

A photograph showing a landscape where a forest has been cleared. In the foreground, a stream flows through a muddy, eroded area with fallen branches. The background shows a dense forest of tall, thin trees under a cloudy sky.

**Global Environmental Change and Human Health:
GECHH 2010, Hamilton, Canada, 31st October-2nd
November**

Can Health Security be Securitized?

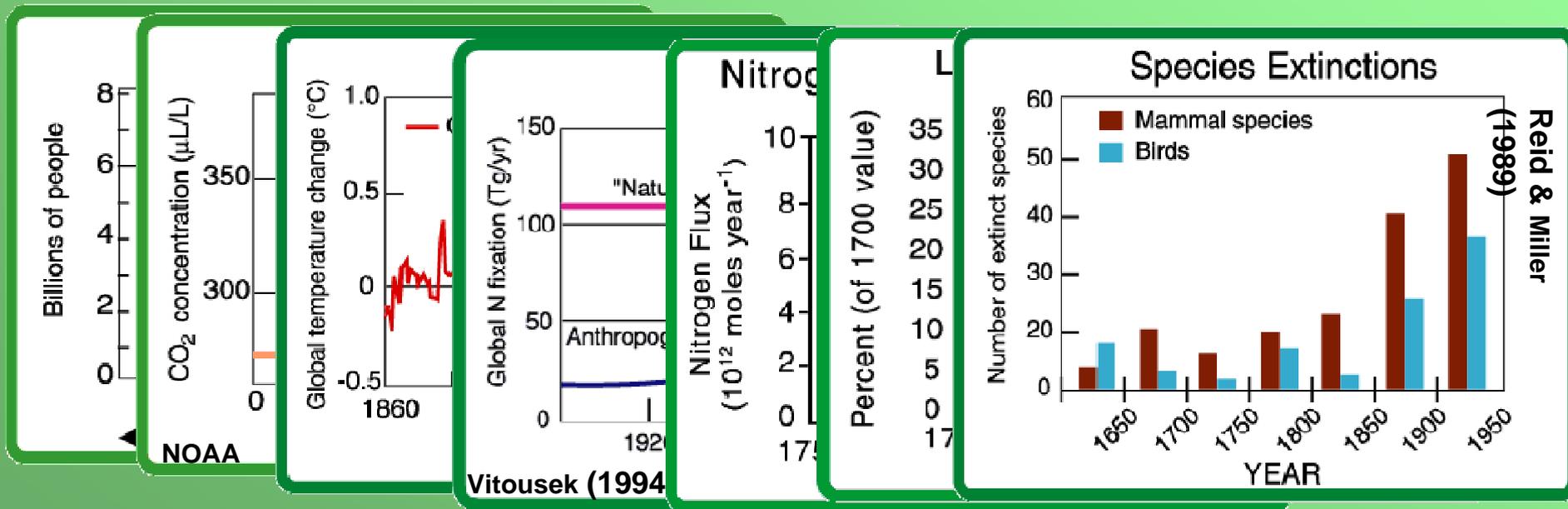
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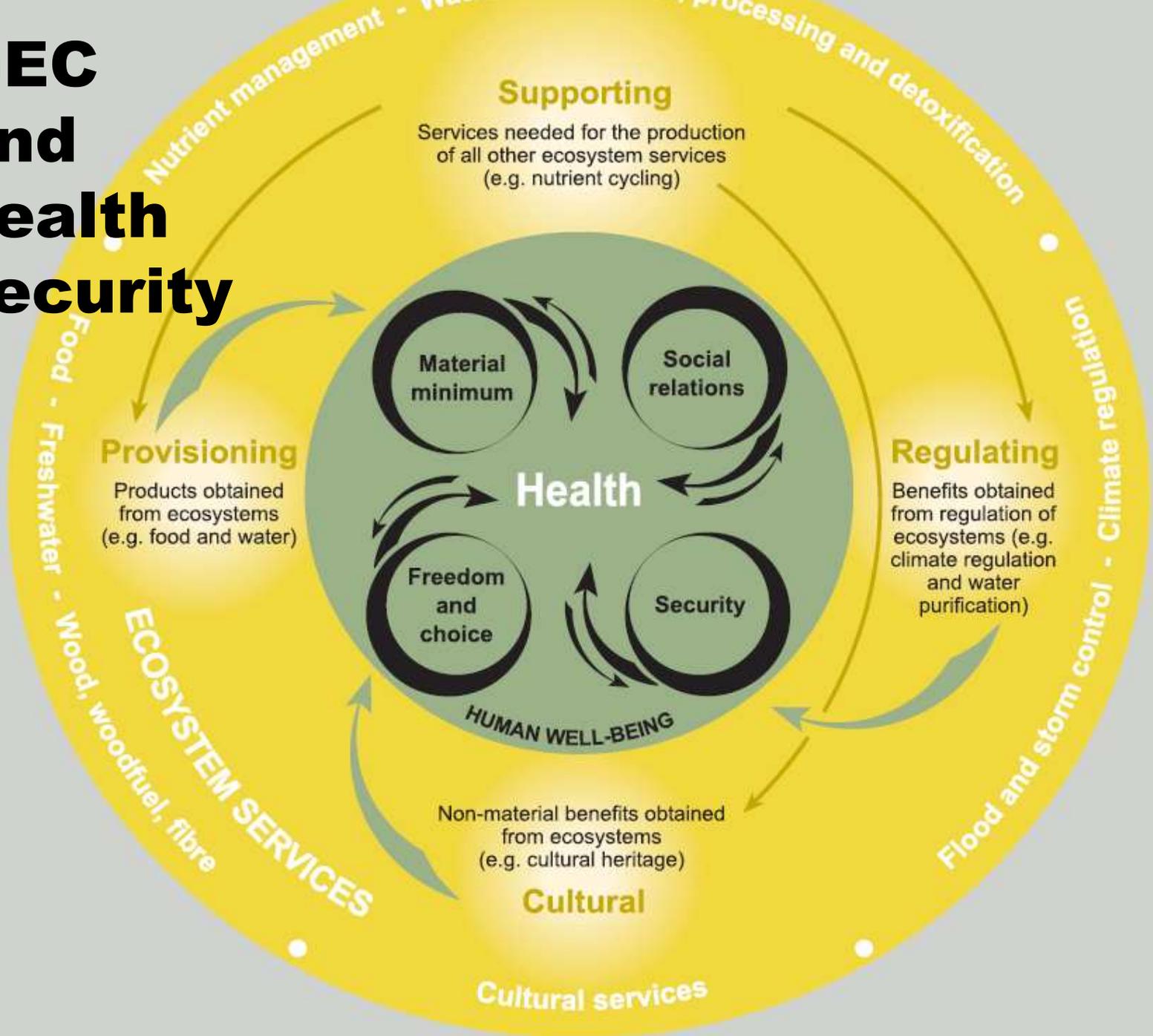
- 1. How is Global Environmental Change (GEC) affecting health?**
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1. How is Global Environmental Change affecting health security?

- GEC is more than climate change
- Includes natural **plus** human components
- It is a constellation of changes in different spheres, such as:



GEC and health security



2. What is security?

- Arnold Wolfers (1962), realist pointed to two sides of security concept: “Security, in an **objective sense**, measures the absence of **threats** to acquired values, in a **subjective sense**, the absence of **fear** that such values will be attacked”.
- Absence of “threats”: interest of policy-makers
- Absence of “fears”: interest of social scientists, especially of constructivists: “Reality is socially constructed” and is **intersubjective**.

3. Securitization Theory

- **“Securitization”**: is an intersubjective theoretical approach by which a problem is constructed by discursive and political processes in such a way that a danger is declared as an **“existential threat”** that requires **extraordinary political countermeasures**.
- **Securitization Theory: Copenhagen School** analyzes GEC and health issues as an **existential threat** to sovereignty, where the state is the major securitizing actor.
- **The threat is posed by us** (our economic behaviour) and the **impact of anthropogenic management of natural resources creating climate change**
- Classic security policy and means are **no answer** to human and environmental security problems.
- **Goal is not militarization of the environment but the demilitarization of the environmental dimension of human security by preventive behaviour, the peaceful negotiation of environmental conflictive issues and adaptation and resilience to GAC threats!**

4. Definition of Health Security: WHO

- There are various incompatible **definitions**, incomplete elaboration of the concept of health security in public health operational terms, and insufficient reconciliation of the health security concept with community-based primary health care.
- Policymakers in industrialized countries emphasize protection of their populations especially against external threats: **terrorism and pandemics**
- **Health** workers, UN system and policymakers in developing countries understand the term in a broader public **health** context. Some developing countries: doubt that internationally shared health surveillance data is used in their best interests.
- **World Health Organization's** restrictive use: 'global **health security**'.
- Divergent understandings coupled with **fears** of hidden national **security** agendas, are leading to a breakdown of mechanisms for global cooperation such as the International Health Regulations (**William Aldis, 2008**).

