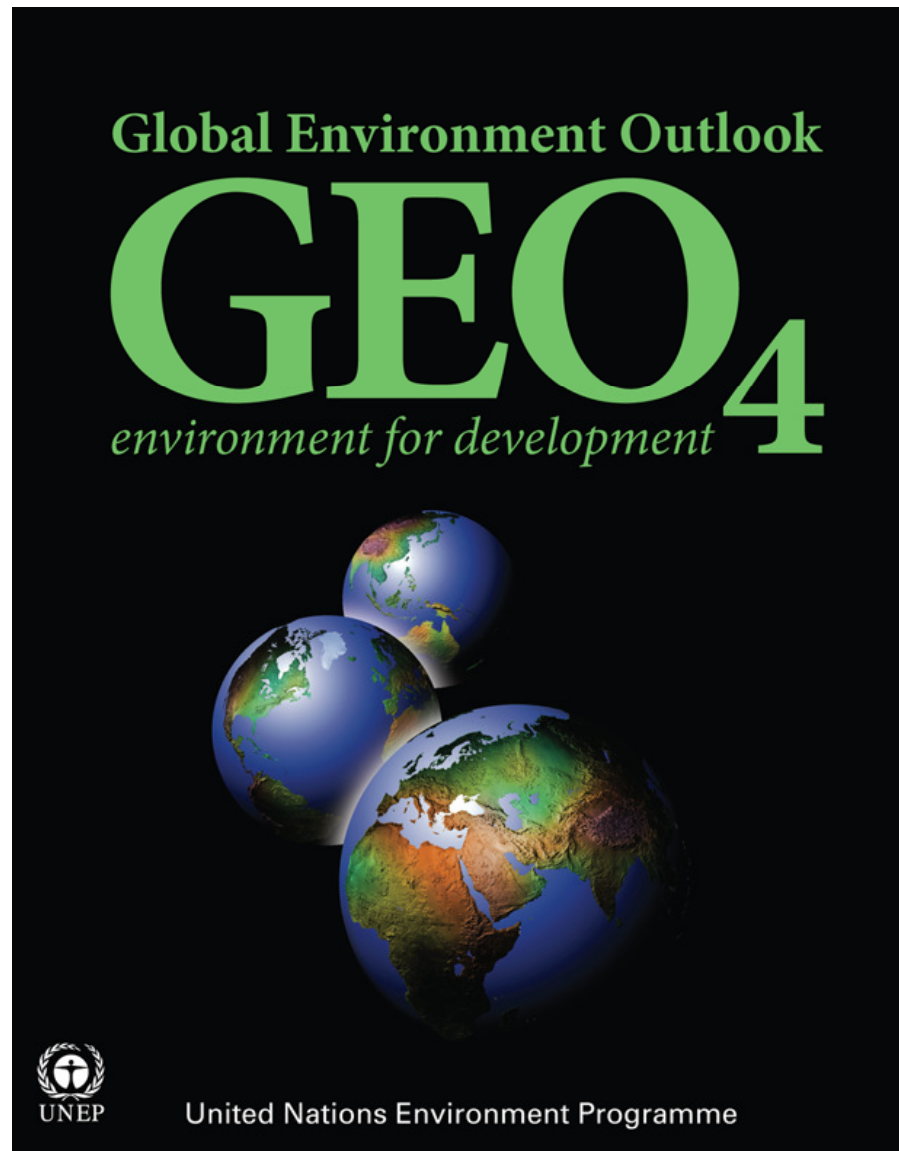


November 2007



Improving the Adaptive Capacity of Human-Environment Systems

Jill Jäger





Outline of the chapter as a whole

- **Global context of vulnerability**
- **Human well-being, environment and vulnerability**
- **Aspects of vulnerability**
- **Patterns of vulnerability**
- **Opportunities for reducing vulnerability**



Vulnerability

- Vulnerability is an intrinsic feature of people at risk.
- It is multi-dimensional, multi-disciplinary, multi-sectoral and dynamic.
- Because of this complexity there is, to date, no generally agreed definition or concept for vulnerability.
- The definition used here understands vulnerability as a function of exposure, sensitivity to impacts, and the (in)ability to cope or adapt.

