



REDUCING ALPINE NATURAL DISASTERS

WHY ACTING IN LINE WITH THE RISK APPROACH IS NOT ENOUGH

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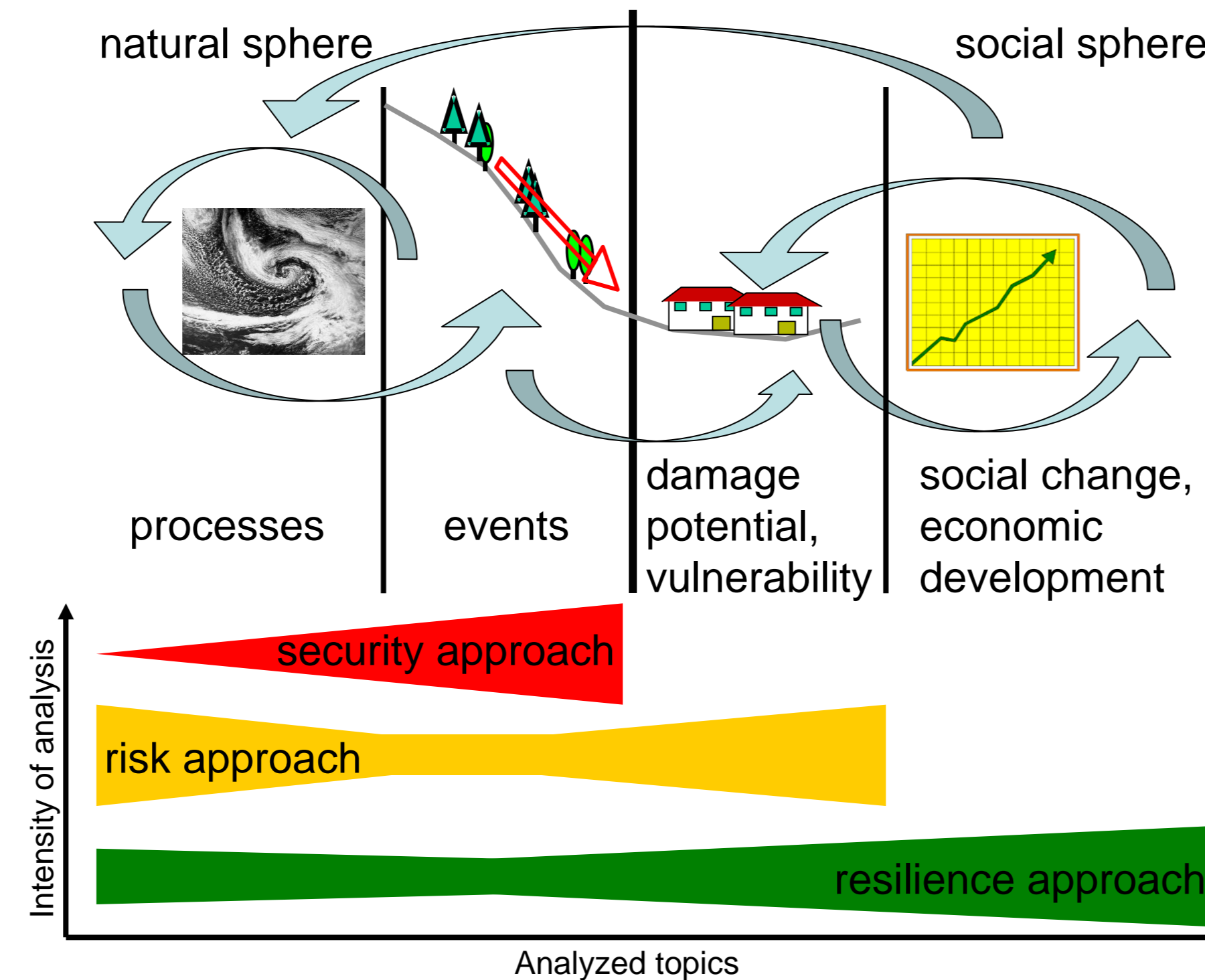
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Fundamental Approaches

