

HS 15332 Climate Change Impacts: Securitization of Water, Food, Soil, Health, Energy and Migration

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Security and Peace, Springer Publishers



UNITED NATIONS
UNIVERSITY

UNU-EHS

Institute for Environment
and Human Security



Seminar Plan (20.21.11-27-28.11.2009)

1. Climate change and security – an emerging debate

First week end 20.-21.11.2009

2. Theory of Securitization: the Copenhagen School

3. Reconceptualizing of security (I): Widening of security concept

4. Reconceptualizing of security: Deepening: security beyond states

5. From Scientization to Politicization of climate change

6. Towards a Securitization of Climate Change: US vs. European debates

7. Securitizing Causes: temperature, sea-level rise, increase in hazards

8. Securitizing Impacts: climate-induce migration: scientific, policy debate

Second week end 27.-28.11.2009

9. Reconceptualizing of security (III): Sectorialization of Security

10. Securitizing Water: water security concepts

11. Securitizing Food: food security concepts

12. Securitizing Soil: desertification and the new soil security concept

13. Securitizing Health: health security concepts

14. Securitizing Energy: demand vs. supply security

15. Securitizing migration: Internal vs. human security

16. Policy relevance of the climate change and security linkage

Contents

1. Climate change and security: emerging debate

2. Reconceptualization of Security

3. Climate Change as an Issue of International Security

- **Climate Change: a Security Danger/Concern**
- **Climate Change and National Security**
- **Climate Change and Human Security**
- **Climate Change and International Security**

4. PEISOR model on nature human interactions and for the analysis of climate change and conflicts as new security danger

5. Sectorialization of Security Concepts:

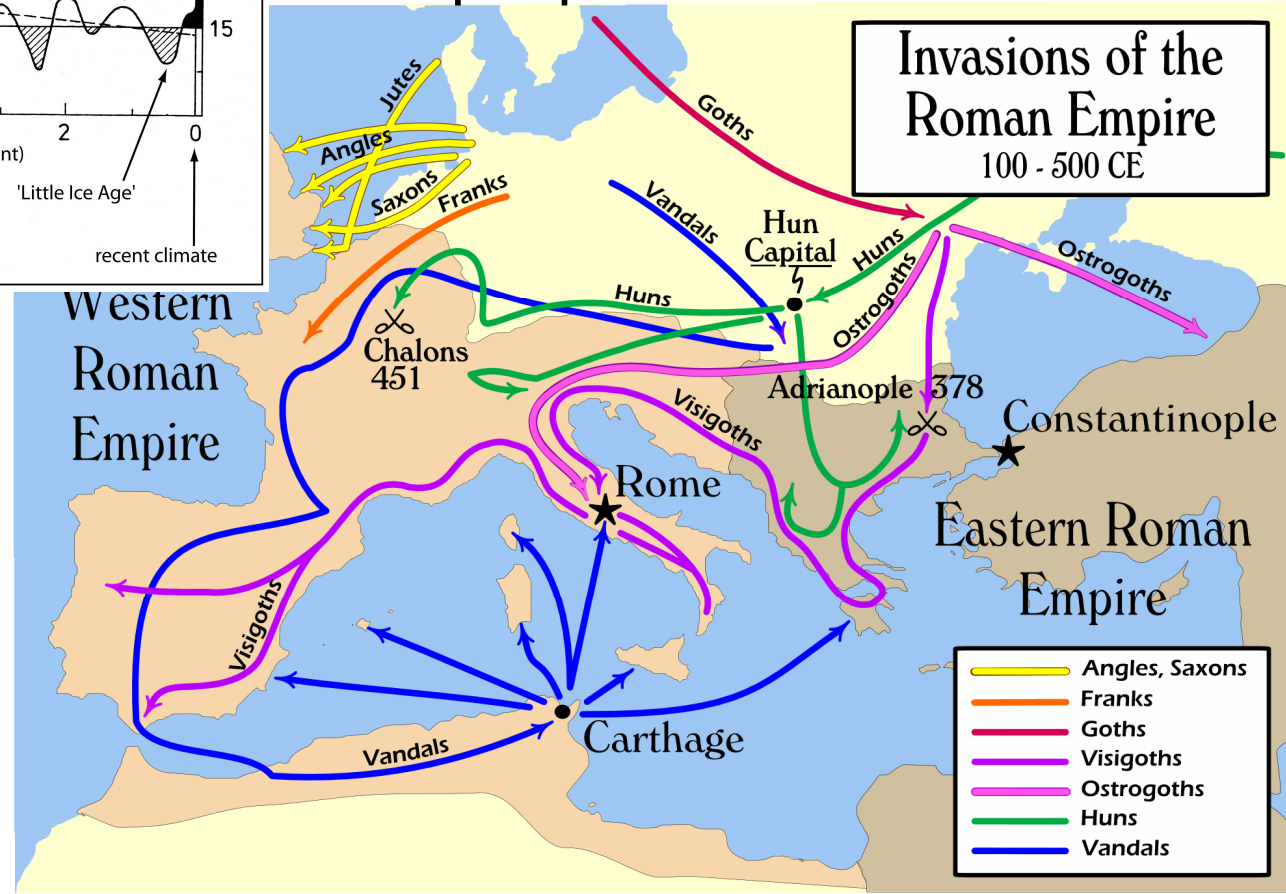
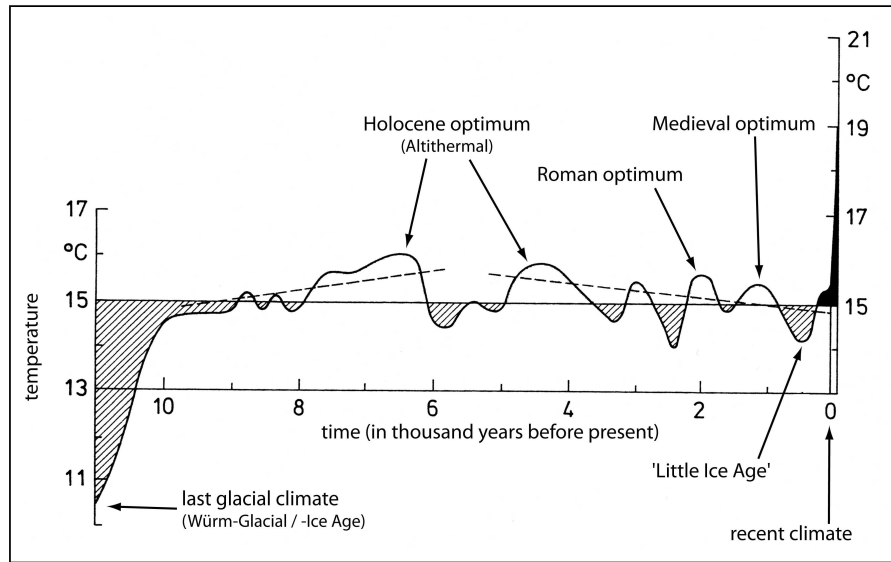
- Water: water security concepts
- **Securitizing Food: food security concept**
- Securitizing Soil: desertification and the new soil security concept
- Securitizing Health: health security concepts
- Securitizing Energy: demand vs. supply security
- Securitizing migration:

1. Climate Change and Security – an emerging policy and scientific debate

- **Climate change:** natural variability vs. anthropogenic change
 - A topic of the natural sciences (earth systems science & climatology)
 - Global warming in atmosphere: precondition of life on earth
 - Sea-level rise and temperature increase
 - Natural variability: warm and cold periods: migration and conflicts
 - Anthropogenic climate change: burning of hydrocarbons
 - Climate observations (1860-2008) and projections (2050-2100)
- **Security: discourse in the social sciences**
 - **A basic concept and a policy field:**
 - **Reconceptualization of security since 1990: contextual change**
 - End of the cold war, globalization and global environmental change
 - **Conceptual Innovation:**
 - Risk society (Beck), social constructivism, theory of securitization
- **Three stages: climate change as socio-political issue**
 - *Scientization* (since 1970s), *politicization* (1988), *securitization* (2000)

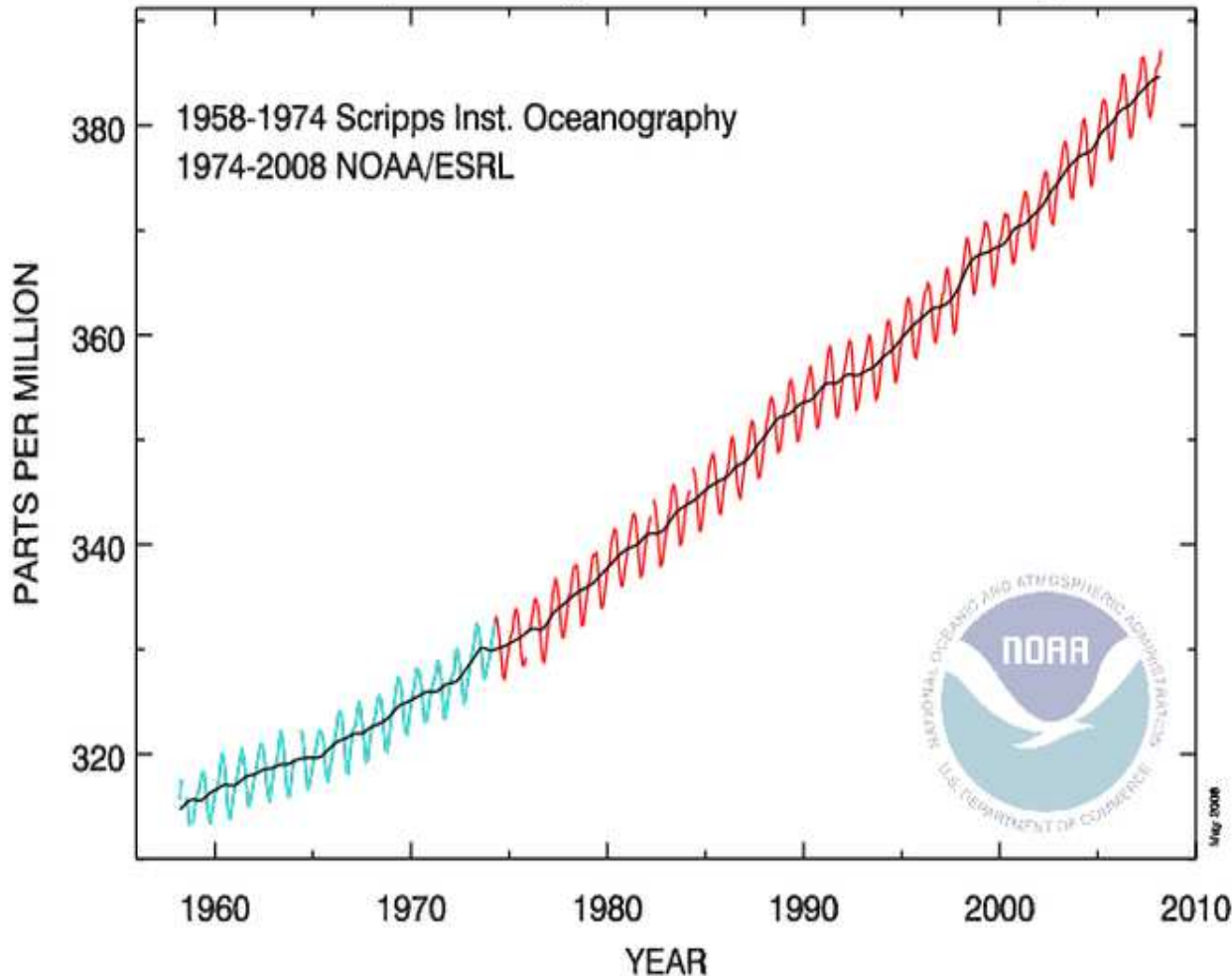
1.1. Impacts of Climate Variability: Holocene (12.000 years b.p. to 1750 AD)

End of Roman Empire: massive people's movements : 1st phase, 300-500 AD, Germanic, Turkish & other peoples.



During **Holocene** era both **climate pessima** (cold periods) and **changes in precipitation patterns** and long periods of **drought** were major triggers for **several phases of massive people's movements**:

1.2. Anthropogenic Climate Change in the Anthropocene Era (1750 to present)



- **GHG concentration in the atmosphere**
- **1750: 279 ppm, 1987: 387 ppm**
- **1/3: 1750-1958: 279 to 315 ppm**
- **2/3: 1958-1987: 315 to 387 ppm**

1.3. Global Climate Change: 2001-2007

Temperature Increases & Sea Level Rise

Climate Change Impacts: Temperature & Sea level Rise

❖ Global average temperature rise in 20th century: **+ 0.6°C**

Projected temperature rise:

❖ TAR (1990-2100): **+1.4-5.8°C**

❖ AR4 (07): **+1.1-6.4 (1.8-4)°C**

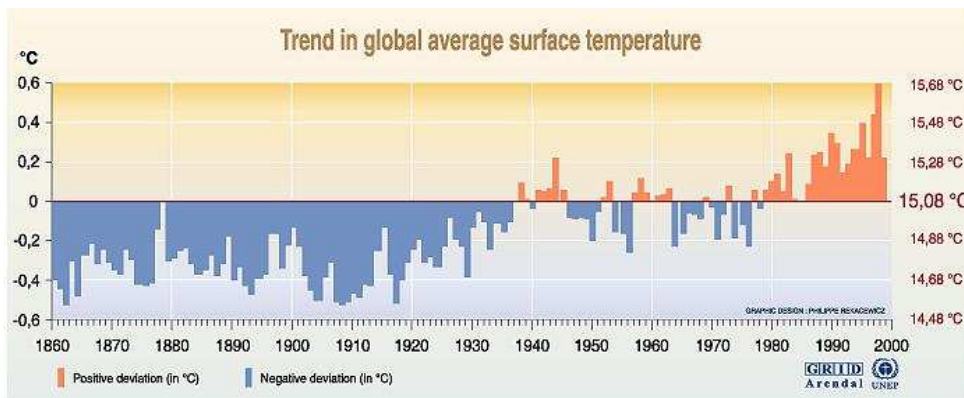
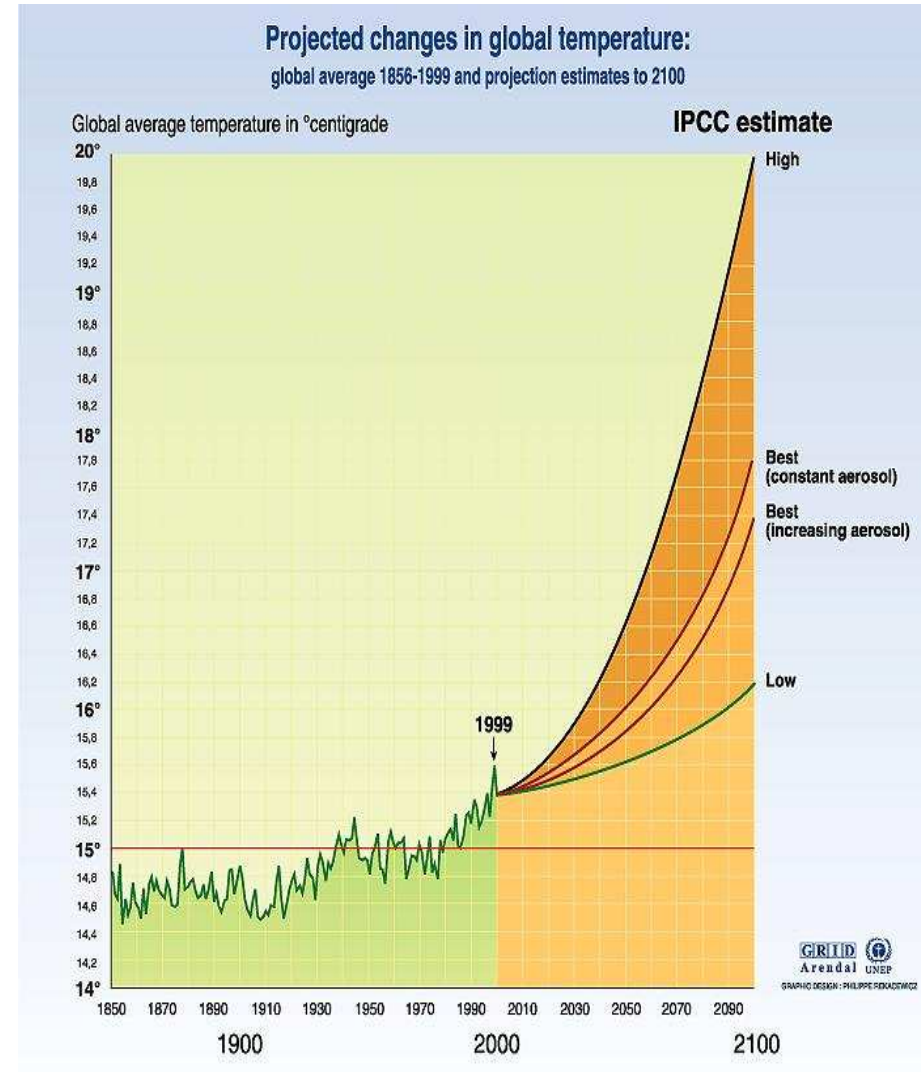
Sources: IPCC 1990,1995,2001,2007

Sea level Rise:

