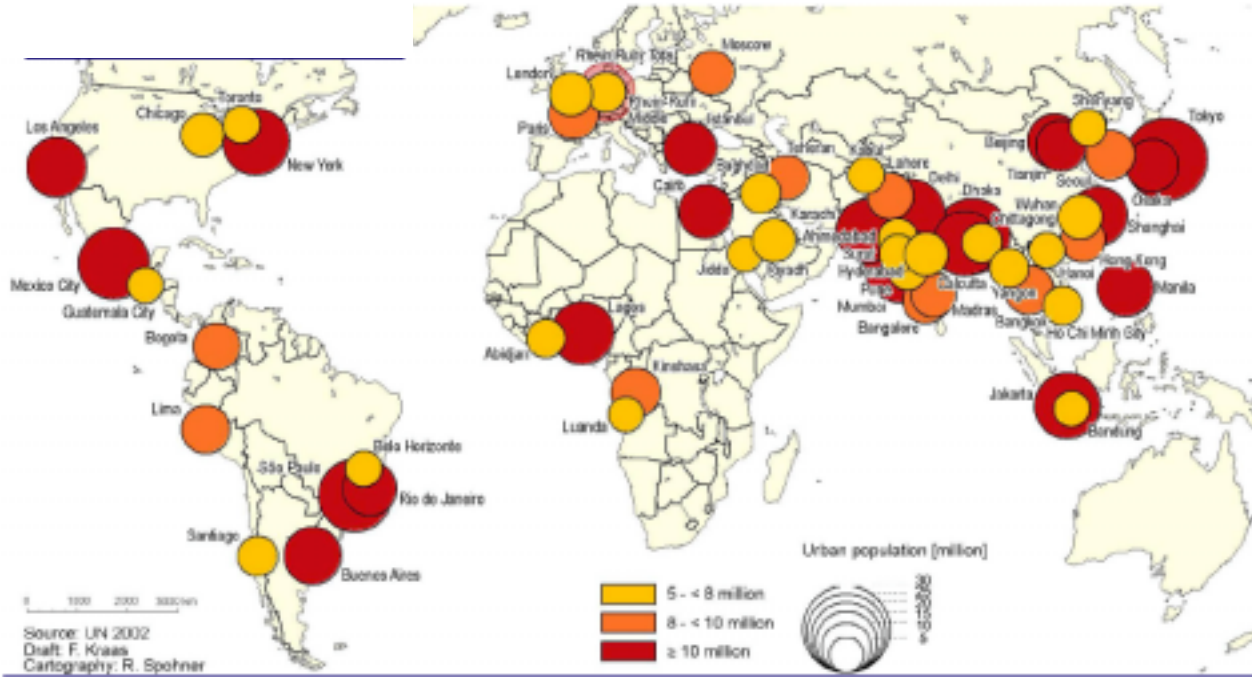
Rapid Urban Growth

- 2025 more than 70 % of the world's population is urban
- 90 % of this growth will take place in developing country cities
- large influx of poor migrants from rural areas
- 1970 – 2000: urban population of developing countries has tripled to 1.3 billion
- In the 90s, 60 – 70 % of the urbanisation was illegal
- ecological transformation of the rural surroundings
- in Africa in 1900 less than 5 % were living in cities; in 2025 this will be more than 70 %