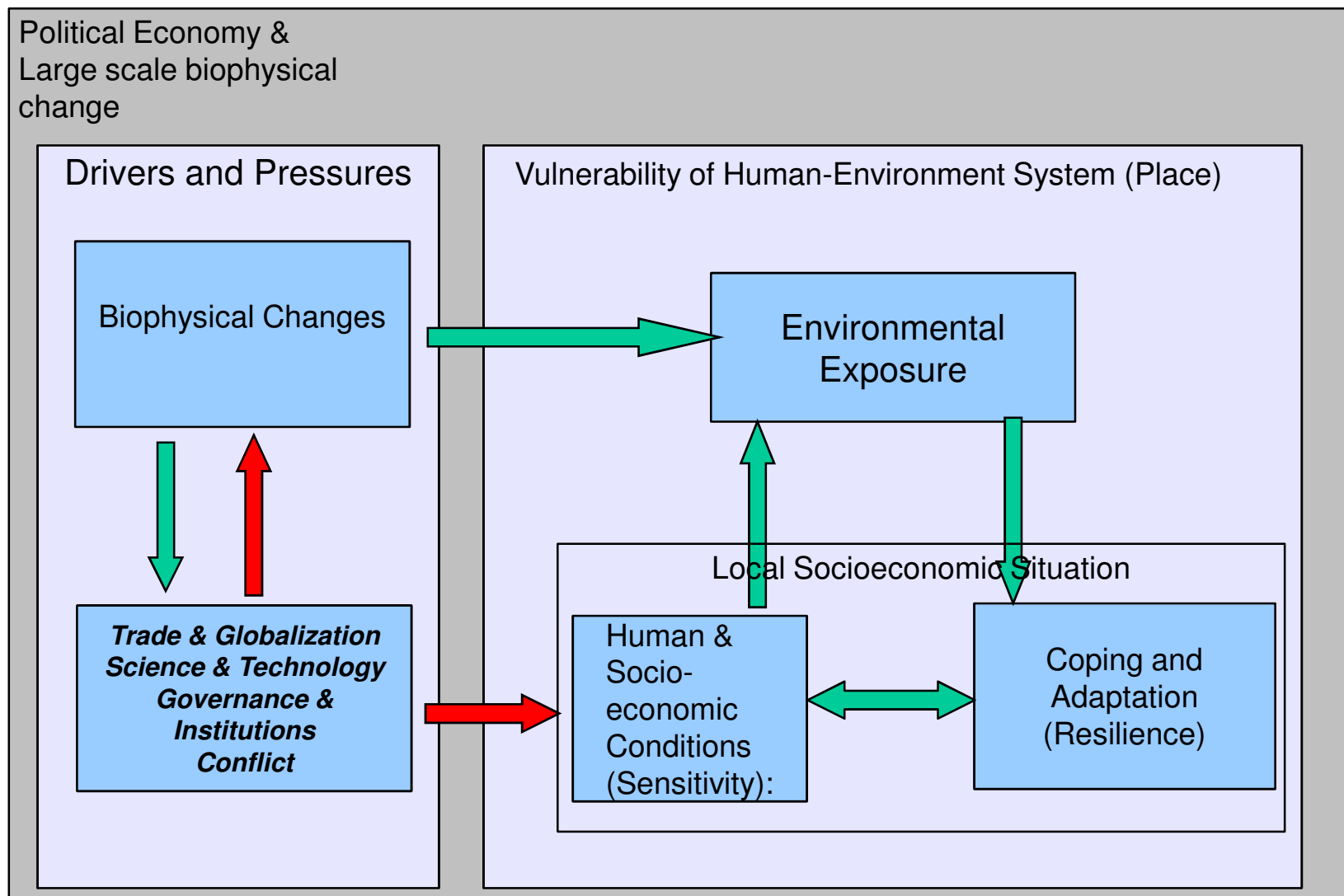


Vulnerability – Exposure, Sensitivity and Adaptive Capacity

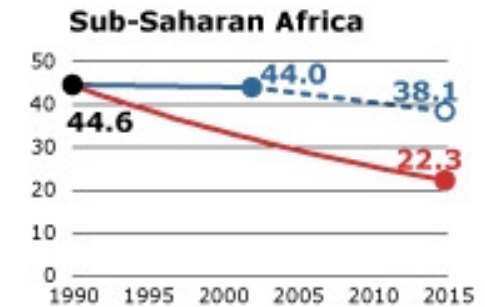
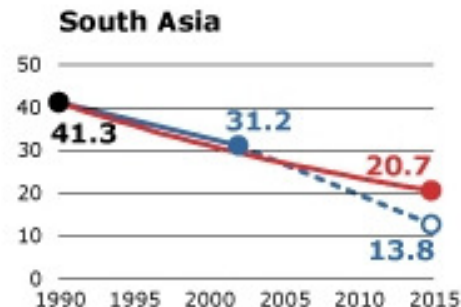
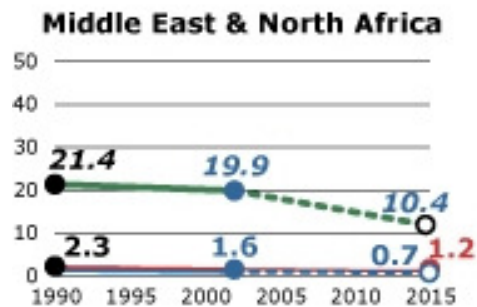
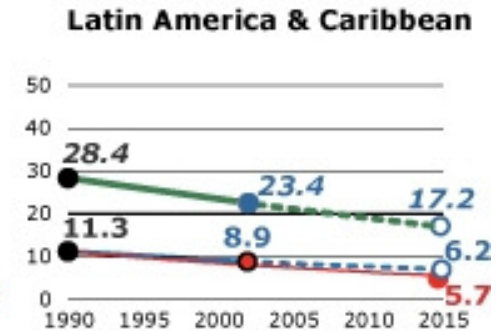
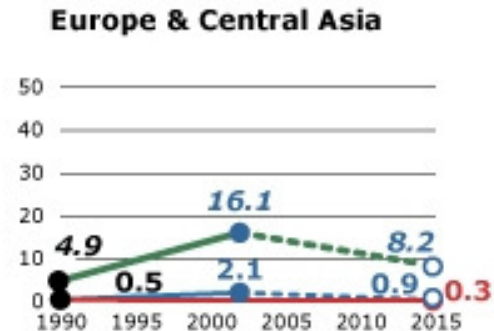
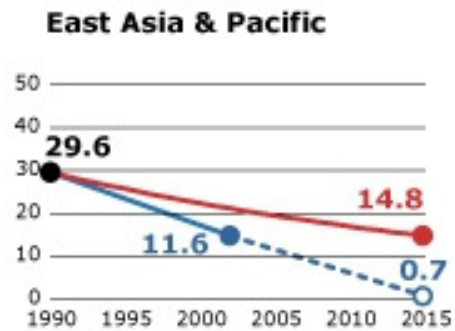
- The exposure is to hazards such as drought, conflict or extreme price fluctuations, and also to underlying socio-economic, institutional, and environmental conditions.
- The impacts not only depend on the exposure but also on the sensitivity of the specific unit exposed (such as a watershed, island, household, village, city or country) and the (in)ability to cope or adapt.



