Wednesday, 24 October 2012, 14:00-16:00

Securitizing Global Environmental Change & Climate Change, International, National & Human Security & Violent Conflicts? 2 Discourses Posing Challenges for Research and Policy in the 21st Century

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Additional Readings

Hexagon Series on Human and Environmental Security and Peace VOL 8

Jürgen Scheffran · Michael Brzoska
Hans Günter Brauch · Peter Michael Link
Janpeter Schilling *Editors*

Climate Change, Human Security and Violent Conflict

Challenges for Societal Stability

Springer

- Text 5: Brauch, Hans Günter, 2009: "Securitzing Global Environmental Change"*,* in: Brauch, Hans Günter; Oswald Spring, Úrsula et al. (Eds.), 2009: ***Facing Global Environmental Change: Environ-mental, Human, Energy, Food, Health and Water Security Concepts***. Hexagon Series, vol. 4 (Berlin – Heidel- berg – New York: Springer-Verlag):65-102.

- Scheffran, Jürgen; Brzoska, Michael; Brauch, Hans Günter et al. (Eds.): ***Climate Change,Human Security and Violent Conflict: Challenges for Societal Stability*** Hexagon Series, vol. 8 (Heidelberg – Dordrecht – London – New York: Springer, 2012). http://www.afes-press-books.de/html/hexagon_08.htm

- **Sustainability Transition & Sustainable Peace workshops. Hex. Series, vol. 11**

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

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9. **Two Alternative Visions: Hobbesian Business as Usual vs. Sustainability Revolution with Low Carbon Economy**

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1. Introduction:
Two Discourses & Research Questions

- Objectively Global Environmental Change (GEC) & Climate Change has been a challenge for humankind since eternity
- Since the 1970s Global Environmental Change & Climate Change is perceived as a scientific, political & security problem
- GEC was discussed as a security issue since 1988 & 2002
- Since 2007 it was addressed in the UN's Security Council (2007, 2011), in the UN General Assembly (2009) & in a report of the Secretary-General on **CC & Security** of 11 Sept. 2009
- This report referred to two discourses CC as a **threat maximizer** (security) & a **threat minimizer** (sustainable development)
- This talk will review both discourses and review the global policy and scientific debates on CC and international, national & human security (IPCC, 5th Assessment Report, II, 12 (2014)[4]

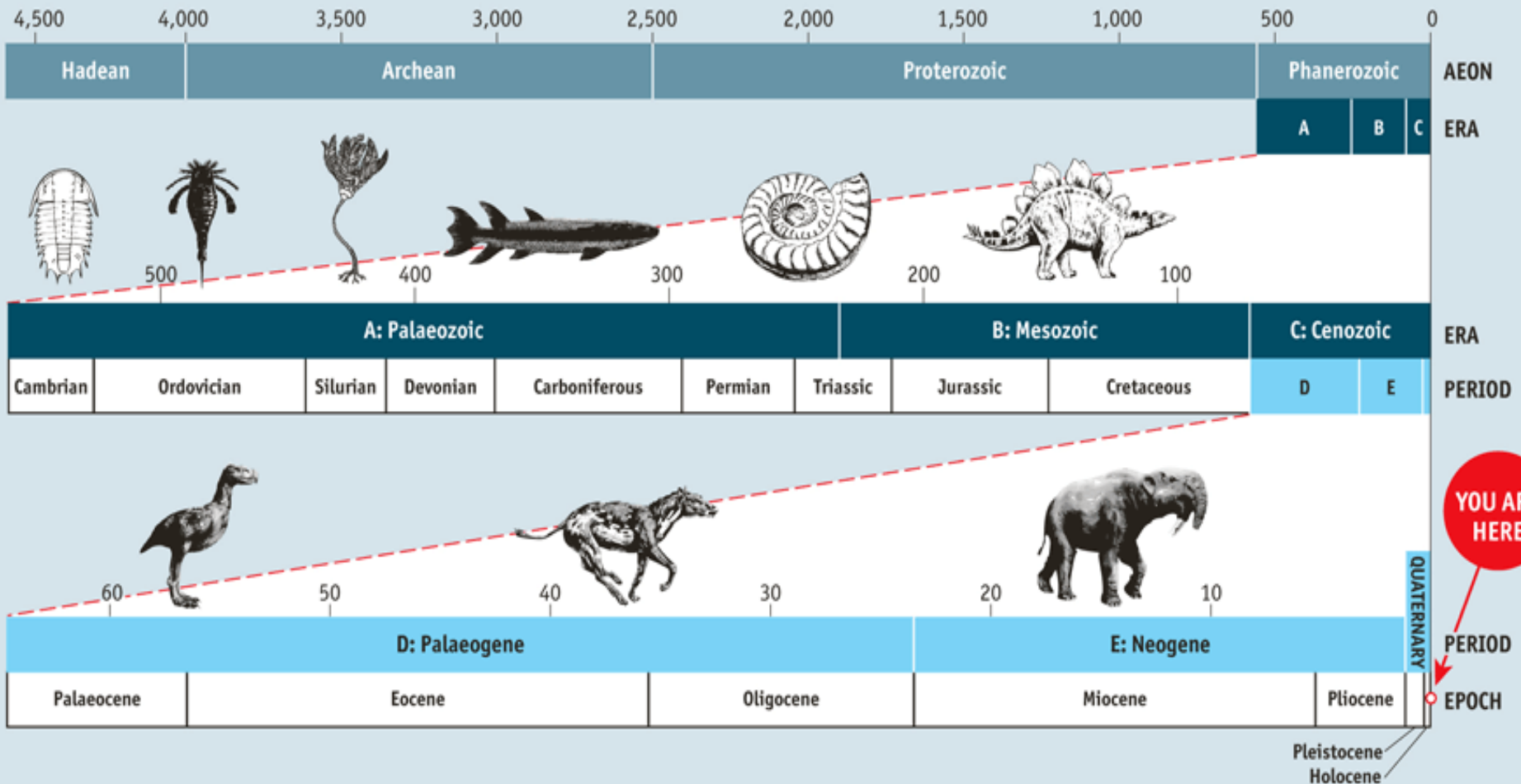# 1.1. Report of UN-Sec-General (11.9.2009)
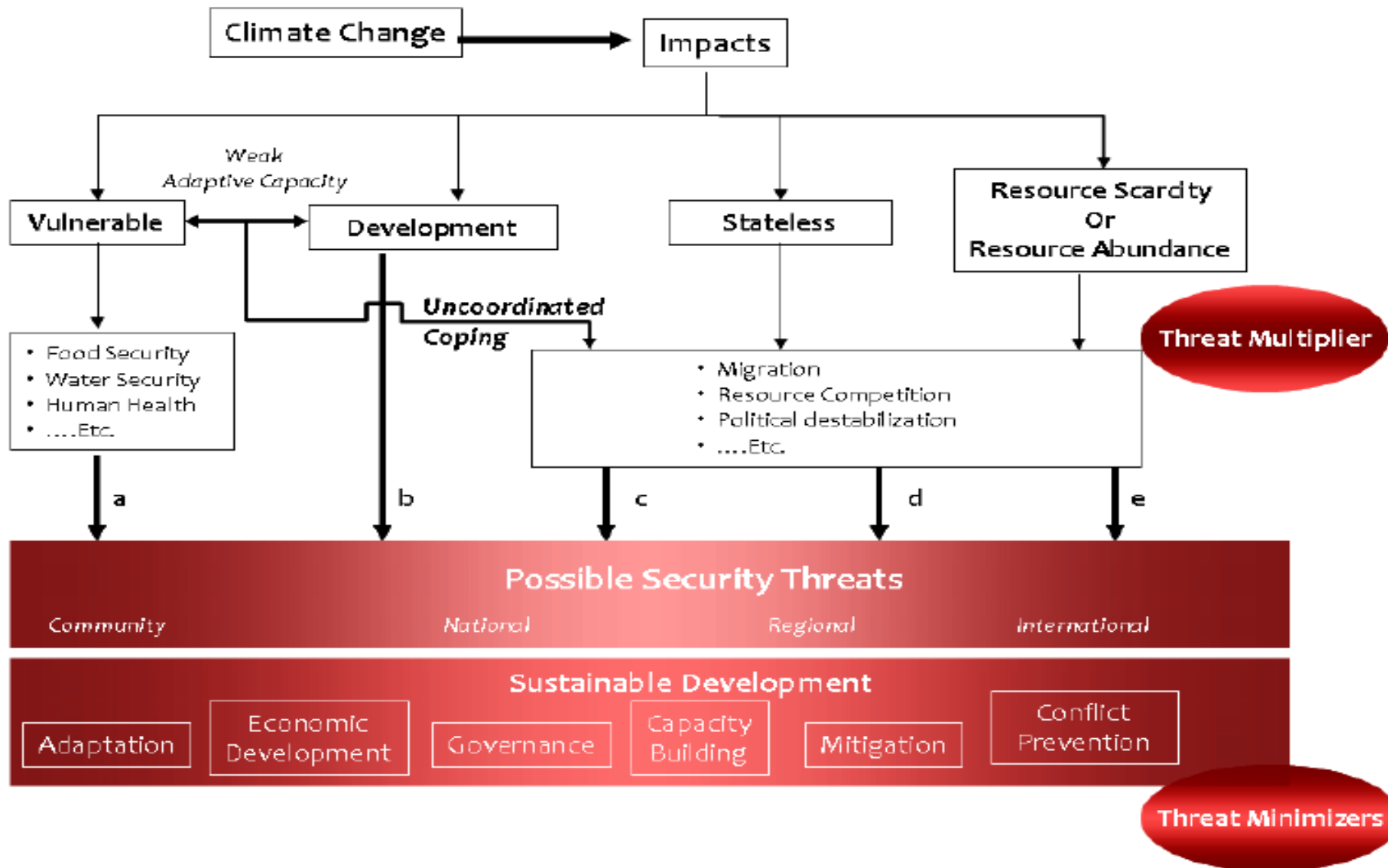
# 2. Change in Geological Time: From Holocene to Anthropocene

- We have mapped a fundamental and global **Reconceptua-lization of Security** since 1989 for three reasons:

- What has triggered this global contextual & conceptual change?
  - End of the Cold Wat
  - Process of Globalization
  - Global environmental change: Transition from Holocene to Anthropocene