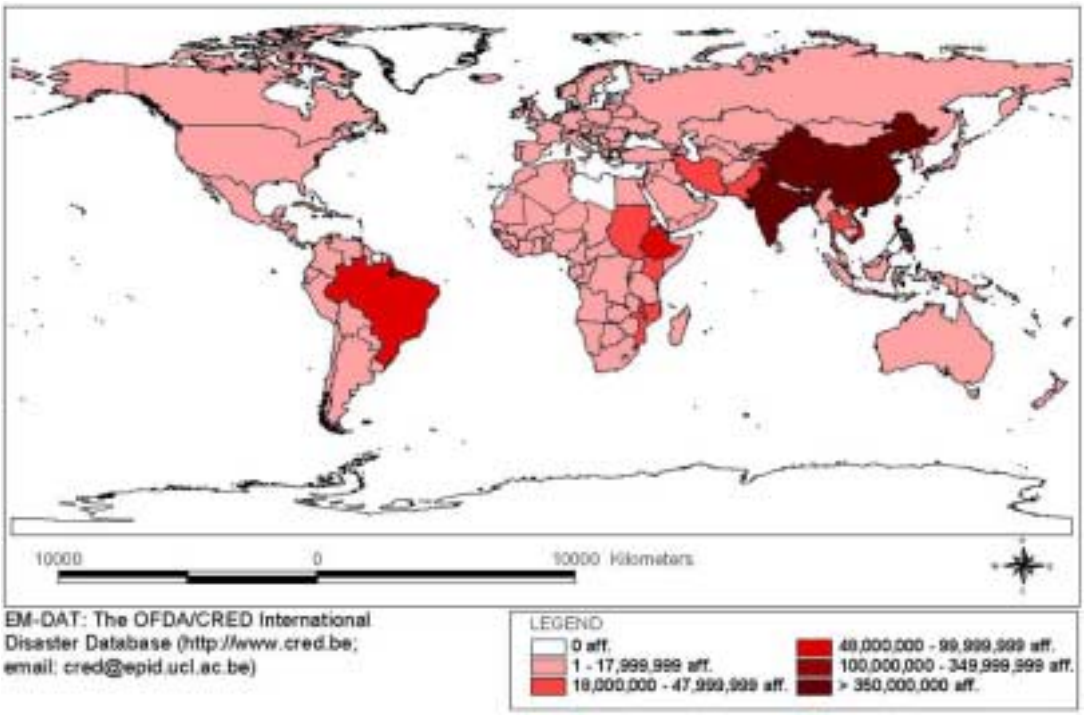
Cities Population and Growth



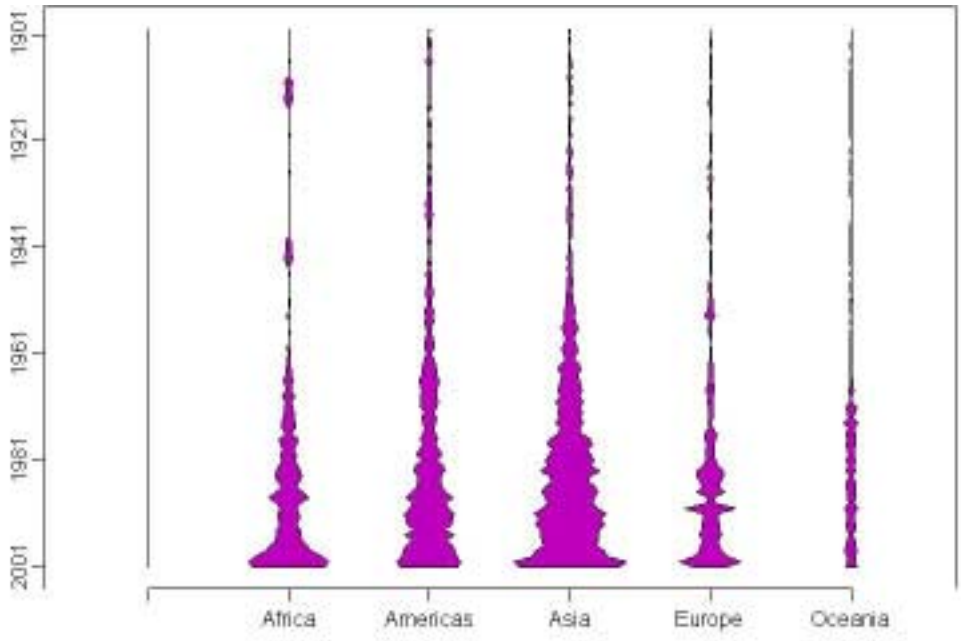
Megacities 2015



Distribution of people affected by natural disasters 1975 – 2000

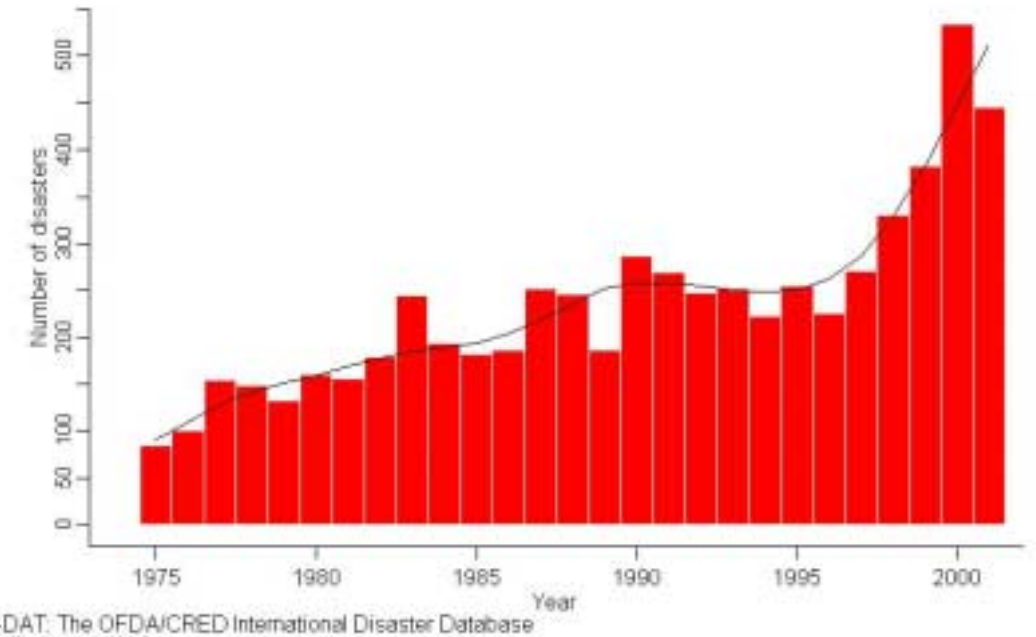


Natural Disaster Events per Continent



