




Conceptual Framework for Vulnerability Assessment in Europe


Peter Zeil
for the MOVE Consortium

Consolidated Framework

- Establishing a framework, which links to
 - Disaster Risk Reduction
 - Climate Change Adaptation
- Outcome of UN Expert Working Group on Vulnerability Assessment and MOVE EC FP7 research project


www.move-fp7.eu



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Content

- The MOVE project
- The conceptual framework
- Case study
- Issues re. DRR & CCA



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Partners




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MOVE
 Method of Vulnerability Assessment

Rationale of MOVE

- Vulnerability (*susceptibility to harm*) is the basis of risk and the chief explanatory factor of disasters
- As natural hazards and climate change are creating ever more serious catastrophes, vulnerability reduction is vital to the future safety of Europe
- MOVE unites theory creation with practical field investigation and stakeholder involvement
- MOVE contributes to risk governance

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 Method of Vulnerability Assessment

Case Studies

- London, United Kingdom**: Heat waves, Drought
- North-western Portugal**: Forest fires, Coastal erosion, Mass movements
- Barcelona, Spain**: Earthquakes, Floods
- Cologne/Bonn, Germany**: Floods, Temperature shocks
- Salzach River, Austria**: Floods and flash floods, Alpine hazards, Hazards related to permafrost degradation
- South Tyrol (Province of Bolzano), Italy**: Heat waves, Floods, Landslides, Avalanches
- Prato, Pistoia, Florence, San Sepolcro, Italy**: Earthquakes, Hydrogeological hazards, Floods, Landslides

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MOVE
 Method of Vulnerability Assessment

Structure of MOVE

Existing approaches to the assessment of vulnerability, hazard, risk, etc.

Comprehensive analysis of theory

Generic conceptualisation of vulnerability

Development of methods and methodologies

Testing of methods by applying them to practical problems

Methods of assessing vulnerability tested on the basis of a common conceptualisation that can be utilised by:

Vulnerability assessors (the stakeholders)

Development of a common language

Hazard/user scale dependent applications

Methods of vulnerability assessment with user involvement

Publications:
 - monographs
 - academic papers
 - user guide

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Method assessment

Step 1: Design and form the question (Set a working group and determine the problem to solve)

Step 2: Develop an assessment strategy (Determine the right kind of assessment for the problem)

Step 3: Combine information (Select your geographic location)

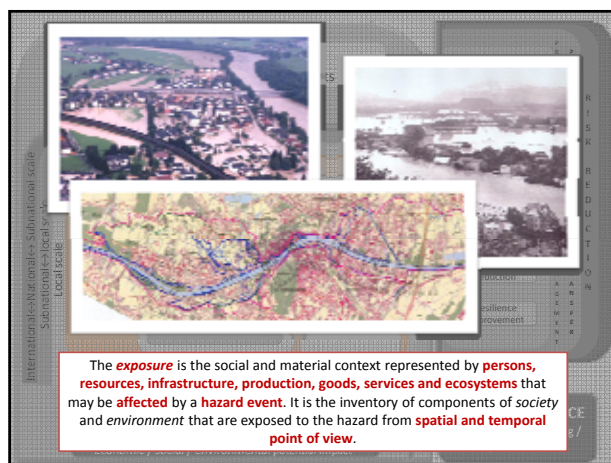
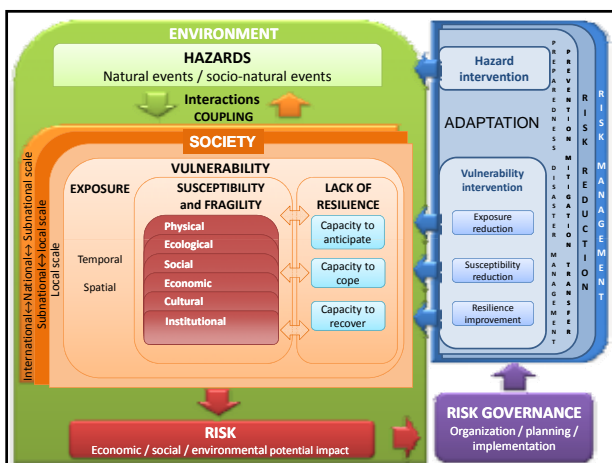
Step 4: Conduct the vulnerability assessment