- Which conceptual innovations affecting the security analysis
  - Ulrich Beck (1986, 2007): Theory of (international) risk society
  - Ole Wæver (1997): Theory of securitization (Copenhagen school of critical security studies
  - Paul J. Crutzen (2000): Humankind was instrumental for the transition in earth history from the Holocence (12000 years BP) to Anthropocene
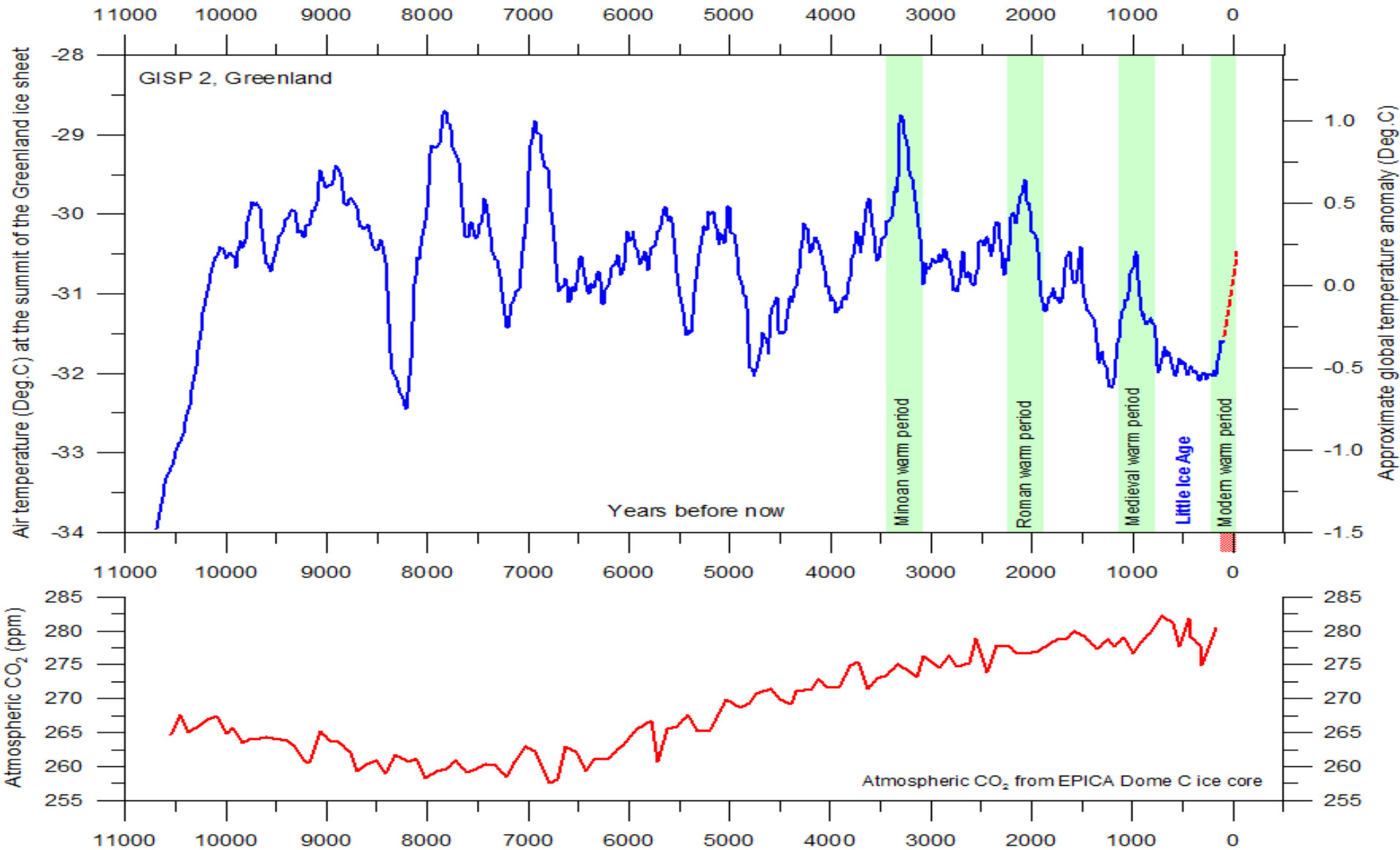
2.1 Geological Time: Earth History
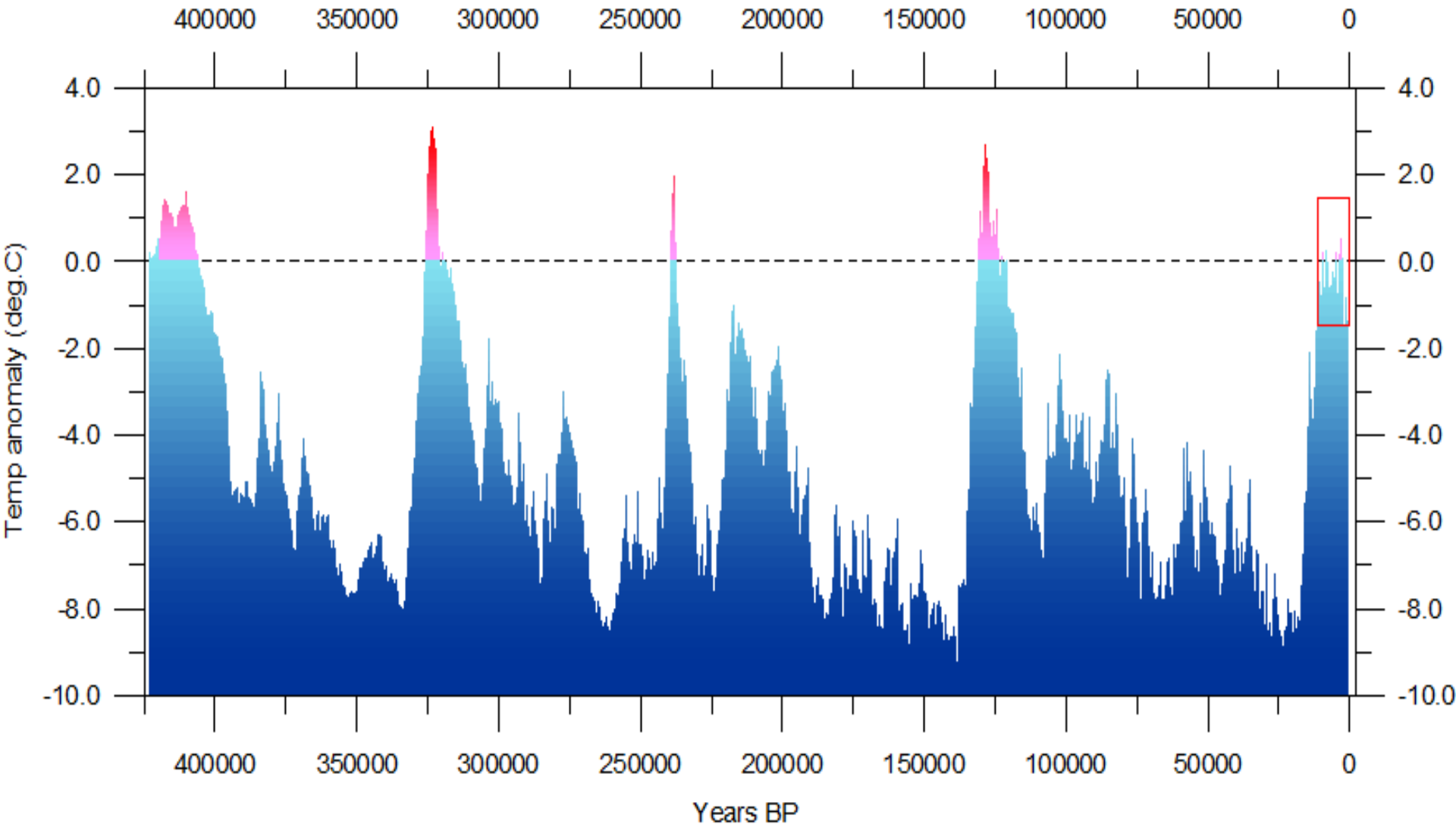
2.3 The Holocene (11600 BP-now)

2.4. From the **Holocene** (12.000 years b.p.) to the **Anthropocene** (1784 AD)

Paul Crutzen,
Nobel Laureate for
Chemistry (1995)
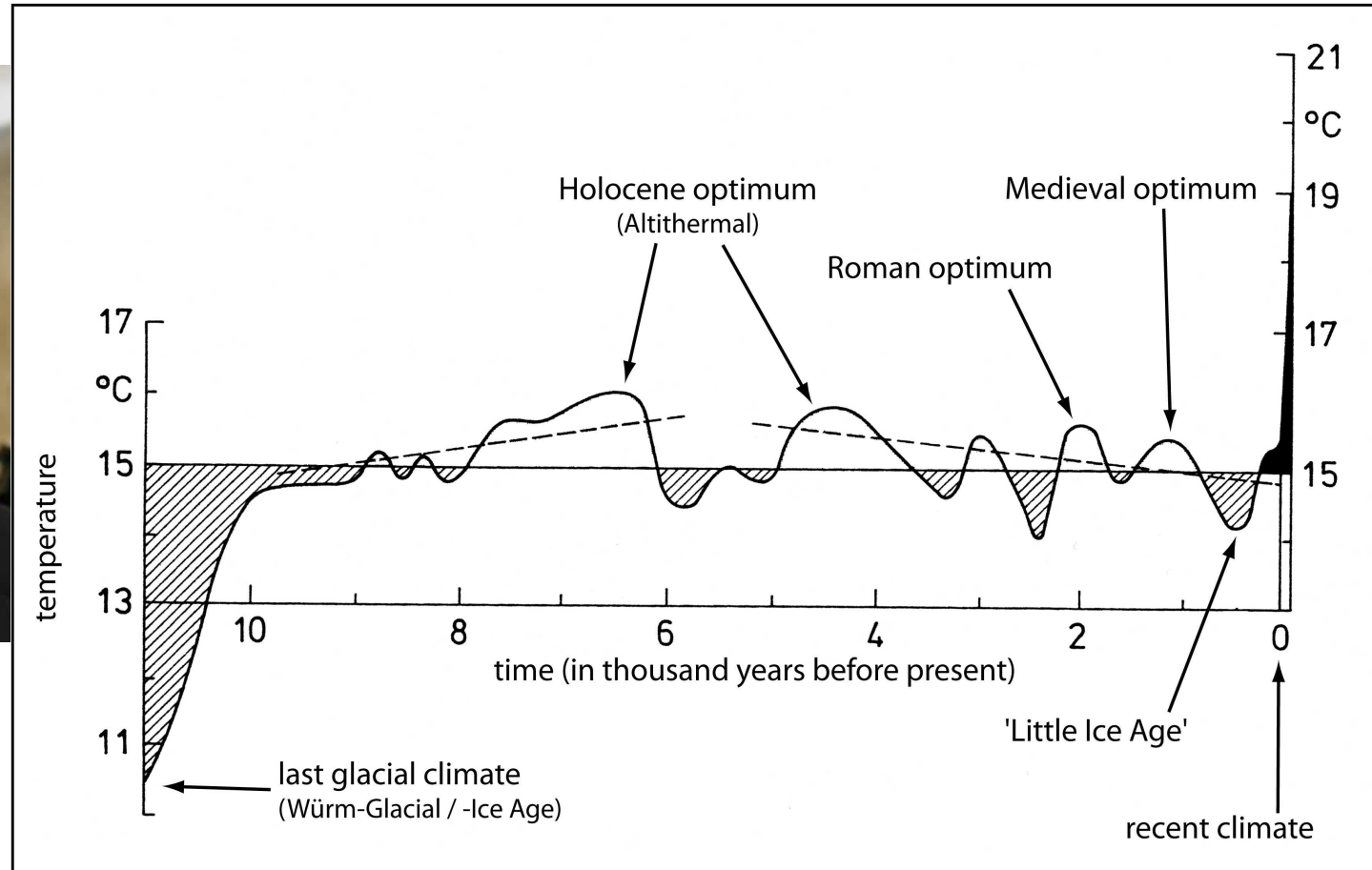
In Geology/geography: **Holocene** era of earth history since end of glacial period (10-12.000 years ago, Anthropocene, since industrial revolution (1784, J.Watt's invention of steam engine: anthropogenic climate changte: burning of coal.oil,gas➔GHG increase