EM-DAT: The OFDA/CRED International Disaster Database (http://www.cred.be)

Natural disaster events (1975-2001)



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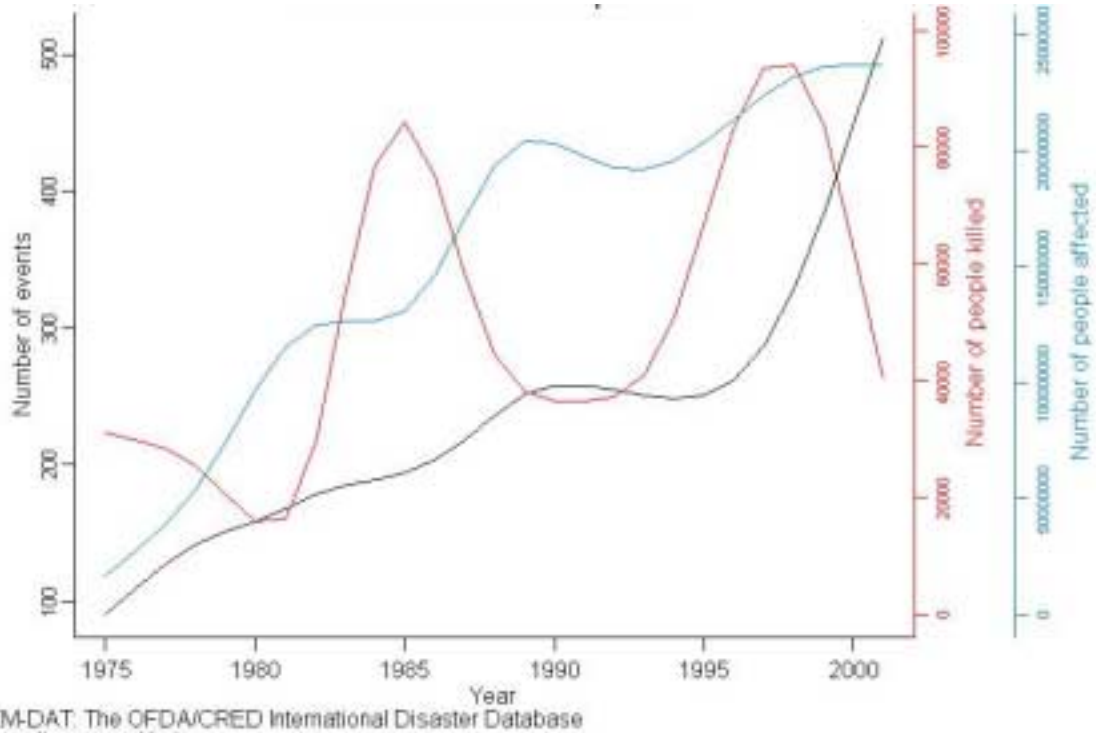
Trends of natural disaster events