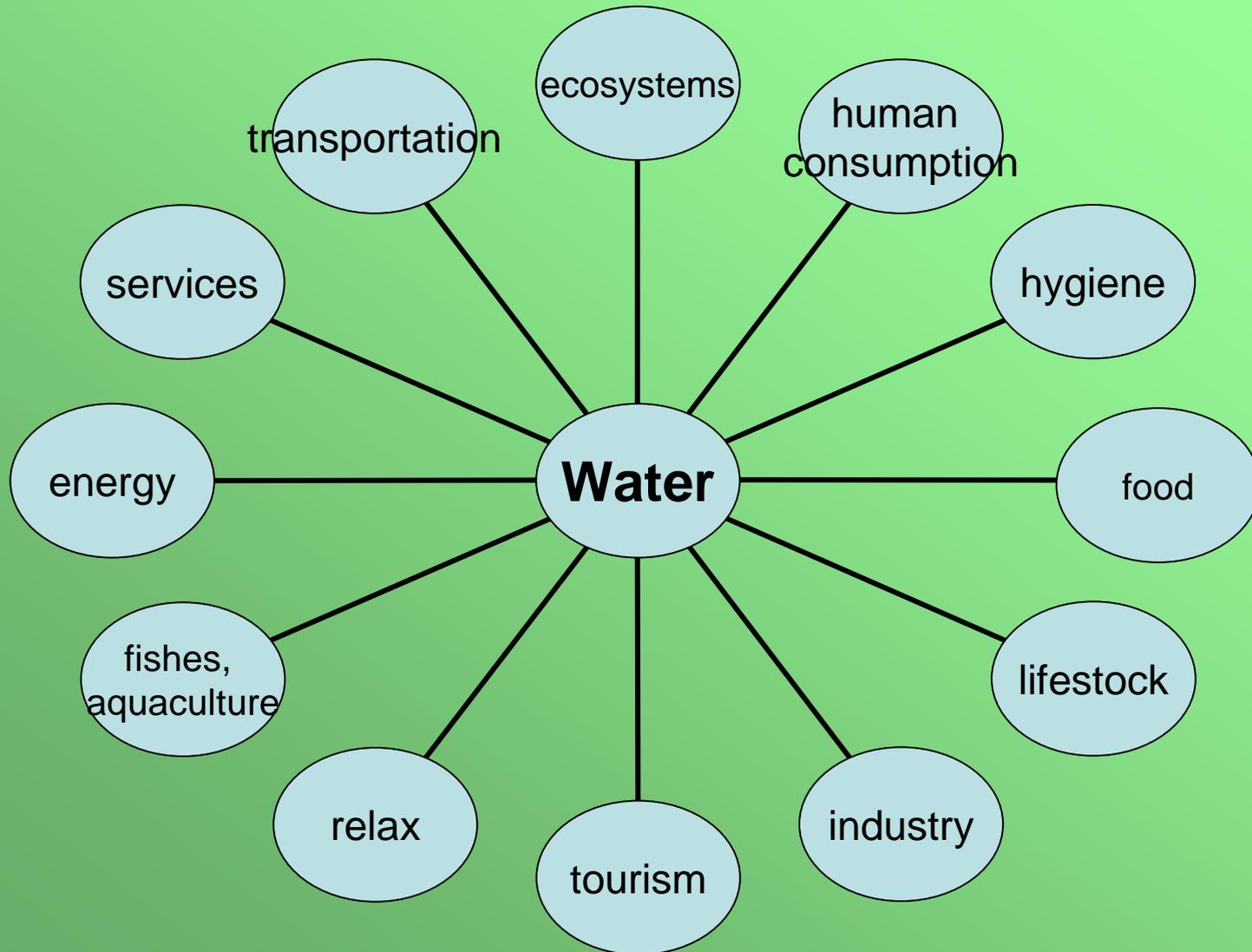
Definition of Health Security

- *WHO* (2007) defined as the provision and maintenance of measures aimed at preserving and protecting the health of the population
- *USA: bioterrorism:* public health security is also defined as the policy areas in which national security and public health concerns overlap.
- Broader dimensions of cross-border health risks: **transmission of anti-microbial resistant organisms**, as well as health risks associated with **noncommunicable diseases, environmental degradation and conflicts.**
- *UNDP:* inadequate health care and diseases
- *Ogata/Sen:* spread of **HIV/AIDS** (33.4 million estimated)
- *Globally:* HS guarantees a minimal protection from **diseases and unhealthy lifestyles (61% of deaths: 35 million** with 49% of costs in 2005; estimation 2030: 70% of global costs).
- *Low and middle-income* countries: 80% of global chronic deaths occurs.
- *Poor countries* and among poor people it includes **infectious and parasitic diseases** (17 million /year), **undernourishment** which kills daily 28,000/day mostly small children.
- *Rich countries* diseases of the **circulatory system** kills 5.5 million/year, **diabetes mellitus, cancer and overweight** is affecting also transitory countries.

5. Interrelation Water-Food-Health S.

- Water is vital for the life and health of people and ecosystems
- **One common goal:** *to provide water security in the 21st Century (Ministerial Declaration The Hague, 2002):*
 - This means ensuring that freshwater, coastal and related ecosystems are protected and improved;
 - sustainable development and political stability are promoted;
 - every person has access to enough safe water at an affordable cost to lead a healthy and productive life
 - the vulnerable are protected from the risks of water-related hazard
- Water resources are under **threat** from pollution, overexploitation, land-use changes, unsustainable use, climate change and other anthropogenic forces.
- Links between threats and poverty: the poor who are hit first and hardest (slum dwellers without basic services).
- One simple conclusion: **business as usual is not an option.**

Uses of Water



Some definitions: Food security

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.

Household food security is the application of this concept to the family level, with individuals within households as the focus of concern. Vulnerable people are greatly exposed to famine (FAO, 2003)

Food Insecurity Scenario



Figure 4. High Potential for Food Crisis 1901-1995.

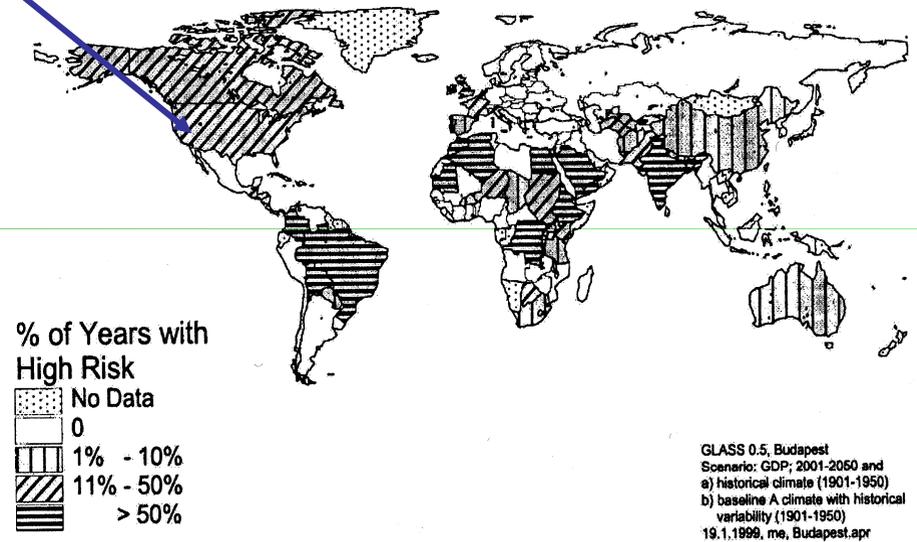


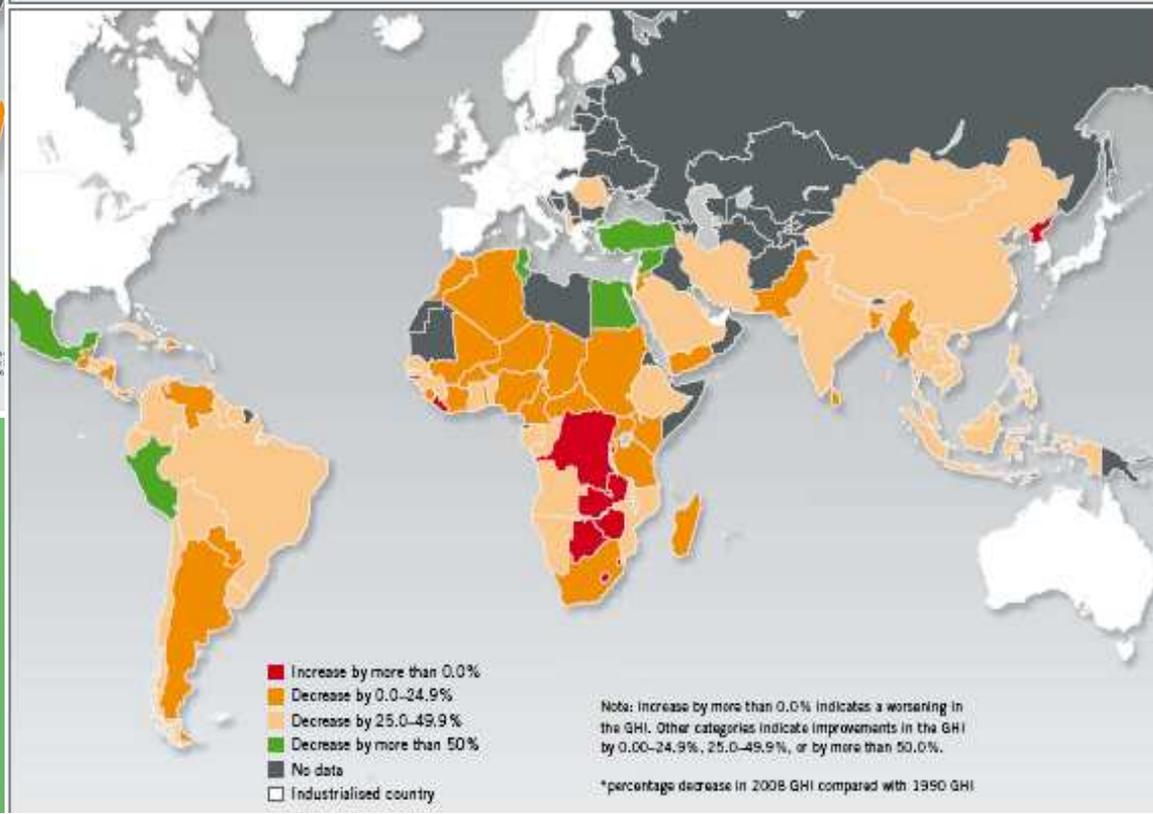
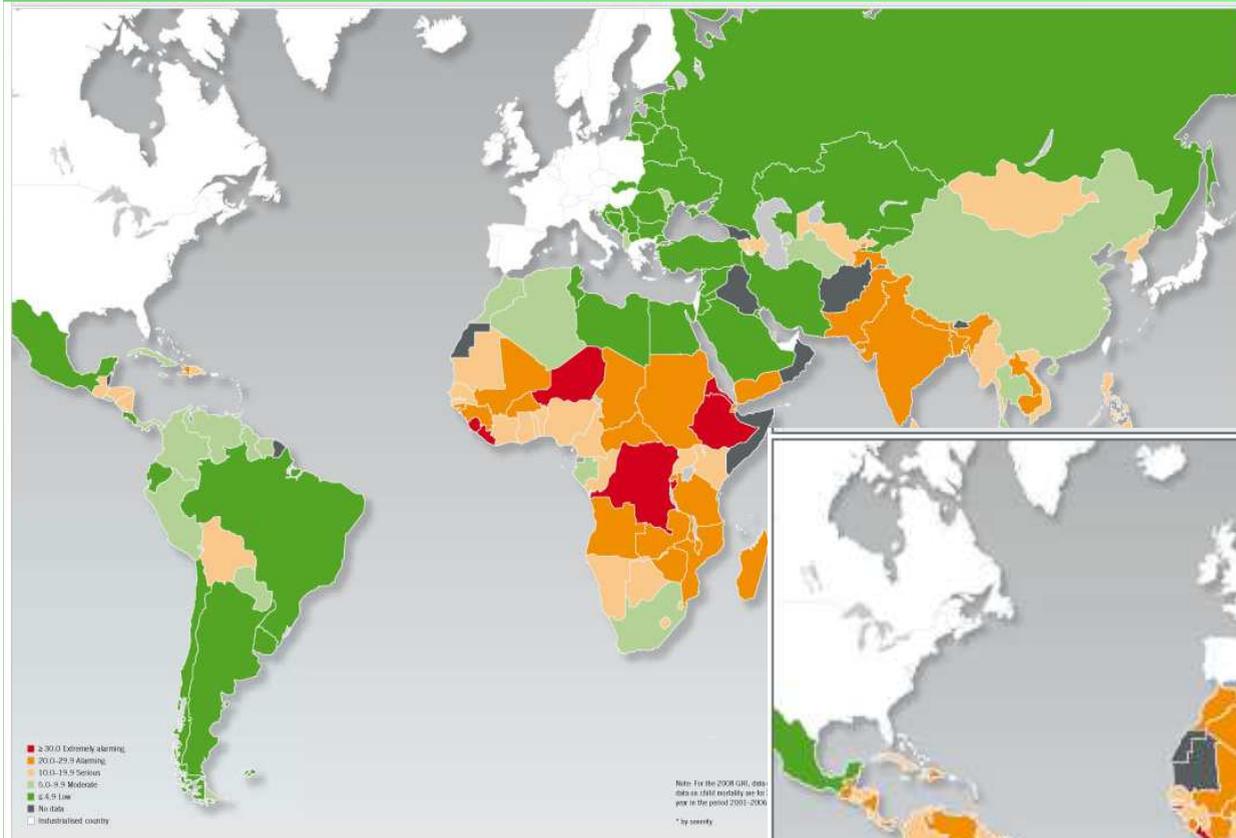
Figure 6. High Potential for Food Crisis 2001-2050
– with GDP Increase and Climate Change.

Source: Alcamo, 2002

Global Hunger Index 1990 & 2008

← 2008 Global Hunger Index.

Country progress in reducing the Global Hunger Index between 1990 and 2008 ↓



Source: IFPRI, 2008

UNREST OVER FOOD

This map records some of the worst recent violence - where people died or large numbers protested - wholly or partly in response to rising food prices. Other, lesser outbreaks occurred in West Africa. Even Wal-Mart in the United States rationed rice and Italian consumers protested over the price of pasta.