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

1958-1974 Scripps Inst. Oceanography
1974-2008 NOAA/ESRL
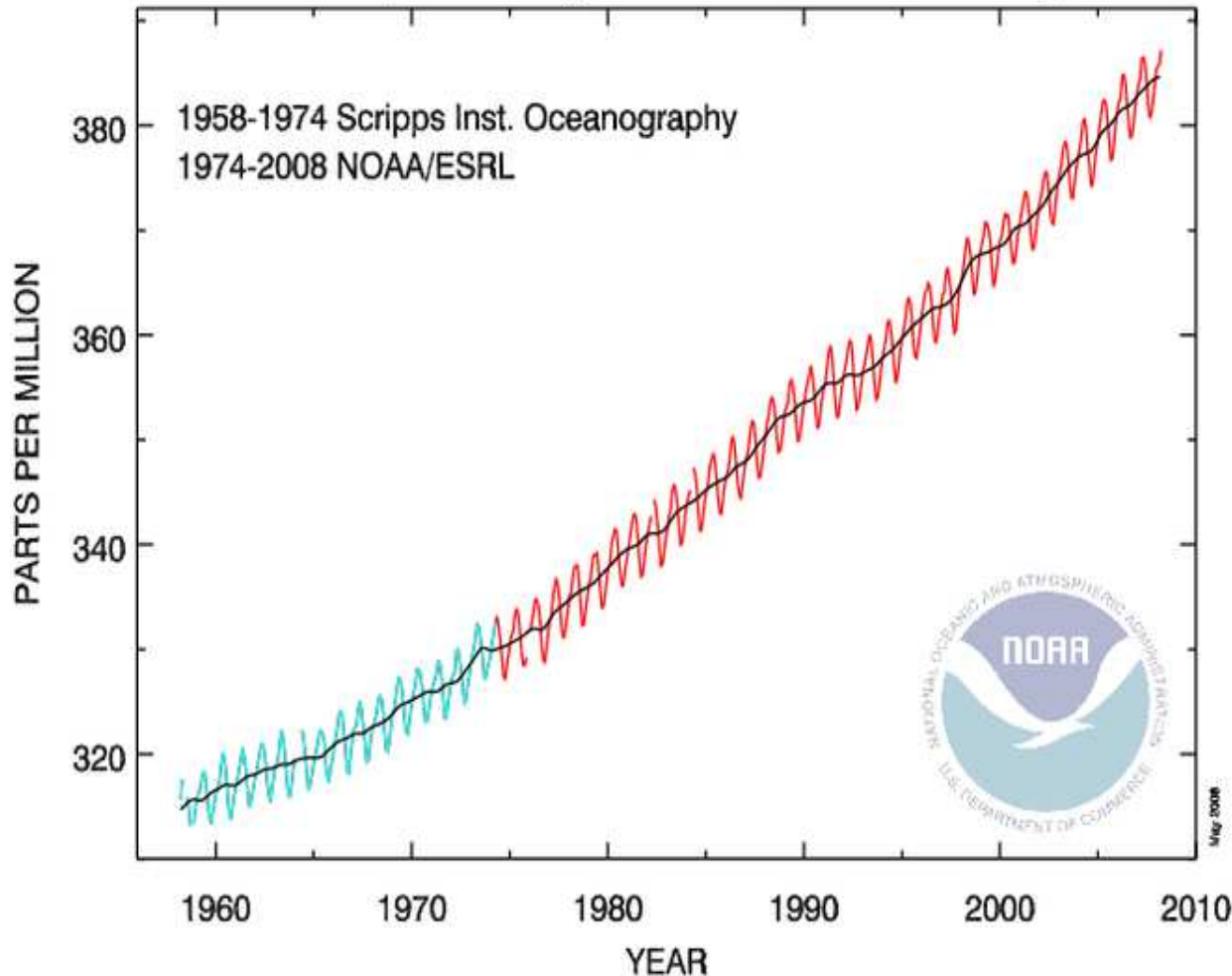
- **GHG concentration in the atmosphere**
- **1750: 279 ppm, 1987: 387 ppm**
- **2011: 393 ppm**
- **1/3: 1750-1958: 279 to 315 ppm**
- **2/3: 1958-2011: 315 to 393 ppm**

2.6. What has changed?
Crutzen & Braudel's historical times

a. **Geological times:** Holocene to the Anthropocene (Crutzen)
b. **Macrostructural (very long-term):** Impact of 1st & 2nd industrial revolution (on **strategy & warfare**)
- Agricultural revolution
- Industrial Revolution (1780-1914): burning of hydrocarbons
- Communication, Transportation & IT Rev. (1890/1914-present)
- Fourth Sustainability Revolution (paradigmatic scientific change)

Braudels three historical times:

c. **Structural (long-term):** Political revolutions, change of **international order** (**context of security**)

d. **Conjuncture (medium term):** Business cycles, presidencies

e. **Events (short-term)**
- **Single events (without major contextual changes):**
  - Many (e.g. State of the Union Speech of Pres. Obama)
- **Structure or context changing events.**
  - E.g. 11 September 2001: for the USA and globally?

2.7 Which Contextual Change?

- **1989-1991: End of the Cold War (East-West-Conflict): 9 November 1989: Fall of Berlin Wall**
  - ❑ **Widening**: from 2 to 5 security dimensions
  - ❑ **Deepening**: from national to human security
  - ❑ **Sectorialization**: energy,food,health,water security
- **11 September 2001: Increased Vulnerability of U.S.**
  - ❑ **G.W. Bush: Shrinking on** weapons of mass destruction, terrorists
  - ❑ **Transatlantic dispute on goals: Terrorism vs. Climate Change**
  - ❑ **B. Obama: Widening: multilateralism, hard & soft security issues**
- **2008: Economic crises: econ. & social vulnerability**
  - ❑ **Crises, Globalization:** high economic & **social vulnerability**
  - ❑ **Economic & financial insecurity: increase in food insecurity, poverty: food price protests, hunger riots**

2.8. Classical Definition in Political Science & International Relations

■ Arnold Wolfers (1962), pointed to 2 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 & focus of policy-makers;**

❑ **Absence of "fears": interest of social scientists, especially of contructivists: "Reality is socially constructed";**

■ **According to Møller (2003) Wolfer's definition ignores:**

❑ **Whose values might be threatened? Which are these values?**

❑ **Who might threaten them? By which means?**

❑ **Whose fears should count?**

❑ **How might one distinguish between sincere fears & faked ones?**

2.9. Conceptual Innovations:
Social Constructivism & Theory of Securitization

- From a social 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. [relevance of anthropology]

  - ❑ Security is *intersubjective* or "what actors make of it".

- Copenhagen school security as a "speech act", "where a securitizing 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.

2.10. 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, often but not necessarily to be carried out by the actor), and

- **'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'.**

2.11. Since 1990: Widening, Deepening & Sectorialization of Security Concepts:

- **Widening** (5 dimensions, sectors),
- **Deepening (**state to people-centred: levels, actors)
- **Sectorialization** (energy, food, health, water, soil),

Dimensions & Levels of a Wide Security Concept

Security dimension⇒ ⇓ Level of interaction	Mili- tary	Political	Economic	Environ- mental ⇓	Societal
Human individual ⇒			Food sec. Health sec.	Cause & Victim	Food sec. Health sec.
Societal/Community				⇓⇑	
National	shrinking		Energy security	⇓⇑	Food & health security
International Regional			Water security	⇓⇑	Water security
Global/Planetary ⇒				GEC	

2.12. Environmental & Human Security

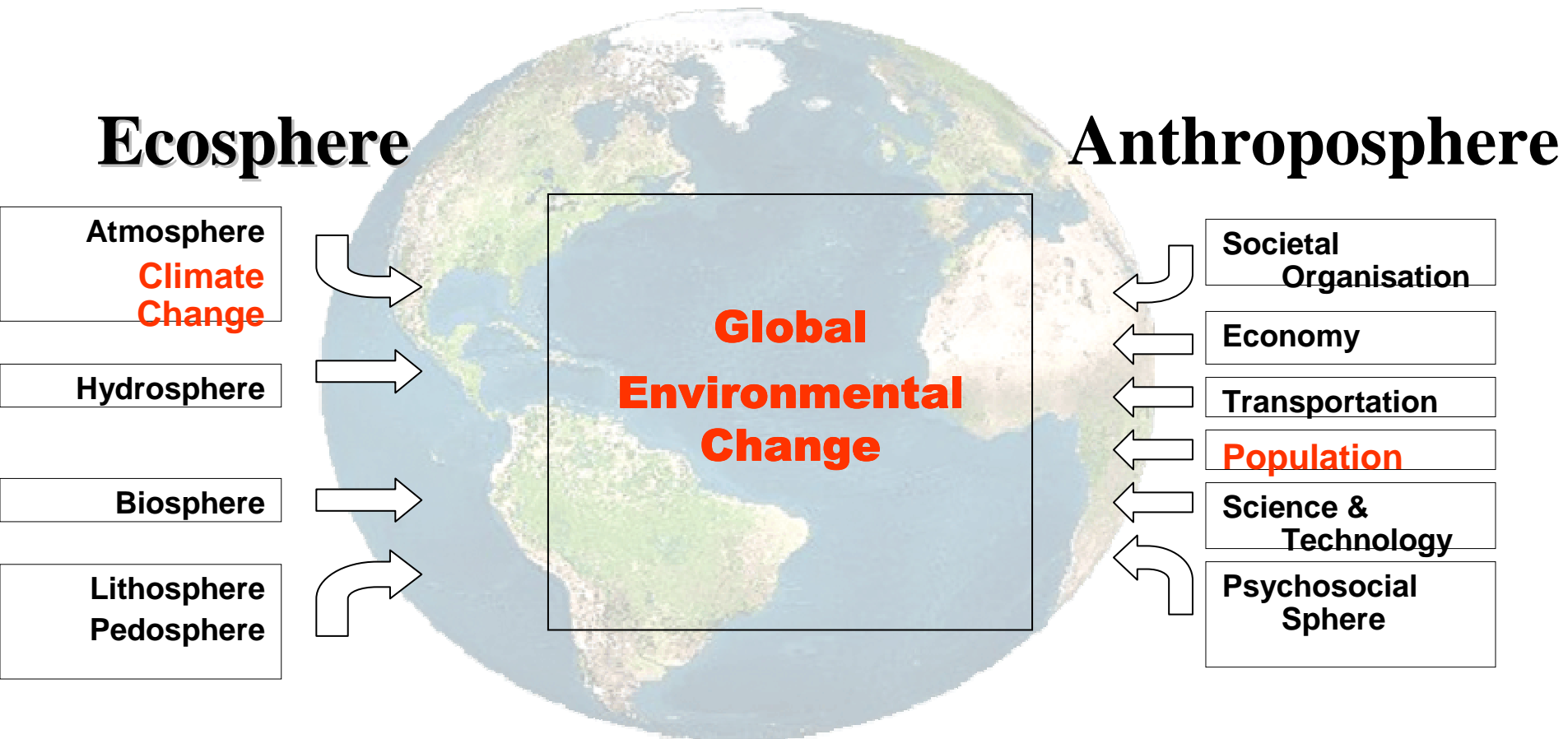| Label	Reference object	Value at risk	Source(s) of threat
National security	The State	Territ. integrity	State, substate actors
Societal security	Societal groups	National identity	Nations, migrants
Human security	Individual, mankind	Survival	Nature, state, global.
Environmental security	Ecosystem	Sustainability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

2.13 What is Human Security?

- **<u>Human Security:</u>** puts individual, his or her environment and livelihood at the centre as the main referent. The individual is regarded as most important and to protect his/her security, an analysis is employed that involves many interrelated variables such as economic, social, political, environmental, technological factors.