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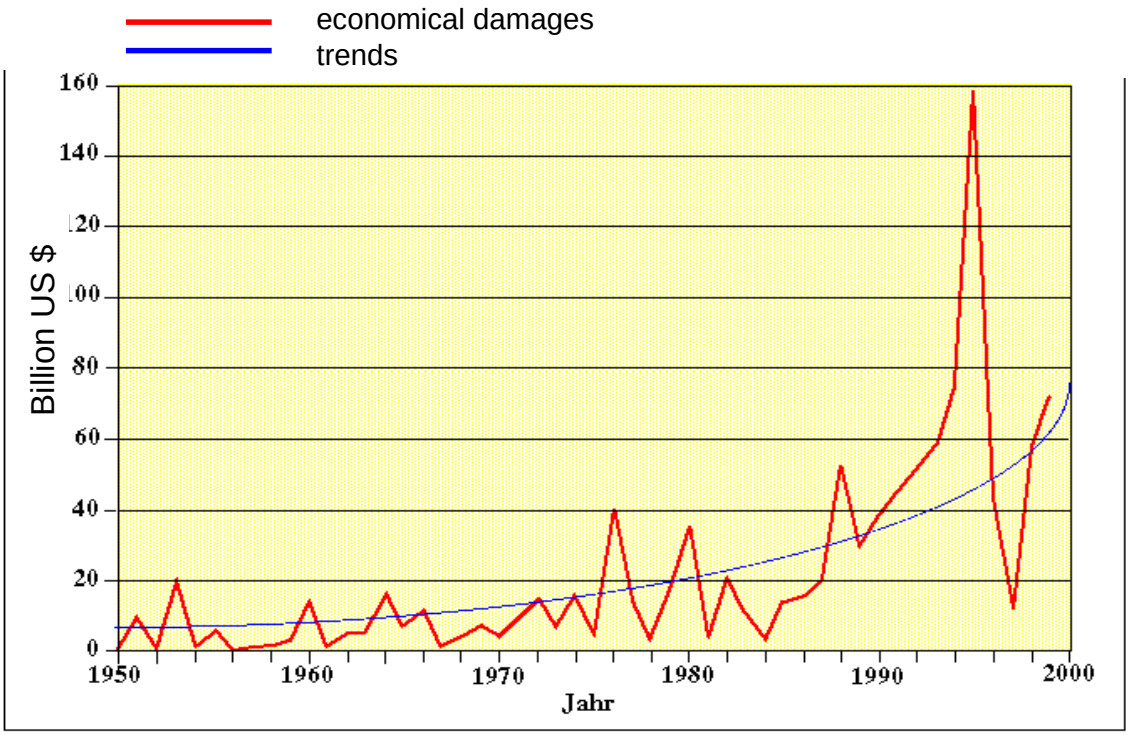