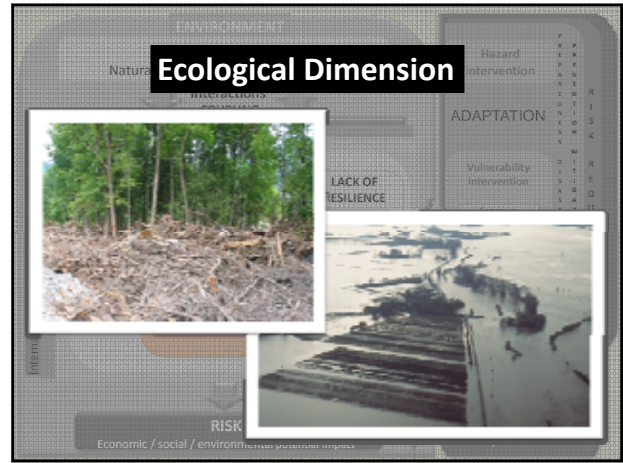
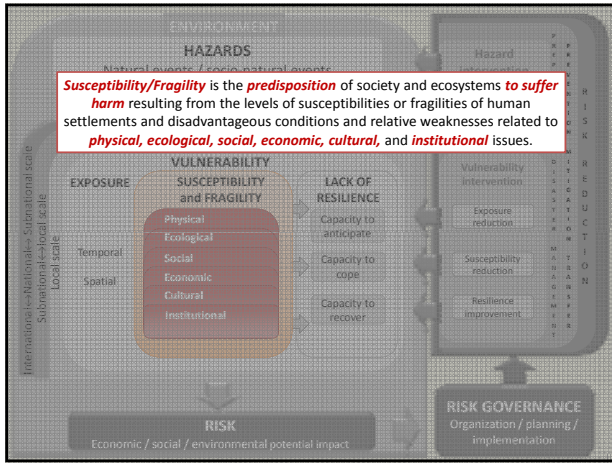
Step 5: Report vulnerability assessment (Prepare a report on the assessment, its implications and possible strategies and identify priorities)

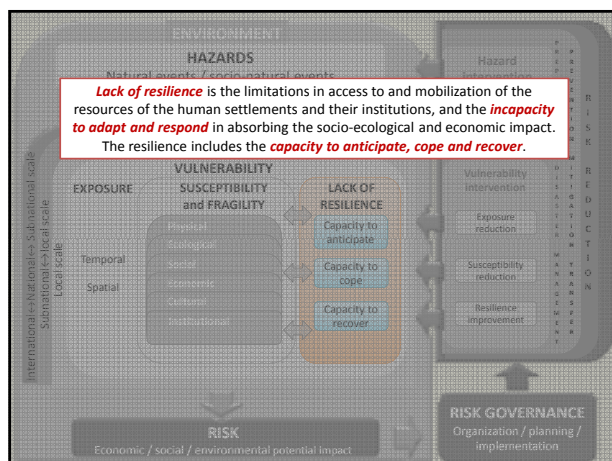
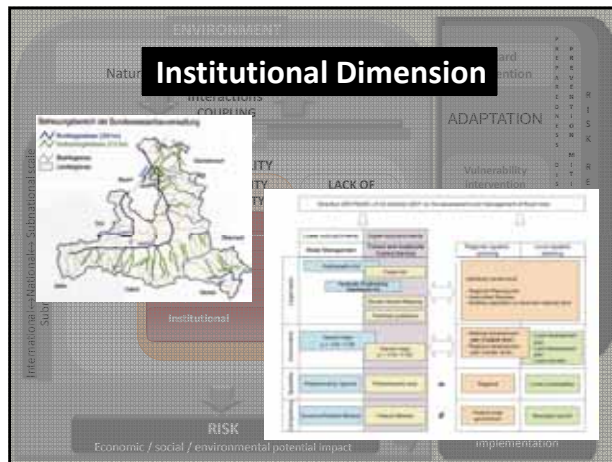
Step 6: Review vulnerability assessment (Review the report)