- **HS recognizes that** "lasting stability cannot be achieved if people are not protected from a wide variety of threats to their lives and livelihoods".

- **Human security concept emerged 1990s**: change of intern. order

- **Decline in traditional security threats** – emergence of intra-state conflicts

- **Recognition of unrelenting cost of human lives in violent conflict**.

- **New Security Agenda**: intra-state violent conflict, economic security, energy, water, human rights, epidemic diseases, poverty, inequality, enviro. degradation etc.

- **UN Security Councit** extended meaning of "international peace and security" to cover conflicts that are more domestic and humanitarian impacts

2.14 Four Pillars of Human Security

- "**Freedom from want**" **human development agenda: poverty** (stimulated by Asian economic crisis of 1990s) by reducing social vulnerability through poverty eradication programmes (UNDP 1994; CHS: Ogata/Sen: Human Security Now, 2003, Human Security Trust Fund, HSU of OCHA), **Japanese approach;**

- "**Freedom from fear**": **humanitarian agenda: violence, conflicts, weapons** (Canada, Norway, Human Security Network) (UNESCO,HSN), **Canadian approach:** Human Security Rep.(2005)

- "**Freedom to live in dignity**": **agenda: rule of law, human rights, democratic governance** (**Kofi Annan:** *In Larger Free-dom* (March 2005)

- "**Freedom from hazard impact**": **environmental (GEC) & natural hazard agenda**: goal: 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, Greek Presidency of HSN (May 2008); Friends of Human Security (Japan/Mexico); Ban ki-Moon (Report April 2012).

- **IPCC is debating Climate Change and Human Security (in Buenos Aires)**

3. Security Challenges of Global Environmental Change

Ecosphere

Anthroposphere

Ecosphere		Anthroposphere
Atmosphere **Climate Change**		Societal Organisation
Hydrosphere	**Global Environmental Change**	Economy
Biosphere		Transportation
		Population
Lithosphere Pedosphere		Science & Technology
		Psychosocial Sphere

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

3.1. Global Climate Change and Security: Scientization, Politicization, Securitization

- Since 1970/80s: '*global environmental change*' (GEC) a new topic in natural and social sciences **(scientization)**

- Since late 1980s & 1990s policy efforts on **(politicization):**
  - Climate Change: 1988: issue of G7; 1990: UN GA mandate; 1992: Rio summit: UNFCC (1992) and Kyoto Protocol (1997)
  - Desertification: UNCCD (1994), water (WWF, GWP, WWW)

- Since 2000: GEC as security issues (securitization)
  - Since 2002: climate change seen as a security threat/risk
  - Valencia: 2003: NATO Conference: Desertification as a security issue in the Mediterranean

- Since 2007: two debates on climate change & security
  - **UN & EU Debates: climate change and international security**
  - **US debate on climate change: new threats for US national security**

3.2 Scientization : GEC Scientific Programmes

- **International Geosphere-Biosphere Programme** (IGBP). research pro-gramme 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 perspec-tive on global change and works at the interface between science and practice

- **World Climate Research Programme** draws on climate-related systems, faci-lities & 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; ans effect of human activities on climate.

In 2001: Amsterdam Declaration on Global Change: IGBP, IHDP, DIVERSITAS, WCRP formed Earth System Science Partnership.

3.3. Politicization of GEC & Climate Change: Rio Summit (1992) to Rio (2012)

- 1988: Reagan Administration put climate change on agenda of G-7 in Toronto

- 1988: UNGA established IPCC & initiated negotiations that resulted at Rio (1992) in UNFCCC

- 1997: Kyoto Protocol with GHG reduction obligations

- 2009: Failure COP 15 (UNFCCC): turning point

- 2010: COP 16 Cancun: put UNFCCC back in UN

- 2011: COP 17 Durban: intention to reach agreement by 2015 to enter into force by 2020: 8 lost years

3.4. GHG Emissions of G8

| Country	UNFCCC (1992)		Kyoto Protocol (1997)		Re-duc-tion goal (%)	EU-15 Reduc-tion goal (%)	Performance (1990-2009) GHG reductions in % 1990 (base year)		
G8 countries	An-nex 1	An-nex 2	Annex B	In tran-sition		Burden-sharing agree-ment (1998)	EU Eurostat (2011) IEA [2011]	UNFCC (2009) Landuse change and forestry (LULUCF) Excl.	Incl.
1) USA	X		X		-7		+6.7	+7.2	+5.6
2) Canada	X		X		-6		+20.4	+17.0	+29.8
3) Japan	X		X		-6		+2.7	-4.5	-5.0
4) Germany	X		X		-8	-21	-25.4[-21.9]	-26.3	-23.0
5) UK	X		X		-8	-12.5	-27.1[-15.2]	-26.9	-27.7
6) France	X		X		-8	0	-8.3[+0.6]	-7.7	-12.9
7) Italy	X		X		-8	-6.5	-5.0[-2.0]	-5.4	-13.3
8) Russia		X		X	0		-29.7	-36.9	-57.2

3.5. Climate Paradox: Performance & Implementation Gap

- Regarding KP targets, G-8 countries mixed performance.
  - As 'Country in transition' Russia highest GHG emissions reduction.
  - The EU-27 met their targets under the KP & most members met their national targets under the EU's 'burden-sharing agreement'.
  - Only Canada & US clearly failed to stabilize their GHG emissions by the year 2000 to the level of 1990 and to achieve the GHG reduction targets to which they agreed when they signed the KP.
- 2007-2011: G-8 promised to reduce GHG by 80% (2050)
- Climate paradox hypothesis applies specifically to two laggards in climate change performance. Canada & USA share high CO2 emissions per capita and 'way of life', which is a part of the North American political culture and of the values, attitudes and behavior of most citizens.
- Climate paradox increases probability of violent conflicts

3.6 Change of CO2 Emissions (1971-2009) and projections up to 2030

Countries	CO₂ emissions: Sectoral Approach in mill, tonnes (IEA 2011)					% change 1990-2009	CO₂ emission per cap. (UNDP 2011)		CO₂ emissions projections (IEA) % of global total			
	1971	1980	1990	2000	2009		Tonnes (2008)	Average annual growth % 1970/2008	2007	2020	2020	2030
G-8	**With GHG reduction obligations under the Kyoto Protocol**											
1) USA	4 291.3	4 661.6	4 868.7	5 698.1	5 195.0	6.7%	17.3	-0.6	20	16		
2) Canada	339.4	426.9	432.3	532.8	520.7	20.4%	16.4	0.1				
3) Japan	758.8	880.7	1 064.4	1 184.0	1 092.9	2.7%	9.5	0.7				
4) Germany	978.6	1 055.6	950.4	827.1	750.2	-21.1%	9.6					
5) UK	623.5	571.1	549.3	523.8	465.8	-15.2%	8.5	-0.8				
6) France	431.9	461.4	352.3	376.9	354.3	0.6%	6.1	-0.9				
7) Italy	292.9	359.8	397.4	426.0	389.3	-2.0%	7.5	0.8				
8) Russia			2 178.8	1 505.5	1 532.6	-29.7%	12.1		6	5		
G-20	**With GHG reduction obligations under the Kyoto Protocol**											
9) EU-27			4 051.9	3 831.2	3 576.8	-11.7%			14	11		
10) Australia	144.1	208.0	260.1	338.8	394.9	51.8%	19.0	1.3				
G-20	**Without GHG reduction obligations under the Kyoto Protocol**											
11) Turkey	41.4	70.9	126.9	200.6	256.3	102.0%	3.9	3.2				
12) South Korea	52.1	124.4	229.3	437.7	515.5	124.8%	10.6	5.0				
13) Mexico	97.1	212.1	264.9	296.6	399.7	50.9%	4.4	1.8				
14) China	809.6	1 419.8	2 244.1	3 077.2	6 877.2	206.5%	5.2	4.6	21	27		
15) India	200.2	283.3	582.3	972.5	1 585.8	172.3%	1.5	3.8	4	6		
16) Brazil	91.1	180.3	194.3	302.8	337.8	73.9%	2.1	2.0				
17) South Africa	173.8	214.5	254.7	298.2	369.4	45.0%	8.8	0.7				
18) Argentina	83.1	95.9	100.4	139.0	166.6	66.0%	4.8	0.9				
19) Indonesia	25.1	68.8	142.2	264.0	376.3	164.7%	1.8	4.8				
20) Saudi Arabia	12.7	99.1	158.9	252.4	410.5	158.4%	17.2	2.1				
									65	65		