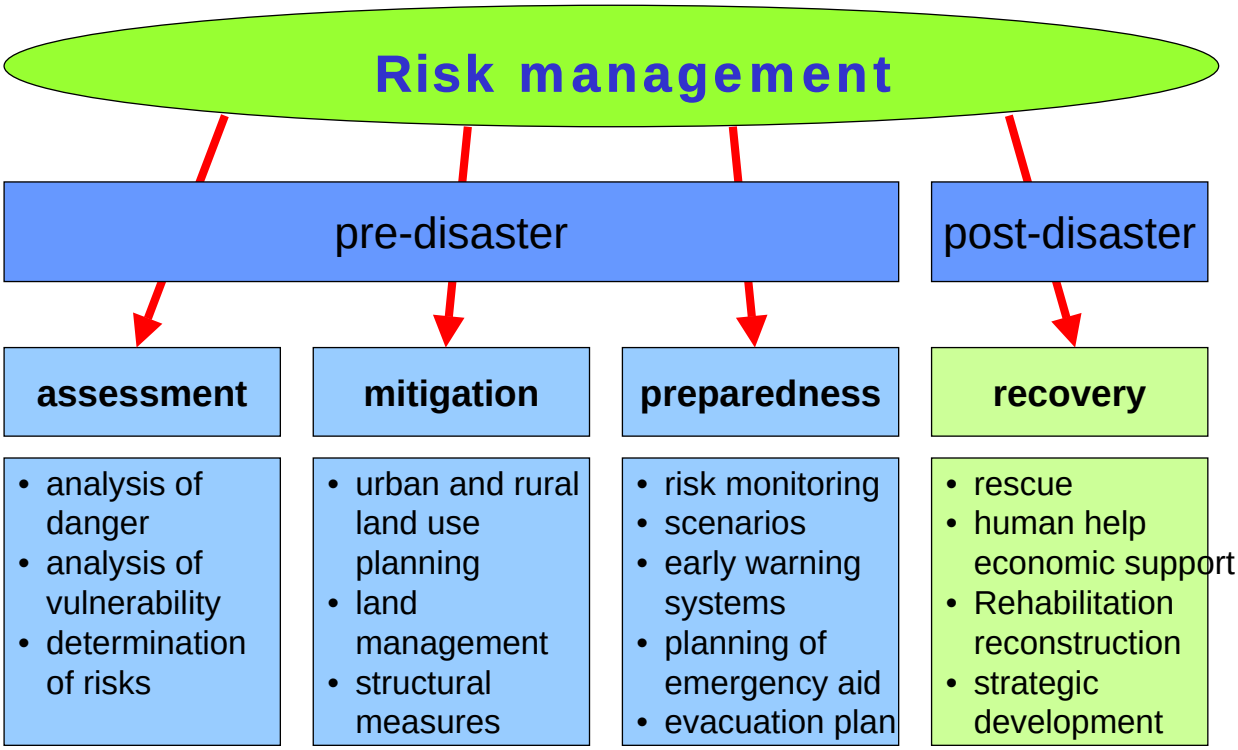
Economical effects of disasters



