

# Natural disasters:

## Methodology to assess a new syndrome

Produced by: Manuel Winograd



Vulnerability  
Briefing # 1  
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### Introduction:

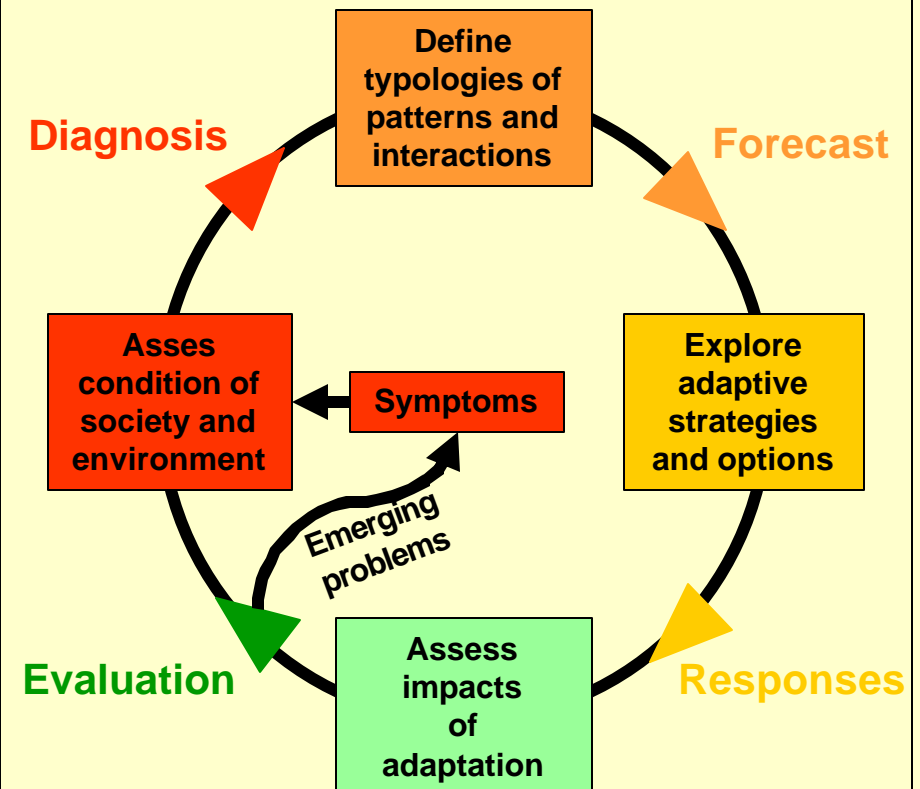
Within a medical metaphor, the syndrome approach focuses on clinical pictures of the Earth System. In medicine, the diagnosis of any clinical picture is not the end, but only a means for specifying an appropriate therapy for the patient. In analogy, the syndrome approach is not restricted to the analysis of current trends and processes, but ultimately aims at the production and provision of action knowledge.

The syndrome approach therefore directly addressing four different aspects:

1. What aspects of global change are relevant with respect to human well-being on planet Earth ?
2. What typical "pictures" of those clinical situations or developments exist ?
3. What elements and interactions are relevant for the persistence of these patterns, or syndromes, of global change ?
4. What strategies can be devised to mitigate, prevent or adapt to syndromes ?

Source: Lüdeke M. K. B., G. Petschel-Held, H. J. Schellnhuber, 2004, Syndromes of Global Change: The First Panoramic View, *GAIA* 13, no. 1, pp 42-49

### The methodology:



Winograd M., 2003, Sustainability and Vulnerability Indicators: From Data...to Decision-Making, Center-Commissioned External Review of Spatial Analysis International Center for Tropical Agriculture (CIAT), Cali, Colombia, November, 24, 2003

## The syndrome assessment:

**Syndrome name:** Natural disasters

**Underlying functional patterns:** Absence of planning and appropriate knowledge for location of population, land use, production systems and infrastructures.

**Syndrome description:** Cyclical economic, environmental and human losses due to natural events.

Unplanned actions to mitigate and adapt to natural events (i.e. earthquakes, landslides, floods, drought).

**Disposition factors:** From environmental factors regions with high vulnerability due to natural disasters, such as flooding, drought and earthquakes. From societal (socioeconomic and institutional) factors, policies, strategies and actions oriented to solve the consequences more than prevent the causes, as results “natural events” became “natural disasters”.

Winograd M., 2006, Sustainability and vulnerability indicators for decision making: Asses the two side of the same coin, Colloque “Usages des Indicateurs de Développement Durable”, Montpellier, 3-4 April, 2006, Montpellier, France.

## Examples of information used for the identification of syndrome:

Step	Component	Index	Spatial resolution	Time span
Diagnosis	Environment	Climatic risk index	Regional	1950-2000
		Geologic risk index	Regional	1950-2000
		Land use index	Regional	1950-2000
Diagnosis	Society	Urbanization and accessibility index	Regional	1990-2000
		Poverty index	Regional	1990-2000
		Economic and human losses index	Regional	1950-2000
Forecast	Environment	Environmental vulnerability index	National	1990-2000
		Land use vulnerability index	National	1990-2000
		Land degradation index	National	1980-2000
Forecast	Society	Population vulnerability index	National	1990-2000
		Infrastructure vulnerability index	National	1990-2000
		Social vulnerability index	National	1990-2000
Responses	Environment	Vulnerable environmental hotspots	National	1990-2000
	Society	Vulnerable social hotspots	National	1990-2000

CIAT, World Bank, UNEP, 2000, Indicadores de Sostenibilidad Rural: Una vision para America Central, CD-ROM ArcView Data Publisher 3.1, produced by M. Winograd, A. Farrow, M. Aguilar, K. Kok, CIAT, The World Bank, UNEP and ESRI, Cali, Colombia.