Risk Governance

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Capacity to anticipate

ENVIRONMENT
Natural ex Interactions
COUPLING
Hazard Intervention
ADAPTATION
VULNERABILITY
SUSCEPTIBILITY
and FRAGILITY
RISK
Economic / social / environmental potential impact
Implementation

International / National / Subnational / Local scale

Capacity to recover

ENVIRONMENT
Natural ex Interactions
COUPLING
Hazard Intervention
ADAPTATION
LACK OF
RESILIENCE
Capacity to
anticipate
RISK
Economic / social / environmental potential impact

International / National / Subnational / Local scale

Capacity to cope

ENVIRONMENT
Natural ex Interactions
COUPLING
Hazard Intervention
ADAPTATION
LACK OF
RESILIENCE
Capacity to
anticipate
Capacity to
cope
Capacity to
govern
RISK
Economic / social / environmental potential impact
Implementation

International / National / Subnational / Local scale

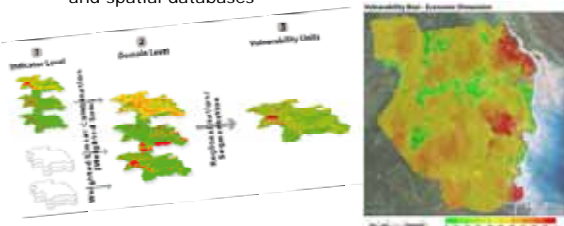
RISK GOVERNANCE

ENVIRONMENT
Natural ex Interactions
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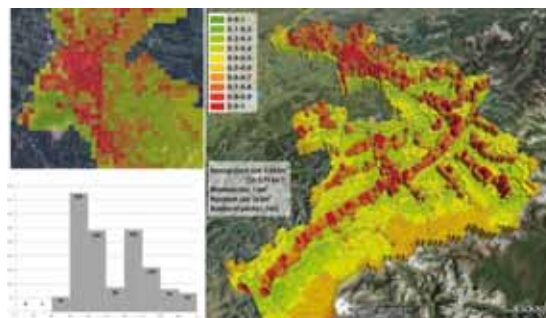
GI in Vulnerability Reduction

- e.g. modelling of indicators
 - Integration of data from Earth Observation, census data, and spatial databases



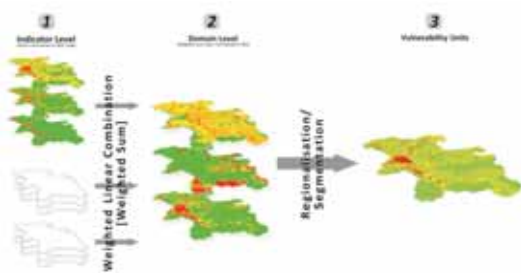
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Salzach: Vulnerability Units



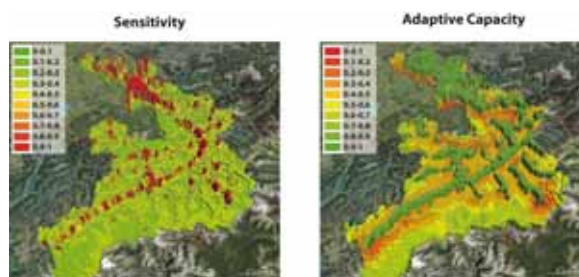
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Salzach: Vulnerability Units



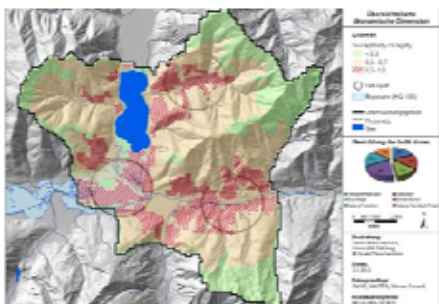
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Salzach: Disaggregation