Millennium Goal

„To intensify our collective efforts to reduce the number and the effects of natural and man-made disasters“

Road map of the UN Millenniums Declaration



Regional and international co-operation in research, data-transfer and data-infrastructure

Risk assessment

Zoning of disaster prone areas according to the magnitude of risk:

- Simulation of flood scenarios
- 3 dimensional landscape model
- Land use
- Population density
- Infrastructure
- Real estate value

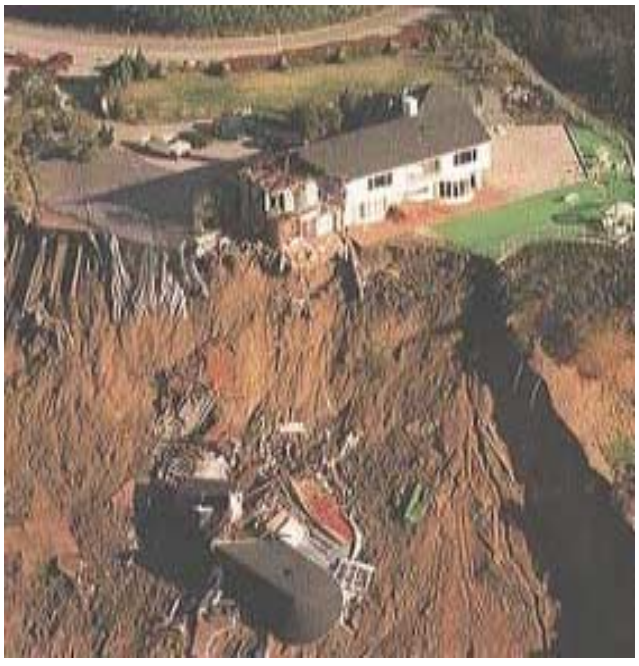
Mitigation of the disaster impacts

Spatial planning and land management must declare and realise different types of „prevention areas“ :

- Priority areas
- Reservation areas
- Suitability areas

Mitigation plans are needed on all levels of spatial planning

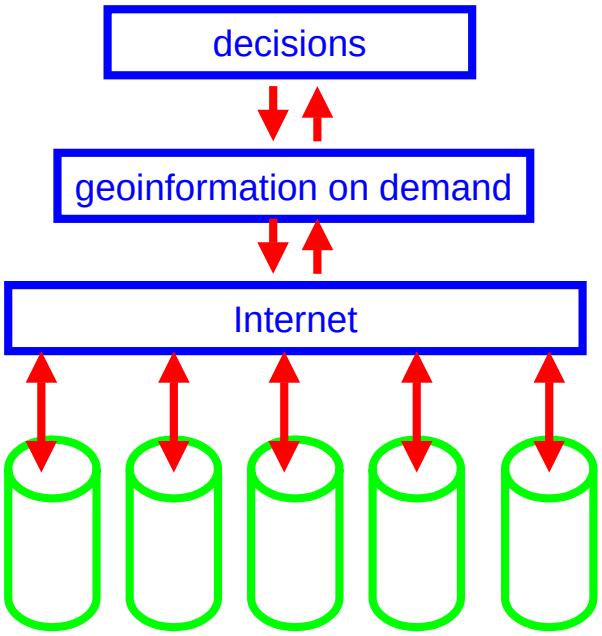
Preparedness strategy



Monitoring of disaster prone areas:

- Early warning system
- Forecasting of disasters
- Public participation and information
- Data aquisition by remote sensing
- Capacity building