MEXICO
Jan 2007: 75,000 protest against a 400% rise in tortilla prices.

HONDURAS
Apr 2008: Thousands of activists, students and farmers block highways and rally against high food prices and free trade.

PERU
Feb 2008: Farmers strike. May 2008: 1,000 women hang pots outside Congress. Jul 2008: One-day national strike.

HAITI
Apr 2008: Food price riots leave 4 dead. Prime minister sacked. Aug 2008: More violence erupts.

MOROCCO
300 injured in bread protests.

SENEGAL
Apr 2008: 1,000 march; many with empty rice sacks.

GUINEA
Jan 2007: 130 killed in 18-day national strike.

ARGENTINA
Mar-Apr 2008: 3-week farmers' strike over new export taxes on soya and other products.

SOUTH AFRICA
Aug 2008: National day of protest and strikes. 25,000 march through Johannesburg.

MAURITANIA
Nov. 2007: 1 killed in riots. May 2008: More violence; president sacks govt over slow response. Aug 2008: Coup ousts president.

EGYPT
Apr 2008: 2 die in major bread riots; army is ordered to start baking bread.

CAMEROON
Feb 2008: Riots leave 24 dead.

YEMEN
Sep 2007: Tanks called in, 4 killed, in 5-day riots over wheat prices.

SOMALIA
May 2008: 10s of 1,000s protest at doubling of food prices; 2 killed.

MOZAMBIQUE
Feb 2007: 6 killed in food and fuel protests.

UZBEKISTAN
Sep 2007: Food protests erupt in the capital, Tashkent, and the Fergana region.

INDIA
Sep 2007: At least 6 die in mob attacks on West Bengali rice sellers in rationing protests. Aug 2008: Food riots follow flooding in eastern India.

BANGLADESH
Apr 2008: 20,000 textile workers riot over wages and food prices.

INDONESIA
Jan 2008: 3,000 rally in Jakarta to demand action on soybean price, which doubled in a year.

Sources: Al Jazeera, Antara News, AP, BBC, Bloomberg, Institute for War and Peace Reporting, International Business Times (India), New York Times, Reuters, The Times (South Africa)

6. Two approaches to Health Security: state centered and globalized

Source: Sara Davies, MIT Press, 2009: 1771

Models	Statist	Globalist
Referent	State	Individual
Actors	State, actors that assist of reduced state ability to respond	Individual, state, donor states, neighboring countries, international organizations, private donors, multinat. companies, civil society org.
Threats	A particular disease may threaten the state?	Who is most vulnerable to disease?
Response	Strengthening institutions for protecting state system	Any actors or institutions most likely to alleviate the impact of disease on individuals
Ethos	State best placed to manage health threats	Anyone who alleviates the threats is best placed to manage health

Global Health

- 1978: Declaration of Alma –Ata on Primary Health Care
- 1979: Global oil crisis and structural adjustment programs with selective approaches
- Emergence of HIV(AIDS), resurgence of tuberculosis, malaria
- 1994: WHO goals 2000 will not be achieved, urgency against high-mortality emergencies, primary health care better understood
- 2000: MDG greater global equity and justice
- 2005: UN: Evaluation of MDG with big gaps
- 2007: Oslo Declaration
- 2008: UN General Assembly Resolution 63/33: Global Health and Foreign Policy
- 2010: MDG will mostly not be achieved if we miss the poor

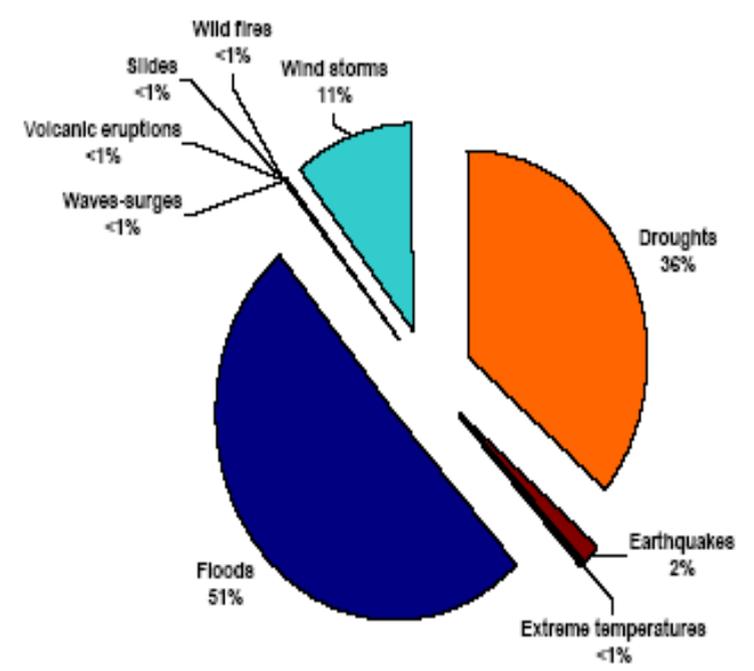
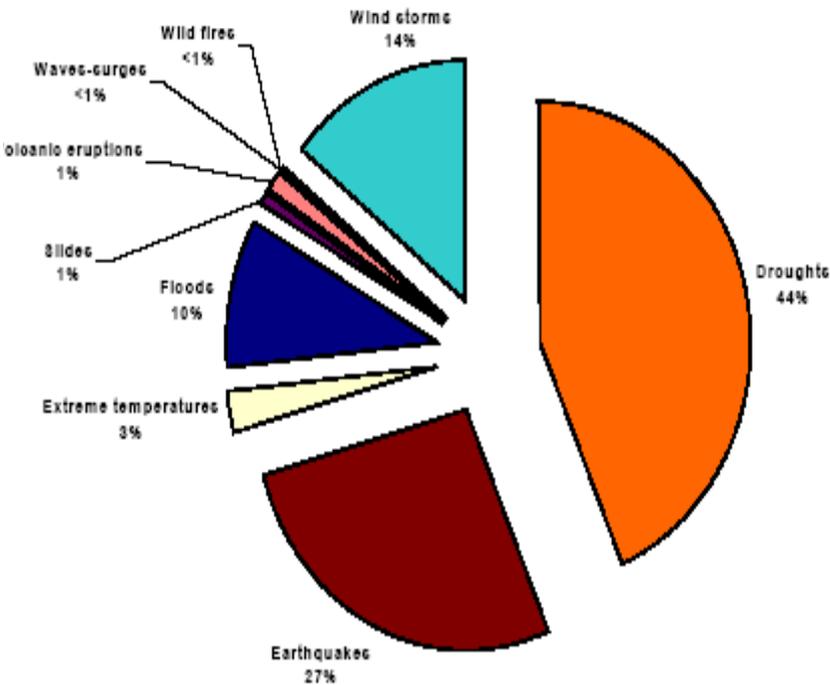
Global achievements, gaps and health problems

- **Child mortality** decreased 1990-2007: 27%, maternal mortality: 35%
- **Global vaccines** prevented 3.4 million deaths; **AIDS-relief** saved 1.2 million (2008: 3 million receive anti-retroviral drugs)
- Since 2000 **malaria** cases and deaths have decline by half due to dipstick diagnosis, artemisinins and insecticide-treated nets
- **Life expectancy** between richest and poorest countries: more than 40 years and annual governmental **health expenditure**: \$ 20 vs. \$6,000
- **Global deficit** of 2.3 million doctors, nurses and midwives; critical in 57 countries (37 countries in sub-Saharan Africa)
- **Pandemics**: SARS (Hong Kong) and avian flue epidemic impacted with \$ 2-3 trillion; AH1N1 implied 5% of GDP for Mexico
- **Problems**: air travel increase threats to epidemic-prone diseases, urbanization, demographic aging, unhealthy lifestyle, chronic diseases (stroke, cancer, diabetes, chronic respiratory diseases)

A human security approach to health

- **“Freedom from fear”**: humanitarian agenda: **violence, conflicts, weapons, personal mines** (Canada, Norway, Human Security Network; UNESCO), **Canadian approach**: Human Security Report (2005).
- **“Freedom from want”** human development agenda: **poverty** (stimulated by Asian economic crisis of 1990s) by reducing social vulnerability through poverty eradication programs (UNDP 1994; **Japanese approach**: CHS: Ogata/Sen: Human Security Now, 2003, Human Security Trust Fund, HSU of OCHA)
- **“Freedom to live in dignity”**: agenda: **rule of law, human rights, democratic governance**; **UN approach**: Kofi Annan: *In Larger Freedom* (2005)
- **“Freedom from hazard impact”**: **environmental (GEC), human & natural hazard agenda**; **UNU-EHS approach**: vision & goal to securitize “environment” (GEC as pressure) and “natural hazards” as impact by reducing environmental & social vulnerability & enhancing coping capabilities of societies confronted with natural & human-induced hazards (Bogardi/Brauch 2005; Brauch 2005a/b, Brauch et al., 2008, 2009, 2011).

Vulnerabilities during disasters: deaths and affected people in all disasters worldwide (1974-2003)