A Framework for Vulnerability Assessment



The global context of vulnerability -Poverty



Goal
1990 2002 2015

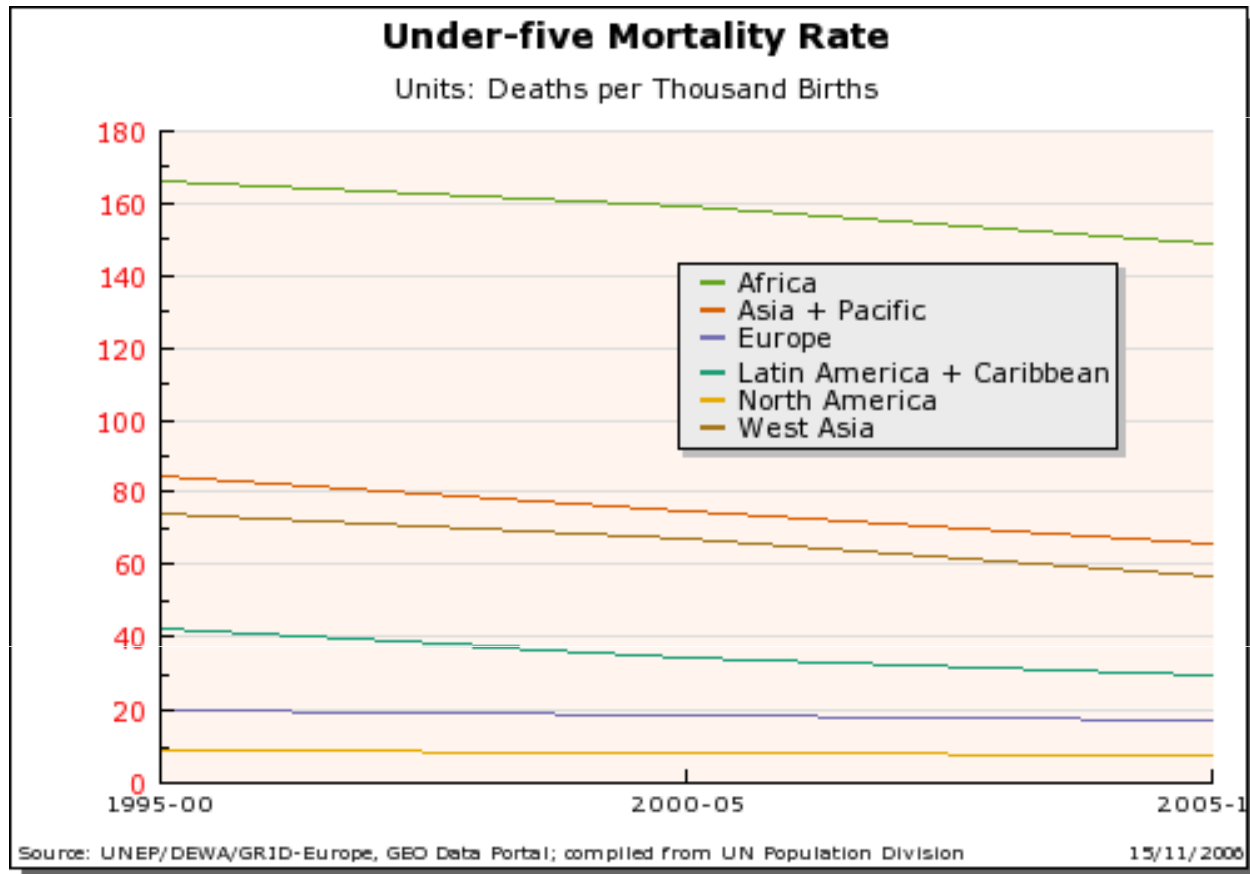
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Poverty rate at \$1 a day
— Actual — Projected
— Path to goal

Poverty rate at \$2 a day
— Actual — Projected



Health





Patterns of Vulnerability

- The patterns of vulnerability elaborated for UNEP's GEO-4 show how environmental and non-environmental changes affect human well-being. By looking at the diversity of human-environment systems throughout the world, it is evident that some situations share certain vulnerability-creating conditions.