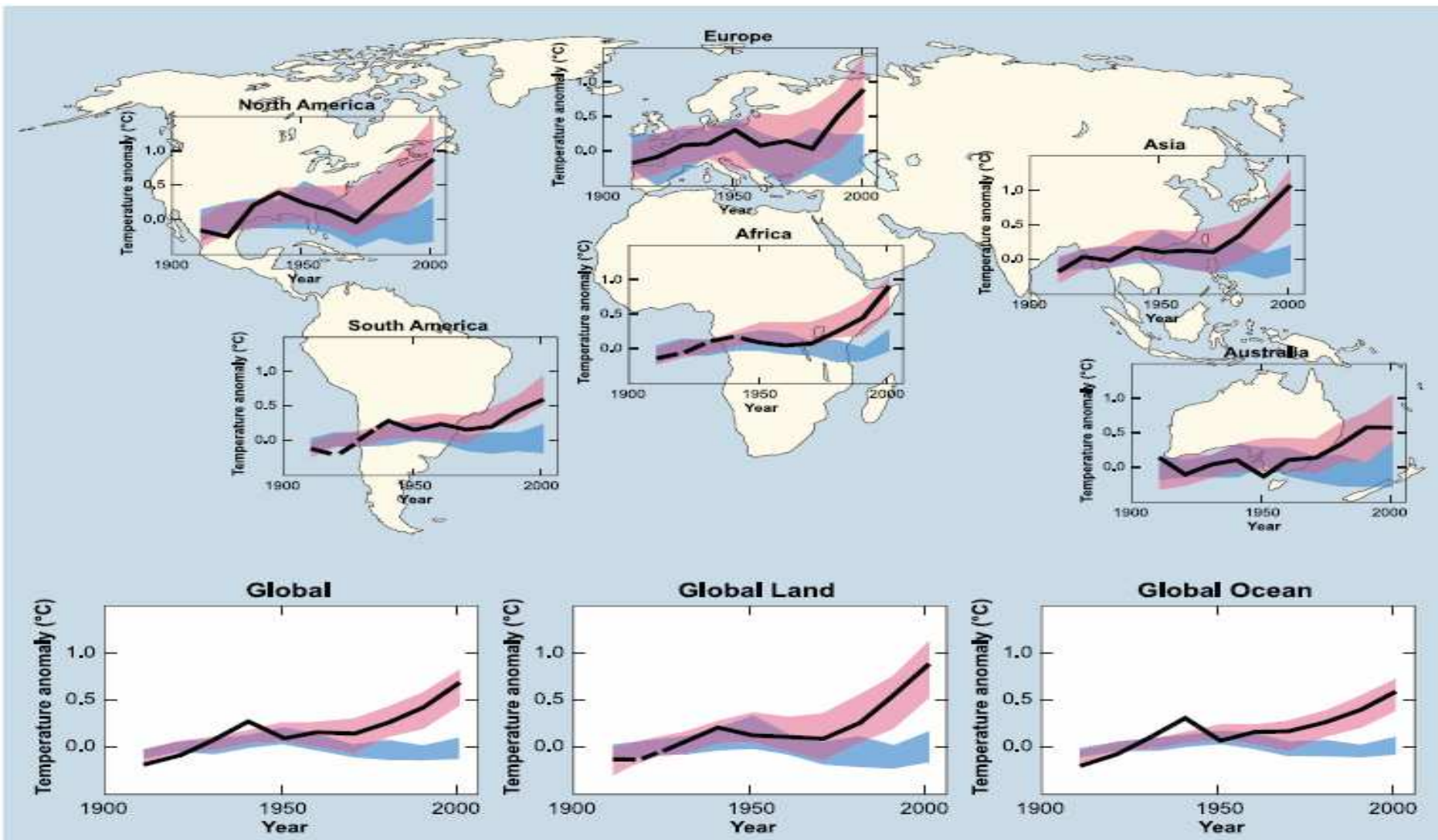
❖ 20th cent.: **+0,1-0,2 metres**

❖ TAR: 21st century: **9-88 cm**

❖ AR4 (2000-2100): **18-59 cm**



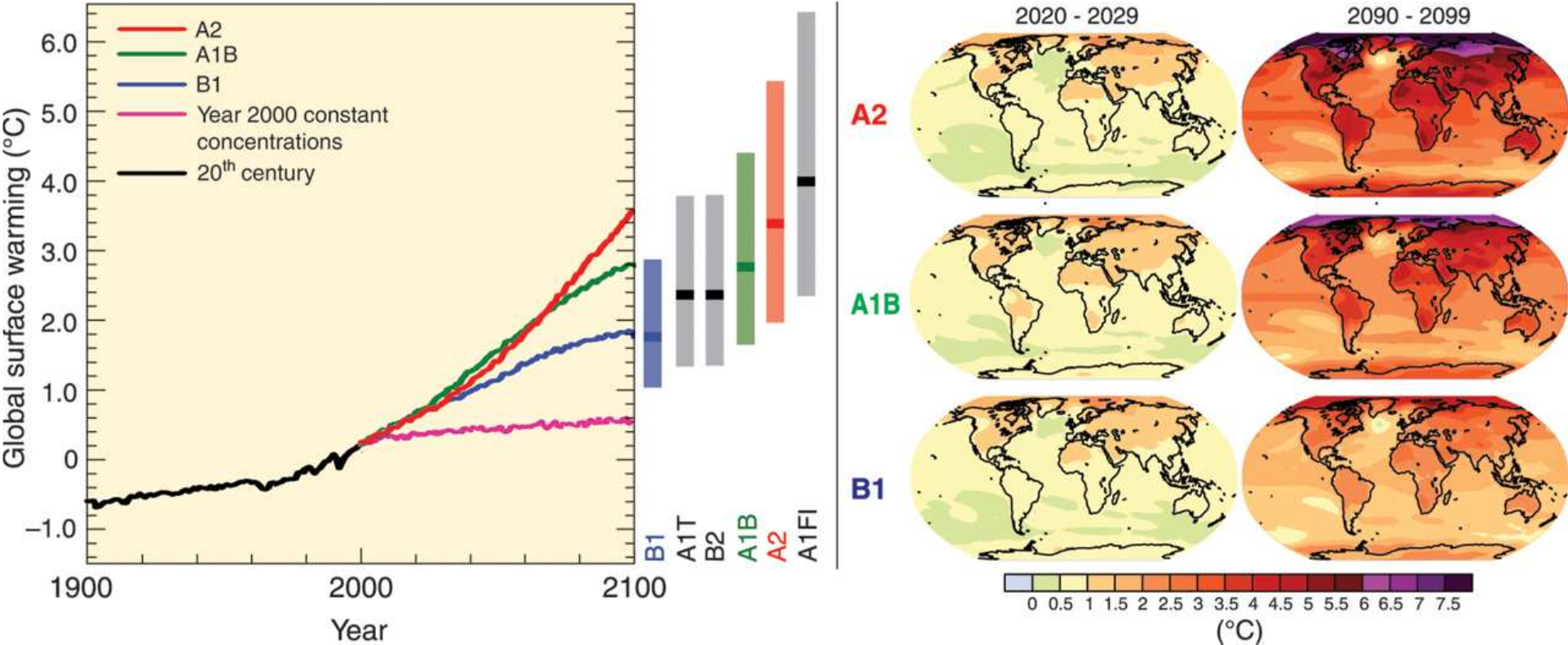
1.4. Global and Regional Change in Temperature (IPCC 2007, WG 1, AR4, p. 11)



models using only natural forcings
models using both natural and anthropogenic forcings

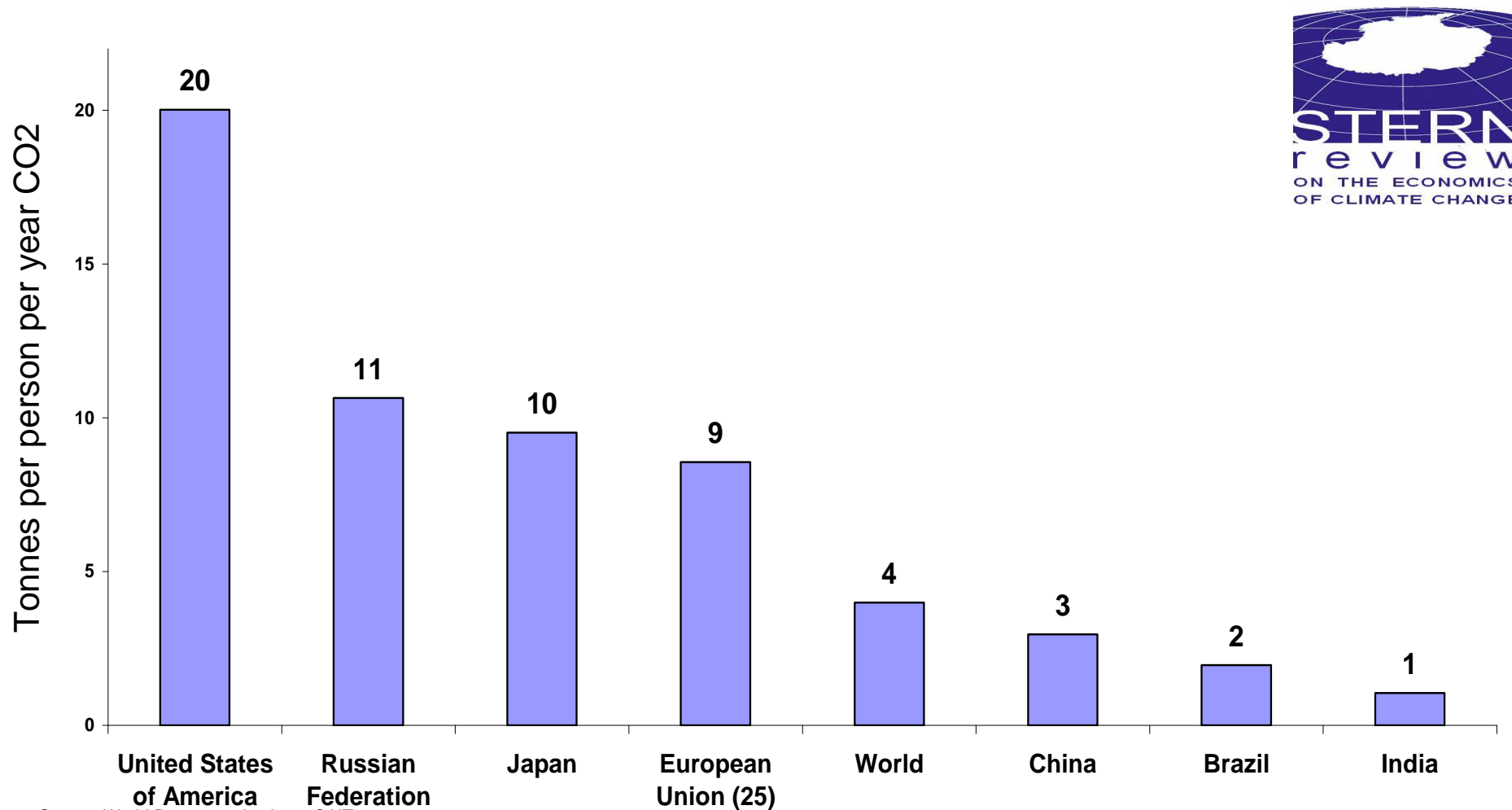
observations

1.5. Anthropogenic Climate Change in the Anthropocene (1900-2100)



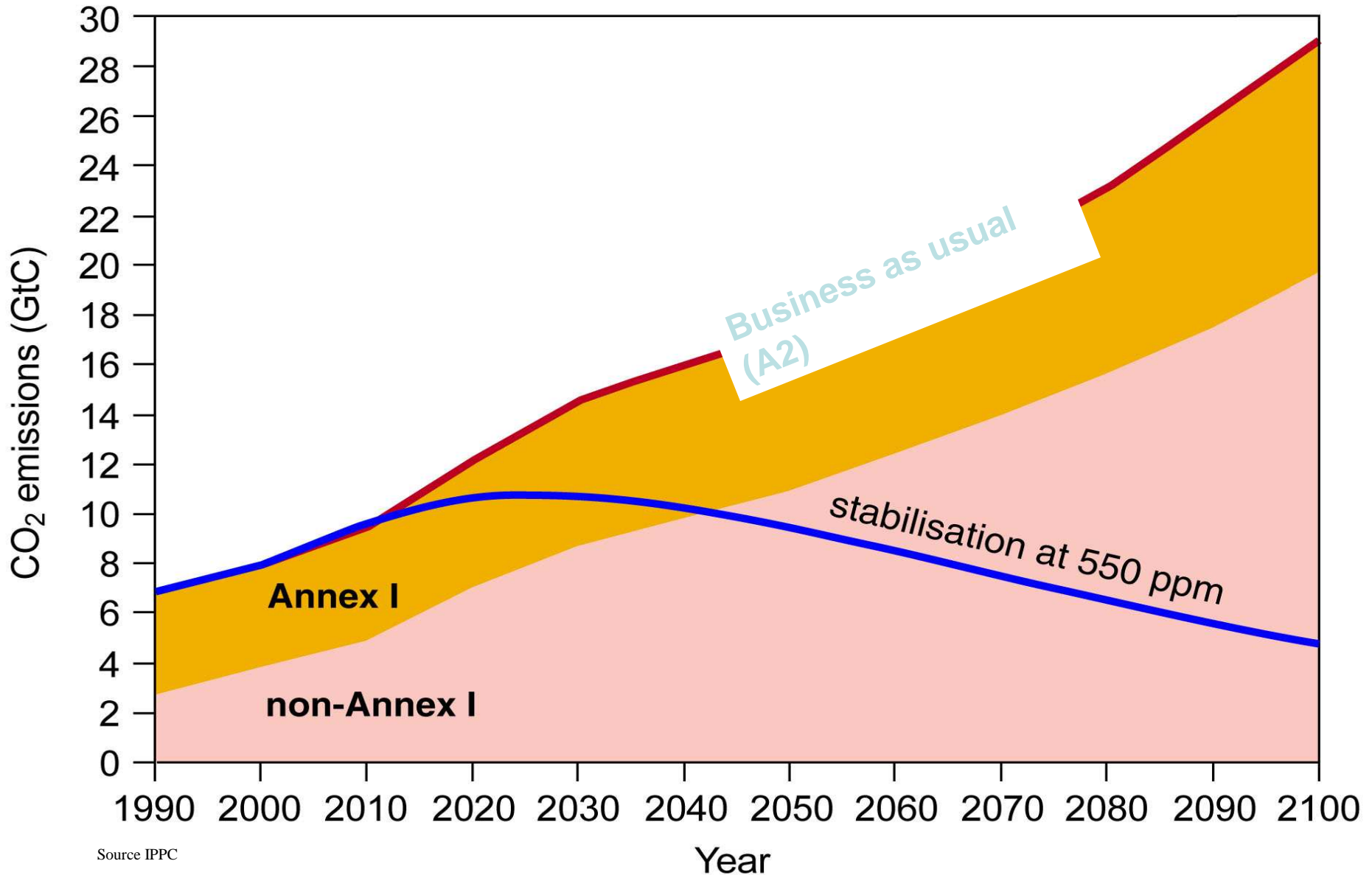
- **Three Regimes for Temperature Increase**
 - **+2°C: certain:** EU Stabilization goal (decision in Copenhagen COP 15)
 - **+4°C: probable,** without immediate Stabilization Measures
 - **+6°C: possible** (business as usual) (catastrophe scenario)