3.7 Energy-related CO2 Emissions for EU27, US, Japan, Russia, China & India (1990-2030)
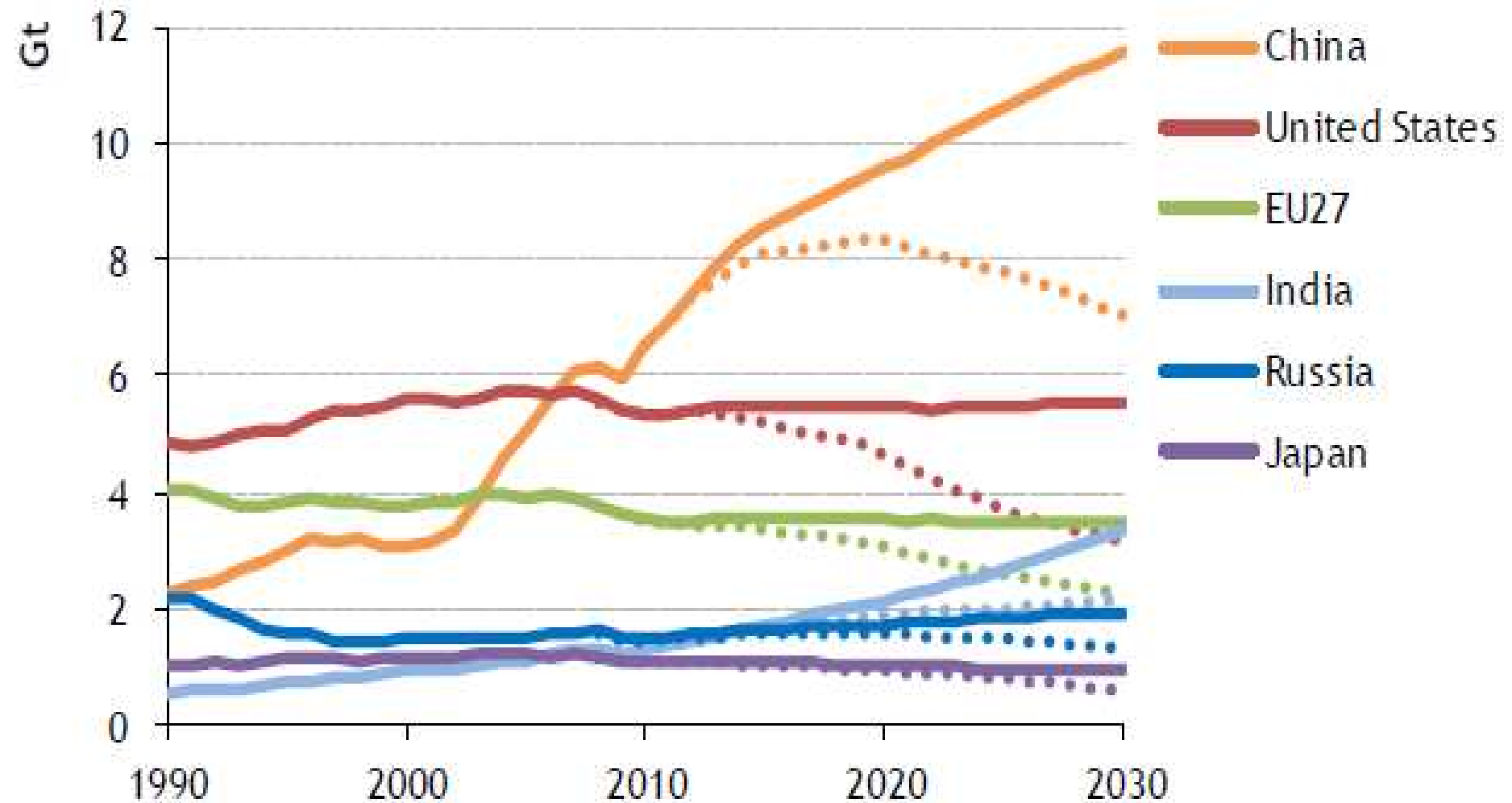
3.8. Addressing the Climate Paradox

- Overcoming the 'Climate Paradox' in North America requires a climate leadership of EU countries & sustained willingness to unilaterally implement their climate reduction goals and the different roadmaps for 2050.

- Overcoming the 'climate paradox' requires a gradual replacement of thinking & action in terms of 'business as usual' towards multiple sustainability transitions in all sectors of society, economy and also in the political realm.

- To move to a 'Fourth Sustainability Revolution' (FSR) requires major changes in the dominant culture & way of life, in societal, economic & political worldview of citizens & mindset of leaders, but also in governance to curb the influence of political money on the behavior of the elected representatives of the people.

3.9. EU-27 Reduction Goal for 2050

- On 15 December 2011 the European Commission (2011) released its *Energy Roadmap 2050*, according to which:

- The EU is committed to reducing greenhouse gas emissions to **80-95% below 1990 levels by 2050 in the context of necessary reductions by developed countries as a group.** The Commission analysed the implications of this in its **'Roadmap for moving to a competitive low-carbon economy in 2050'.**

- **The 'Roadmap to a Single European Transport Area' focused on solutions for the trans-port sector and on creating a Single European Transport Area.**

- In this Energy Roadmap 2050 the Commission explores the challenges posed by delivering the EU's decarbonization objective while at the same time ensuring security of energy supply and competitiveness. It responds to a request from the European Council.

- **This requires a sustainable transition in the energy sector.**

3.10 EU Decarbonization scenarios 2030 and 2050 (comp. with 2005 in %)

Graph 1: EU Decarbonisation scenarios - 2030 and 2050 range of fuel shares in primary energy consumption compared with 2005 outcome (in %)
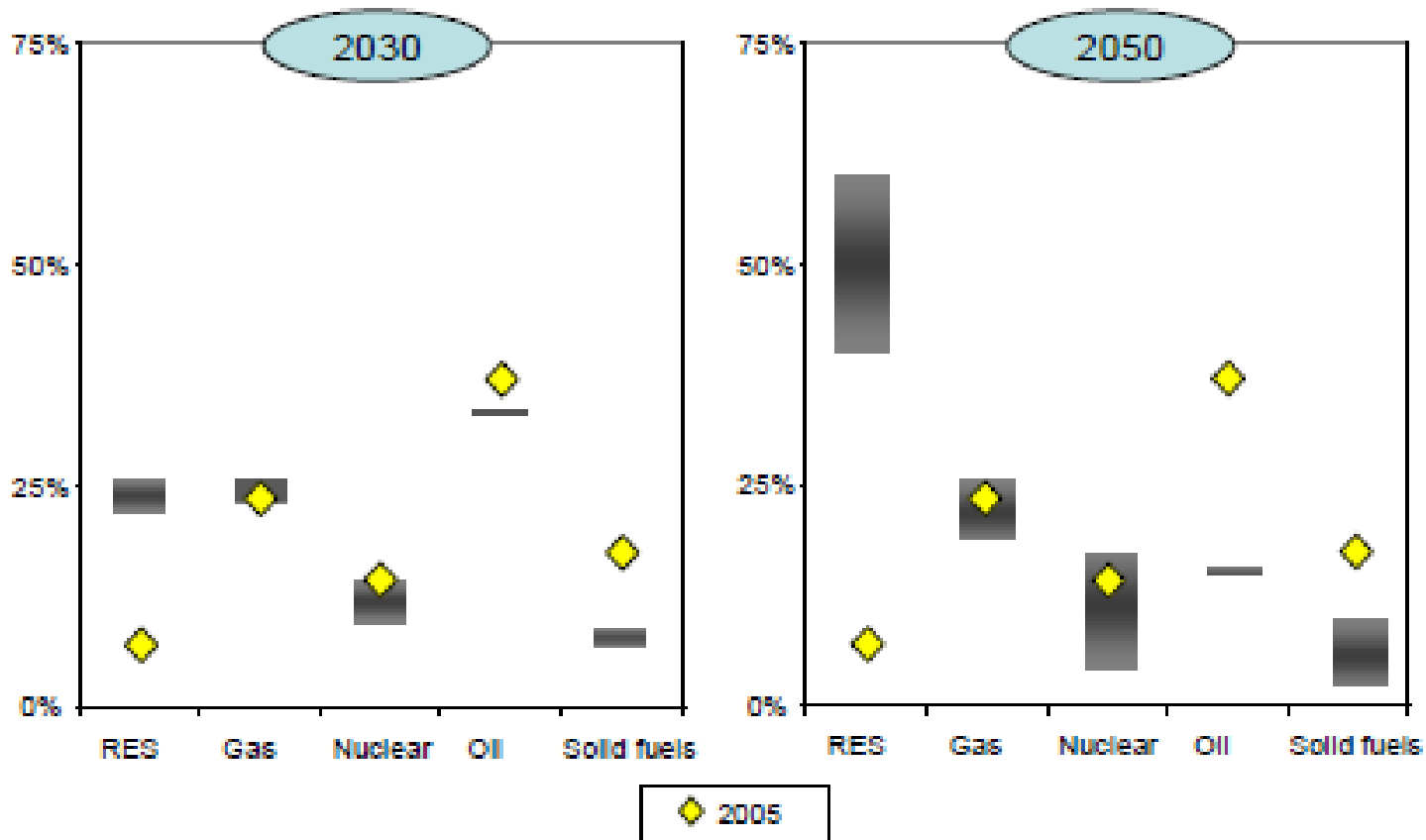
3.11. Security Risk Climate Change: 3 security policy debates

Climate change & internat. security discourse

- ❑ **UN (17 April 2007):** FM M. Beckett, UK presidency
- ❑ **EU (2008):** EC & Council Study & roadmap process
- ❑ UN GA (June 2009) Res., Report by Sec. General

Climate change & national security discourse:

- **US studies:** CNA, CSIS, NIC (CIA), NSS 2010

Climate change & human security discourse

- IHDP (GECHS): Lonergan & Brklacich (chairnen)
  - 2005: conference in Norway on Cliamte change and human security
- HSN (Canada was a co-founder & a major sponsor)
- 2007/2008: Greek HSN presidency

- **2011-2014: IPCC, WG II, chapter on human security**

3.12. Global Environmental & Climate Change: From Rio I (1992) to Rio II (2012)

- Goals of UNFCCC & KP have not been reached

- Kyoto Protocol will run out by end of 2012

- Multilateral climate Change diplomacy is paralyzed

- IPCC asessments of climate change under attack by economic lobbyists and idealogue campaigns in USA, Canada: from leaders to laggards

- Negative Politicization in domestic politics

- Securitization of GEC and CC failed since COP 15 to adopt „extraordinary measures" and to implement them with the consent of the audience.