Patterns (Archetypes) of Vulnerability

- Contaminated Sites
- Drylands
- Misuse of the Global Commons
- Small Island Developing States
- Technology-centred Approaches to Water Problems
- Urbanisation of the Coastal Fringe
- Energy Security

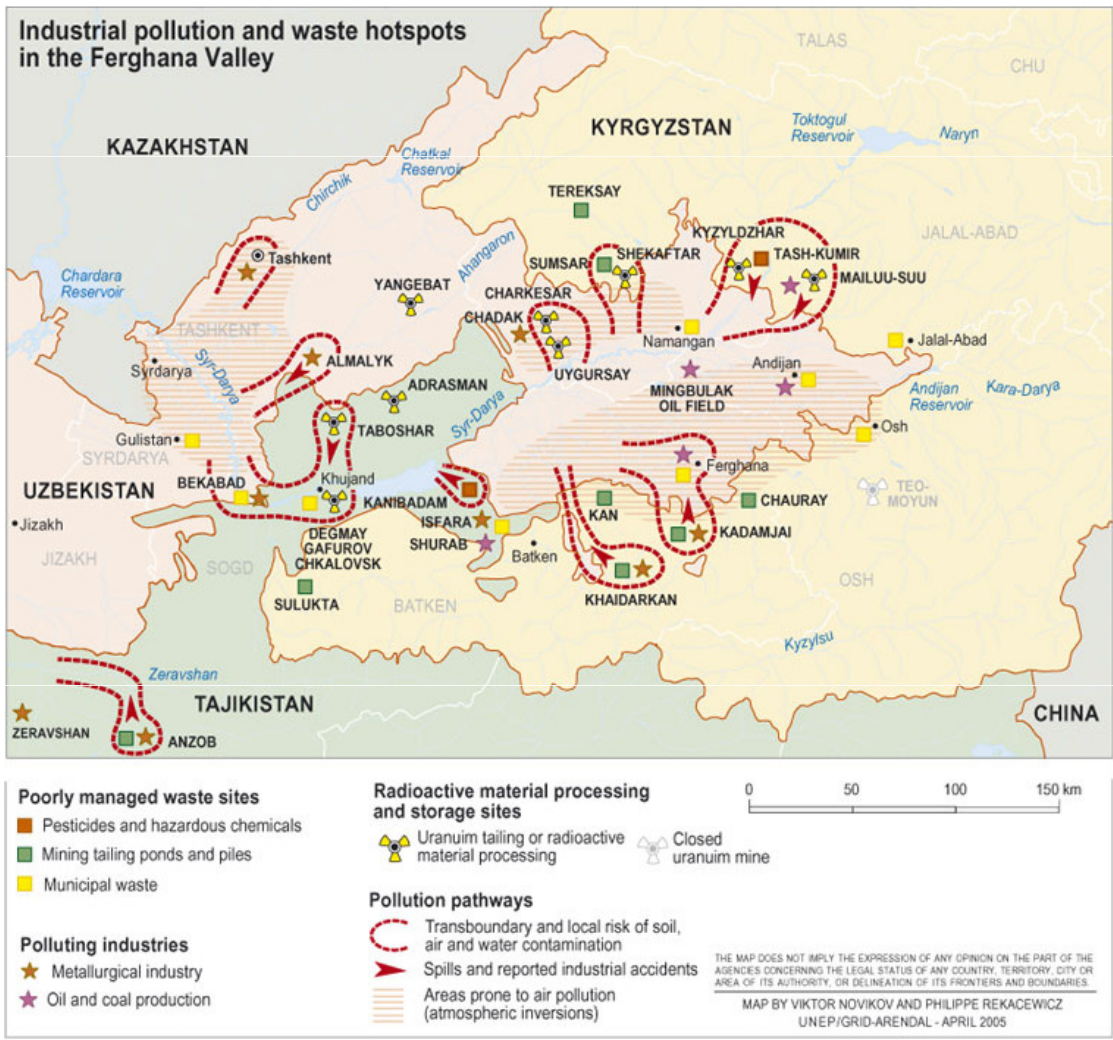


Contaminated Sites

- Widespread contamination due to persistent organic pollutants and heavy metals, urban and industrial sites, military activity, agro-chemical stockpiles, leaking oil pipelines and waste dumps.
- The poor, children and women are particularly vulnerable