1.6. Emissions: Responsibility of Industrial States (Tons of CO2 Emissions/Capita in Energy Sector only, 2002)



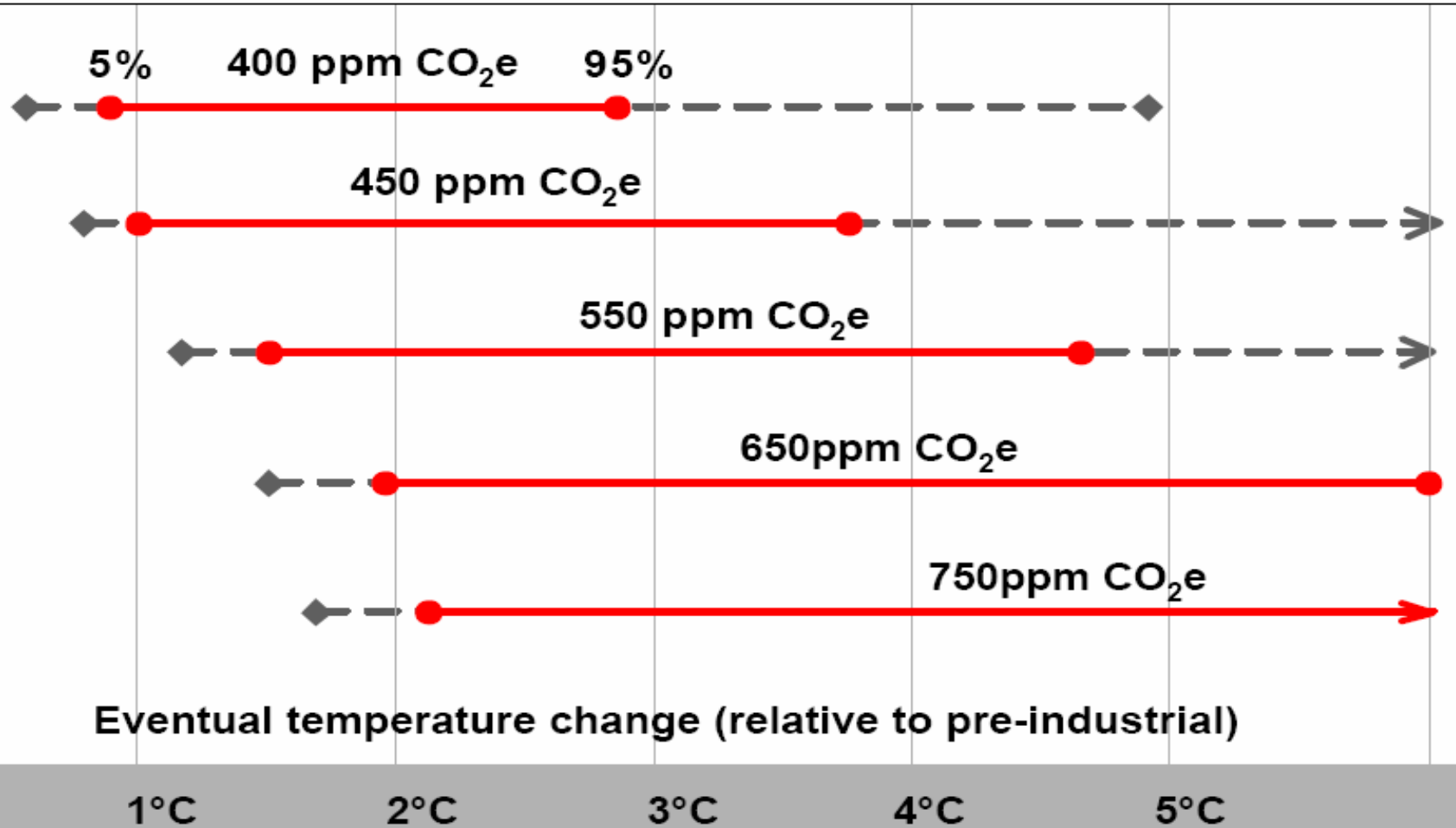
Source: World Resources Institute, CAIT

1.7. Projection: Stabilization at 550 ppm



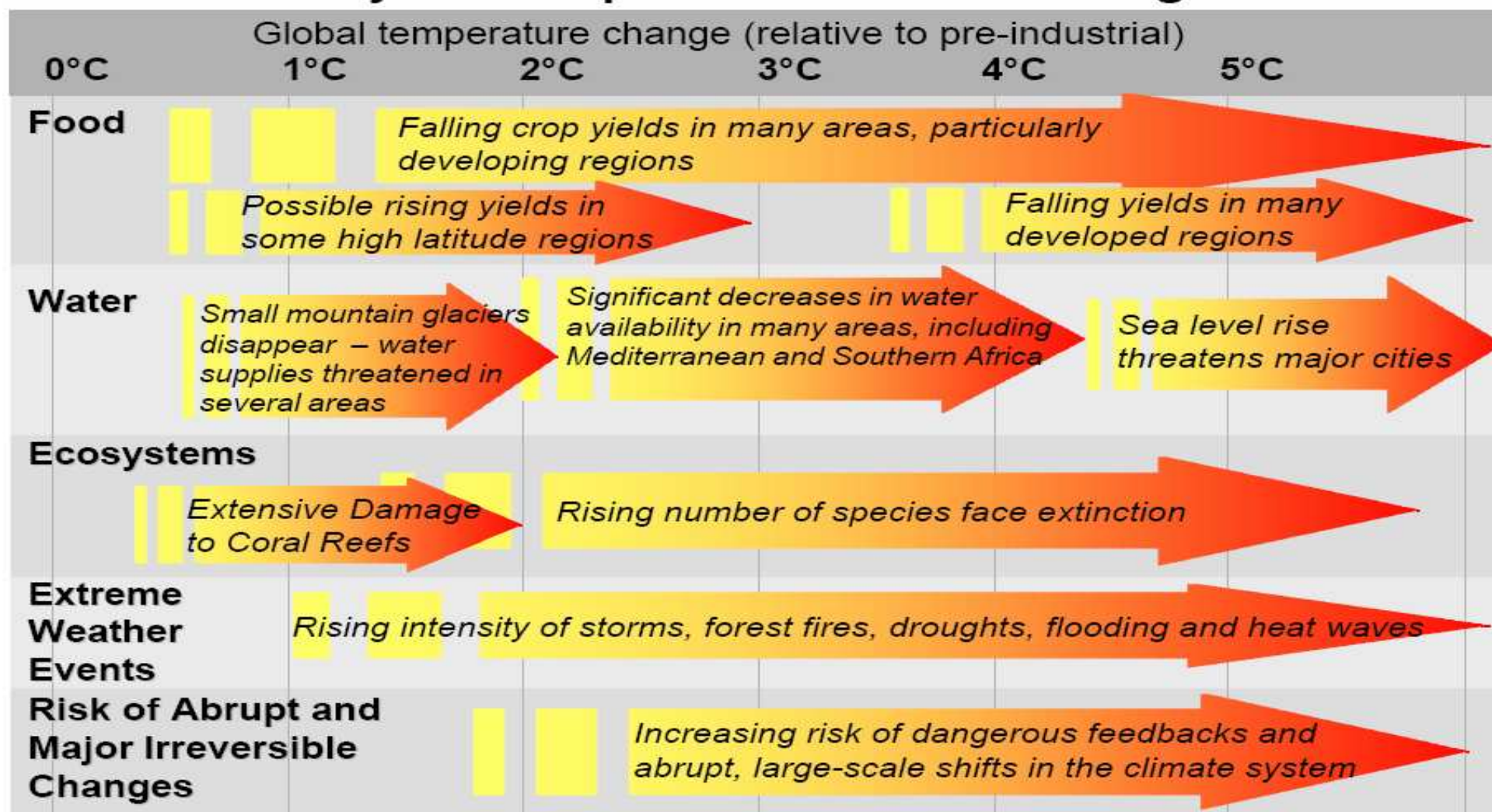
1.8. Stabilization and Temperature Increase

Stabilisation and Commitment to Warming



1.9. Projected Impacts of Temperature Rise due to Climate Change

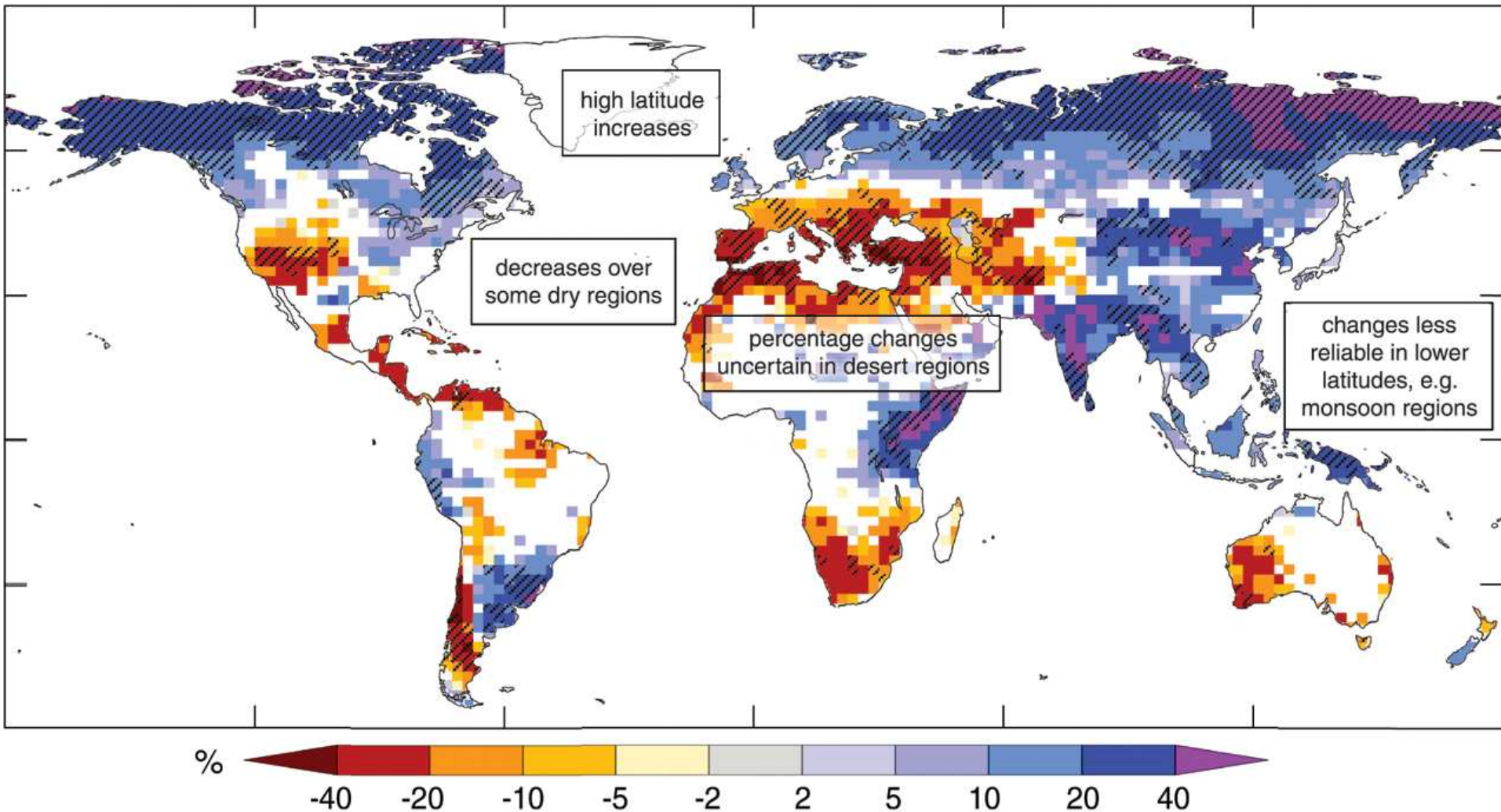
Projected Impacts of Climate Change



1.10. Projected Increase of Sea Level Rise (IPCC chair, Pachauri, 2008)

Stabilization level (ppm CO ₂ -eq)	Global mean temp. increase (°C)	Year CO ₂ needs to peak	Global sea level rise above pre-industrial from thermal expansion (m)
445 – 490	2.0 – 2.4	2000 – 2015	0.4 – 1.4
490 – 535	2.4 – 2.8	2000 – 2020	0.5 – 1.7
535 – 590	2.8 – 3.2	2010 – 2030	0.6 – 1.9
590 – 710	3.2 – 4.0	2020 – 2060	0.6 – 2.4

1.11. Projections and model consistency of relative changes in runoff by end of 21st century



2. Reconceptualizing Security:

- **Basic Assumption & Guiding Question:**
 - Did global and regional political contextual changes trigger a reconceptualizing of security?
- **What did change? Contextual factors:**
 - End of the Cold War: 9 November 1989 or 11 Sept. 2001
 - Process of globalization (1945, globalized in 1990)
 - Shift from 'Holocene' to 'Anthropocene'
- **Which were the conceptual innovations?**
 - Theoretical: social constructivism & Beck: risk society
 - Widening, deepening & sectorialization of security

2.1. Which Conceptual Innovations?

- **1989-1991: End of the Cold War (E-W-C)**
 - **Widening:** from 2 to 5 security dimensions
 - **Deepening:** from national to human security
 - **Sectorialization:** energy, food, health, water security
- **Globalization: Econ. crises & social vulnerability**
 - **New actors:** terrorists vs organized crime
 - **Crises, Globalization & Complex Emergencies:** poverty: high economic and **social vulnerability**
- **Does Global Environmental Change & natural hazards pose new security dangers?**
 - Global Environmental Change: pressure & cause
 - **Impact: Water-related natural hazards:** & societal outcome (victims): migration & conflicts depend on social vulnerability

2.2. Objective, Subjective, Intersubjective Security

- Wolfers (1962) pointed to two sides of the 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".
- **Objective security dangers:** absence of threats
- **Subjective security concerns:** perception of absence of fear
- From a constructivist approach in international relations 'security' is the outcome of a process of social & political interaction where social values & norms, collective identities & cultural traditions are essential. Security: **intersubjective** or "what actors make of it".
- **Copenhagen school** security as a "speech act", "where a securi-tizing actor designates a threat to a specified reference object and declares an existential threat implying a right to use extraordinary means to fend it off".
- Such a process of "securitization" is successful when the construction of an "existential threat" by a policy maker is socially accepted and where "survival" against existential threats is crucial.

2.3. Copenhagen School: Securitization

- **Securitization:** discursive & political process through which an intersubjective understanding is constructed within a political community to treat something as an existential threat to a valued referent object, and to enable a call for urgent and exceptional measures to deal with the threat.
- **‘Referent object’** (that is threatened and holds a general claim on ‘having to survive’, e.g. **state, environment or liberal values**),
- **‘Securitizing actor’** (who makes the claim – speech act – of pointing to an existential threat to referent object thereby legitimizing extraordinary measures, but not necessarily to be carried out by the actor),
- **‘Audience’** (have to be convinced in order for the speech act to be successful in the sense of opening the door to extraordinary measures).
- **It is not up to analysts to settle the ‘what is security?’** question – widening or narrowing – but more usefully one can study this as an open, empirical, political and historical question.
- **Who manages to securitize what under what conditions & how?**
- **What are the effects of this?** How does the politics of a given issue change when it shifts from being a normal political issue to becoming ascribed the urgency, priority and drama of **‘a matter of security’**.

2.4. Security Perception: Worldviews and Mind-sets

- Perceptions of security dangers (concerns) depend on worldviews of analyst & mind-set of policy-maker.
- **Mind-set (Ken Booth):** have often distorted perception of new challenges: include ethnocentrism, realism, ideological fundamentalism, strategic reductionism
 - Booth: Mind-sets freeze international relations into crude images, portray its processes as mechanistic responses of power and characterize other nations as stereotypes.
 - Old Cold War mind-sets have survived global turn of 1989/1990
- **3 worldviews are distinguished by the English school:**
 - *Hobbesian* pessimism (realism): power
 - *Kantian* optimism (idealism) *international law & human rights*
 - *Grotian* pragmatism: multilateralism, *cooperation* is vital.
- 3 ideal type perspectives in other cultures & traditions:
 - Power matters: Sunzi, Thukydides, Machiavelli, Hobbes,
 - Ideas matter: Kant, W. Wilson
 - Cooperation matters: Confucius, Grotius

2.5. From International & National to four Pillars of Human Security

- **International Peace & Security:** League of Nations (1919): “high contracting parties”; UN Charter (1945): “*We the peoples of the United Nations*”
- **National Security:** new U.S. concept World War II, post WW II: National Security Act (1947), before: goal defence, means: Army (War Dep.), & Navy Dept.
- **Alliance Security:** NATO (1949-), WP (1955-2001)
- **Common Security** (Palme Report 1982)
- **Environmental Security** (Brundtland 1987)
- **Cooperative Security:** Brookings Institution (1990’s)
- **Human Security:** UNDP (1994): 4 pillars of HS

2.6. Widening of Security Concepts: Towards Environmental Security

4 trends in reconceptualisation of security since 1990:

- **Widening** (dimensions, sectors), **Deepening** (levels, actors)
- **Sectorialisation** (energy, food, health),
- **Shrinking** (WMD, terrorists)

Dimensions & Levels of a Wide Security Concept

Security dimension ⇒ ↓ Level of interaction	Military	Political	Economic	Environmental ↓	
Human individual ⇒			Food sec. Health sec.	Cause & Victim	Food sec. Health sec.
Societal/Community				↓↑	
National	shrinking		Energy se.	↓↑	Food,health
International Regional			Water security	↓↑	Water security
Global/Planetary ⇒				GEC	

2.7. Environmental & Human Security

Expanded Security Concepts (Møller, '03; Oswald '01)

Label	Reference object	Value at risk	Source(s) of threat
National security	The State	Territ. integrity	State, substate actors
Societal security	Societal groups	Nation. identity	Nations, migrants
Human security	Individual, mankind	Survival	Nature, state, global.
Environmental sec.	Ecosystem	Sustainability	Humankind
Gender security (Oswald Spring)	Gender relations, indigenous people, minorities	Equality, identity, solidarity	Patriarchy, totalitarian in- stitutions (governments, churches, elites) intoler.