Recovery of disasters and emergency management

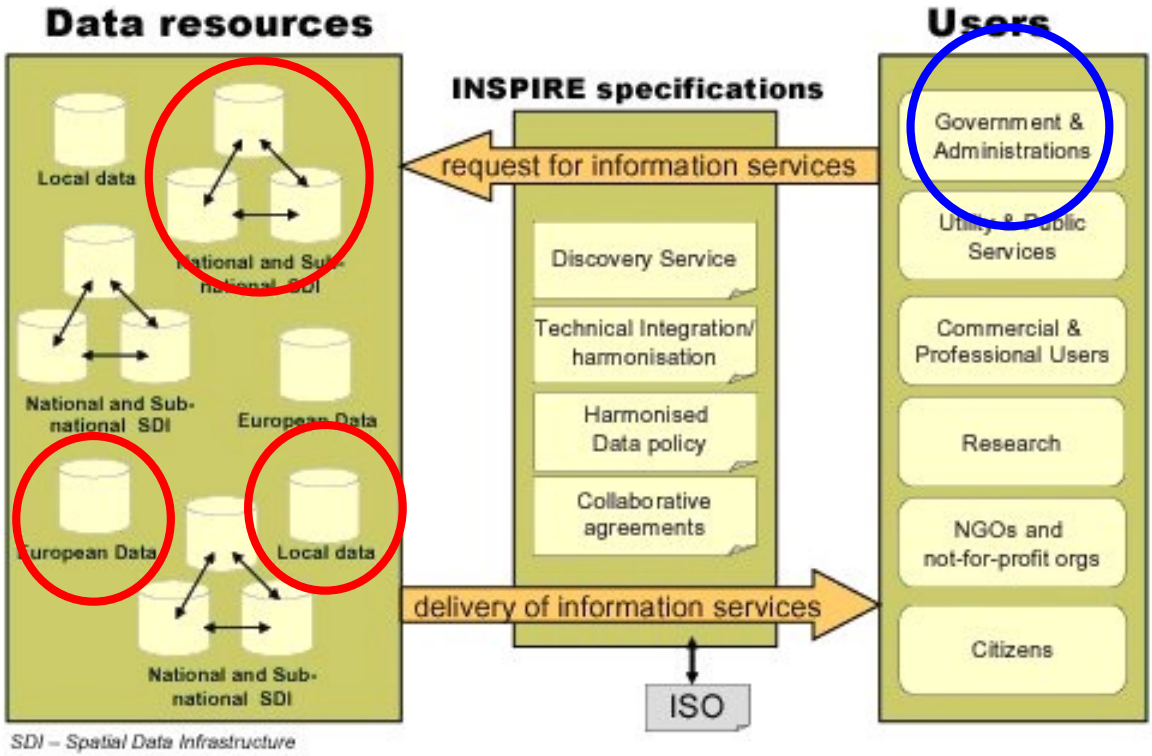


Geoinformation on demand:

- Information of damages
- Infrastructure
- Evacuation routes
- 3 dimensionel landscape model
- etc.

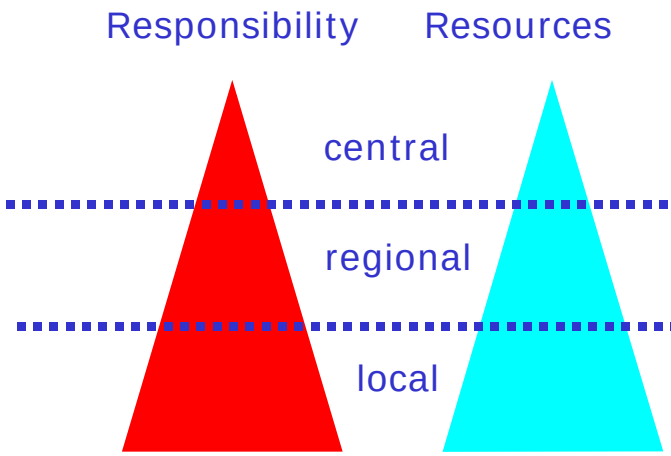
INSPIRE Information Flow

INfrastructure for SPatial InfoRmation in Europe



SDI – Spatial Data Infrastructure

Good risk management



- Prevention of environmental and natural disasters is a task of all spatial levels.
- Central and efficient organisation of disaster management.
- Co-operation between the institutions and administrations of spatial planning and sectional planning.
- Balance of immediate disaster recovery responsibility and available resources of local government

Requirements on data and data infrastructure

- Cross border availability of actual relevant spatial information
- Accuracy and completeness of geoinformations
- Common and uniform database
- Interoperability and congruent classification of data sets
- Reliability of data infrastructure
- Appointment of a co-ordinating organisation to serve as primary portal of access to national and international networks

5. Conclusions

- Information based decisions are a pre-requisite for the formulation of sucessful assessment, mitigation, preparedness and recovery strategies concerning risk management.
- Setting up successful risk information infrastructure networks is one of the greates challenges
- Risk management is a new purpose of catastral databases and an important application of land administration
- The surveyors of the 21 st century have great responsibilities both socially and professionally to involve themselves in risk management.