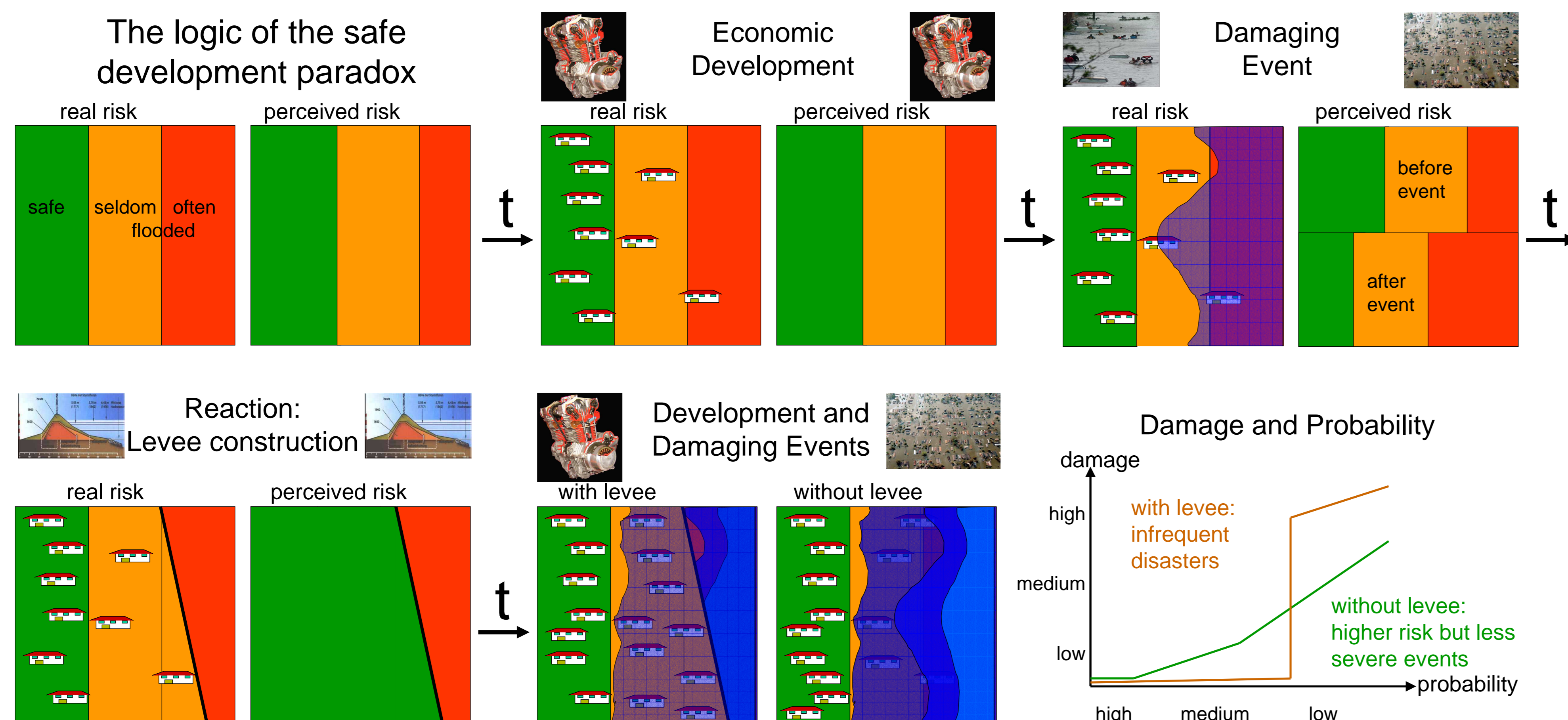
In scientific debate, legislation, and praxis three different approaches to mitigate the effects of natural hazards or natural disasters can be observed:

1. Security approach: The state should guarantee a uniform security level for all citizens.
2. Risk approach: State funds should be allocated in an optimal way to reduce the risk level of the state or a special region.
3. Resilience approach: Resilience of society should be increased and vulnerability decreased to reduce the losses due to natural disasters.

(In literature the vulnerability approach has the widest range of definitions. Authors from a natural science perspective think that especially vulnerability of different social groups and ecological systems has to be measured, without understanding the underlying social processes – in my perspective this is a type of risk analysis. On the other hand social scientist especially in development studies analyze the processes which leads to higher vulnerability of certain social groups – I integrate this research into the resilience approach.)



Negative long term effects of the security and risk approach: Reduction of frequent small damages but increase of major disasters!



The safe development paradox is not only true for technical protection measures like levees but also for danger zone mapping: In the Austrian and Swiss Alps danger zone mapping leads to the highest growth rate of development directly at the edge of the building ban zone because people know where it is "safe" to build houses according to the danger zone plan. If for example climate change leads to a severer hazard, the spatial planning system would have actually contributed to an increased damage potential.

Solution: Integrative approach which inhibits negative social processes

Analyze protection concepts not only according to their technical feasibility but also their impact on public risk perception!

Develop or use mitigation measures which always have the effect of diminishing the hazard!

Systematic analysis of structural measure failure is necessary, especially for big events!

Develop concepts which increase local awareness and responsibility!

- Vision
- Development of new residential areas in the „safest“ areas, not at the edge of the danger zone plan
 - Recognition of natural hazards as a limitation for sustainable development on the local scale
 - State agencies as important stakeholder within the economic discourse on the local scale

- Necessary steps
- Compulsory insurance = increase the perceptibility of seldom disasters in society
 - Only minor risk transfer
 - Premiums according to personal mitigation measures
 - Increased involvement of local stakeholders
 - Collaboration with actors responsible for local planning necessary
 - Example: protection forest groups in Austria
 - Change in the use of state funds
 - At least 50% of the state funds should promote non-structural measures

Literature

Negative effect of danger zone mapping: Keiler, Margareth, "Development of the Damage Potential resulting from Avalanche Risk in the period 1950–2000, Case Study Galtür," *Natural Hazards and Earth System Sciences*, 2004, 249-256. Fuchs, Sven, Bründl, M. and Stötter, J., "Development of Avalanche Risk between 1950 and 2000 in the Municipality of Davos, Switzerland," *Natural Hazards and Earth System Sciences*, 2004, 263-275

Safe development paradox: Burby, Raymond J., "Hurricane Katrina and the Paradoxes of Government Disaster Policy: Bringing about Wise Governmental Decisions for Hazardous Areas," *Ann Am Acad Political Social Sci*, 2006, 171-191.

"Levee effect": Burton, Ian, *Types of Agricultural Occupance of Flood Plains in the United States*, Univ. of Chicago Press, Chicago, 1962. Segoe, L., "Flood control and the cities." *American City*, 1937, 55-56.