Human security: Referent: individuals and humankind. [Human Security Network]

❖ **Values at risk: survival of human beings and their quality of life.**

❖ **Major source of threat: nature (global environmental change), globalisation, nation state with its ability to cope with this dual challenge.**

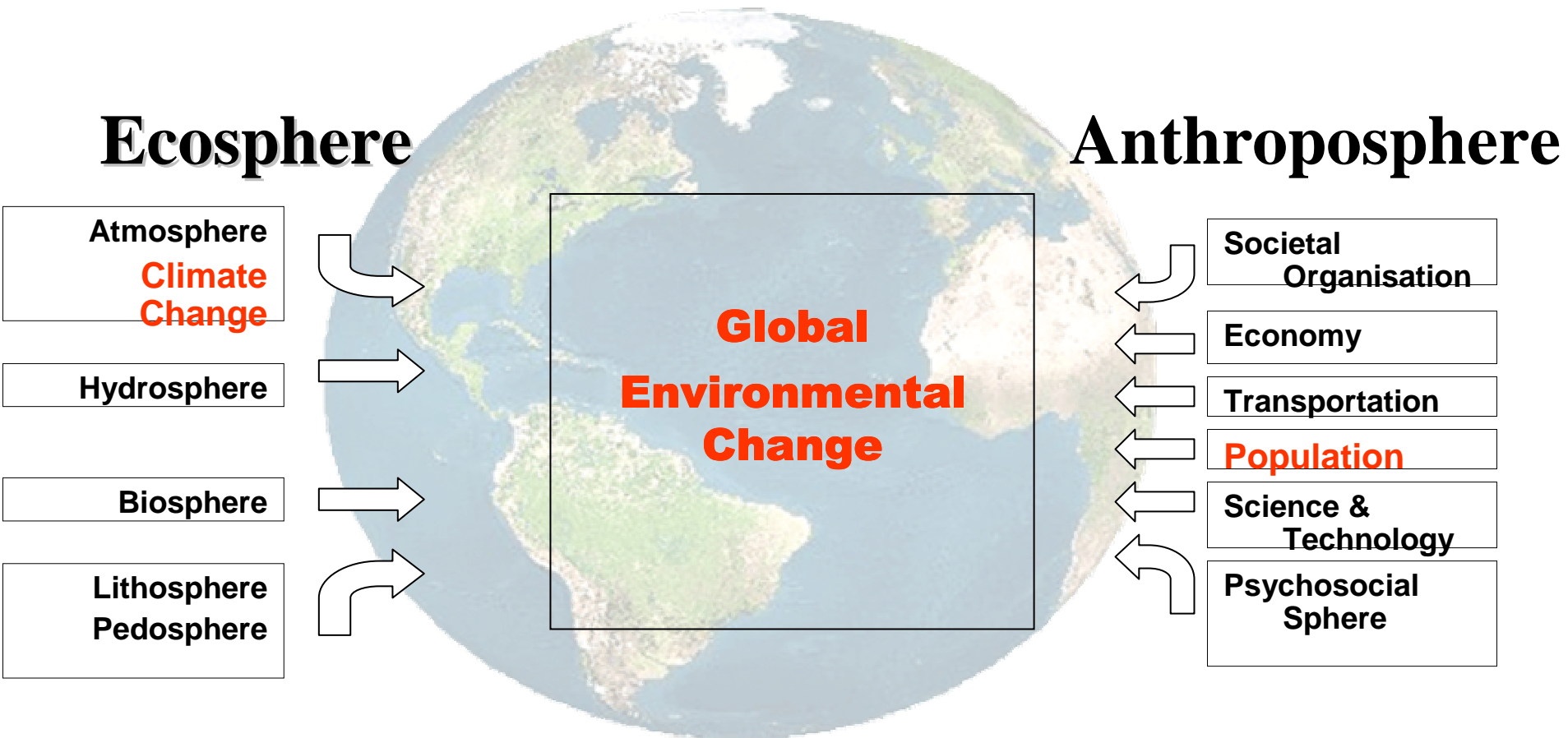
Environmental Security: Referent: Ecosystem; Value at risk is sustainability.

❖ **Major challenges: global environmental change & humankind,**

3. Climate Change as a Security Issue

- What is the linkage between both?
 - A key problem of global environmental change
 - A key area of international relations
- Securitizing climate change:
 - GECHS (1999),
 - Brauch for BMU (2002),
 - U.S. DoD (2004), CAN (15 April 2007)
 - UNSC (17 April 2007),
 - CC as international, national and human security
- UNFCCC & IPCC: epistemic community as a securitizing actor major concern in Europe

3.1. Global Environmental Change (GEC)



GEC poses a threat, challenge, vulnerabilities and risks for human security and survival.

3.2. Global Environmental Change

- Since 1970/80s: '*global environmental change*' (GEC) new topic in natural & social sciences: scientization
- Since 1988 policization with policy efforts on:
 - Climate Change: 1988: issue of G7; 1990: UN GA mandate; 1992: Rio summit: UNFCCC (1992) and Kyoto Protocol (1997)
 - Desertification: UNCCD (1994)
- Since 2000: GEC as security issues: securitization
 - Since 2000: The Hague: water security
 - Since 2002: climate change as security threat/risk
 - Since 2003: NATO: Desertification as a security issue
 - Since 2009: UNCCD: Soil security

3.3. Four GEC Scientific Programmes

- **International Geosphere-Biosphere Programme (IGBP)**. research programme that studies Global Change
- **Goals:**
 - Analyze interactive physical, chemical and biological processes that define Earth System dynamics
 - changes occurring in these dynamics
 - role of human activities on changes
- **DIVERSITAS:** integrates biodiversity science for human well-being:
- By linking biology, ecology & social sciences, it produces socially relevant new knowledge to support sustainable use of biodiversity
- **International Human Dimensions Programme (IHDP):** international, interdisciplinary science organization: promoting, & coordinating research, capacity building & networking. Social science perspective on global change and works at the interface between science and practice
- **World Climate Research Programme** draws on climate-related systems, facilities & intellectual capabilities of 185 countries to advance understanding of processes that determine our climate.
- Two key objectives of **WCRP** are:
 - to determine predictability of climate;
 - to determine effect of human activities on climate.

3.4. Earth System Science Partnership (ESSP)

- **2001:** [Amsterdam Declaration on Global Change](#): [IGBP](#), [IHDP](#), [DIVERSITAS](#), [WCRP](#) formed Earth System Science Partnership.
- **ESSP:** partnership for integrated study of the Earth System, changes, & implications for global/regional sustainability.
 - Global environmental changes are both accelerating & moving the earth system into a state with no analogue in previous history.
 - The Earth System is the unified set of physical, chemical, biological & social components, processes and interactions that together determine the state and dynamics of Planet Earth, including its biota & human occupants.
 - Earth System Science: study of Earth System, with an emphasis on observing, understanding and predicting global environmental changes involving interactions between land, atmosphere, water, ice, biosphere, societies, technologies and economies.

3.5. Climate Change as an Issue of International Politics and Security

Objective: climate change has influenced history for millennia

Subjective: perception of climate change as a political issue

- **1896: Arrhenius hypothesis:** energy & climate change
- **Climate Change became an issue of IR since 1988**

Intersubjective: what policy actors make of it

- 1988: Reagan Admin. put CC on agenda of G-7
- 1990: IPCC set up by UN General Assembly
- 1992: Rio Earth Summit: UNFCCC signed
- 1997: Kyoto protocol approved (-5.1% by ,08)
- 2007: Bali Road Map to COP 15: Copenhagen

Intersubjective: Securitization of climate change

- Problem of environmental security: BMU/Brauch (2002)
- Problem of national security (UK, USA, 2004, 2007)
- Problem of international security: UNSC (2007), UN-GA, SC (2009)
- Problem of human security (GECHS, 2005; HSN: Greece 2007/2008)

3.6. Securitization of Global Environmental & Climate Change

- **3-fold debate & discourse on Climate Change**
 - **Theory: Securitization by O. Waever (Copenhagen.)**
 - **International Security**
 - British, German and European debate (2001-2002)
 - goal: Strategy of conflict prevention through pro-aktive action: Environment-, development- & economic policy
 - **National Security:** (since 2003/2004) especially in USA
 - US debate: 2003/2004: Randall/Schwartz
 - 2007: new military missions for Pentagon
 - **Human Security:**
 - **GECHS Project of IHDP:** social vulnerability of poor and marginalized people, workshop in 2005: (1999-2009)
 - **Human Security Network:** Greek presidency (2007-2008)

3.7. Discourse 1: Climate Change & Internat. Security

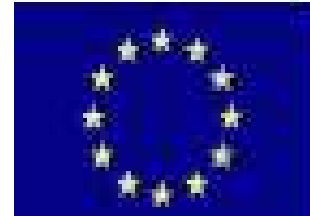


- **BMU-Report 2002: Climate change and conflicts**
 - Goal: Agenda setting for IPCC
 - Coalition: Germany, Great Britain, Finland, Mexico
 - Focus: Small Island states, Bangladesh, Mexico, Egypt, MMR
 - OECD-Case studies: Bangladesh, Egypt, Tansania, Nepal, Fiji
- **WBGU-Report 2008: Security Risk Climate Change**
 - State-centred security concept
 - 4 Conflict scenarios:
 - Climate-induced degradation of drinking water
 - Climate-induced reduction of food production
 - Climate-induced of increase of storm and floods, drought and famine
 - Climate-induced migration

3.8. Climate Change as a Problem of International Security

- **UNSC debate (17.4.2007)**
 - UK Foreign minister: **52 States participated (instead 15 UNSC)**
 - **For the Debate:** UN-SG, Ban Ki-moon, UK, all EU-states, Alliance of small Island States
 - **Sceptical:** Russia, USA, **Opposed:** China, Group of 77 (Pakistan)
- **June 2009: UN-GA resolution: SIDS: report by SC**
 - **Response of some 30 states: PSIDS**
 - **11 September 2009: Report by SC: pointed to five channels: climate change and security:**
 - **(a) Vulnerability:** Climate change threatens food security and human health, and increases human exposure to extreme events.
 - **(b) Development:** If climate change results in slowing down or reversing the development process, this will exacerbate vulnerability and could undermine the capacity of states to maintain stability.
 - **(c) Coping and security:** Migration, competition over natural resources and other coping responses of households and communities faced with climate-related threats could increase the risk of domestic conflict as well as have international repercussions.
 - **(d) Statelessness:** There are implications for rights, security, and sovereignty of the loss of statehood because of the disappearance of territory.
 - **(e) International conflict:** There may be implications for international cooperation from CC impact on shared or undemarcated international resources

3.9. EU Paper: Climate Change & International Security (March 2008)



- **Climate change ... as a threat multiplier of existing trends, tensions and Instability, that overburdens fragile and conflict prone states and regions**
- **Seven intern. Security threats from climate change:**
 - 1) Resource conflicts (Water, soil, food);
 - 2) Economic damage and Risks for coastal cities;
 - 3) Loss of Territory and border conflicts;
 - 4) environmentally-induced migration;
 - 5) Situations of Fragility and radicalization
 - 6) Tensions on energy supply
 - 7) Pressure on international politics
- **Regions, where these threats become manifest**
 - Africa, Middle East, South Asia; Central Asia, Latin America, Arctic.
- **Central challenge: Environmental Migration**



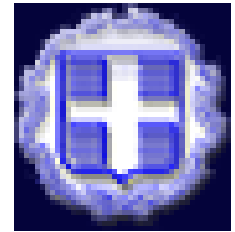
3.10. Discourse 2: Climate Change & National Security: USA

Climate changes as a threat for US national security → Reactive search for military answers and for new military missions of the Pentagon

- **Pentagon study** of Schwartz/Randall: (October 2003, February 2004)
- **Gilman, Randall, Schwartz:** Effects of climate change: System vulnerability of possible effects up to 2050 medium scenario of temperature increase
- **March 2007: Strategic Studies Institute:** Colloquium on “global climate change: National Implications for Security”
- **March 2007:** Senators Durbin (D-IL)/Hagel (R-NE): Law on intelligence assessments on climate change impacts on national security
- **April 2007: CNA:** *National Security & the Threat of Climate Change* (April 2007): climate change as a threat multiplier in vulnerable regions for US security
- **November 2007,** *Center for Strategic and Intern. Studies (CSIS); Centre for a New American Security (CNAS): The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change*



3.11. Discourse 3: Climate Change & Human Security



- **IHDP-GECHS** (Global env. change & human security)
 - **Symposium: climate change & human security (2005)**
 - **Synthesis conference: Research (1999-2009) in Oslo**
- **Greek Presidency of the HSN (2007/2008)**
 - **Conference in May 2008 in Athens: Final declaration**
 - **Impact of climate change on vulnerable groups: women, children, environmental migrants in developing countries**
 - **Policy paper: Climate change, human security and development**
 - **3rd pillar of human security: “freedom from hazard impact”**
- **Policy Memorandum 15 April 2007: for UN SC debate**
 - Wisner, Brauch, Oswald Spring u.a.
- **Friends of Human Security: Japan & Mexico: June 2009**
- **Debate in UN General Assembly**
 - **May 2007: human security: climate change as a threat**
 - **June 2009: Resolution on climate migration: international peace & security**

Climate Change & Security: Challenges for a New Peace and Security Policy in the Anthropocene

- **New security challenges require new security & peace policy for the Anthropocene**
- **We are the threat! Impossible to fight war against oneself**
 - **threat:** our fossil energy consumption and way of life
 - **solution: GHG reduction by 2050: -50% (global), -80% ICs**
 - Electricity, heating, transportation, industry
 - Increase in energy efficiency and renewable energy
 - **Global responsibility and global action**
 - **Proactive vs. reactive Policy and Crisis Management**
 - **Reactive:** Welt financial crisis: no price is too high
 - **Proactive:** climate change: we cannot afford drastic measures
 - **Short term horizon: political & economic action**

4. Towards the PEISOR Model

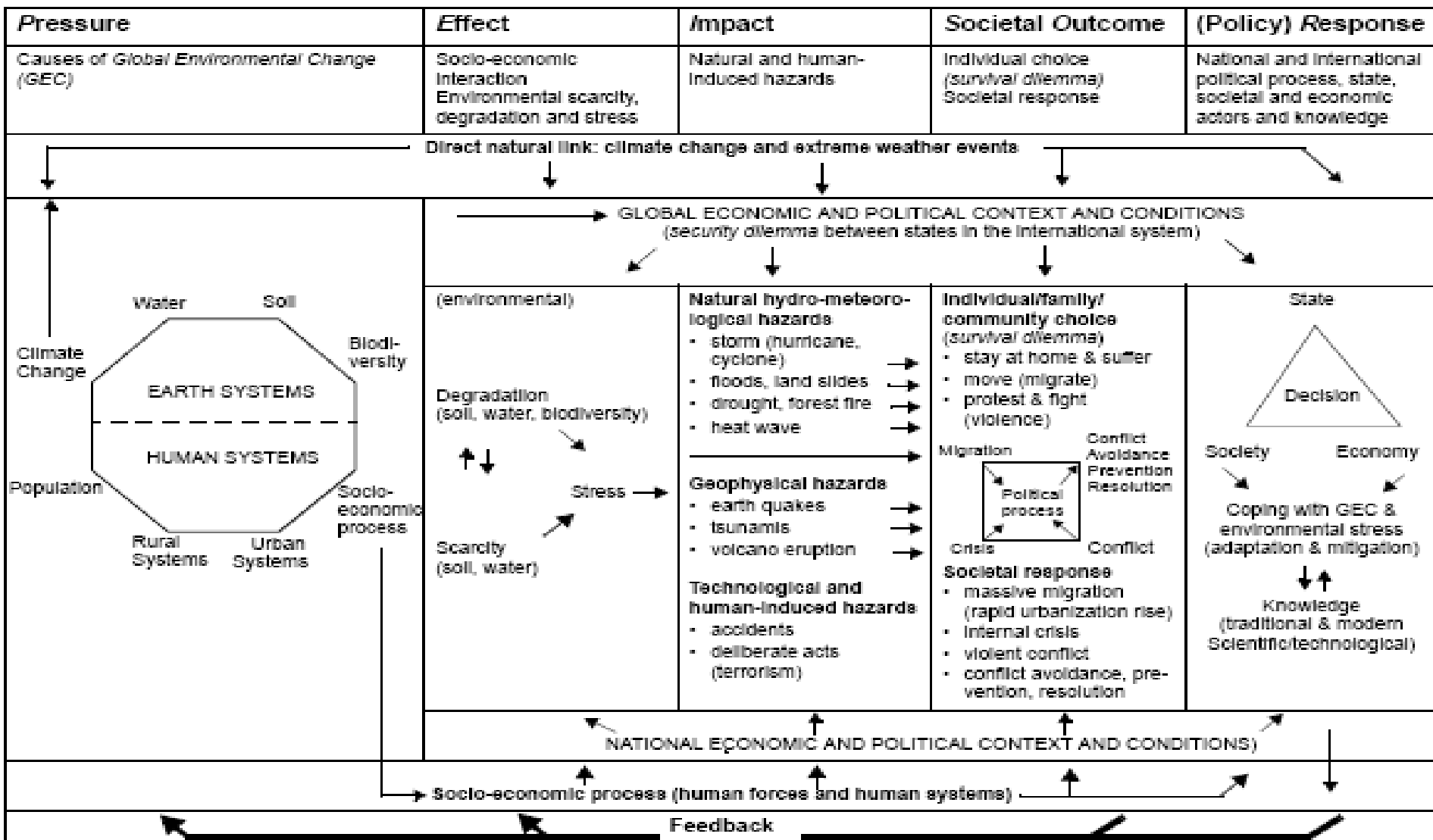
- **PEISOR: Result of pressure and response models and of debates on environmental security and on natural hazards.**

The PEISOR model combines five stages:

- ***P (pressure)*** refers to 6-8 drivers of global environmental change
- ***E to the effects*** of the linear, non-linear or chaotic interactions within the 'hexagon' on environmental scarcity, degradation, and stress;
- ***I to extreme or fatal impacts*** of human-induced and climate-related natural hazards (storms, flash floods, flooding, landslides, drought);
- ***SO to societal outcomes***: internal displacement, migration, urbanization, crises, conflicts, state failure, and
- ***R to response by society***, business community, state where both traditional & modern technological knowledge can make a difference.