Contaminated Sites



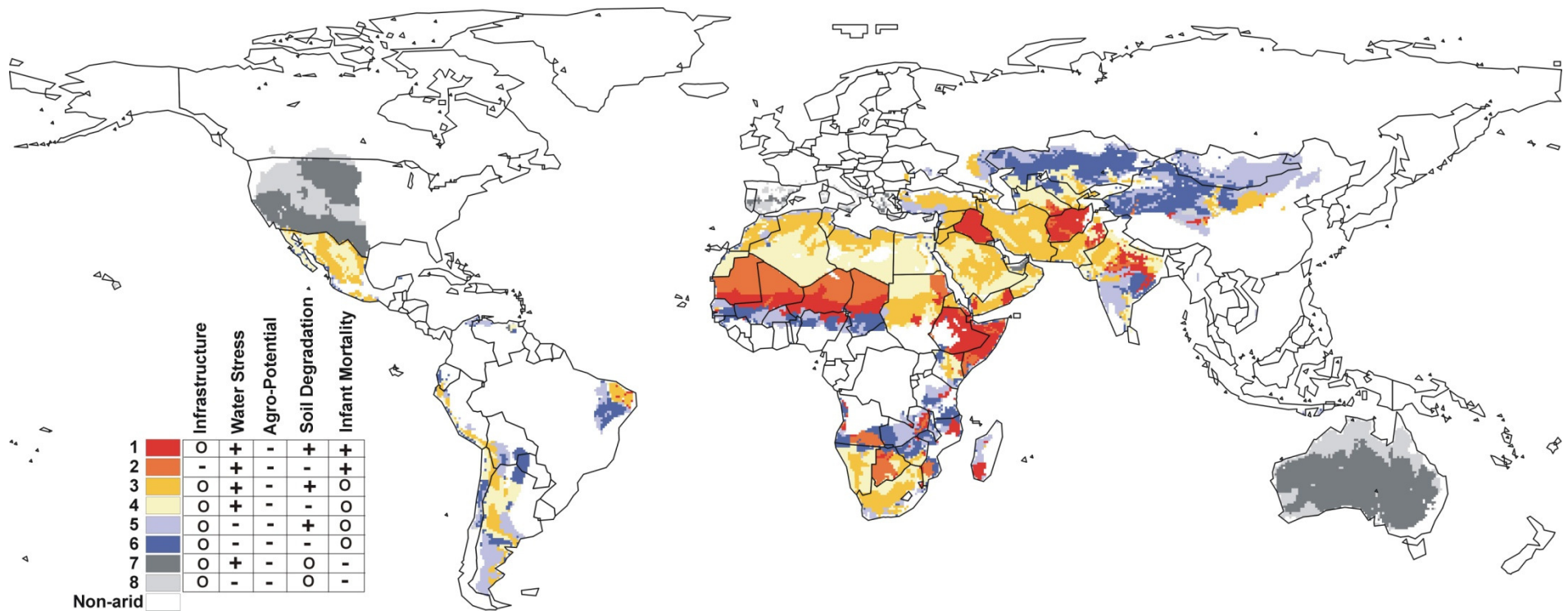


Drylands

- Drylands are widespread, occur in developed and developing countries, and support significant populations.
- Worldwide 10-20 per cent of drylands are degraded, directly affecting well-being of drylands populations and indirectly affecting people elsewhere through biophysical impacts and socioeconomic impacts.
- Globally-driven processes, including climate change, impact directly on well-being in drylands.