- Different political cultures in Europe & North America

4. Global Climate Change:
Temperature Increases & Sea Level Rise

Climate Change Impacts: Temperature & Sea level Rise

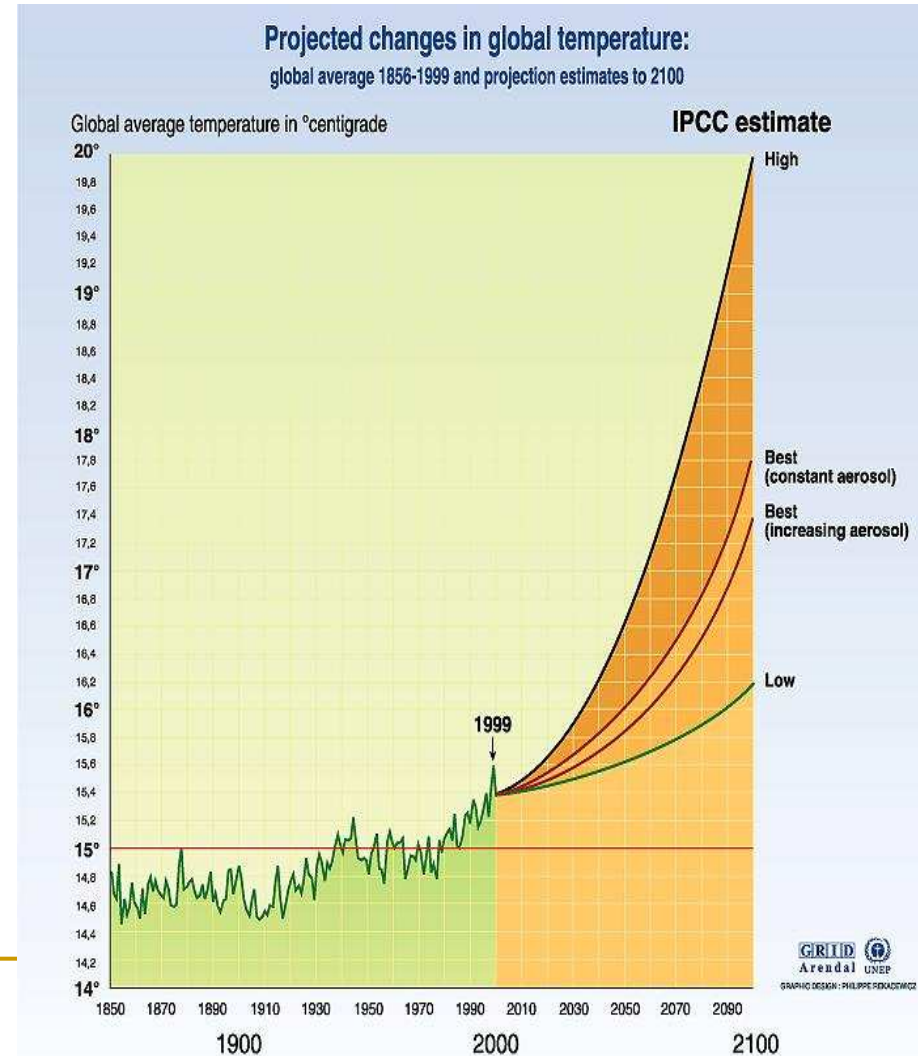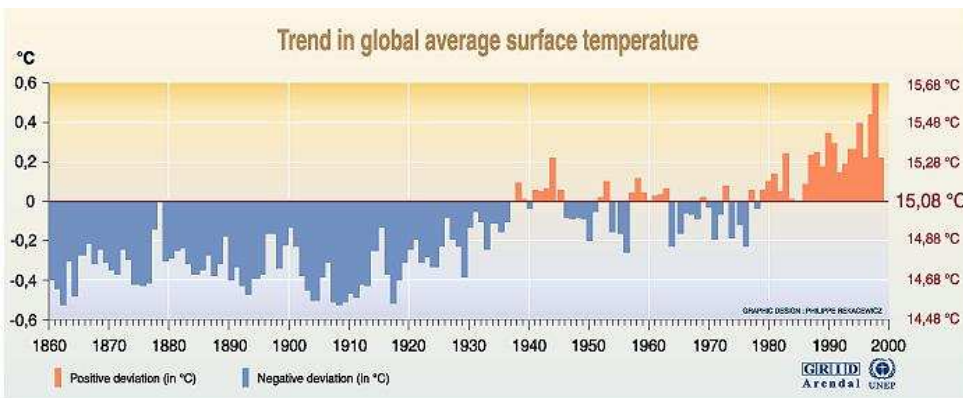- ❖ **Global average temperature rise in 20th century: + 0.6°C**

Projected temperature rise:

- ❖ **TAR (1990-2100):+1.4-5. 8°C**
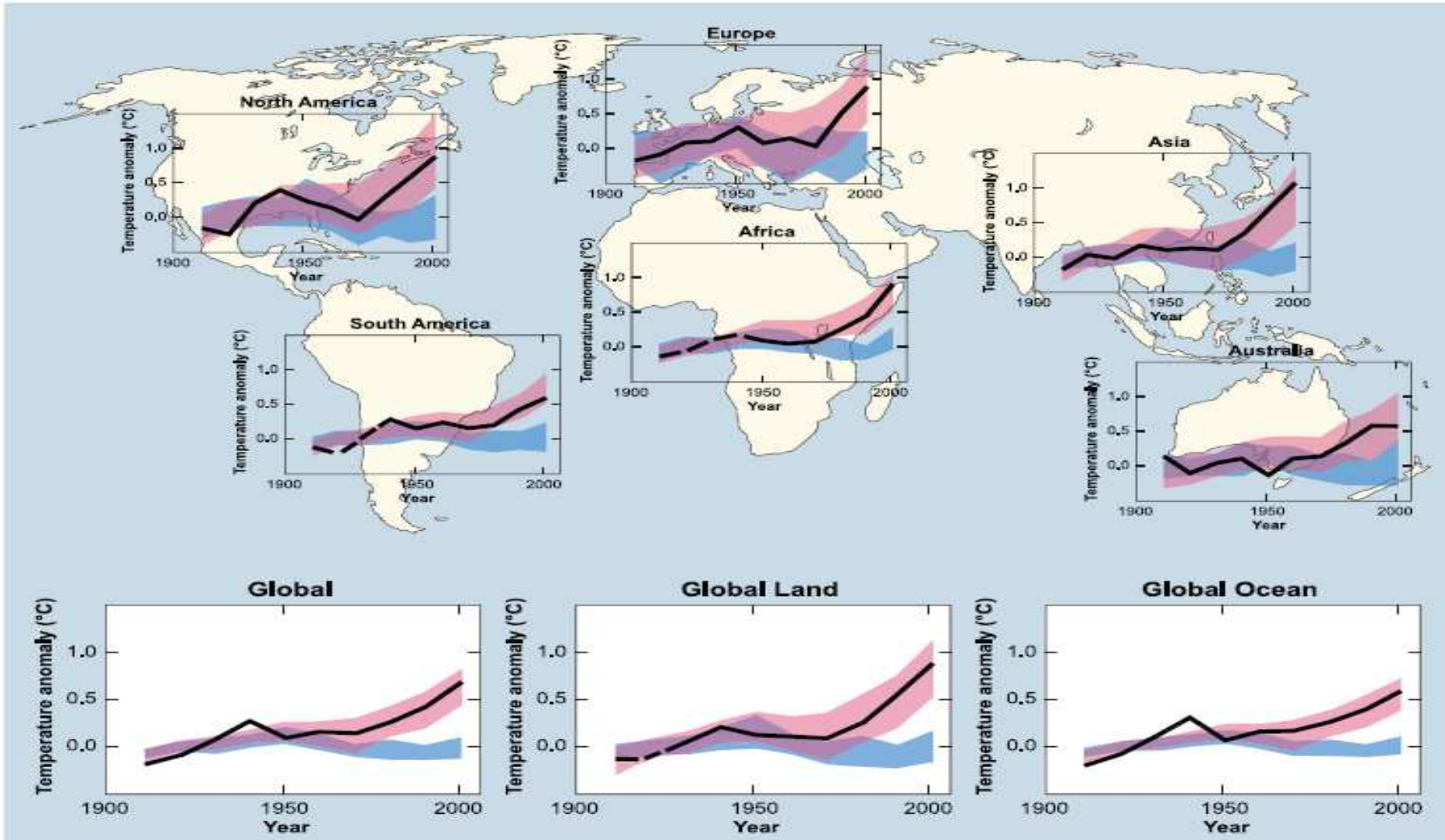- ❖ **AR4 (07):+1.1-6.4 (1.8-4)°C**

Sources: IPCC 1990,1995,2001,'07

Sea level Rise:

- ❖ **20th cent.: +0,1-0,2 metres**
- ❖ **TAR: 21st century: 9-88 cm**
- ❖ **AR4 (2000-2100): 18-59 cm**

Trend in global average surface temperature

Source: School of environmental sciences, climatic research unit, university of East Anglia, Norwich, United Kingdom, 1999.

Projected changes in global temperature: global average 1856-1999 and projection estimates to 2100

Source : Temperatures 1856 - 1999: Climatic Research Unit, University at East Anglia, Norwich UK. Projections: IPCC report 95.

4.1. Global & Regional Change in Temperature (IPCC 2007, WG 1, AR4, 11)

models using only natural forcings

models using both natural and anthropogenic forcings

observations

©IPCC 2007: WG1-AR4

4.2. Average Value of Surface Temperature (IPCC 2007, WG 1, AR4, p. 14)

MULTI-MODEL AVERAGES AND ASSESSED RANGES FOR SURFACE WARMING

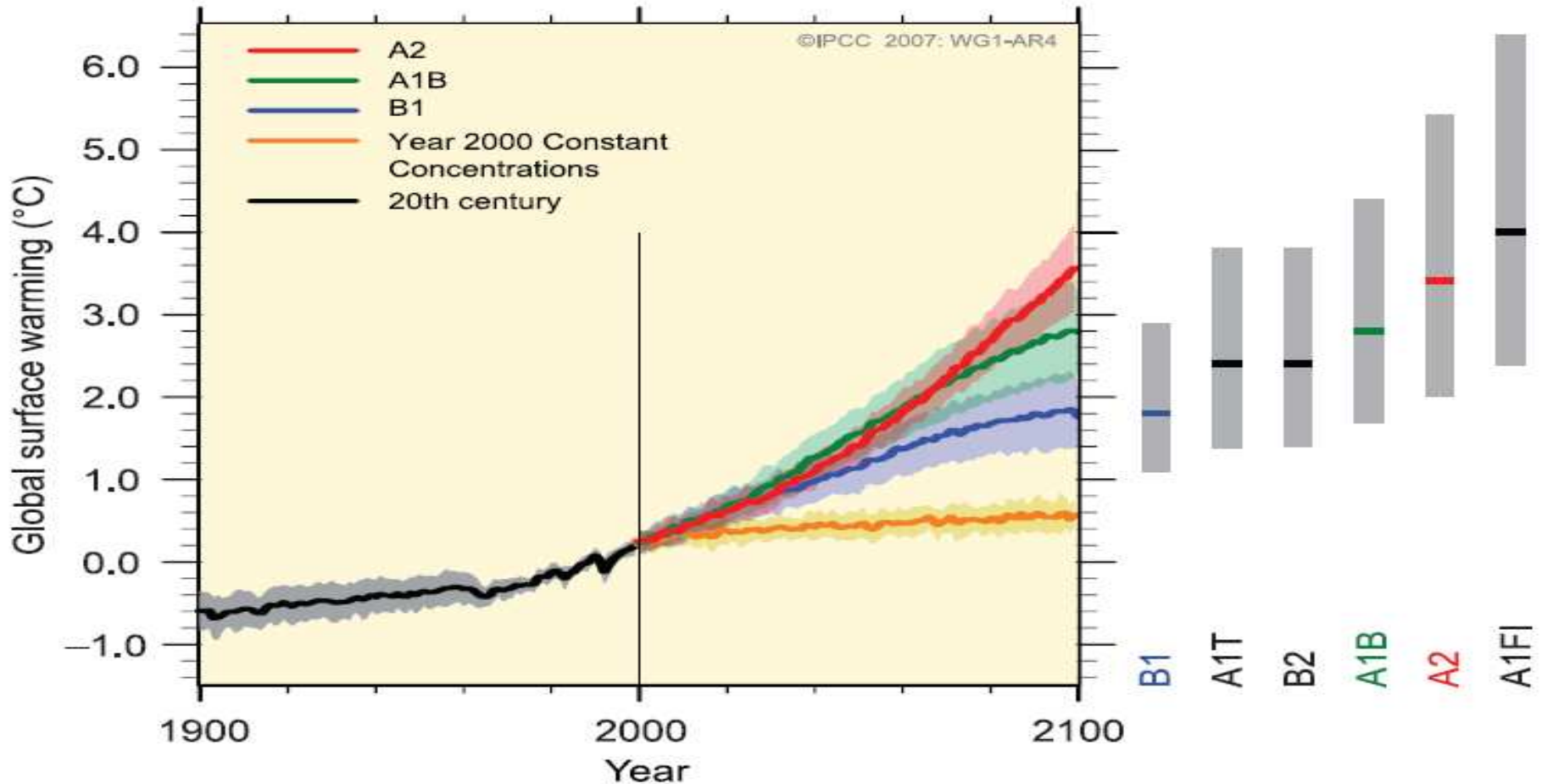©IPCC 2007: WG1-AR4

Figure SPM.5. *Solid lines are multi-model global averages of surface warming (relative to 1980–1999) for the scenarios A2, A1B and B1, shown as continuations of the 20th century simulations. Shading denotes the ±1 standard deviation range of individual model annual averages. The orange line is for the experiment where concentrations were held constant at year 2000 values. The grey bars at right indicate the best estimate (solid line within each bar) and the **likely** range assessed for the six SRES marker scenarios. The assessment of the best estimate and likely ranges in the grey bars includes the AOGCMs in the left part of the figure, as well as results from a hierarchy of independent models and observational constraints. {Figures 10.4 and 10.29}*