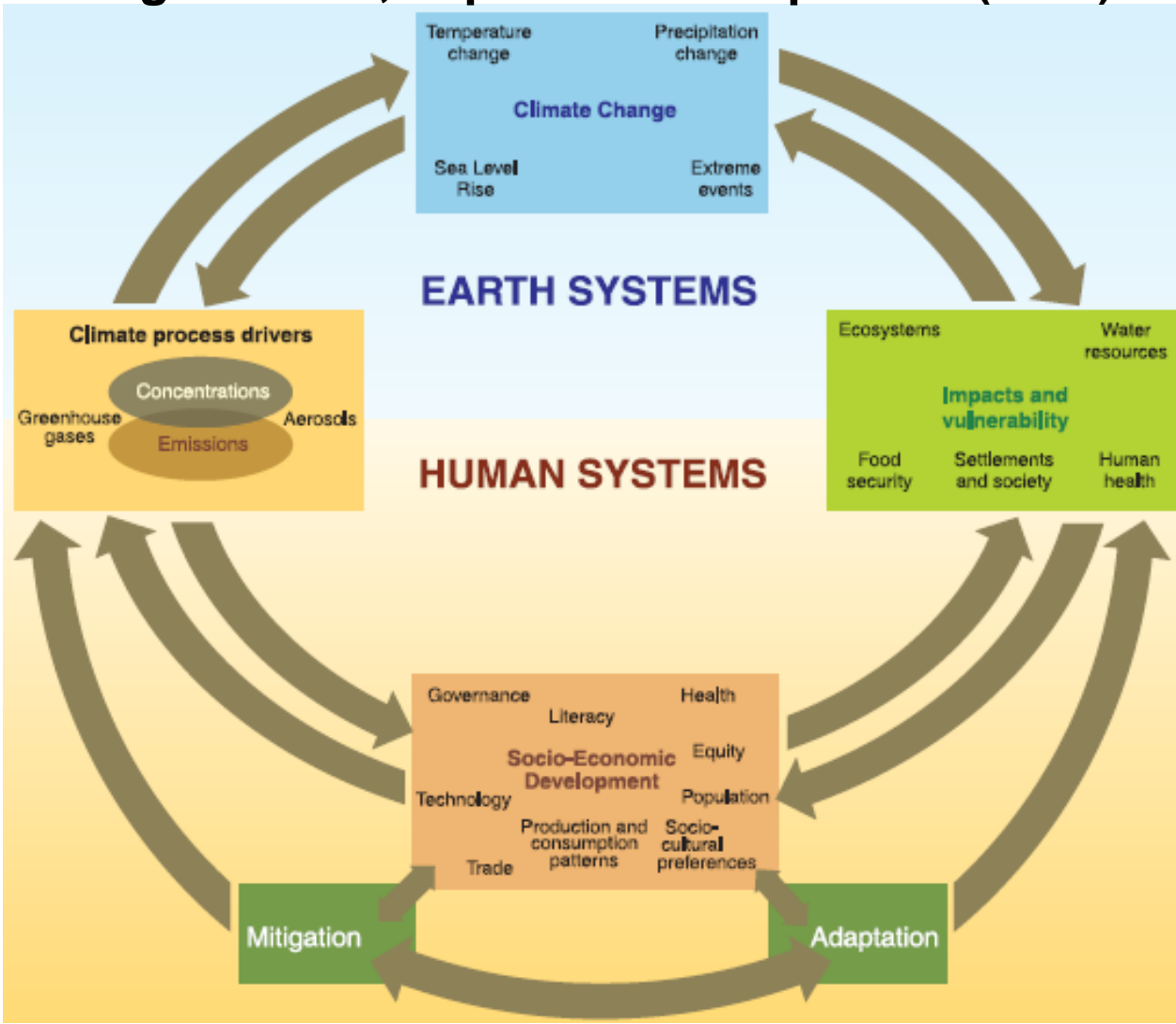
Hazards cannot be prevented, their **impact** in terms of deaths, affected people, economic & insured damages can be reduced by policies & measures that link protection with empowerment of the people to become more resilient.

4.1. Global Environmental Change & Impacts: PEISOR Model



P: Pressure: Interactions of GEC

Schematic framework of anthropogenic climate change drivers, impacts and responses (IPCC)



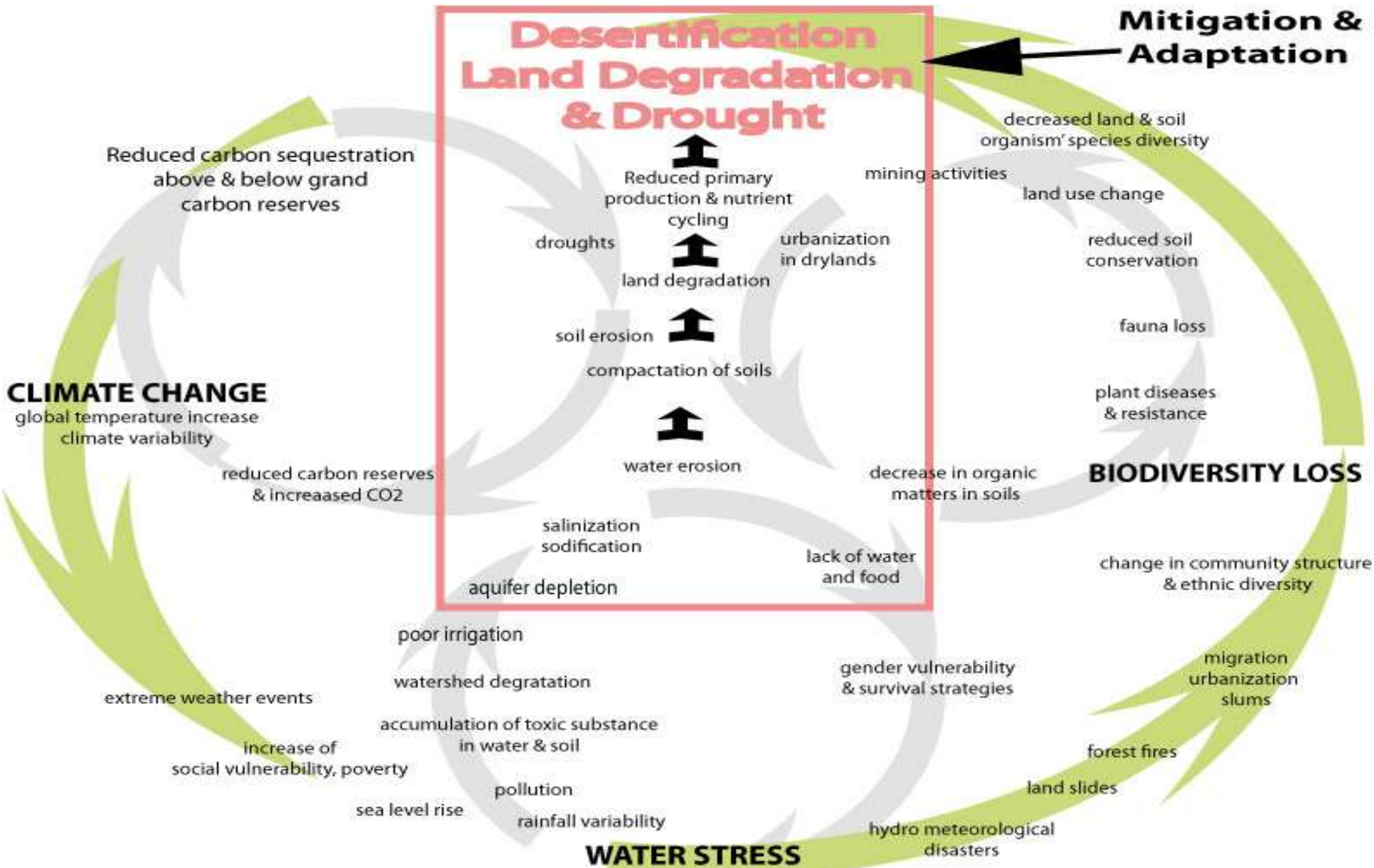
Earth System factors

- Climate change
- Soil
- Water
- Biodiversity

Human System factors

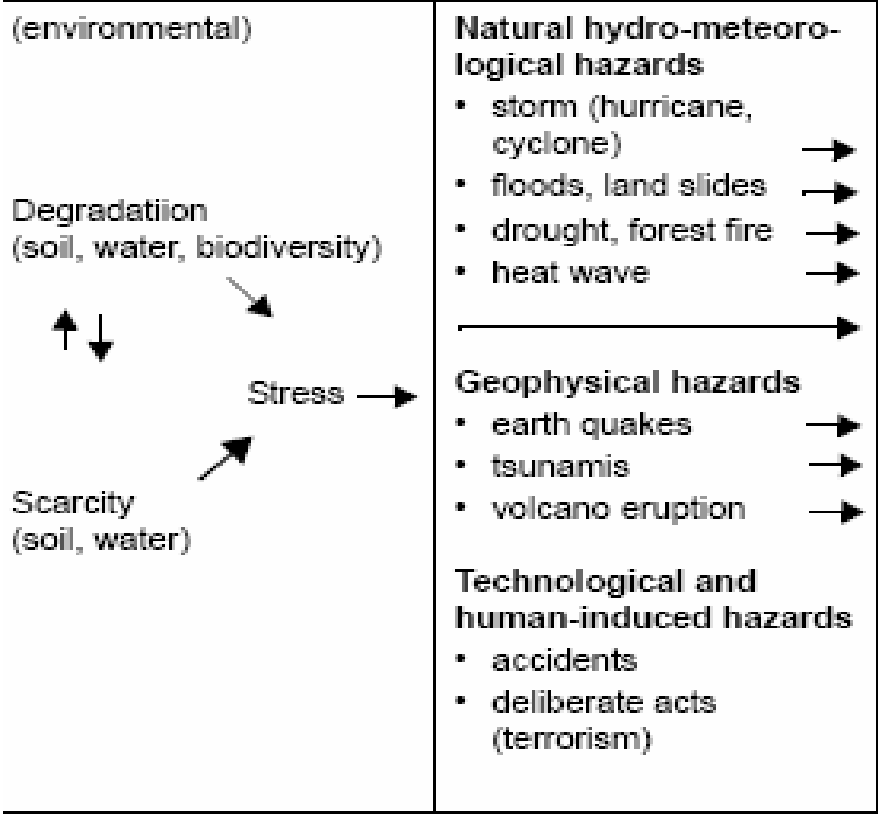
- Population change
- Rural systems
- Urban systems
- Socio-economic cultural processes

P: Pressure: Interactions of GEC



Effect	Impact
Socio-economic interaction Environmental scarcity, degradation and stress	Natural and human-induced hazards

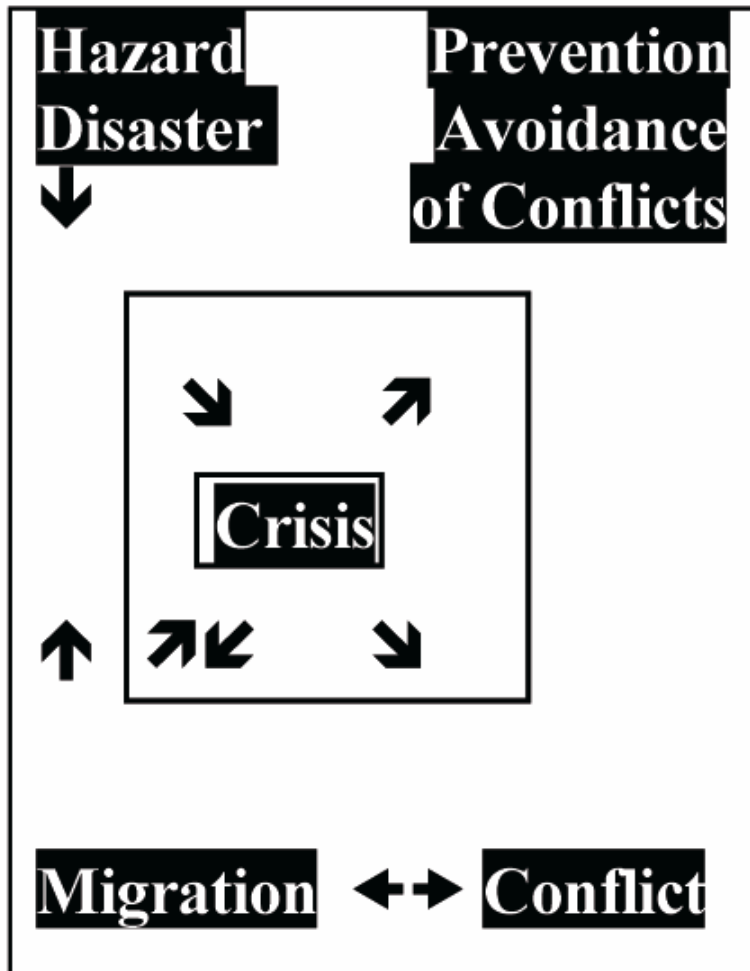
Direct natural link: climate change and extreme weather



E: Effect & I: Impact

- **Effect:** Environmental security debate of 1990s
 - Toronto school
 - Swiss school (ENCOP):
 - **Soil scarcity > degradation > environmental stress**
- **Impact:** climate change -> extreme weather events
 - Hydrometeorological hazards
 - **Drought (wind erosion)**
 - Heatwaves
 - Forest fires
 - Storms (hurricanes)
 - **Flash floods & landslides (wind & water erosion)**

Impact: Human-Induced Natural Hazards Drought, Famine and Societal Outcomes



Much knowledge on these factors:

✓ Drought, migration, crises, conflicts

Lack of knowledge on linkages among **fatal outcomes**

➤ Drought & drought-ind. migration

➤ Famine & environm.-ind. migration

➤ Conflicts & conflict-induced migration

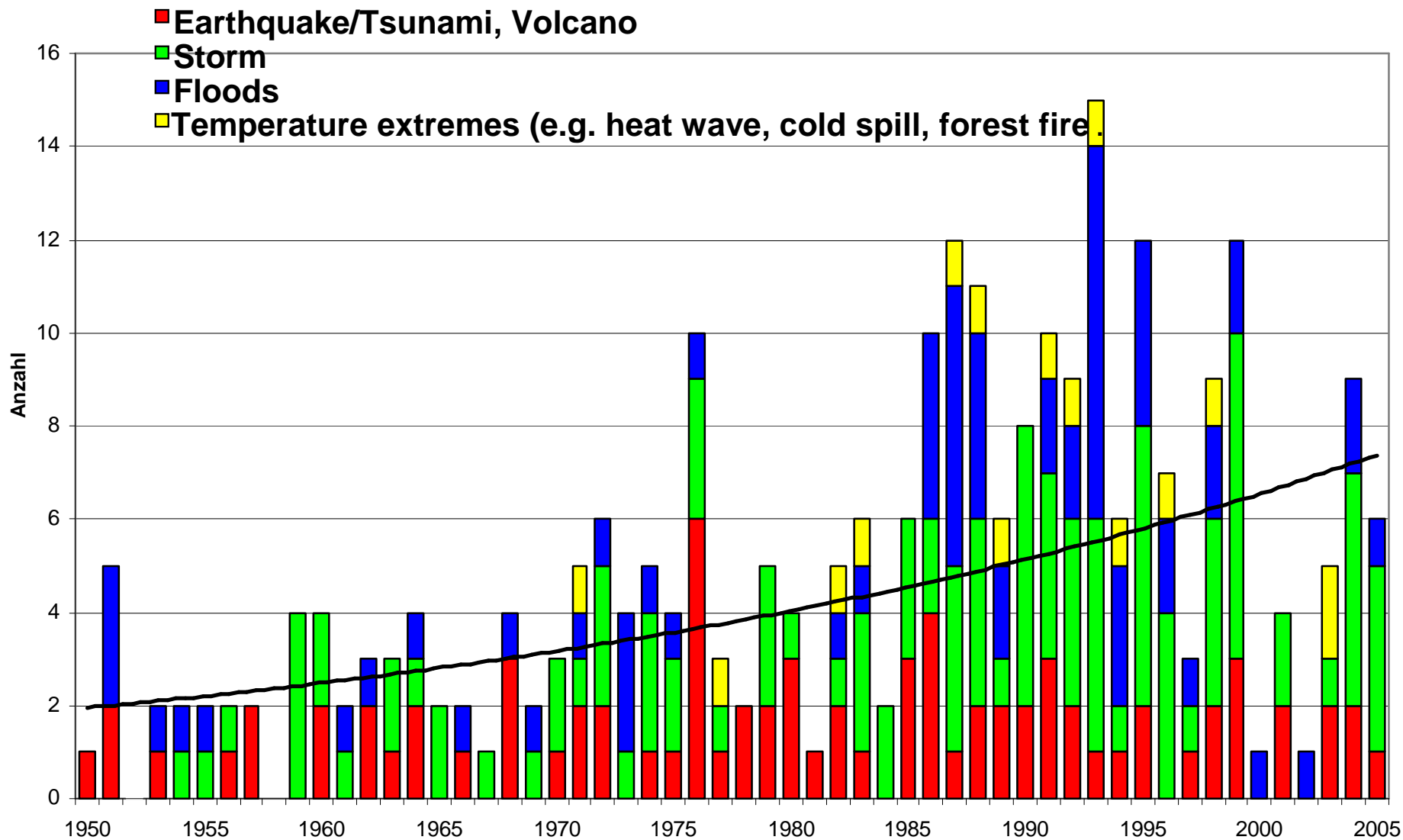
Lack of knowledge on **societal consequences**: crises/conflicts

➤ Domestic/international crises/conflicts

➤ Environmentally or war-induced migration as a cause or consequence of crises and conflicts

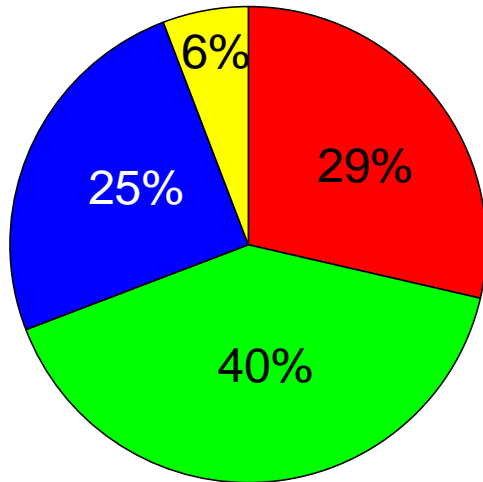
Global Impacts: Major Natural Disasters 1950 – 2005. Source: MunichRe, 2006