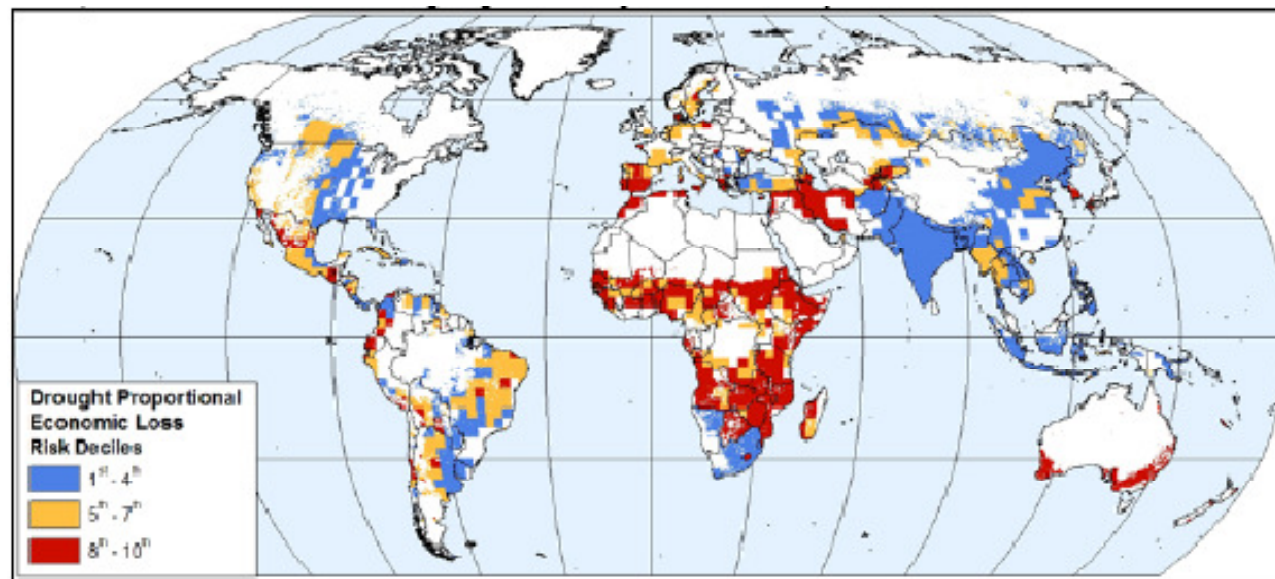


Global distribution of 8 "clusters" of socio-economic and natural conditions in drylands





Drought-related economic loss as a proportion of economic density





Misusing the Global Commons

- Include the deep oceans and seabed beyond national jurisdiction and the atmosphere
- The misuse of the global commons leads to the exposure of people and the environment to pollution (e.g. heavy metals and persistent organic pollutants in the Arctic), to resource depletion (e.g. fisheries) and to environmental changes (in particular as a result of climate change).
- Very often those that are extremely vulnerable to the changes resulting from misuse of the commons are not those who are responsible for the misuse itself.



Small Island Developing Countries

- SIDS are located in the Pacific, Indian and Atlantic Oceans, the Caribbean and South China Seas.
- 6 SIDS belong to Africa, 23 to Latin America and the Caribbean and 22 to Asia and the Pacific.
- The UNEP Environmental Vulnerability Index (EVI) scores for 47 SIDS ranked 3 countries at risk, 10 vulnerable, 17 highly vulnerable and 17 extremely vulnerable and none were ranked resilient
(http://www.vulnerabilityindex.net/EVI_Scores_SIDS.htm)



Key findings

- **The patterns of vulnerability show the unequal distribution of risks for specific groups of people**
- **Export and import of vulnerability**
- **Capacity to adapt has not kept up with increase of risks**
- **Opportunities for reducing vulnerability are not only in the environmental policy domain**



Opportunities

- Environmental risks affect a wide range of natural, economic, political and social activities and processes. **Therefore, vulnerability reduction needs to be integrated as a strategic goal into overall development planning across many sectors including education, health, economic development, and governance.**
- Human vulnerability and livelihood security are closely linked to biodiversity and ecosystem resilience.
- Extreme events like the 2004 Indian Ocean Tsunami show that environmental degradation and poorly planned development activities increase communities' vulnerability to shocks.



Responding to vulnerability

- Vulnerability is determined to a large extent by a lack of options resulting from the unequal distribution of power and resources among actors, including the most vulnerable population groups throughout the world, such as indigenous people, and the urban or rural poor, or economic sectors heavily dependent on environmental services.
- Adaptive capacity increases with diversification of livelihood strategies and with access to these strategies, social support networks and other resources.



Strategic Responses

- **Requires integration of governance from local to global, across sectors, and over a longer time-frame**
- **Local level strategies: empowering women, strengthening local rights and integrating local and global knowledge**
- **National strategies: environmental cooperation as path for peace, ...**
- **International strategies to provide better conditions for local and national implementation: include equity and environmental concerns in trade, ...**



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