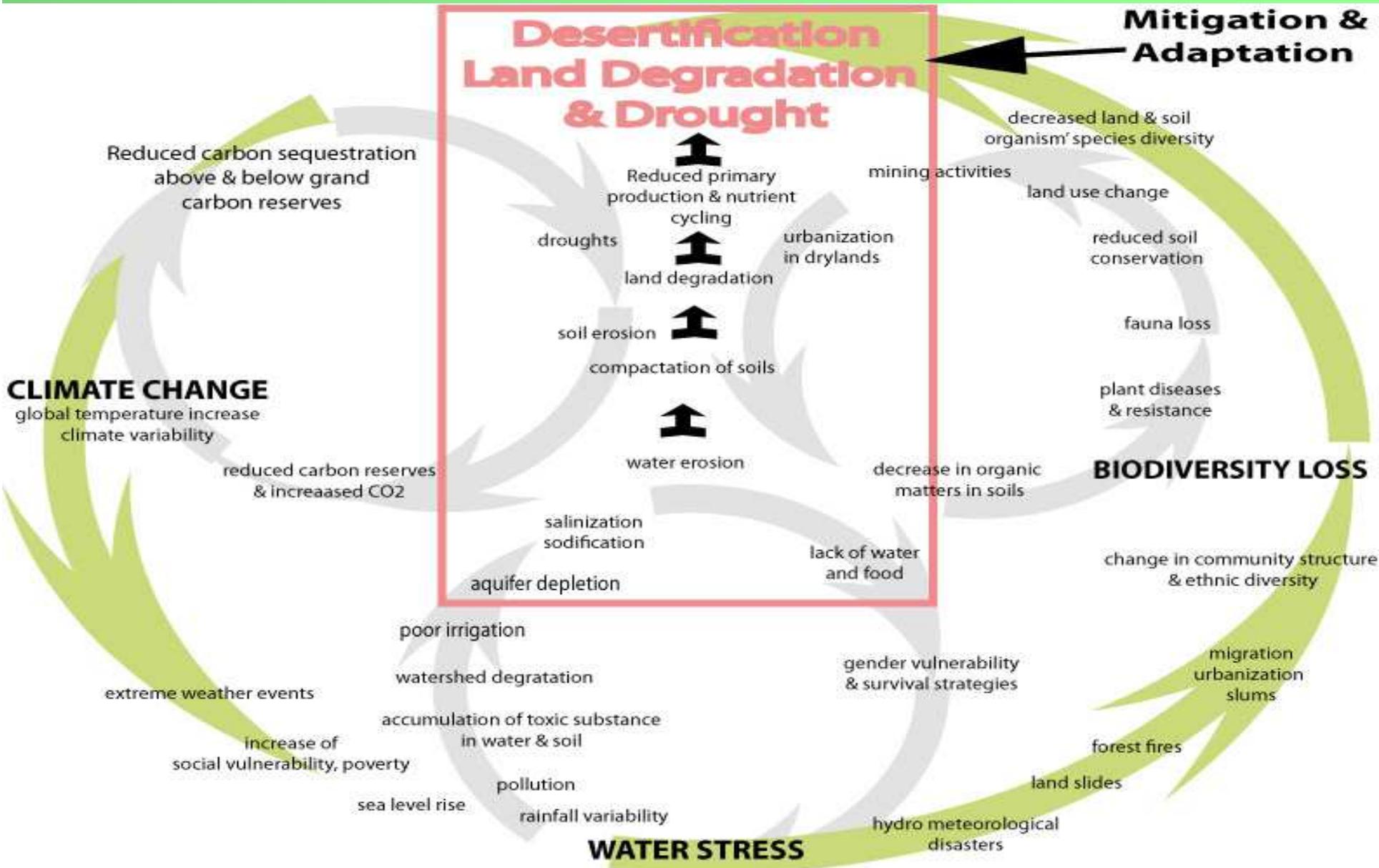


(1) injured + homeless + affected

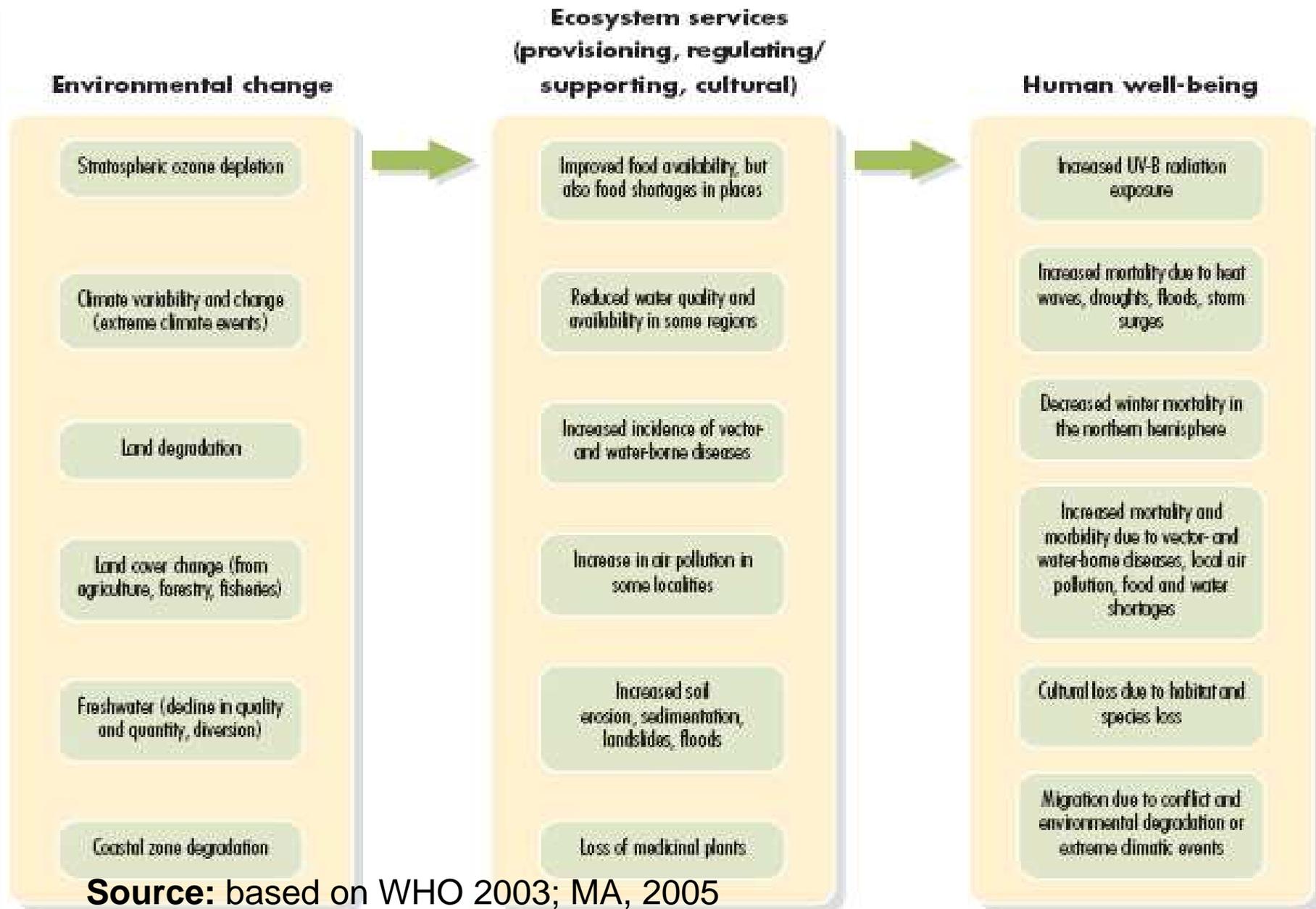
Total: 2.066.273 deaths; 5 076 494 541 affected

Source: Hoyois and Guha-Sapir (2004)