© 2006 NatCatSERVICE, GeoRisikoForschung, Münchener Rück

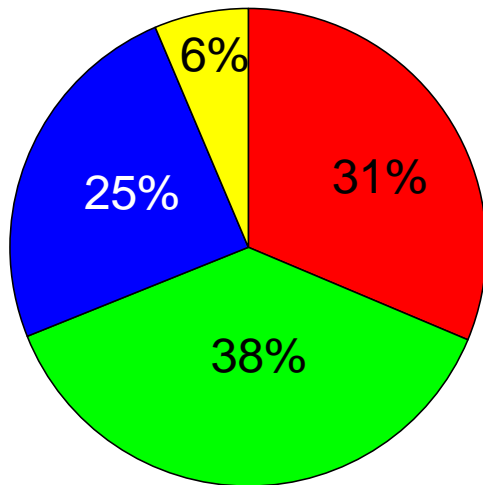


Major Natural Hazards (1950-2005). Source: Munich Re Research Div., 2006

267 Events

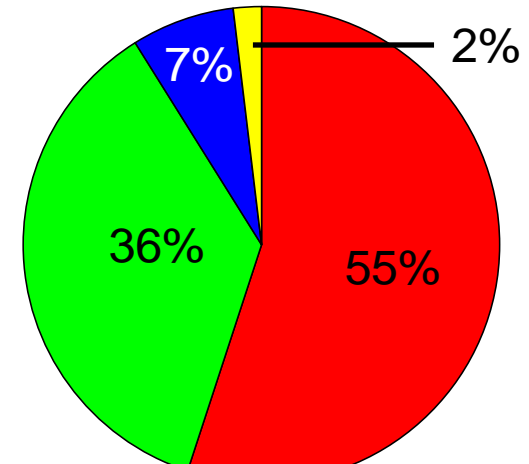


Economic damage: 1.400 billion US\$

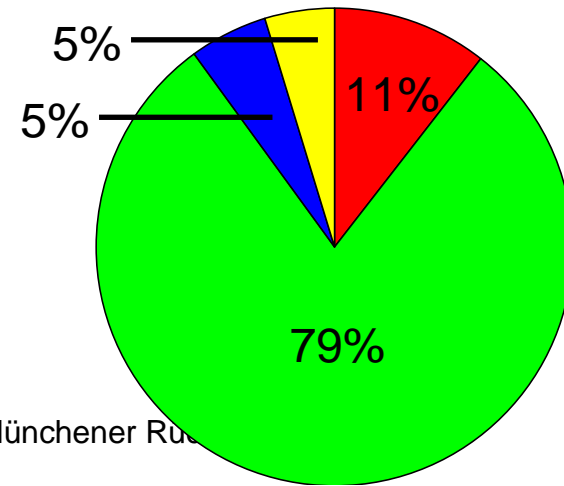


1,75 Million Dead

- Geological events
 - Earthquake/Tsunami, Volcano
- Weather-related events
 - Storm
 - Floods
 - Extreme temperatures



Insured damage: 340 billion US\$

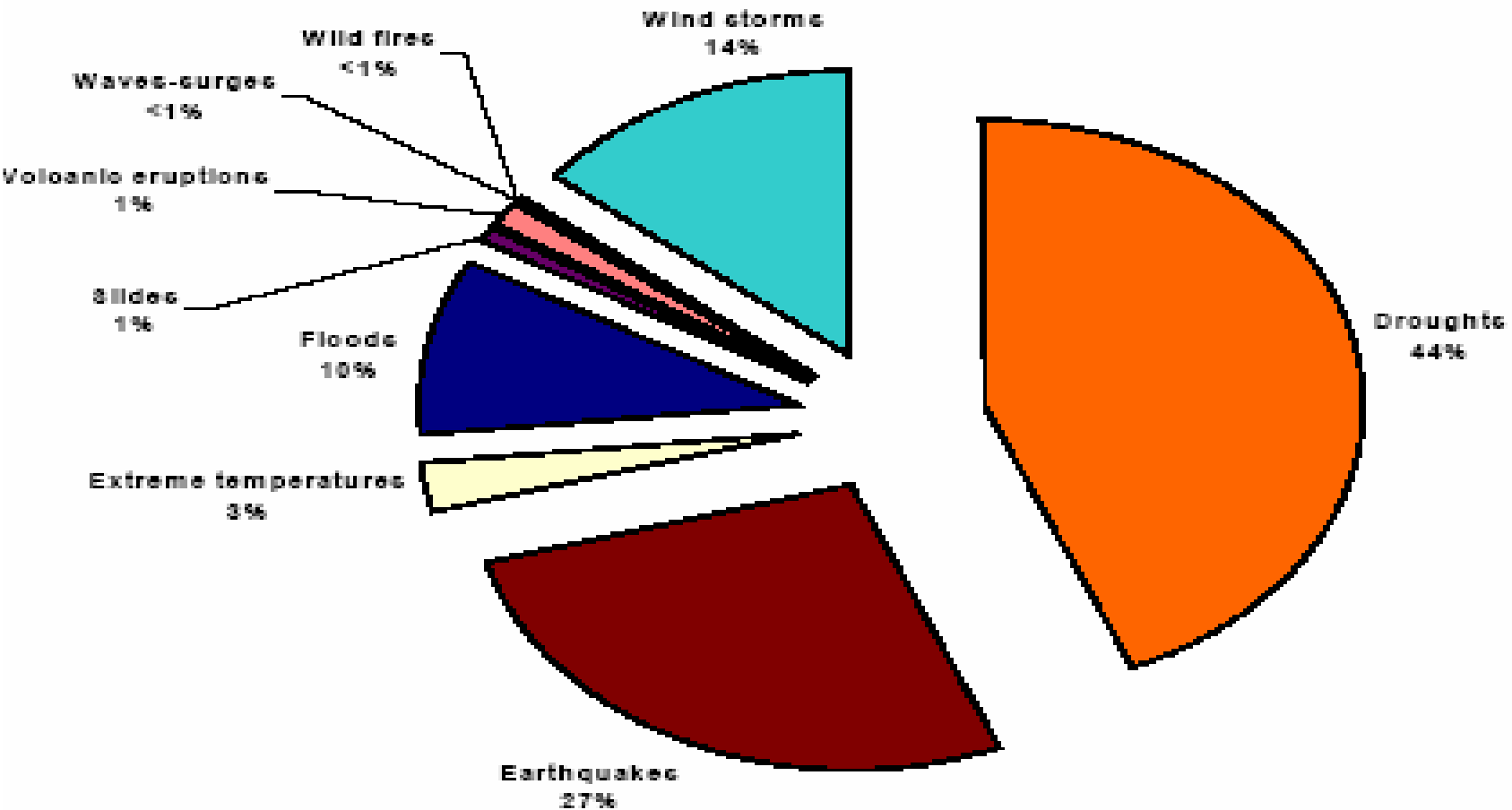


*in Werten von 2005

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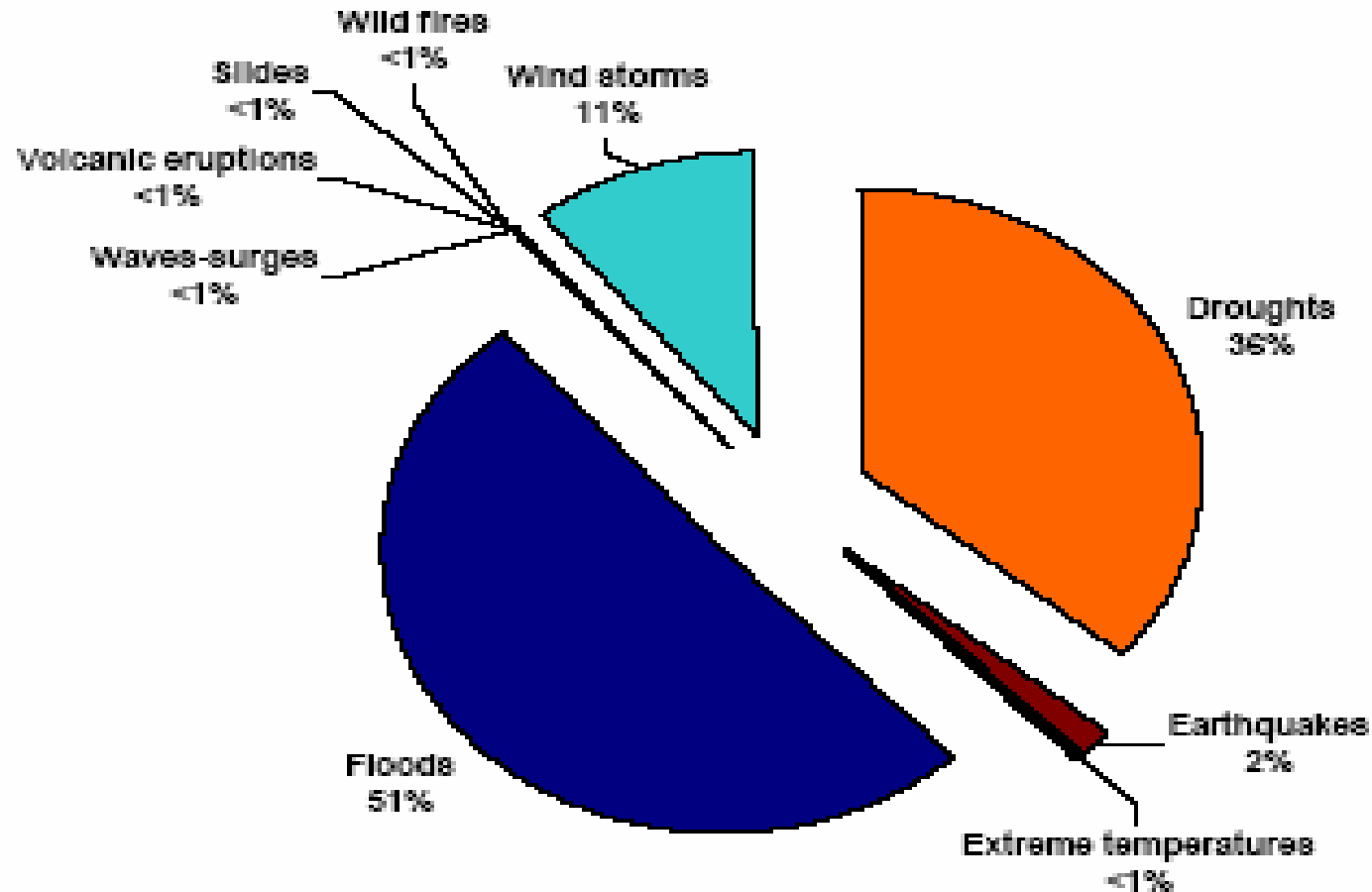
Reported Death of Natural Hazards globally

(1974-2003): 2.066.273 persons



Source: © Hoyois und Guha-Sapir (2004)

Affected persons of Natural Hazards globally (1974-2003): 5 076 494 541 persons



(1) injured + homeless + affected

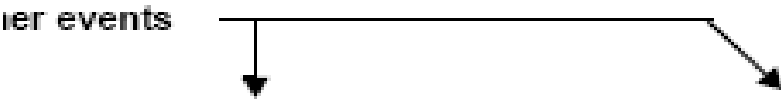
Source: © Hoyois und Guha-Sapir (2004)

Most severe droughts (1900-2008)

By the number of people killed on the country base			By the number of people affected on the country base		
Country	Date	Killed	Country	Date	Affected (million)
China P R.	1928	3,000,000	India	1982	300
Bangladesh	1943	1,900,000	India	2002	300
India	1942	1,500,000	India	1972	200
India	1965	1,500,000	India	1965	100
India	1900	1,250,000	India	Jun 82	100
Sov. Union	1921	1,200,000	China P. R.	Jun 94	82
China P R.	1920	500,000	China P. R.	April 2002	60
Ethiopia	May 83	300,000	India	April 2000	50
Sudan	April 83	150,000	China P. R.	June 1988	49
Ethiopia	Dec 73	100,000	China P. R.	Jan. 2003	48

Source: EM-DAT: The OFDA/CRED International Disaster Database, at: < www.em-dat.net > (created on 5 January 2009)

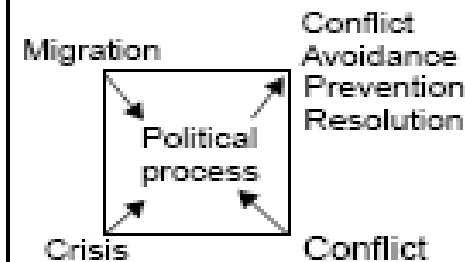
Societal Outcome	(Policy) Response
Individual choice (<i>survival dilemma</i>) Societal response	National and international political process, state, societal and economic actors and knowledge



POLITICAL CONTEXT AND CONDITIONS
(events in the international system)

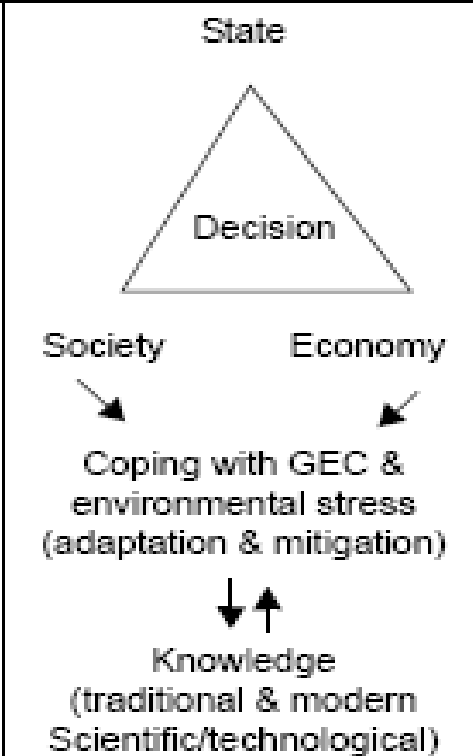
Individual/family/
community choice
(*survival dilemma*)

- stay at home & suffer
- move (migrate)
- protest & fight (violence)



Societal response

- massive migration (rapid urbanization rise)
- internal crisis
- violent conflict
- conflict avoidance, prevention, resolution



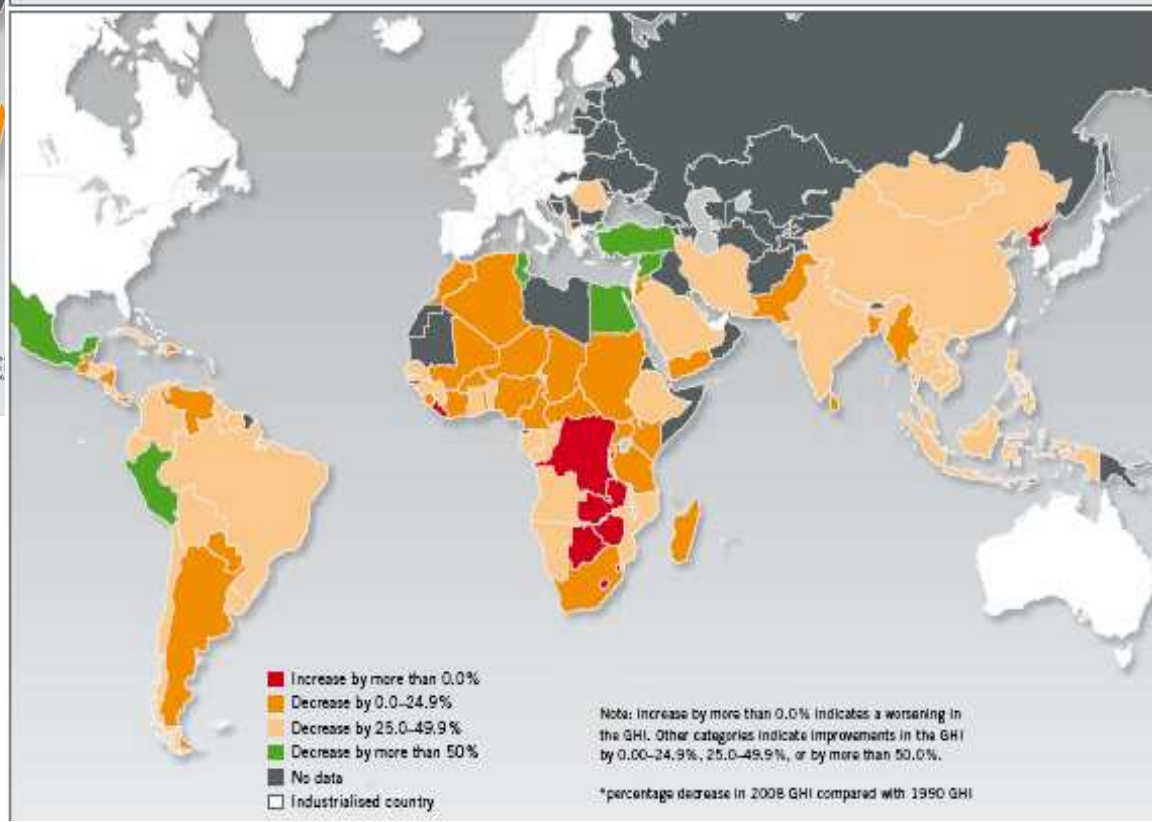
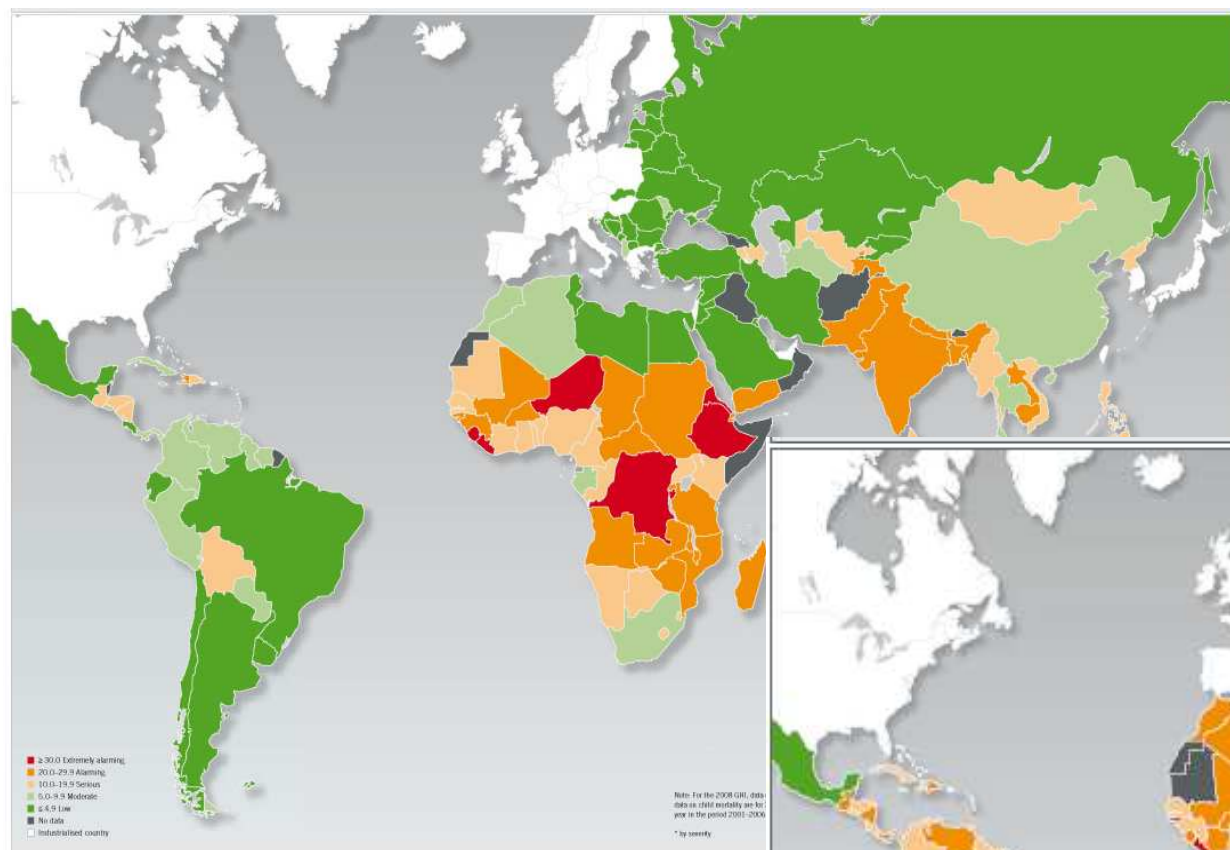
SO: Societal Outcomes

