

# Module 3: Vulnerability

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# What is vulnerability?

*Propensity to suffer harm, loss or damage*

# What is vulnerability?

Vulnerability has meant different things to different academic communities.

- Vulnerability to poverty
- Vulnerability to a disaster
- Vulnerability to economic shocks
- Vulnerability to climatic change

Vulnerability definitions have received more attention in the context of climate change adaptation.

# Approaches to Vulnerability

- Vulnerability as the *risk* or *probability* of negative outcomes
  - “Propensity of loss”
- Vulnerability as the undesirable *outcome* of an event
  - “Outcome vulnerability”
- Vulnerability as *the state or condition* of a system (prior to, or irrespective of an exogenous shock or stress)
  - “Context vulnerability”

See: KAREN O'BRIEN, SIRI ERIKSEN, LYNN P. NYGAARD & ANE SCHJOLDEN (2007): Why different interpretations of vulnerability matter in climate change discourses, *Climate Policy*, 7:1, 73-88.

# Vulnerability: A Brief History

- 1980s-1990s: Humans as victims of nature
  - Human systems in opposition to nature.
  - Activities are *vulnerable* to “Acts of God”
- Mid-20<sup>th</sup> Century: Humans contribute to disaster
  - Recognition of fallibility of policy and infrastructure to extremes
  - Recognition of human action as *cause* of “natural” disaster
  - Recognition of importance of *public perception* of risk in undermining effectiveness of risk management policy

# Vulnerability: A Brief History

- Late 20<sup>th</sup> Century: Social construction of vulnerability
  - Vulnerability as an existing, latent condition
  - Vulnerability has a specific social and environmental history
  - Wisner et al.'s *At Risk*, and the Pressure-And-Release Model (PAR)

See: Wisner, B., Blaikie, P., Cannon, T., Davis, I. (2004) *At Risk* (Second Edition): Natural Hazards, People's Vulnerability and Disasters. Routledge, London and New York.

**PAR framework (common to risk research) with emphasis placed on “social” conditions of exposure; concept of vulnerability usually explicit.**

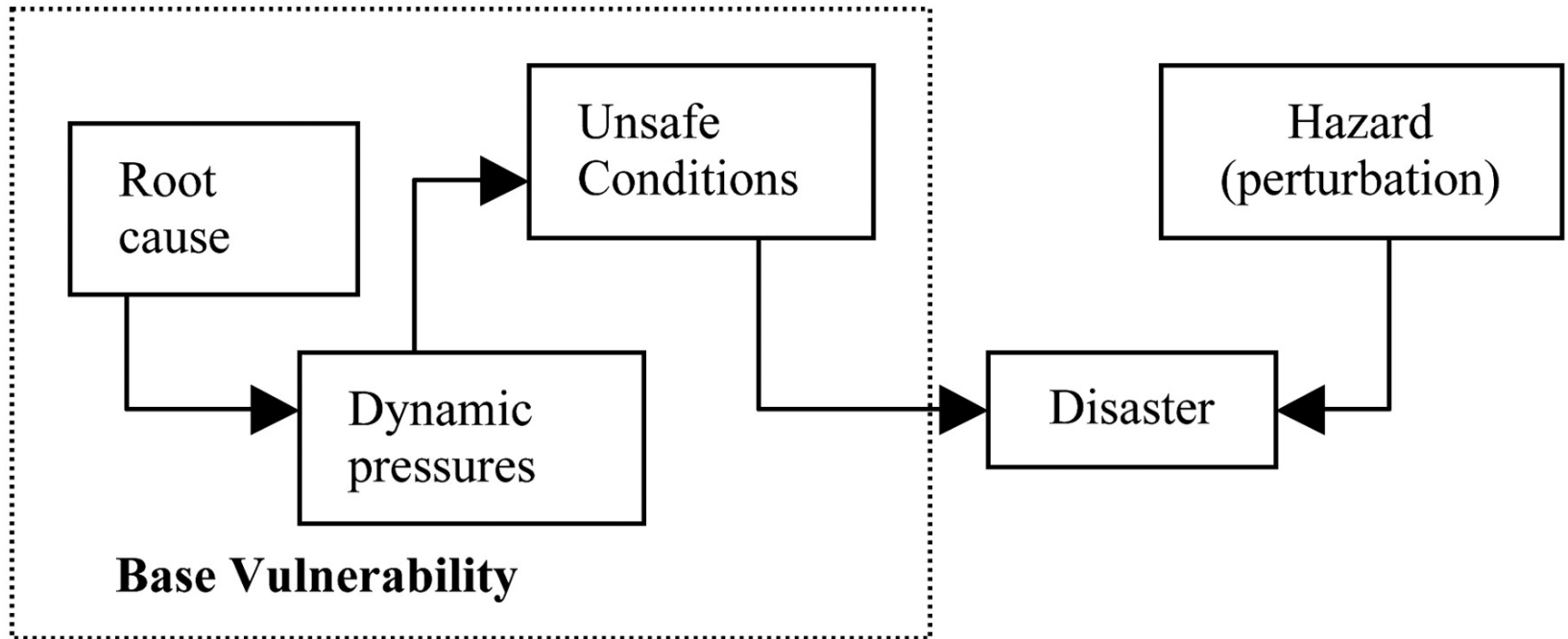


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# Vulnerability: A Brief History

- Today: Vulnerability as emergent property
  - Integral part of social-ecological system interactions and feedbacks
  - Explicit attention to cross-scalar and inter-temporal dynamics