Interactions of GEC and health



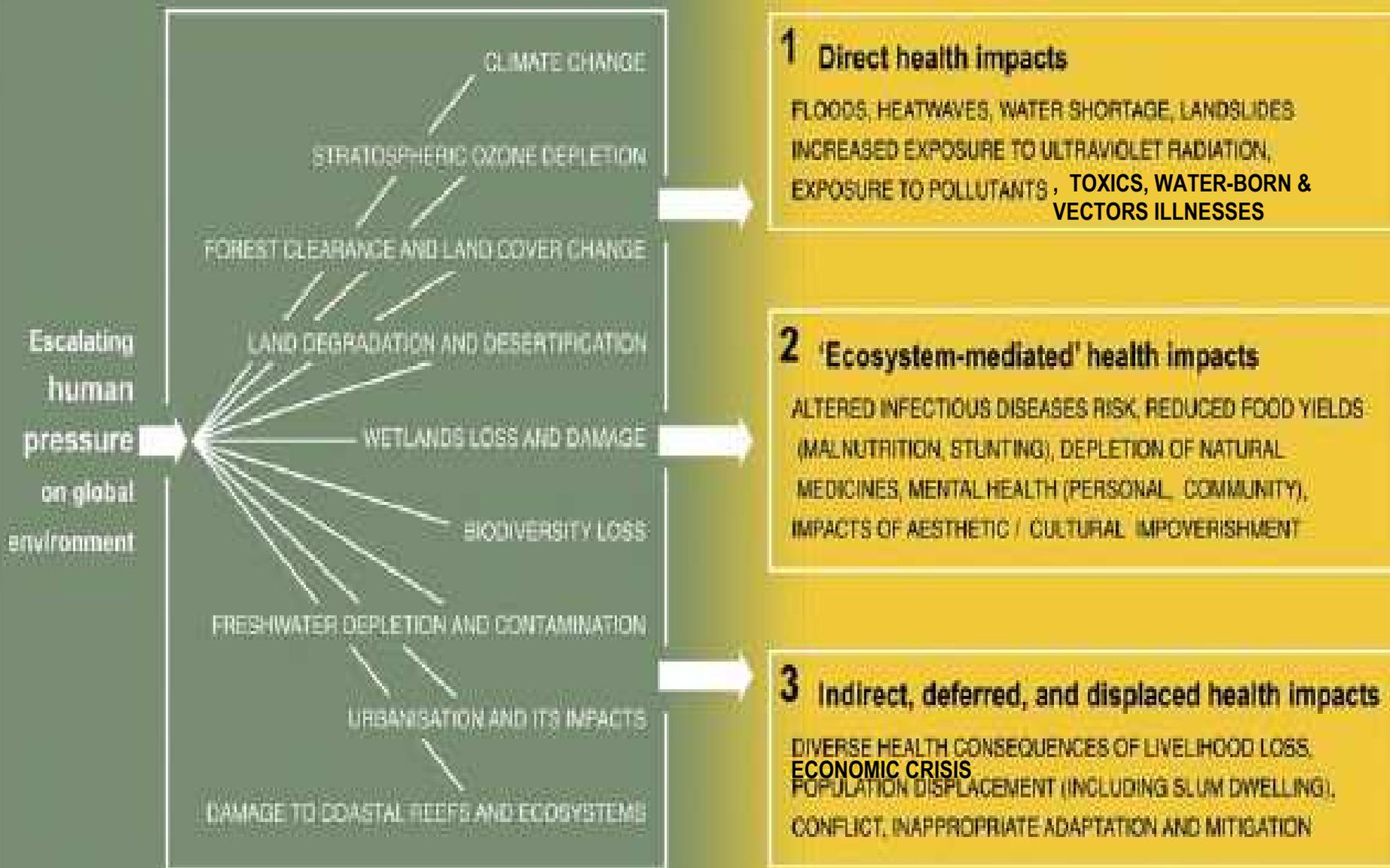
Environmental effects on health



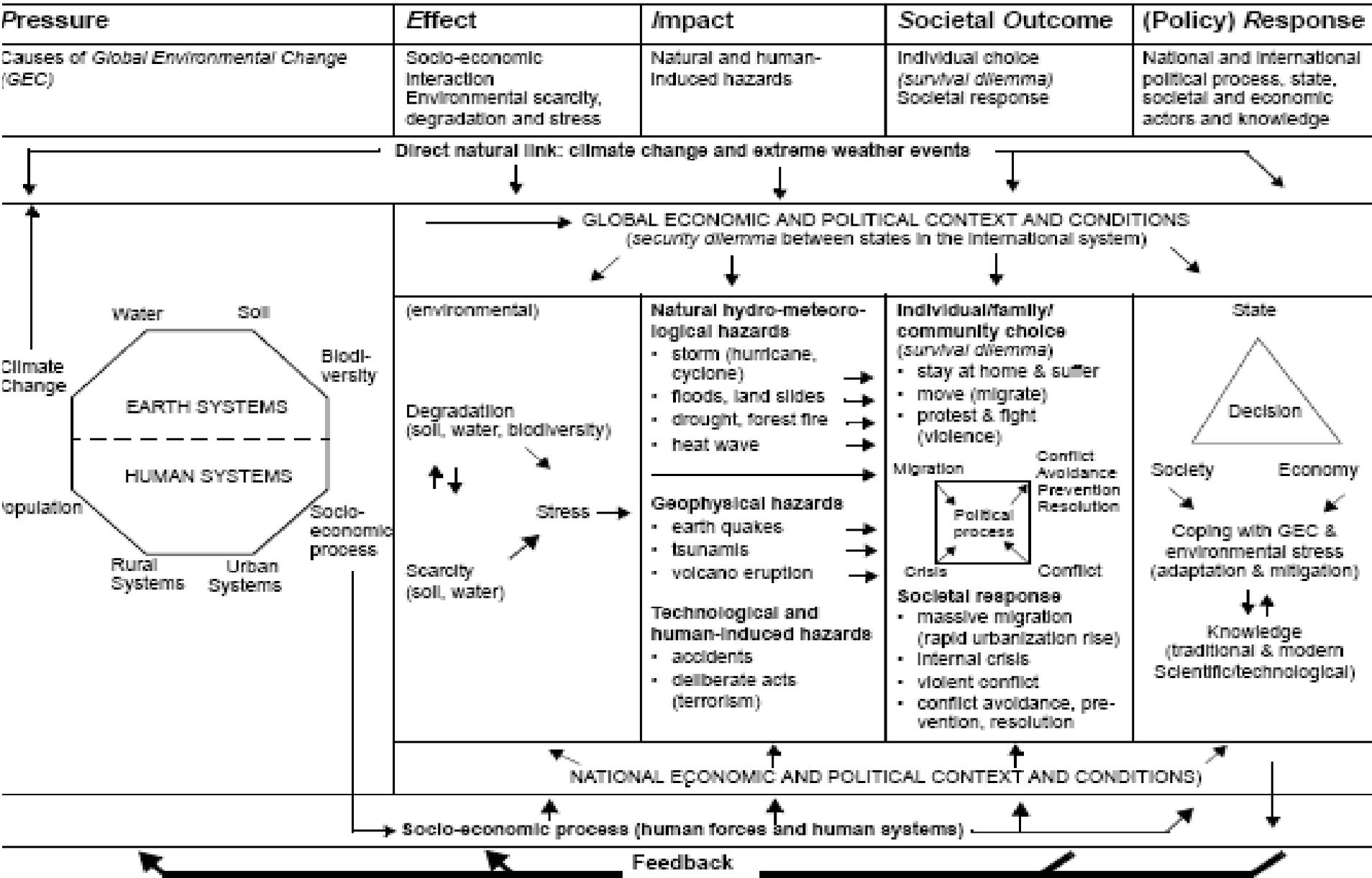
Source: based on WHO 2003; MA, 2005

Environmental changes and ecosystem impairment

Examples of health impacts

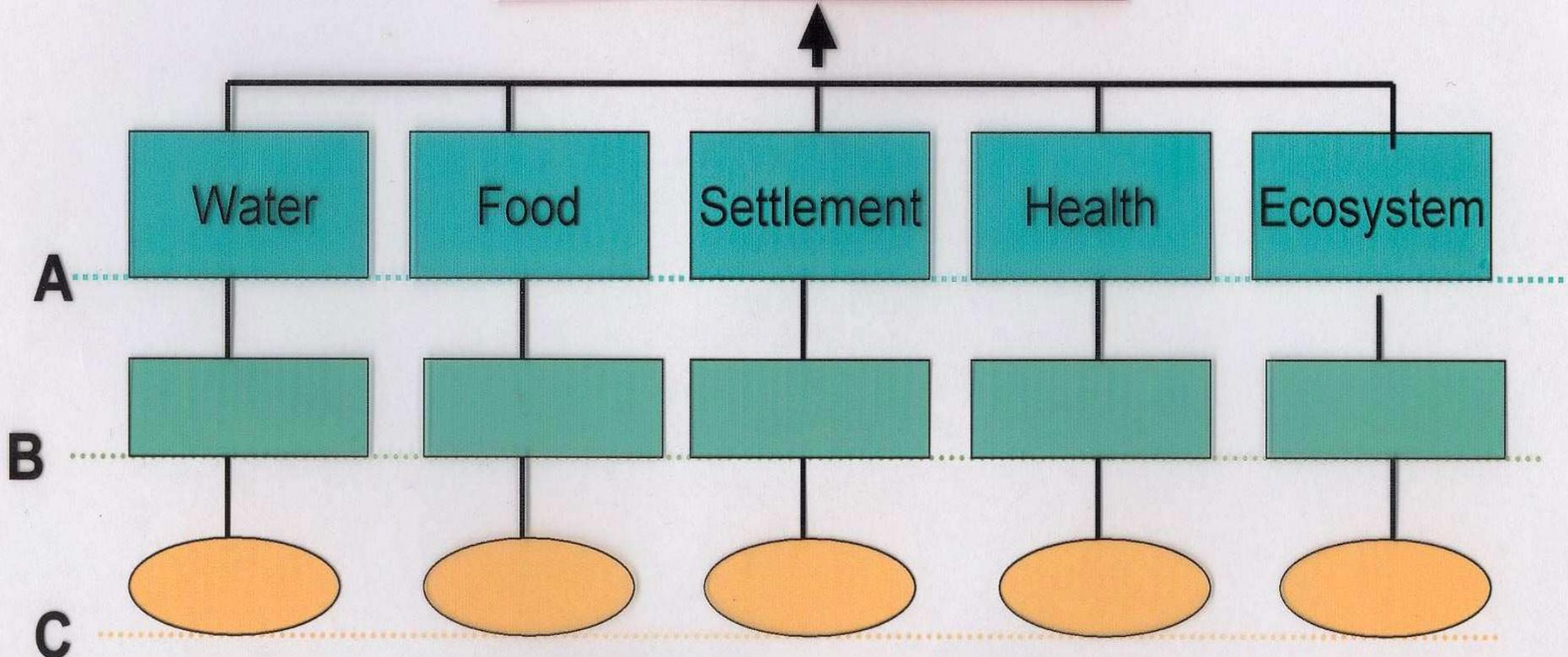


7. An analytical PEISOR Model



Assessing Vulnerability (R.T. Watson, et al. 1998. IPCC)

Vulnerability to Global Environmental Change



A: Sectoral level; B: Coping level; and C: Sensitivity level

Vulnerability = f (sensitivity, adaptability, exposure)

Ten leading risk factors

Table 7.1 Estimated attributable and avoidable burdens of 10 leading selected risk factors

Developing countries high mortality (per cent)		Developing countries low mortality (per cent)		Developed countries (per cent)	
Underweight	14.9	Alcohol	6.2	Tobacco	12.2
Unsafe sex	10.2	Blood pressure	5.0	Blood pressure	10.9
Unsafe water, sanitation and hygiene	5.5	Tobacco	4.0	Alcohol	9.2
Indoor smoke from solid fuel	3.6	Underweight	3.1	Cholesterol	7.6
Zinc deficiency	3.2	Overweight	2.4	Overweight	7.4
Iron deficiency	3.1	Cholesterol	2.1	Low fruit and vegetable intake	3.9
Vitamin A deficiency	3.0	Low fruit and vegetable intake	1.9	Physical inactivity	3.3
Blood pressure	2.5	Indoor smoke from solid fuel	1.9	Illicit drugs	1.8
Tobacco	2.0	Iron deficiency	1.8	Unsafe sex	0.8
Cholesterol	1.9	Unsafe water, sanitation and hygiene	1.8	Iron deficiency	0.7

Note: percentage causes of disease burden expressed in Disability Adjusted Life Years.

Source: WHO 2002

Figure 7.2 Regional trends and projections for 2005–10 in under-five mortality rates

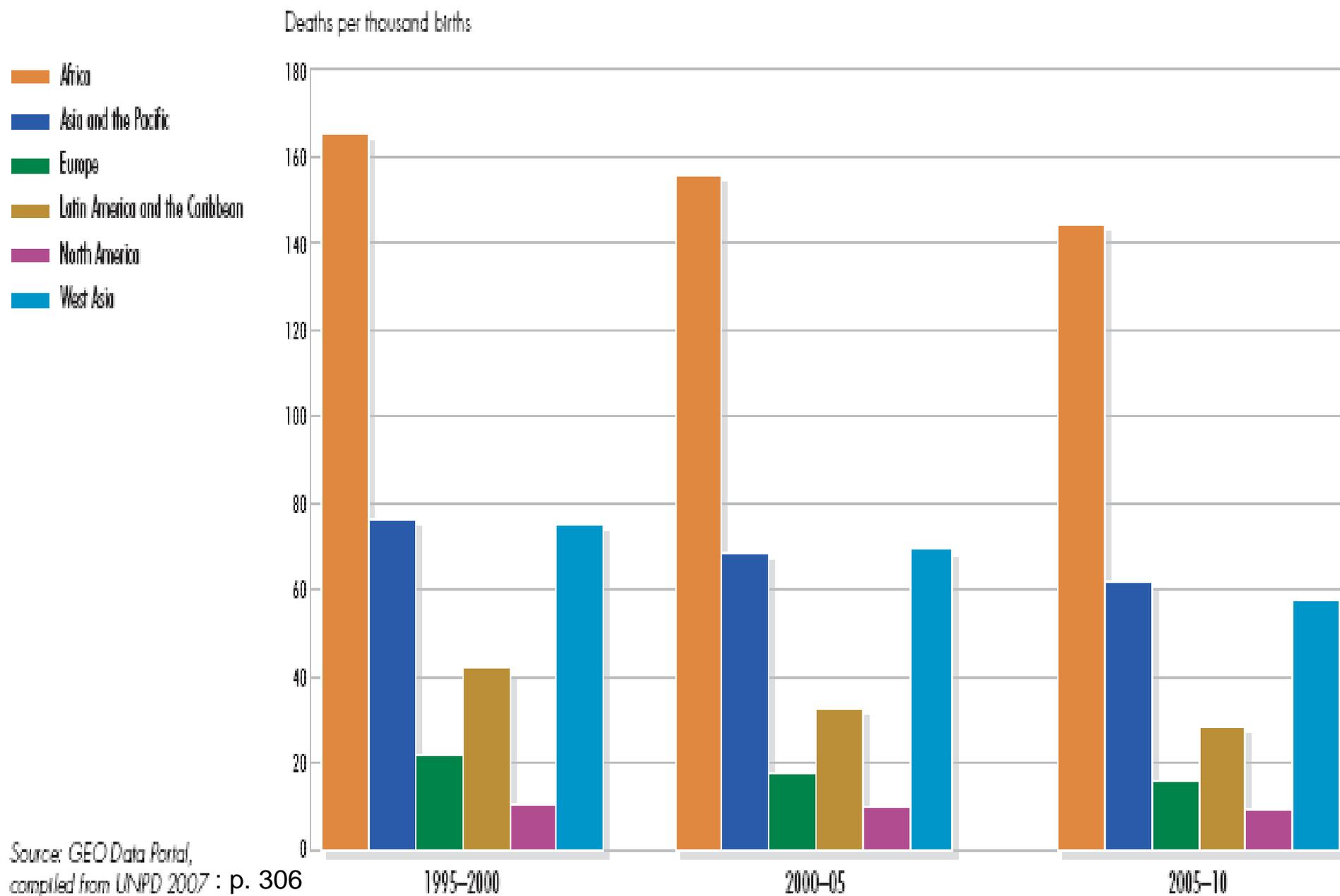
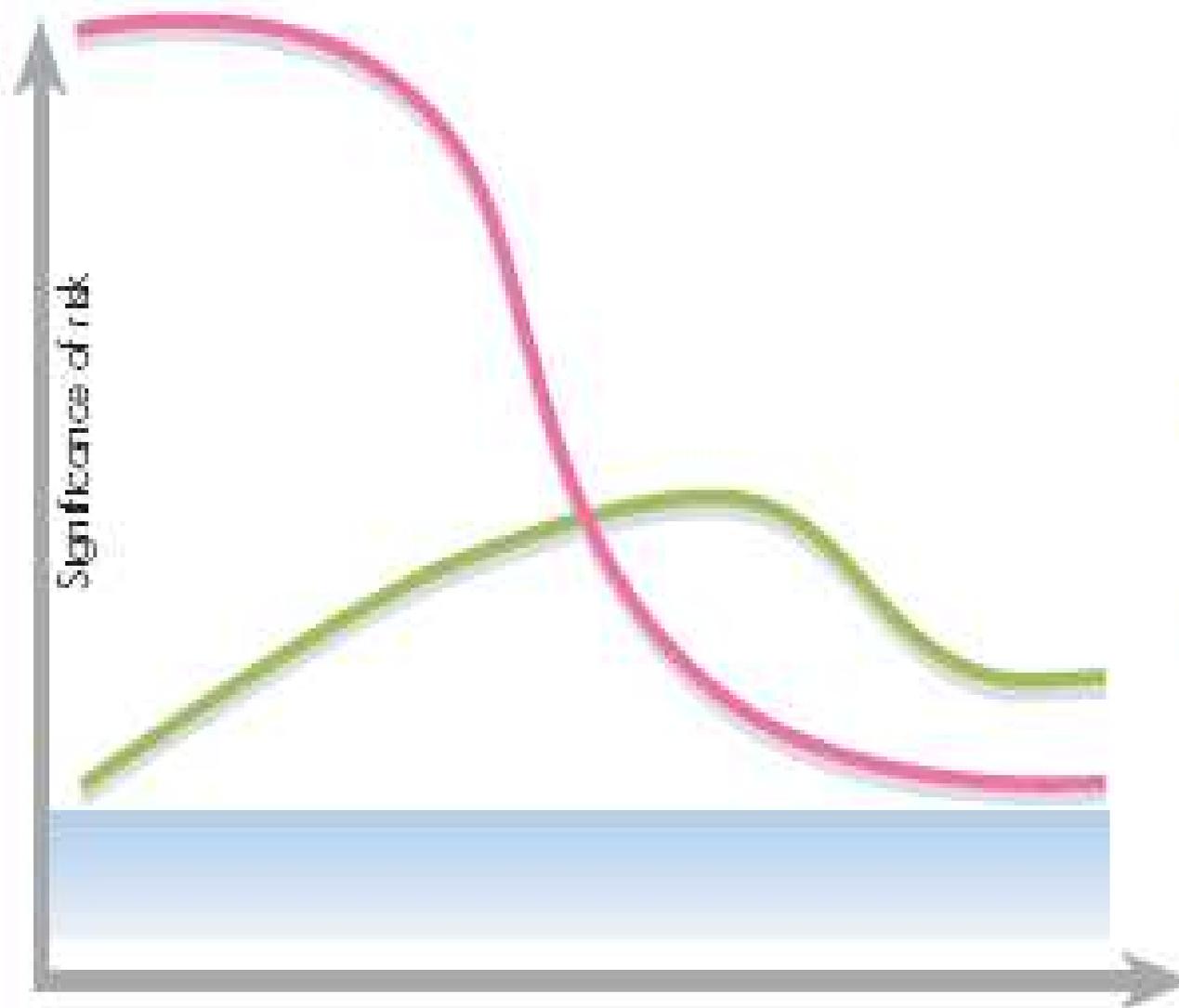