- Individual level (choice)
 - Human security perspect.
 - Survival dilemma of humans
- State/society level
 - Hunger, famine
 - Migration to urban slums
 - Rural-rural migration
 - Transborder migration
 - Seasonal (labour, nomads)
 - Permanent
 - Crises: domestic
 - Conflicts:
 - Peaceful protests
 - Violent clashes
 - Complex emergencies

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.

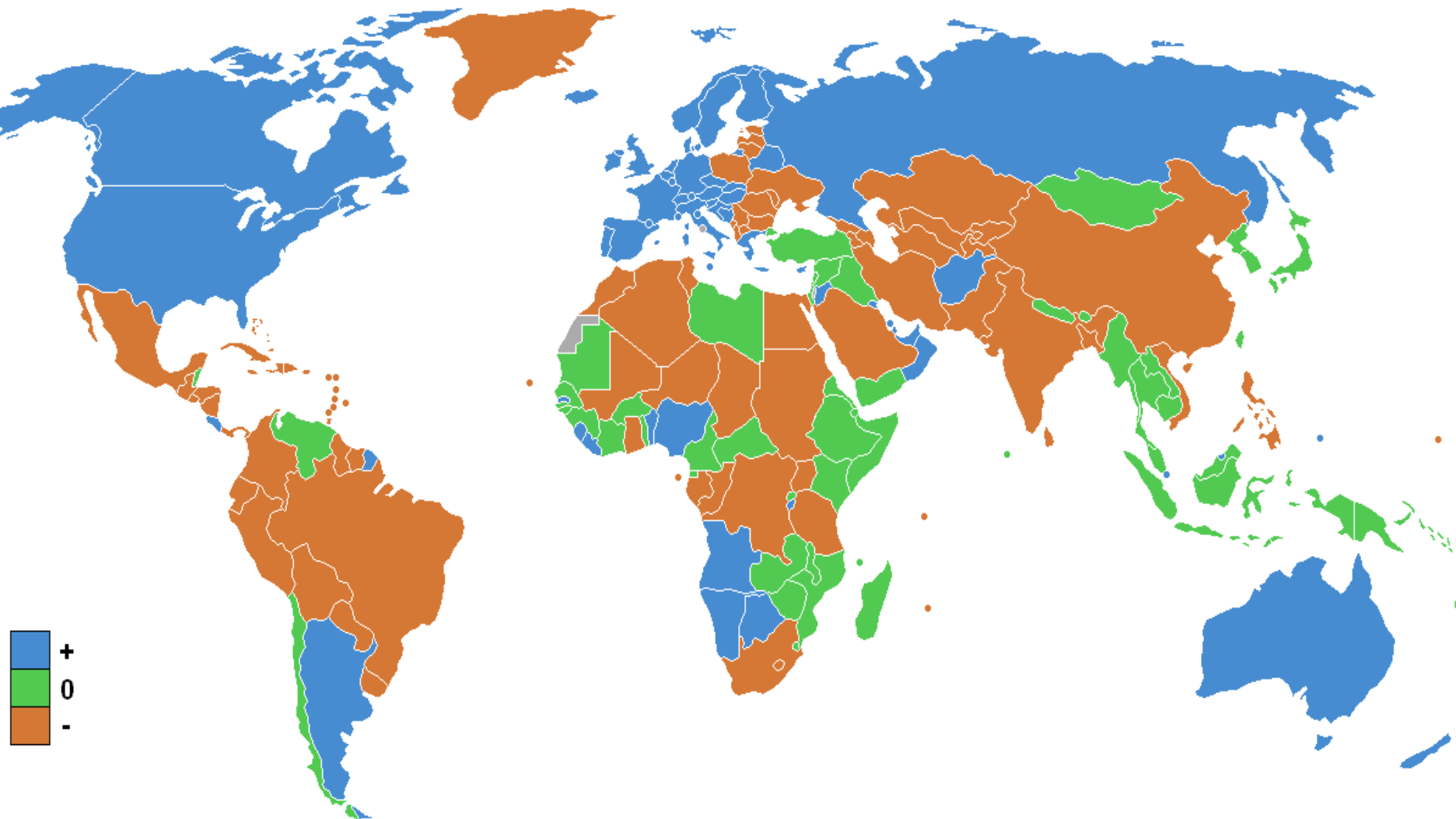
INDIA
Sep 2007: At least 6 die in mob attacks on West Bengali rice sellers in rationing protests. Aug 2008: Food riots follow flooding in eastern India.

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)

Global net migration



positive (blue), negative (orange). **Source:** Wikipedia, 2009

Migration currents

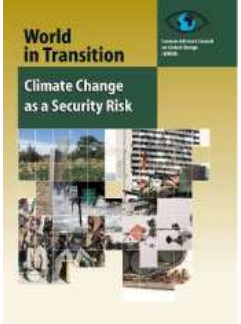
Distance no object

Some of the world's more important current migration routes



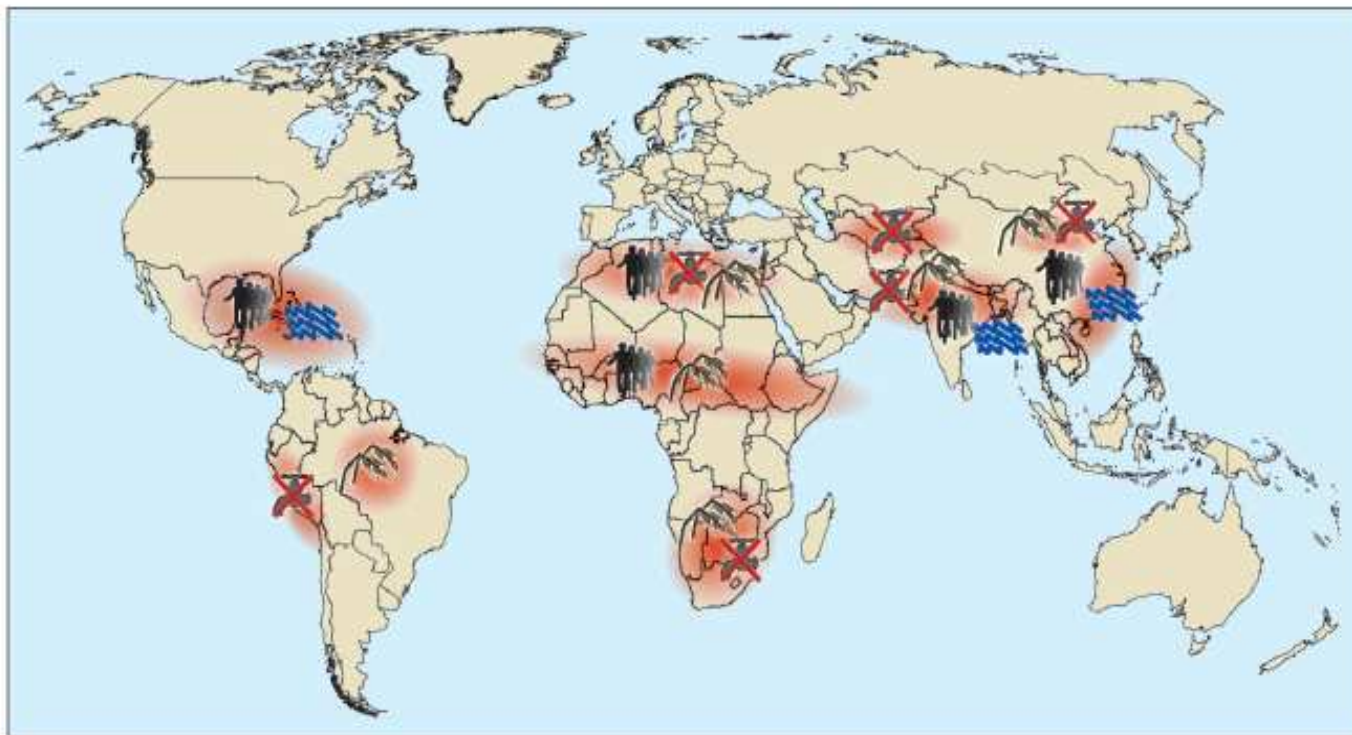
Sources: National Public Radio;
The Economist

Source: <<http://www.economist.com/images/20080105/CSR900.gif>>



WBGU-study: Climate 'Hotspots': Four Conflict Scenarios

Figure 4.7: Regional hotspots and security risks associated with climate change. Source: WBGU (2008: 4). Reprinted with permission.



Conflict constellations in selected hotspots



Climate-induced degradation of freshwater resources



Climate-induced decline in food production



Hotspot



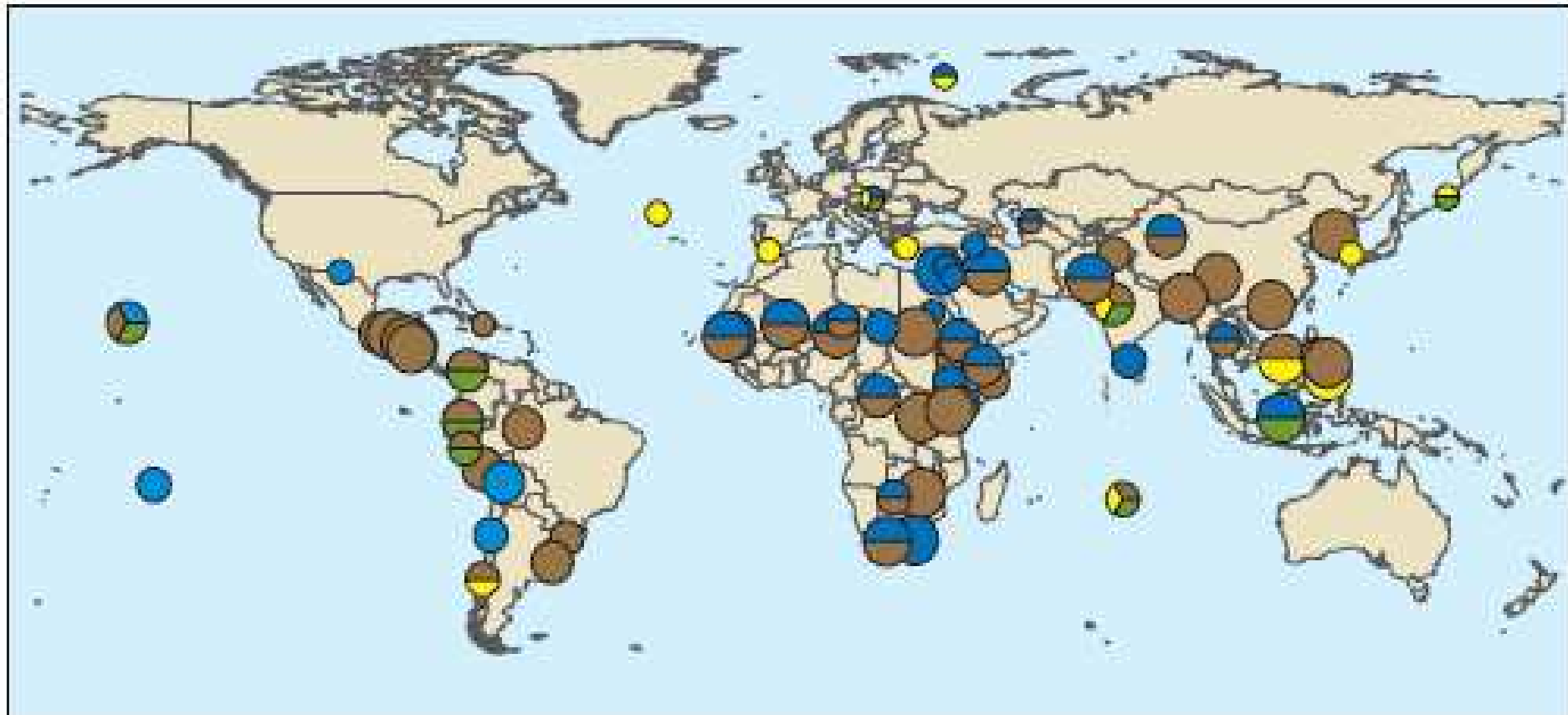
Climate-induced increase in storm and flood disasters



Environmentally-induced migration

- **Mediterranean**
 - Water
 - Food product.
 - **Migration**
- **South, Central and East Asia**
 - Water
 - Food product.
 - **Migration**
 - cyclone
- **Latin America & Caribbean**
 - Wasser
 - Water
 - Food product.
 - **Migration**
 - hurricanes

Environmental conflicts (1980-2006)



Conflict intensity

- Diplomatic crisis
- Protests (partly violent)
- Use of violence (national scope)
- Systematic/collective violence

Conflict cause

- Water
- Land/soil
- Fish
- Biodiversity

Source: WBGU (2008: 32)

R: Policy Response to DLDD Dangers

- **How? Responsive vs. proactive action**
 - **Reponse:** cost of non-action (Stern R.)
 - **Proactive:** anticipatory knowledge, learning, action
- **What? Addressing causes (pressure)**
 - **Earth system:** environmental quartett
 - **Human:** productive/consumptive behaviour
- **Responding to Effects & Impacts**
 - **Environmental stress**
 - **Climate-related natural hazards**
- **Dealing with Societal Outcomes**

5. Sectorialization of Security Concepts

Coined by International institutions

- **to legitimate their activities in terms of security**
- **to securitize climate change impacts**

Securitizing Water: water security concepts

Securitizing Food: food security concept

Securitizing Soil: desertification and the new soil security concept

Securitizing Health: health security concepts

Securitizing Energy: demand vs. supply security

Securitizing Migration:

5.1. Securitizing Water: water security concepts

- **Oswald Spring/Brauch: chapter 11**
- **Part VII Water Security for the 21st Century**
 - **Chapters 41-58:**
 - **Focus on India and Turkey**
 - **Focus on Middle East**
 - **Focus on the Nile River: upstream and downstream**
 - **Africa**
 - **Focus on Central Asia**

5.2. Securitizing Food: food security concept

Part V Food Security for the 21st Century

33 *Úrsula Oswald Spring* Food as a New Human and Livelihood Security Challenge

34 *M. A. Mohamed Salih.* Governance of Food Security in the 21st Century 501

35 *Selim Kapur, Burcak Kapur, Erhan Akca, Hari Eswaran and Mustafa Aydýn:* A Research Strategy to Secure Energy, Water, and Food via Developing Sustainable Land and Water Management in Turkey