# Vulnerability framework.

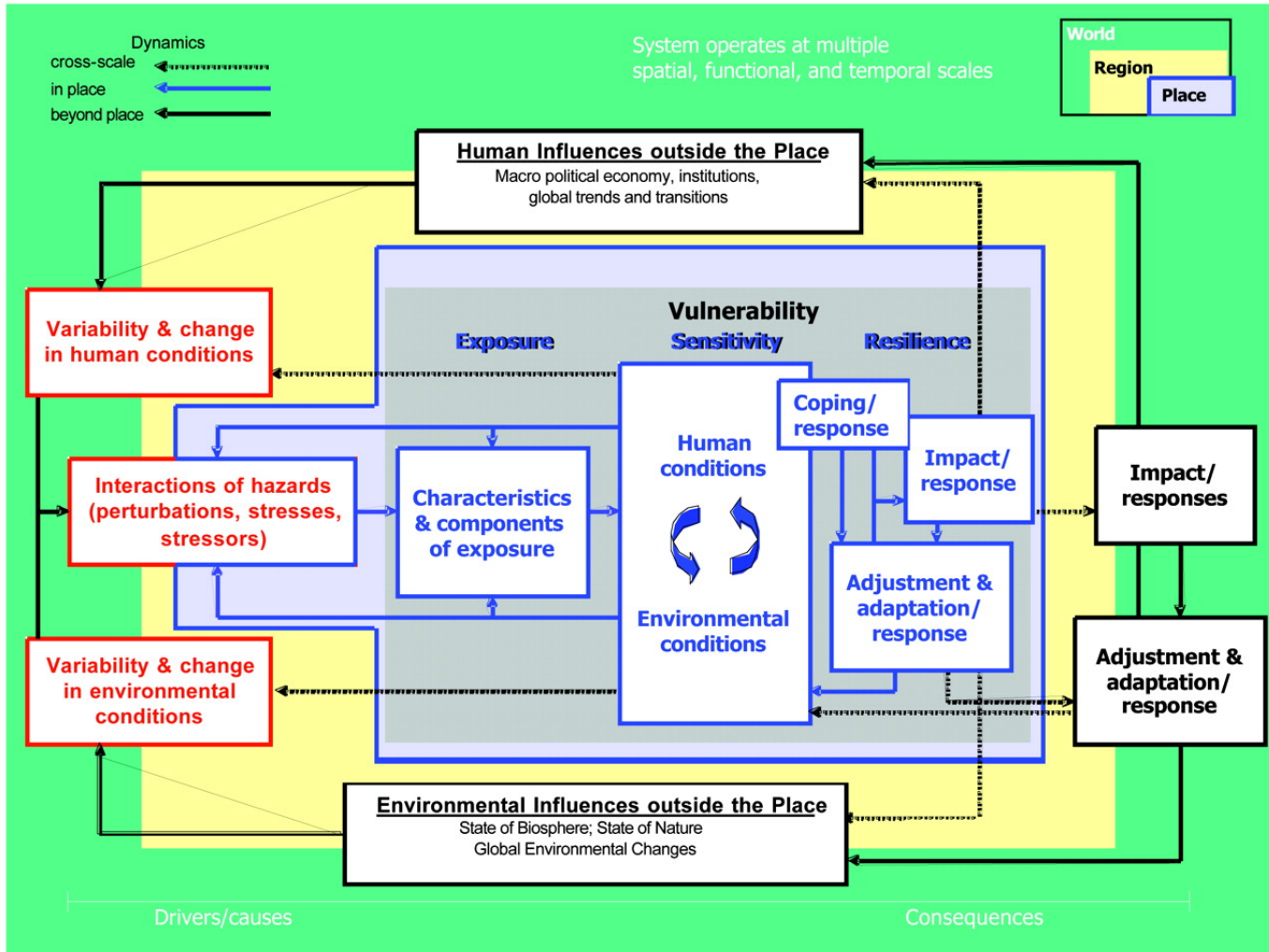


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# Vulnerability to Climate Change

$f$  { Sensitivity, Exposure, Adaptive Capacity }

**“The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.”**

**(Intergovernmental Panel on Climate Change, 2013, AR5)**

*Can a population be similarly exposed but differentially sensitive to an event? How might differential capacities affect populations with similar exposure or similar sensitivity?*

# Climate change adaptation

- "... a **process, action or outcome** in a system (household, community, group, sector, region, country) in order for the system to better cope with, manage or adjust to some changing condition, stress, hazard, risk or opportunity"  
– Smit and Wandel 2006

Smit, B., Wandel, J. (2006) Adaptation, adaptive capacity and vulnerability. *Global Environmental Change* 16, 282-292.

# What is Adaptive Capacity?

“The preconditions necessary to enable adaptation, including social and physical elements, and the ability to mobilize these elements” (Nelson et al. 2007)

*What might these preconditions be? How might these conditions vary in different social or geographic contexts?*

Nelson, D.R., Adger, W.N., Brown, K. (2007) Adaptation to environmental change: contributions of a resilience framework. *Annual Review of Environment and Resources* 32, 395-419.

# Resilience

- Unit: “coupled human/environment system”
- Capacity of a system to maintain function and structure after perturbation
- Focus on non-linear interactions & processes within and acting on system

# Resilience & Disasters

“ capacity of linked social-ecological systems to absorb recurrent disturbance such as hurricanes or floods so as to retain essential structures, processes, and feedbacks.”

(Adger et al 2005)

*How does this definition compare to those of vulnerability? What is different? What is the same?*

Adger, W.N., Arnell, N.W., Tompkins, E. (2005) Successful adaptation to climate change across scales. *Global Environmental Change* 15, 77-86. Berkes, F. (2007) Understanding uncertainty and reducing vulnerability: lessons from resilience thinking. *Natural Hazards* 41, 283-295.