Projected Impacts of Climate Change

Global temperature change (relative to pre-industrial)

0°C   1°C   2°C   3°C   4°C   5°C

Food

Falling crop yields in many areas, particularly developing regions

Possible rising yields in some high latitude regions

Falling yields in many developed regions

Water

Small mountain glaciers disappear – water supplies threatened in several areas

Significant decreases in water availability in many areas, including Mediterranean and Southern Africa

Sea level rise threatens major cities

Ecosystems

Extensive Damage to Coral Reefs

Rising number of species face extinction

Extreme Weather Events

Rising intensity of storms, forest fires, droughts, flooding and heat waves

Risk of Abrupt and Major Irreversible Changes

Increasing risk of dangerous feedbacks and abrupt, large-scale shifts in the climate system

4.4. Precipitation Change by 2100:

Projections and model consistency of relative changes in runoff by the end of the 21st century
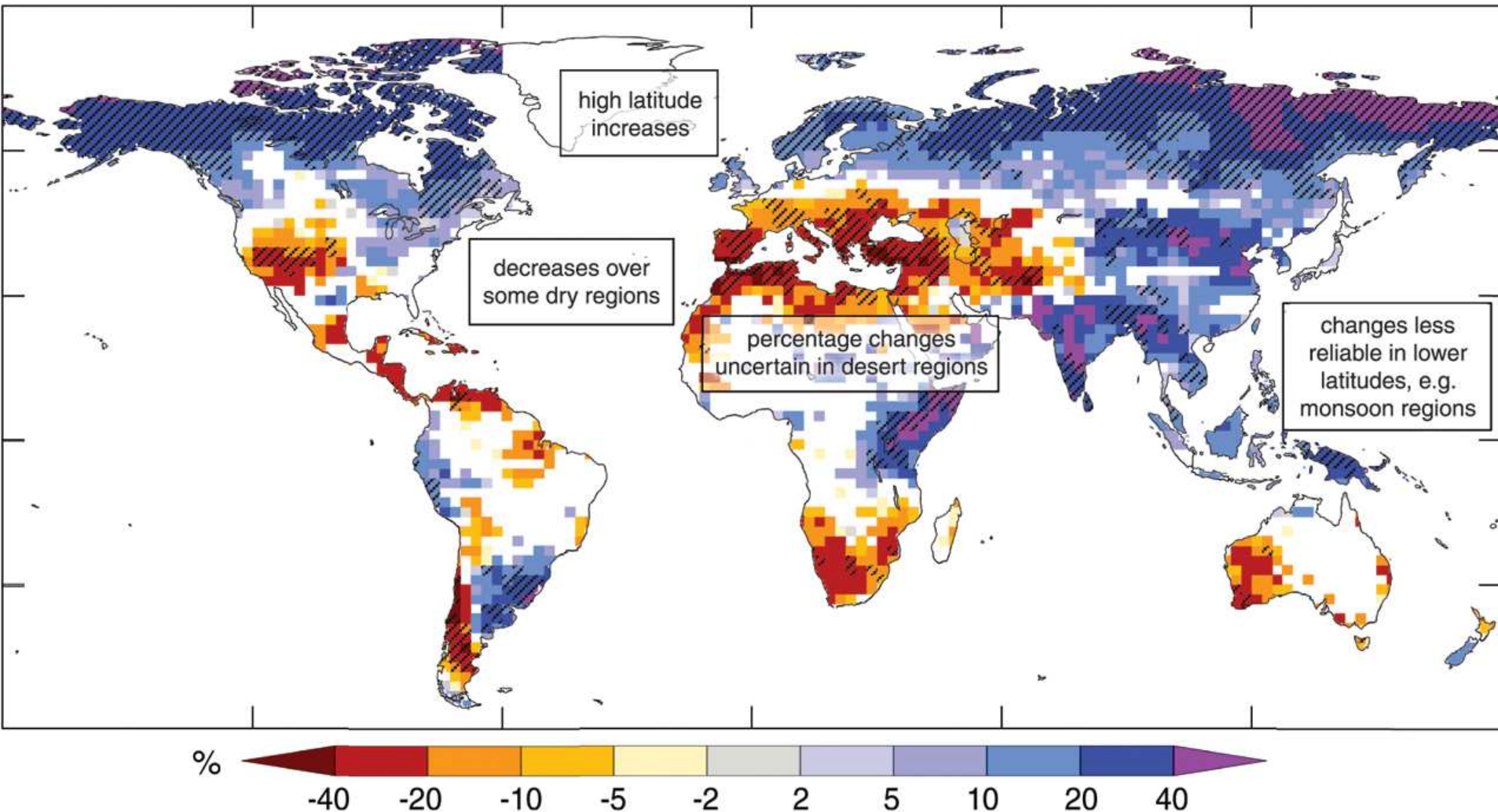
4.4. Projected Increase of Sea Level Rise (IPCC chair, Pachauri, 2008)

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

Comparison of Peer-reviewed Research Estimates: Global Sea Level Rise by 2100
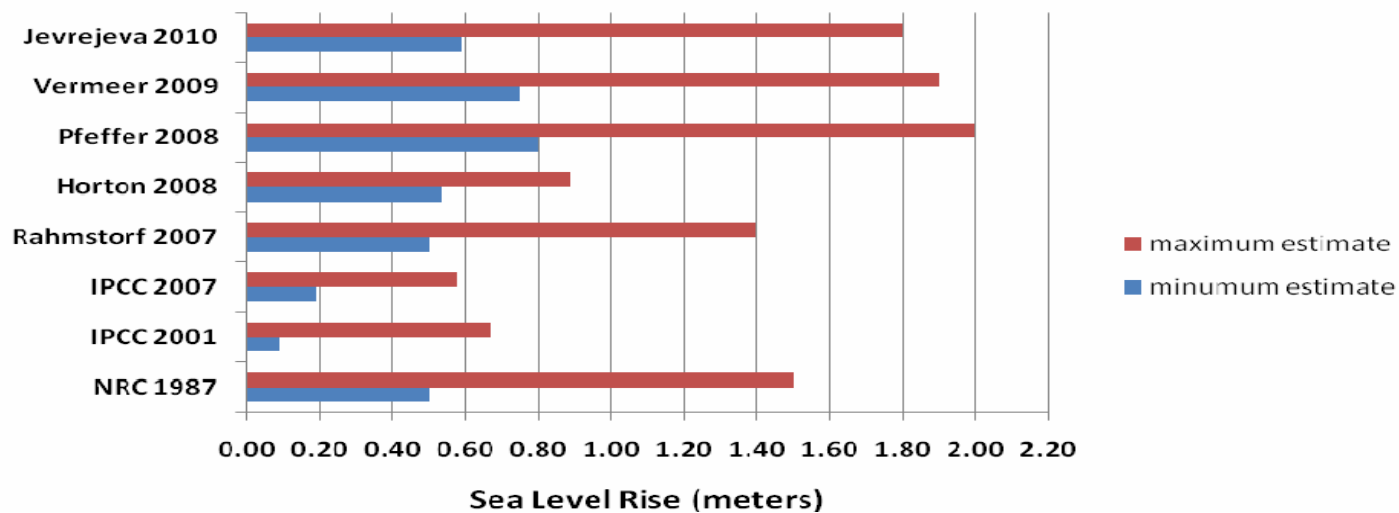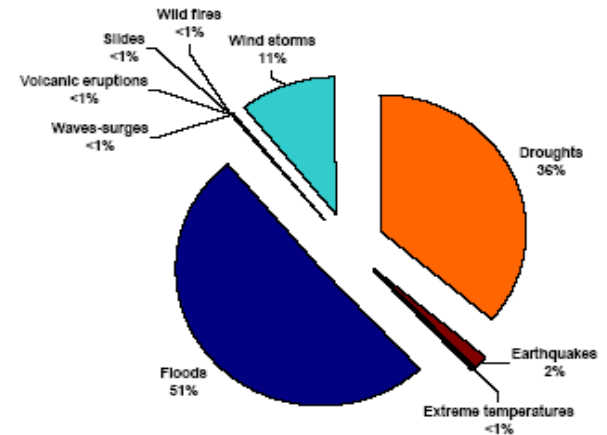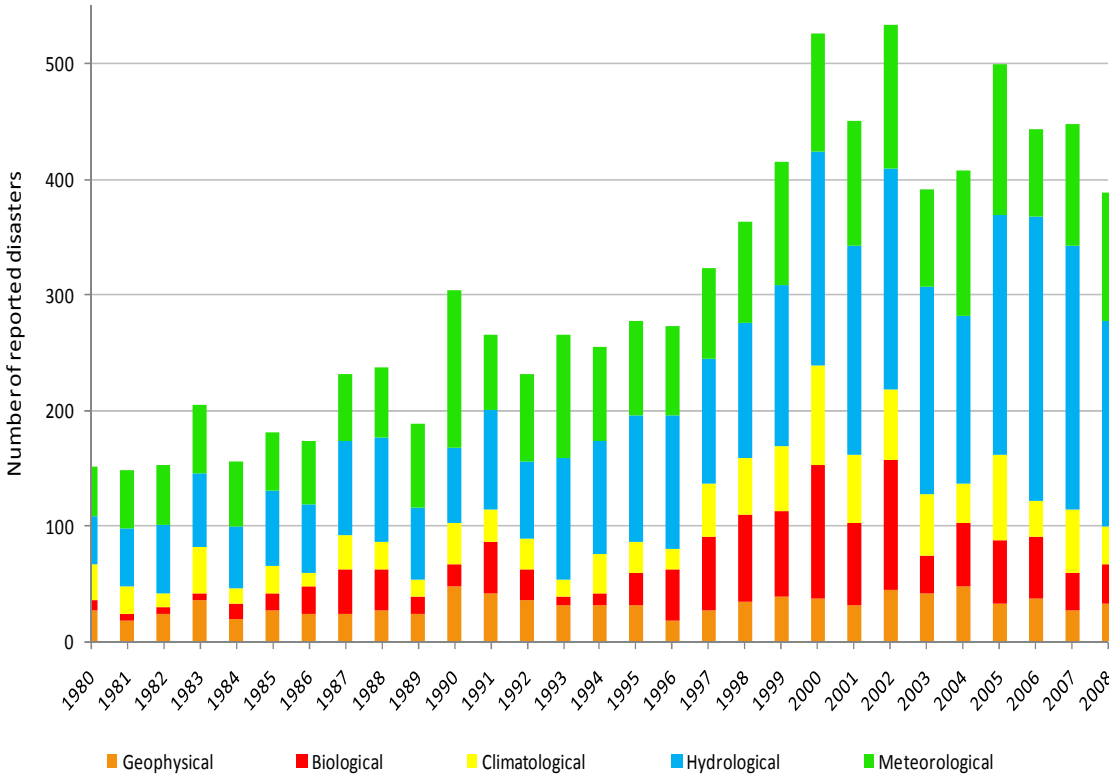
4.5. Climate-related natural hazards
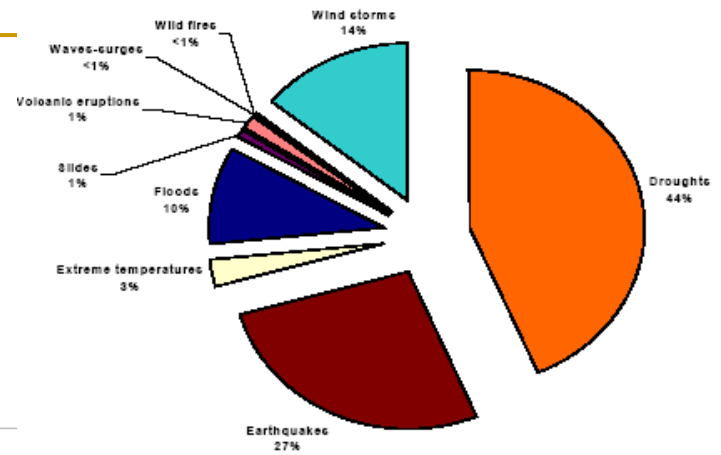
Reported Death of Natural Hazards globally (1974-2003): 2.066.273 persons
Affected persons of Natural Hazards
globally (1974-2003): 5 076 494 541 persons