Figure 7.7 Environmental health risk transitions



Summary of risks by income 2004

- Basic risks: lack of safe water, sanitation and hygiene, indoor air pollution, vector-borne diseases, hazards that cause accidents and injuries
- Modern risks: unsafe use of chemicals, environmental degradation
- Emerging risks: climate change, persistent organic pollutants, endocrine disruptors

Low income populations in poverty

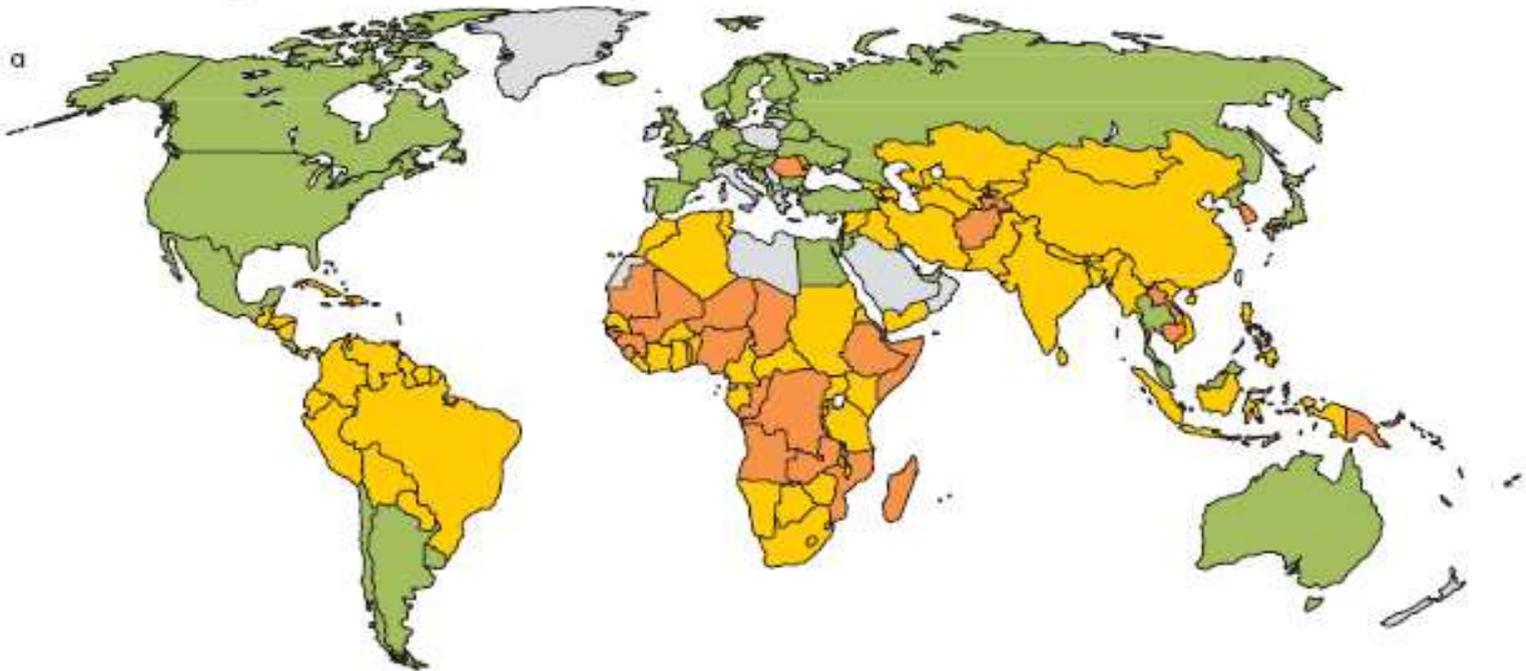
Middle income populations in transition

High income industrialized societies

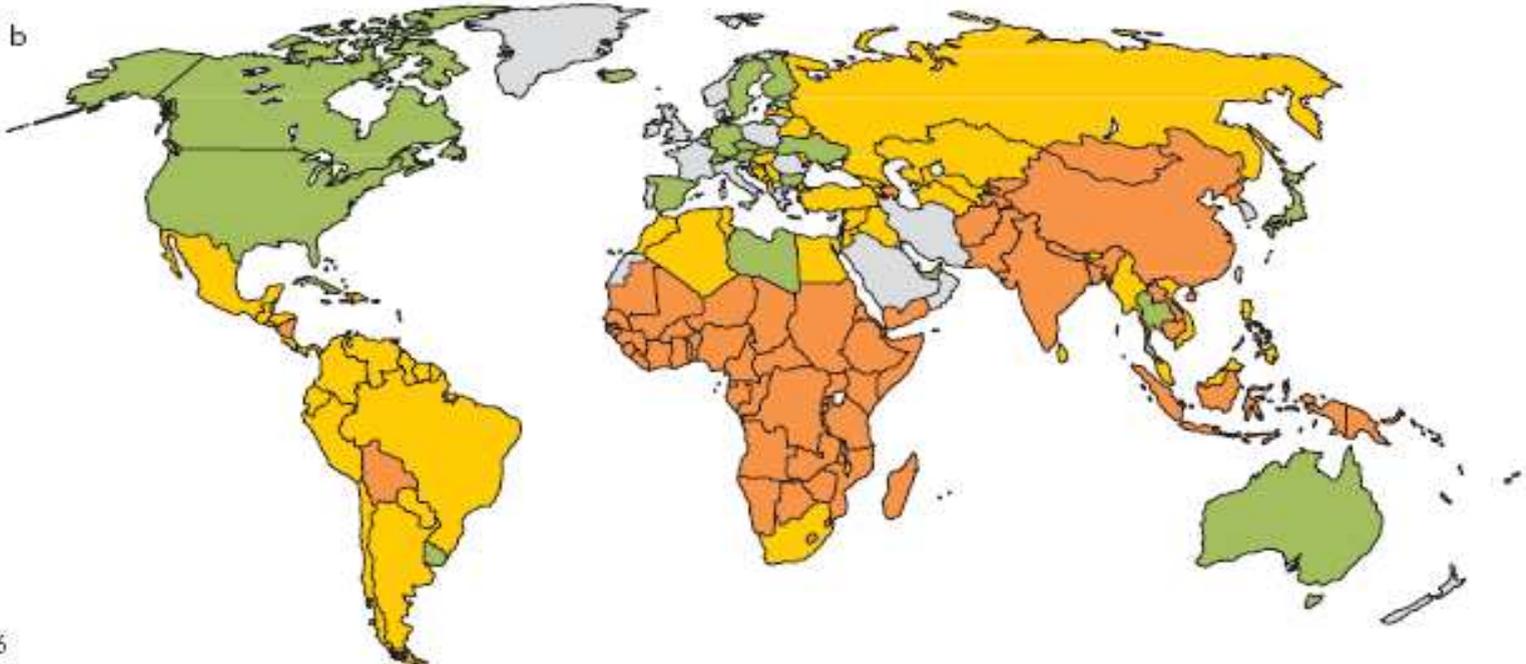
Source: Adapted from Gordon and others 2004

Figure 4.3 The situation in relation to (a) drinking water and (b) sanitation coverage, 2004

- Coverage is 96% or higher
- Coverage is 60–95%
- Coverage is less than 60%
- Insufficient data



- Coverage is 96% or higher
- Coverage is 60–95%
- Coverage is less than 60%
- Insufficient data