5.3. Securitizing Soil:

New soil security concept

Spanish:<http://www.unccd.int/knowledge/docs/dlidd_sp.pdf>

English:<http://www.unccd.int/knowledge/docs/dlidd_eng.pdf>

>

- Hans Günter Brauch - Úrsula Oswald Spring
Securitizing the Ground-
Grounding Security
- UNCCD, May 2009
Úrsula Oswald Spring - Hans Günter Brauch
Seguritizar la Tierra
Aterrizar la Seguridad



5.4. Securitizing Health: health security concepts

Part VI Livelihood and Health Security for the 21st Century

- 37** *Guénaél Rodier and Mary Kay Kindhauser* Global Health Security: The WHO Response to Outbreaks Past and Future
- 38** *Jennifer Leaning*: Health and Human Security in the 21st Century
- 39** *Fred Eboko and Tereza Nemeckova*: AIDS – Challenge to Health Security in Africa: Politics in Africa and Case Study on Botswana
- 40** *Isabel Fischer and Mohammad Musfequs Salehin*: Health and Poverty as Challenges for Human Security: Two Case Studies on Northern Vietnam and Bangladesh

5.5. Securitizing Migration:

Debate on Environmentally-Induced (climate-induced migration)

- Conceptual debate on drivers
- Difficulty of statistical assessment
- October 2008: UNU-EHS Conference in Bonn
- No refugee status: no legal entitlement
- Schellnhuber: cause & effect: % of contribution, % of migrants (highly implementable)

5.6. Securitizing Energy: Cause and Solution to GHG

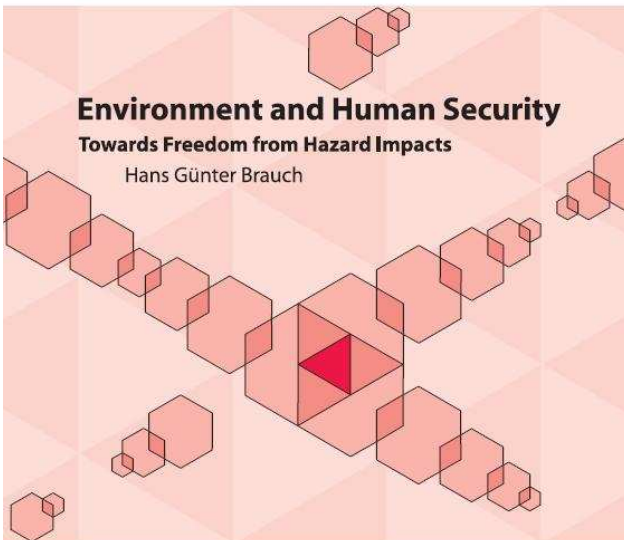
Part IV Energy Security for the 21st Century

- 23 Energy Security: Conceptualization of the International Energy Agency (IEA) *Klaus-Dietmar Jacoby*
- 24 Scenarios of Energy Demand and Supply until 2100: Implications for Energy Security *Leo Schrattenholzer*
- 25 Projections of Fossil Energy Reserves and Supply until 2050 (2100): Implications for Longer-term Energy Supply Security *Werner Zittel and Joerg Schindler*
- 26 Technical and Economic Potentials of Biomass until 2050: Regional Relevance for Energy Security *André P.C. Faaij*
- 27 Solar Energy on a Global Scale: Its Impact on Security 395 *David Faiman*
- 28 Solar Energy as a Key for Power and Water in the Middle East and North Africa *Franz Trieb, Wolfram Krewitt, and Nadine May*
- 29 Energy Security in the Arab World *Mohammad Selim and Abdullah Sahar*
- 30 Turkey: Energy Security and Central Asia: The Politics and Economics of the So-called Great Game 437 *Gareth M. Winrow*
- 31 Towards a Sustainable Energy System for Africa: An African Perspective on Energy Security *Nogoye Thiam*
- 32 Energy Security: Economic, Environmental, and Societal Opportunity for the North – Potential of Renewables to Avoid Conflicts? *Rolf Linkohr*

Free Publications of UNU-EHS

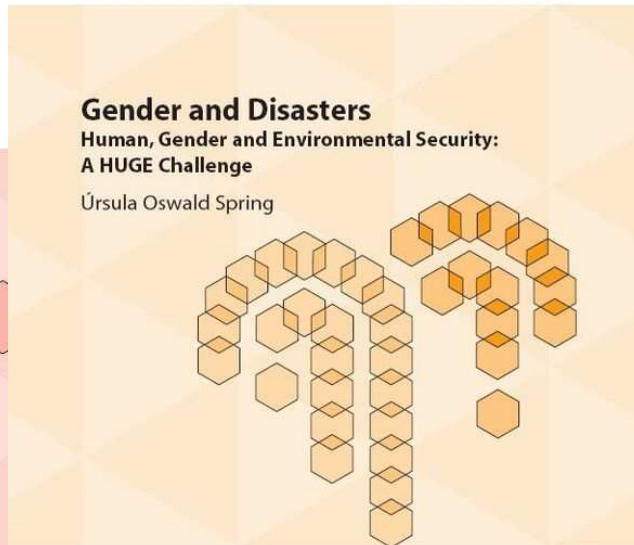
at: <http://www.ehs.unu.edu/category:16?menu=35>

at: <http://www.ehs.unu.edu/category:17?menu=36>



Gender and Disasters Human, Gender and Environmental Security: A HUGE Challenge

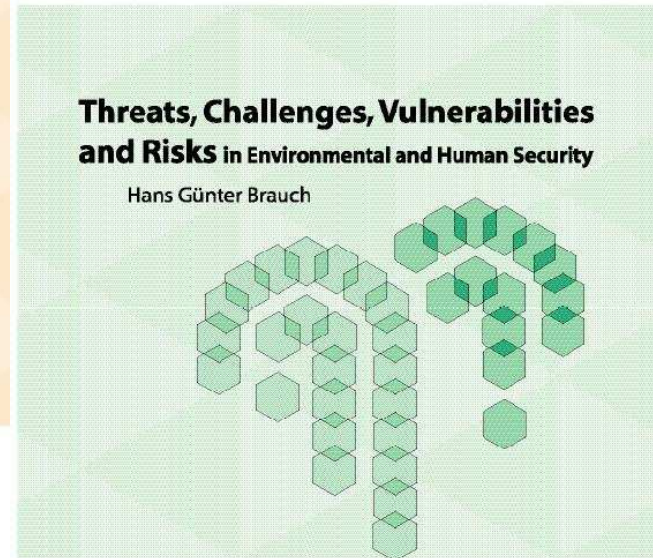
Úrsula Oswald Spring



SOURCE

'Studies Of the University: Research, Counsel, Education' - Publication Series of UNU-EHS

No. 8/2008



Threats, Challenges, Vulnerabilities and Risks in Environmental and Human Security

Hans Günter Brauch

SOURCE

'Studies Of the University: Research, Counsel, Education' - Publication Series of UNU-EHS

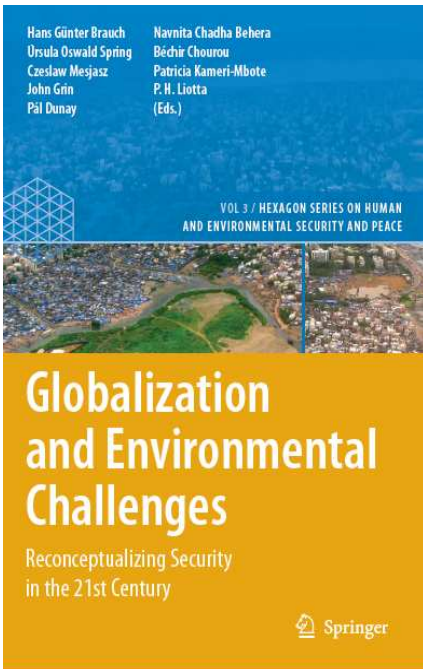
No. 1/2005

InterSecTions

'Interdisciplinary Security ConnecTions' - Publication Series of UNU-EHS

No. 2/2005

Environmental Security Handbook

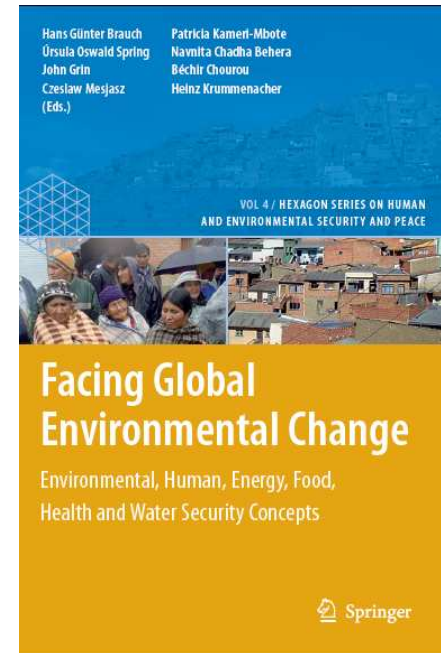


I. Globalization and Environmental Challenges: 92 authors, 36 countries, 16 disciplines, former vice presidents, ministers, generals, diplomats (2008)

II. Facing Global Environmental Change: 132 authors, 49 countries on global debate and problems of environmental, human, energy, food, health, water security (2009)

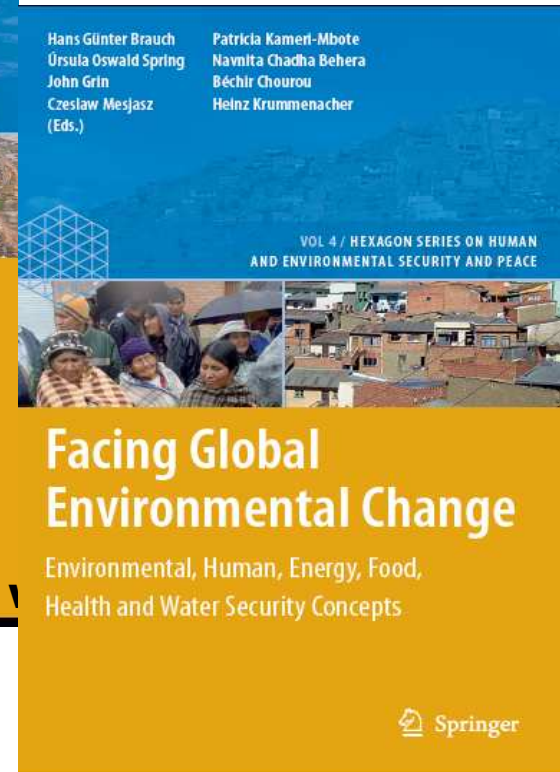
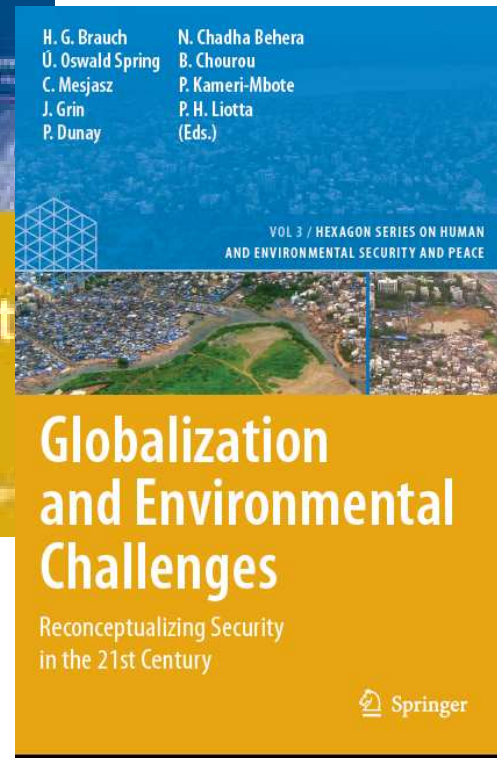
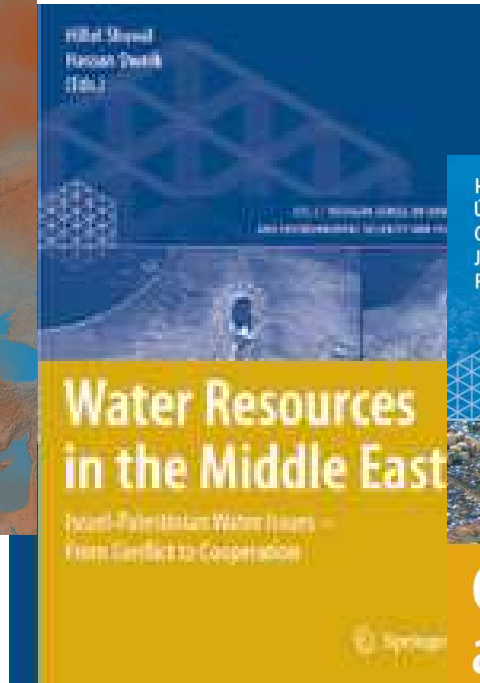
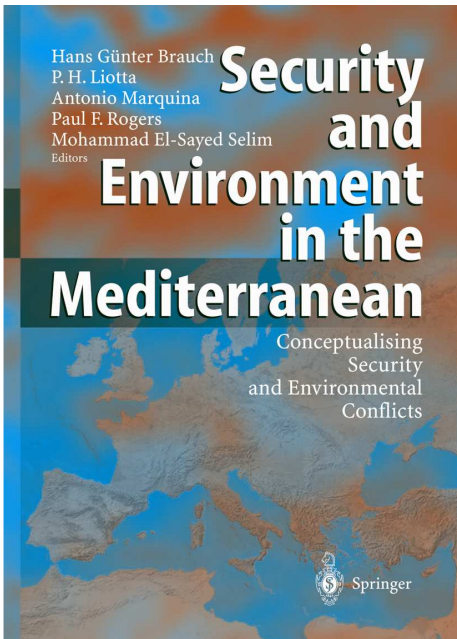
III. Coping with Global Environmental Change Disasters and Security – Threats, Challenges, Vulnerabilities and Risks (2010)

← Spanish & Turkish →
Editions of
Vol.1



Greek
Editions of
Vol.1 & 2
AGORA
2010

Hexagon Series on Human, Environmental Security and Peace (HESP)



<<http://www.afes-press-books.de/html/hexagon.htm>>

Suggested Reading until 20 November

- IPCC, Fourth Assessment Report, Synthesis Paper (Nov. 2007): <ipcc.org>
- Synthesis Report of the Copenhagen Scientific Climate Conference, March 2009: <<http://climatecongress.ku.dk/>>.
- On reconceptualization of security one or two of my papers:
 - H.G. Brauch : *Environment and Human Security. Towards Freedom from Hazard Impacts*, InterSecTions No. 2/2005;
 - H.G. Brauch : *Threats, Challenges, Vulnerabilities and Risks in Environmental and Human Security*, Source, 1/2005. at : <<http://www.ehs.unu.edu>>;
 - H.G. Brauch, Ú. Oswald Spring: *Securitizing the Ground-Grounding Security* (Bonn: UNCCD, May 2009); for download : <http://www.unccd.int/know-ledge/docs/dldd_eng.pdf>;
- On the **sectorialization of security** my free introductory chapter for the volume. *Facing Global Environmental Change* you find for download at: <http://www.afes-press-books.de/pdf/Hexagon_4/Hexagon_4_Pressemappe.pdf>.

Key Bibliography for the Seminar:

- WBGU : *Sicherheitsrisiko Klimawandel* (2007);
- WBGU: *Security Risk Climate Change* (2008); for download at: <http://www.wbgu.de/wbgu_jg2007_engl.html>;
- Commission on Human Security : *Human Security Now* (New York 2003, at: <www.humansecurity-chs.org>;
- Brauch/Grin/Mesjasz/Dunay/Chadha Behera/Chourou/Oswald Spring/Liotta/ Kameri-Mbote (Eds.): *Globalization and Environmental Challenges : Reconceptualising Security in the 21st Century*. 2008. This book is available at several libraries in Berlin. Details at: <http://www.afes-press-books.de/html/hexagon_03.htm>. Free bibliography at: <<http://www.springerlink.com/content/x33671/back-matter.pdf>>.
- Brauch/Oswald Spring/Grin/Mesjasz,/Kameri-Mbote/Behera/Chourou/Krummenacher (Eds.): *Facing Global Environmental Change : Environmental, Human, Energy, Food, Health and Water Security Concepts*, 2009. This book is available at several libraries in Berlin. Details at: <http://www.afes-press-books.de/html/hexagon_04.htm>. Bibliography at: <<http://www.springerlink.com/content/p13v23/back-matter.pdf>>.
- Oswald Spring/Brauch: *Reconceptualizar la Seguridad en el Siglo XXI* (Mexico D.F., Cuernavaca, Mexico: UNAM/CRIM/CEIICH/CCA — Mosbach, Germany: AFES-PRESS, 2009); details at: <http://www.afes-press-books.de/html/hexagon_03_sp-mx.htm>.
- H.G. Brauch : *Environment and Human Security. Towards Freedom from Hazard Impacts*, InterSecTions No. 2/2005;
- H.G. Brauch : *Threats, Challenges, Vulnerabilities and Risks in Environmental and Human Security*, Source, 1/2005. at : <<http://www.ehs.unu.edu>>;
- H.G. Brauch, Ú. Oswald Spring: *Securitizing the Ground-Grinding Security* (Bonn: UNCCD, May 2009); for download : <http://www.unccd.int/know-ledge/docs/ dldd_eng.pdf>;
- **please consult webpages of: <unfccc.int>; <ipcc.org>; <wbgu.de>; Copenhagen Scientific Climate Conference, 2009: <<http://climatecongress.ku.dk/>>.**
-

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