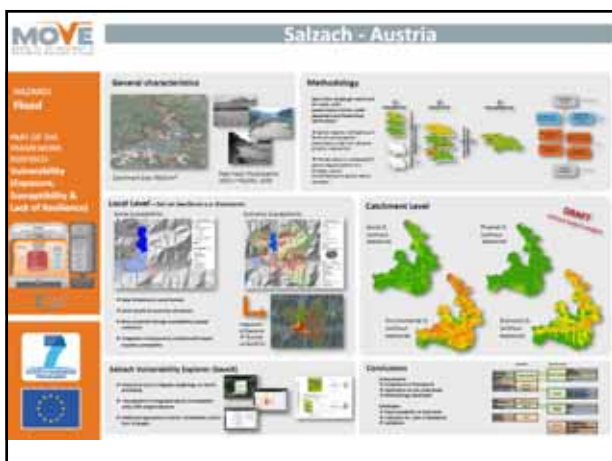
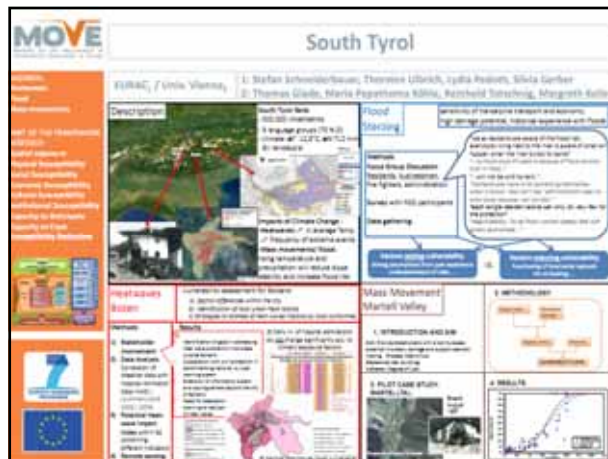
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Salzach: Local Scale



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Objective of vulnerability assessment

- **As decision and planning support**
 - *"Vulnerability assessments are action (policy) oriented with the overall objective to mitigate/avoid the negative impacts of hazards"*
 - Reduction of RISK
- **Complex, integrated analyses & monitoring**
 - Spatial component
 - Temporal component
 - Different dimensions
 - *"Vulnerability is currently measured indirectly and is described through specific indicators which allow to represent and monitor the different dimensions of vulnerability"*

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Draft Report:
The Eighth Meeting of the Expert Working Group on MEASURING VULNERABILITY

Assessing and Mapping the Dynamics of Vulnerability to Natural Hazards and Climate Change

University of Salzburg, Salzburg, Austria, 4th and 5th July 2011



Organized and hosted jointly by: UNITED NATIONS UNIVERSITY, Institute for Environment and Human Security (UNU-EHS) and Centre for Geoinformatics (Z_GIS), University of Salzburg in the context of the GI_Forum

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DRIVERS OF RISK

<p>Old Drivers:</p> <ul style="list-style-type: none"> • Poverty • Limited access to power structures/ resources • Ideologies • Economic systems • Corruption 	<p>New Drivers/ Dynamic Pressures</p> <ul style="list-style-type: none"> • Climate Change (water stress and sea level rise) • Climate Variability • Growth in Corruption • Urbanisation • Coastal Zone Development • Uncontrolled Population growth (particularly in six countries) • Denial of human rights in certain totalitarian countries • Widespread Gender Disparities
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Ian Davis, Cranfield University and Oxford Brooks University



Drivers of Vulnerability

6 Questions:

1. What is the level of exposure concerning the drivers of risk?
2. Are the exposure and risk currently being assessed?
3. Can the system be resilient to the drivers of risk?
4. Do institutions exist at primary or secondary level as examples?
5. Does data exist that can be used for analysis?
6. If exposure is primary, how can it be used for DRR & CCA?

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Mark Pelling, KCL

Contextualizing resilience

	Resilience	Transition	Transformation
Goal	Functional persistence in a changing environment.	Realise full systems potential through the exercise of rights within the established regime	Reconfigure the structures of development
Scope	Change in technology, management practice and organisation.	Change in practices of governance to secure procedural justice,	Reform in overarching political-economy, cultural norms or scientific paradigm.
Policy focus	Resilient building practice. Use of new seed varieties.	Implementation of legal responsibilities by private and public sector actors and exercise of legal rights by citizens	New political discourses
Dominant Analysis	Socio-ecological systems	Governance and regime analysis	Discourse, ethics and political-economy