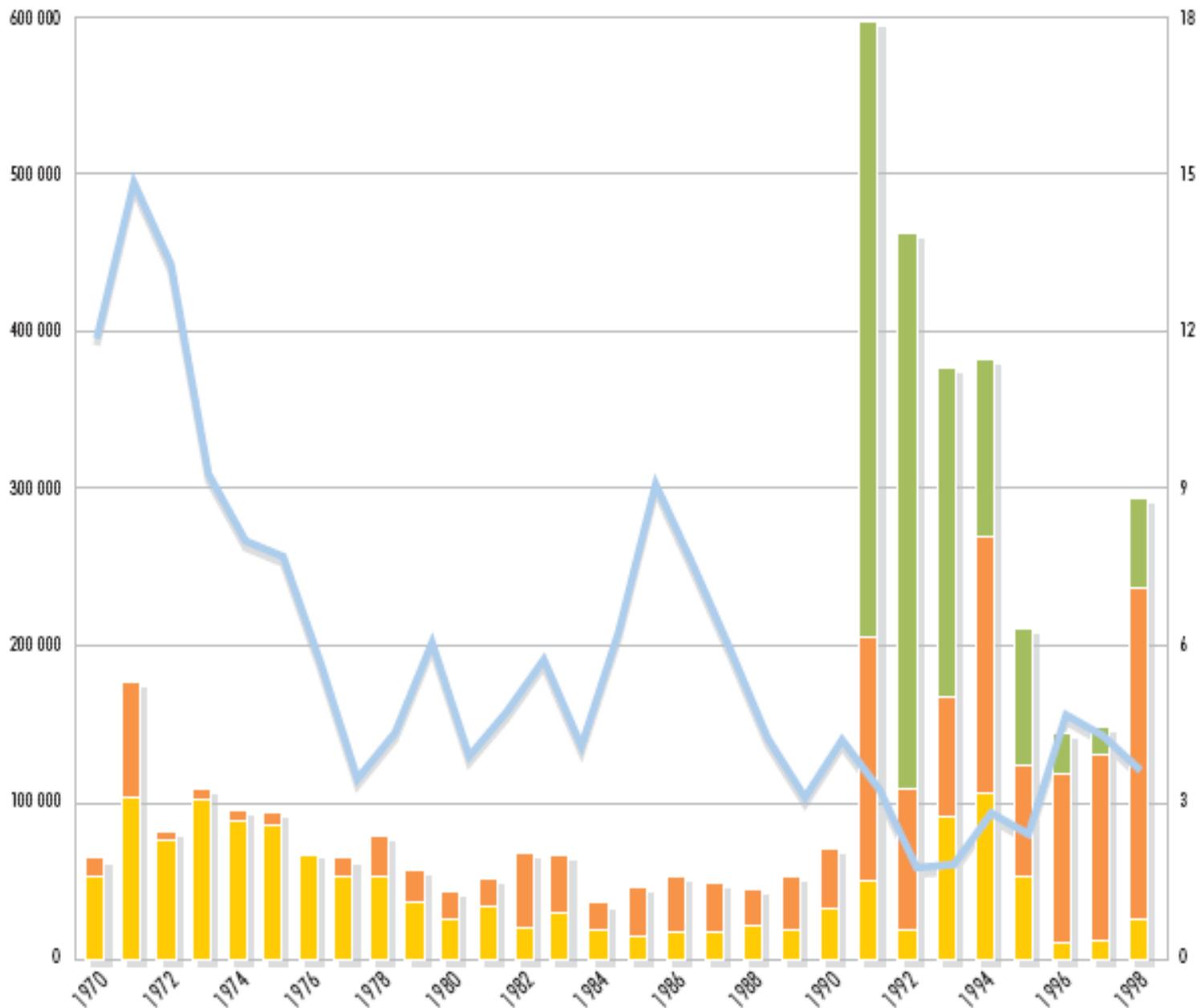
Source: WHO and UNICEF 2006

Figure 4.7 Reported cholera cases and fatalities by region

- Latin America
- Africa
- Asia and the Pacific and West Asia

Total number of cases

Case fatality rate (per cent)



Source: Adapted from WHO 2000

GEC and water-related diseases

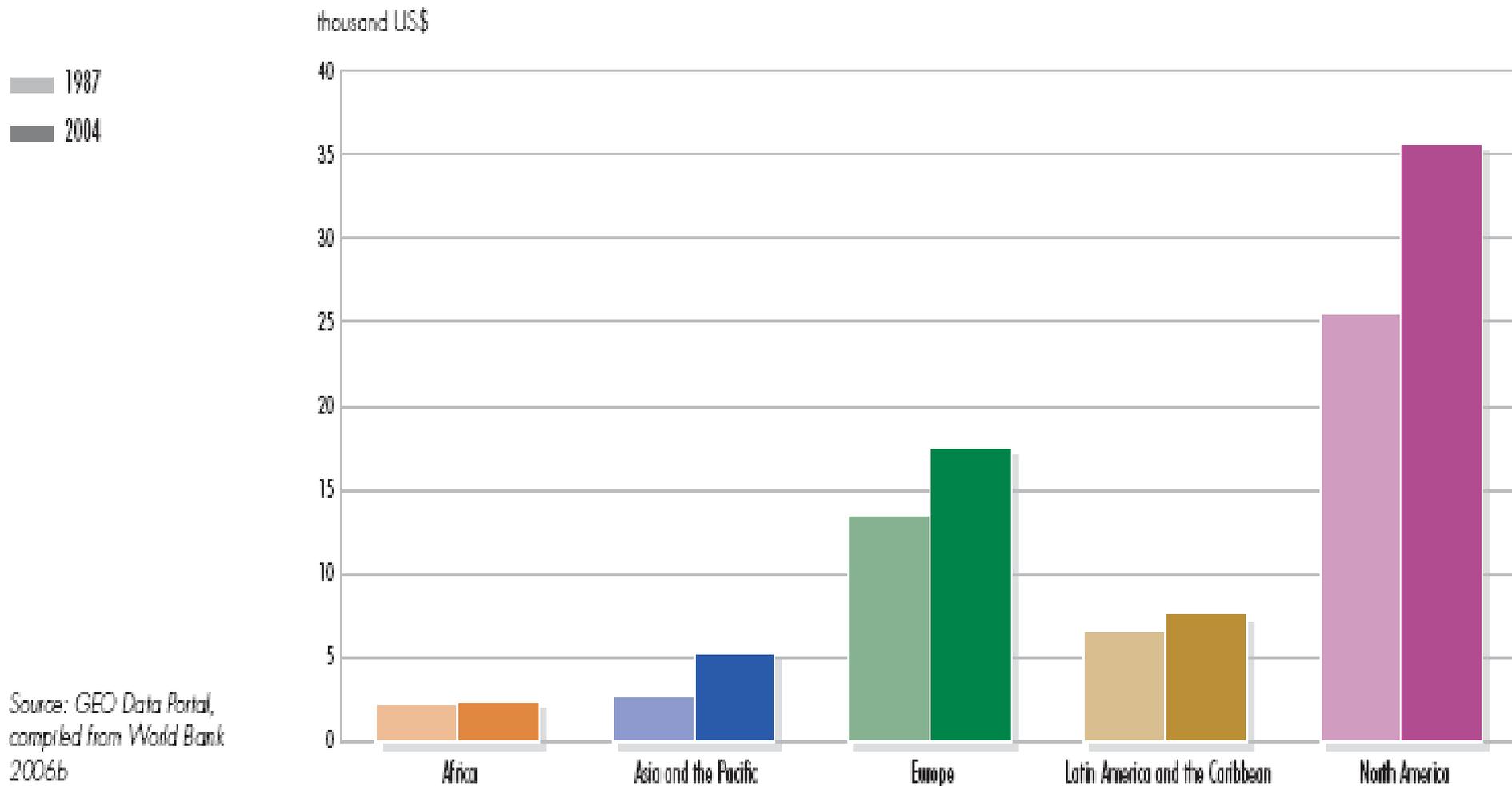
- 1. Arsenic pollution** (Source: Millennium Environmental Assessment, 2005)
- 2. Other minerals** in drinking water due to over-exploitation of aquifers
- 3. Rivers and lakes as sewage pipes**
- 4. Diarrhea**
- 5. Malaria**
- 6. Dengue**
- 7. Industrial pollutants**
- 8. Chaotic urbanization**
- 9. Hydro-meteorological extreme events and disasters due to GEC**

9. Policy Recommendations

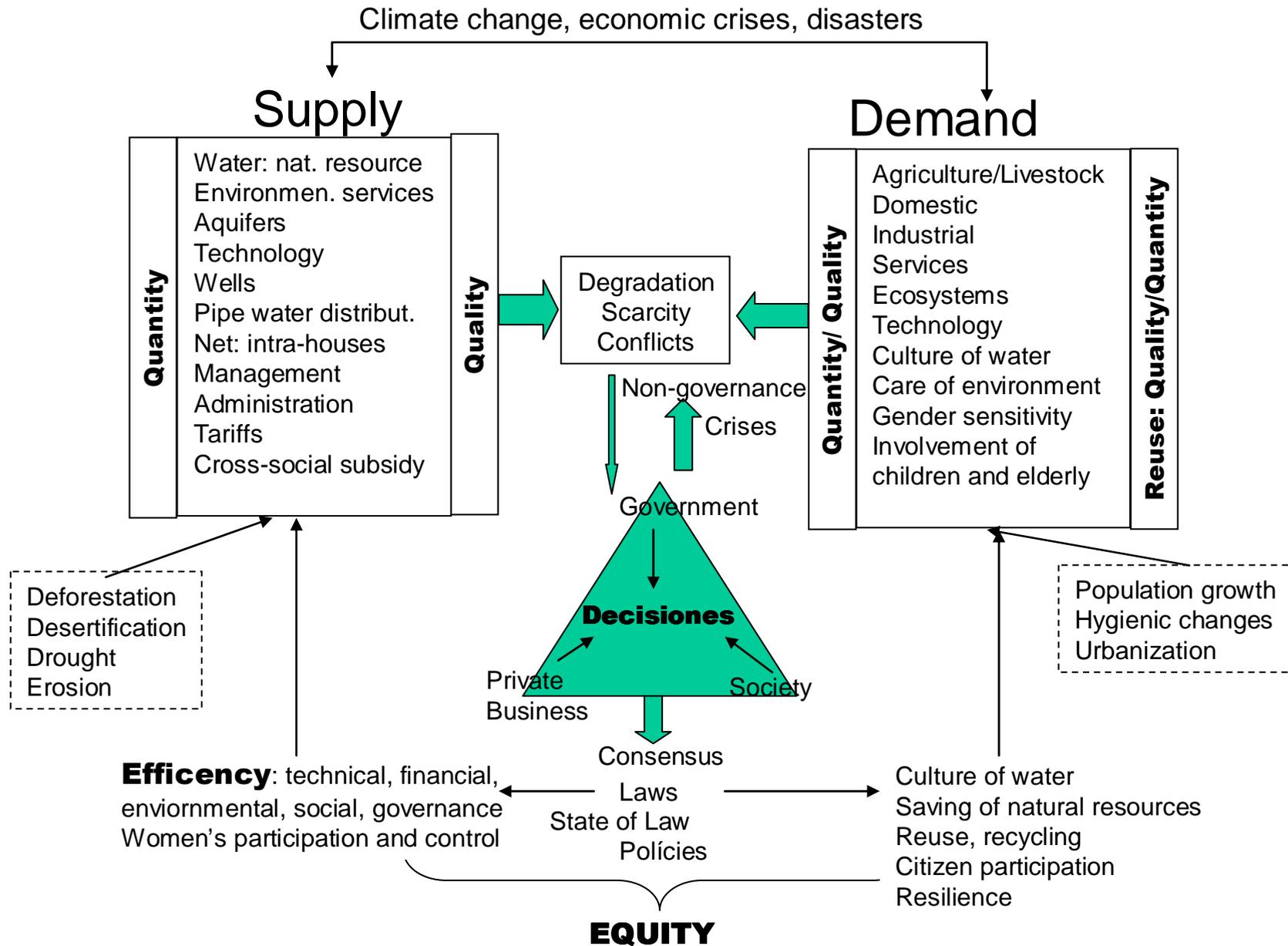
- 1. Extraordinary Policy Measures for Enhancing Health, Water and Food Security**
- 2. Demand-Side Management and Efficiency Improvements**
 - 1. Supplying More Environmental Services, Safe Water and Food with Less Resources**
 - 2. Transition to Alternative Livelihoods and Sustainable Economy**
 - 3. Responding to Loss of Livelihood and Coping with Environmentally-Induced Migration**
 - 4. Avoiding Environmentally-Induced Conflicts with peace-building and preventive diplomacy to achieve sustainable peace**

Poverty alleviation and MDG GEO-4, 2007: 23

Figure 1.7 Gross domestic product – purchasing power parity per capita



Efficiency and Equity with Natural Resources

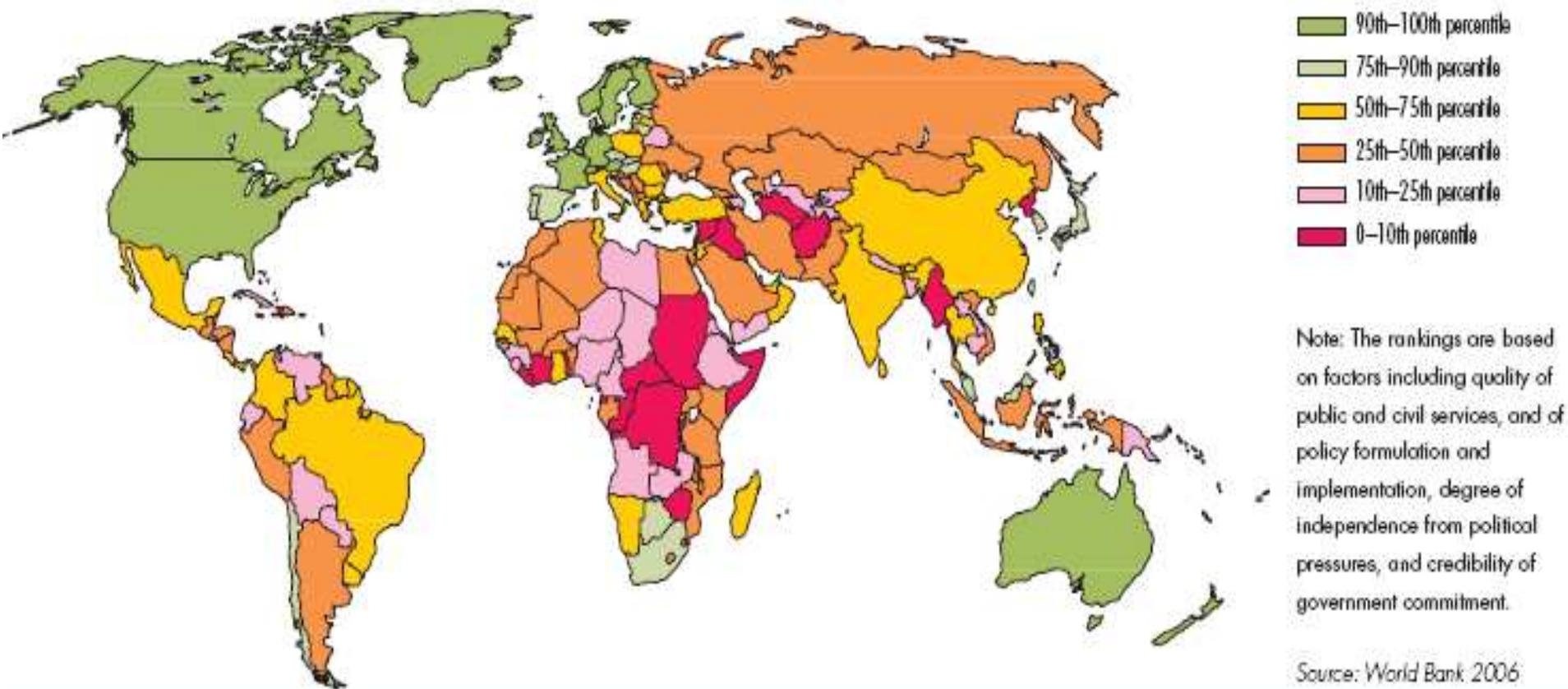


Avoiding Environmentally-Induced Conflicts

- Public awareness, political learning and co-operation.
- Joint North-South anticipatory learning, peace building, multi-disciplinary search for action-oriented strategies to cope with root causes and socio-economic implications.
- Survival pact: linking the *virtual water* through food imports with the *virtual sun* or renewable energy exports through partnership building.
- Functional cooperation against water scarcity & pollution, employment in rural areas and in intermediary urban networks.
- Empowerment of grassroots stakeholders enhance human and societal security, expands adaptation measures and water-soil security & reduces costs of coping with consequences.

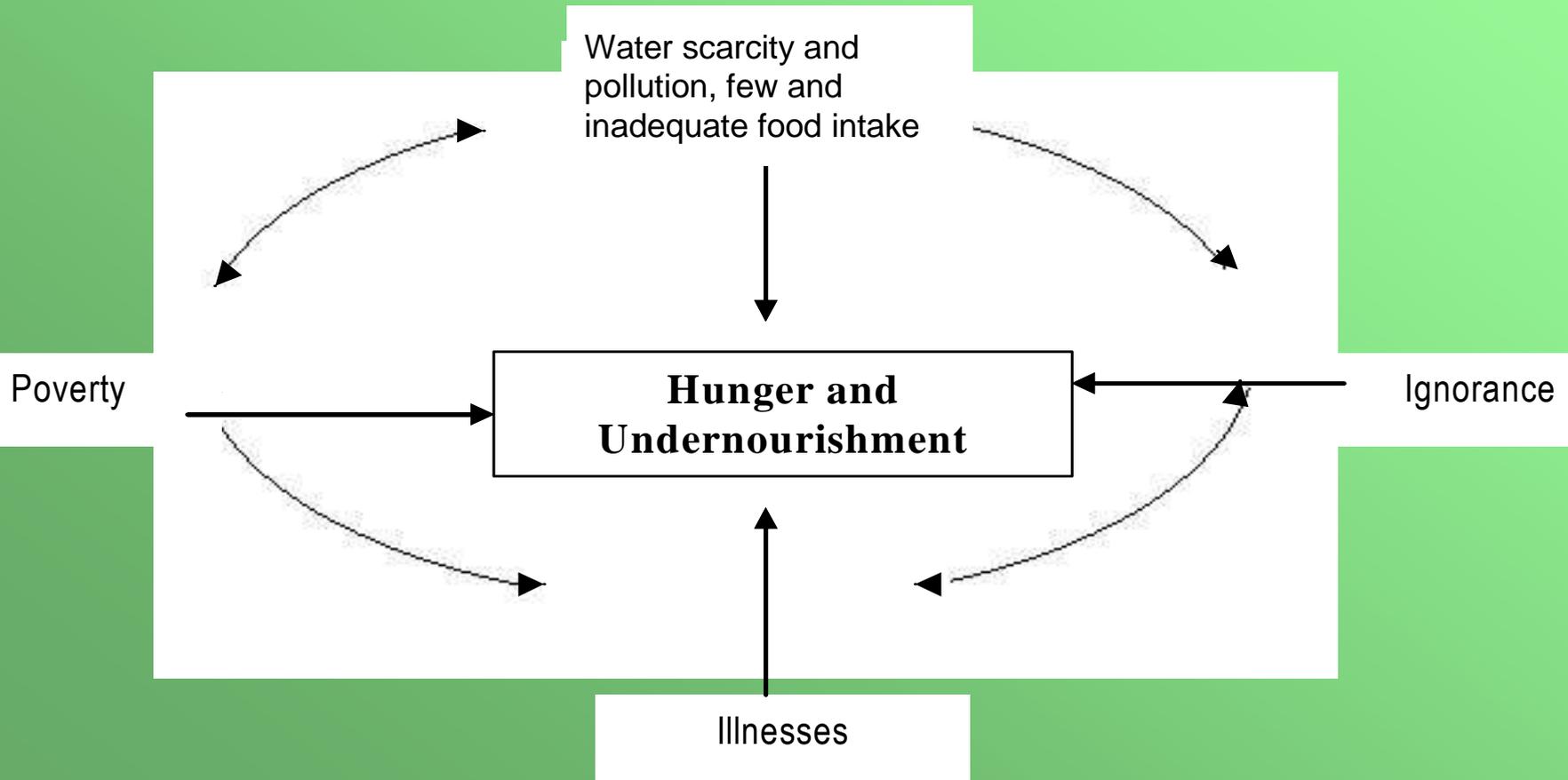
Government effectiveness

Figure 7.5 Government effectiveness (2005)

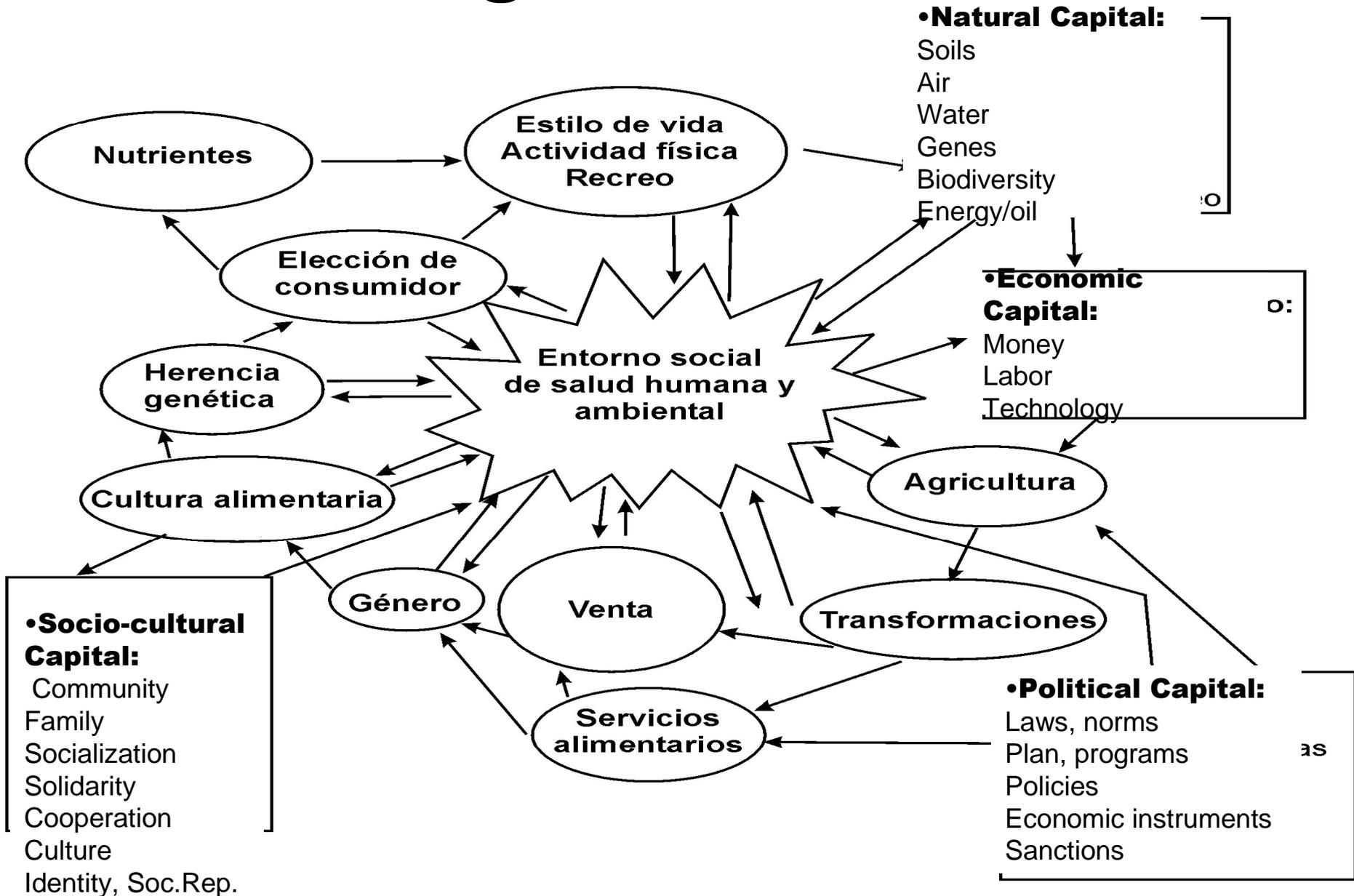


10. Future Scenarios: survival strategies, micro business and local water-food sovereignty

Vicious circle of hunger, undernourishment, poverty, and ignorance. Source: Chávez/Ávila/Shamah (2007: 208).



Health integrated in Environment



HUGE: Human, Gender, Environmental Security

Determination Which security?	Reference object: Security of whom?	Value at risk: Security of what?	Source(s) of threat: Security from whom or what?
National security	The State	Territorial integrity	State, substate actors
Human security	Individual, humankind	Equality, survival of humankind people	State, regressive globalization, business-as-usual, MNC
Environmental security	Ecosystems, rural and urban systems, water and food	Sustainability	Humankind, nature
Gender security	Gender relations, indigenous people, minorities	Equity, identity, social relations, solidarity, tolerance	Patriarchy, totalitarian institutions (élites, governments, religious fundamentalism, dominant cultures), intolerance

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