Changes of Hydro-meteorological Hazards (Guha-Sapir 2010)

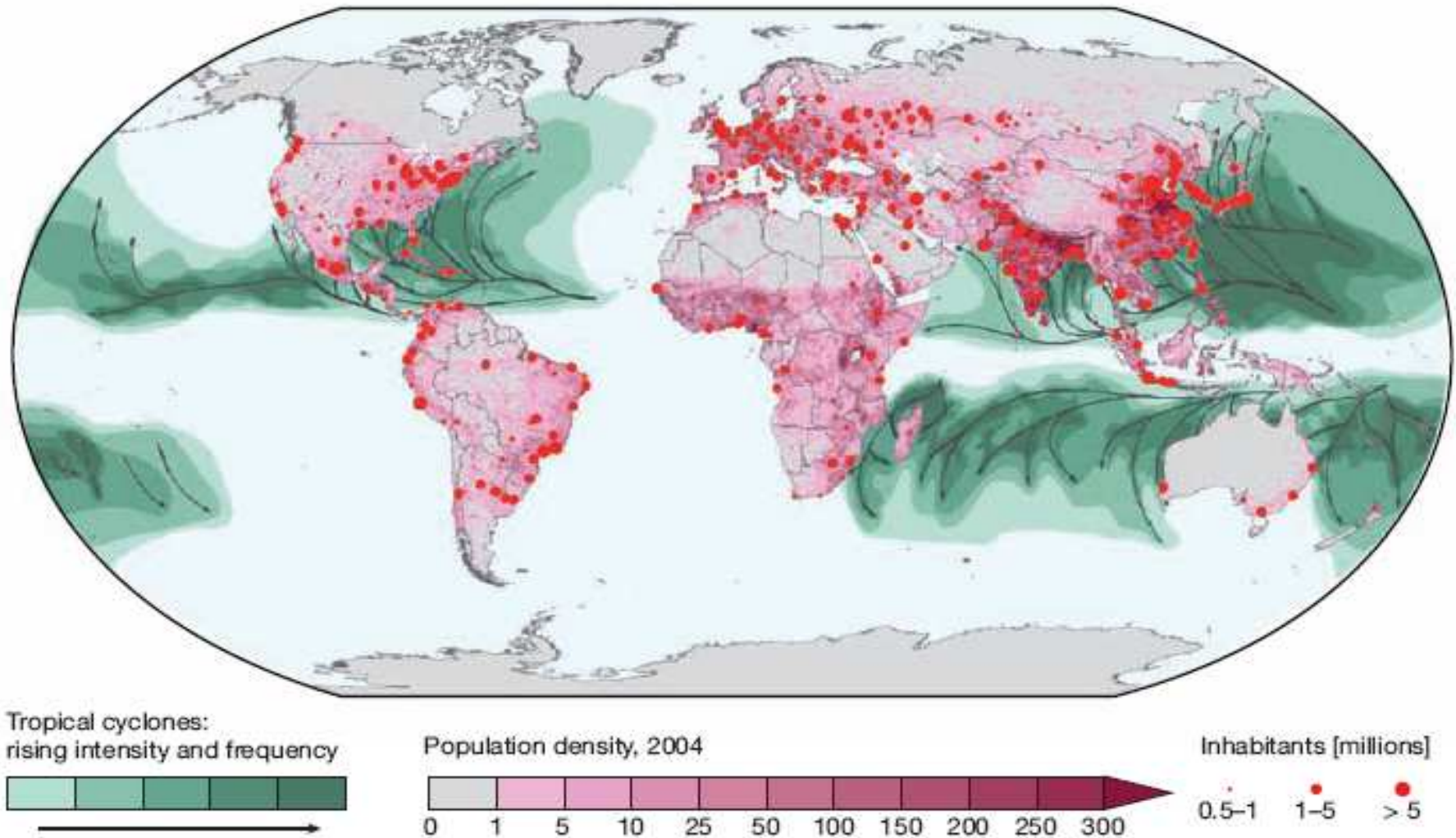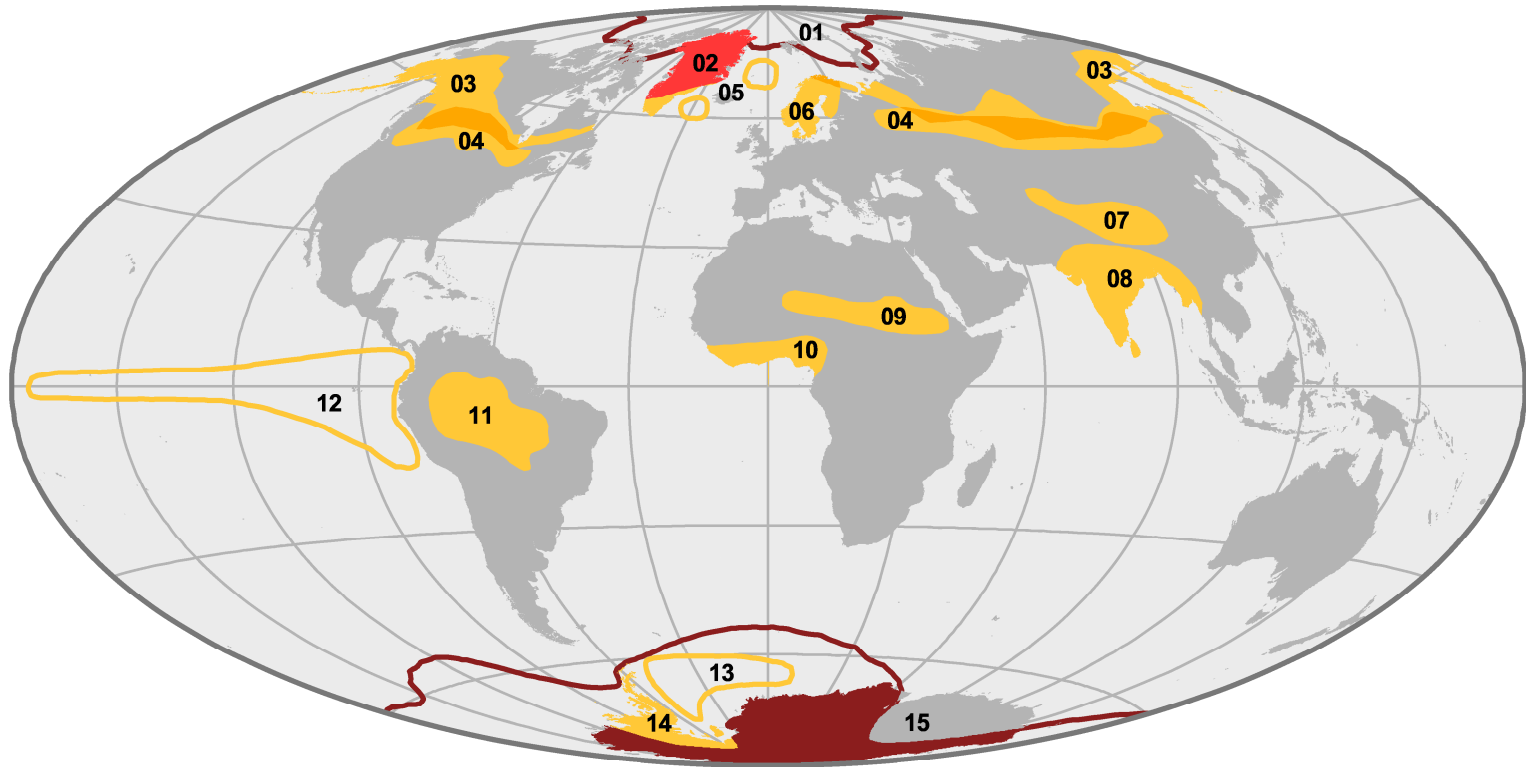# 4.6. Tropical Cyclones: Threat to Megacities

Figure 6.4-1
Tropical cyclone threat to urban agglomerations.
Cartography: Cassel-Gintz, 2006.
Source: WBGU

Potential Anthropogenic Tipping Elements in the Earth System

tipped already   in limbo   still stable

01 Arctic Sea Ice Loss

02 Greenland Ice Sheet

03 Thawing Permafrost /
Methan Escape

04 Boreal Forest Dieback

05 Suppression of Atlantic
Deep Water Formation

06 Climatic Change-Induced
Ozon Hole over Northern Europe

07 Albedo Tibetan Plateau

08 Indian Monsoon

09 Re-Greening Sahara /
Sealing of Dust Sources

10 West African Monsoon

11 Dieback of Amazon Rainforest

12 Southern Pacific Climate Oscillation

13 Antarctic Deep Water Formation /
Nutrients Upwelling

14 Westantarctic Ice Sheet

15 Antarctic Ozone Hole

5. PEISOR Model on Climate Change: Geophysical Effects & Societal Outcomes

- **4 geophysical effects will most likely increase**
    - Temperature change (2℃ stabilization goal by 2100??)
    - Sea-level Rise much higher and longer lasting (threat)
    - Precipiation change (impact on drought, food security)
    - Increase in hydro-meteorological, climatological hazards

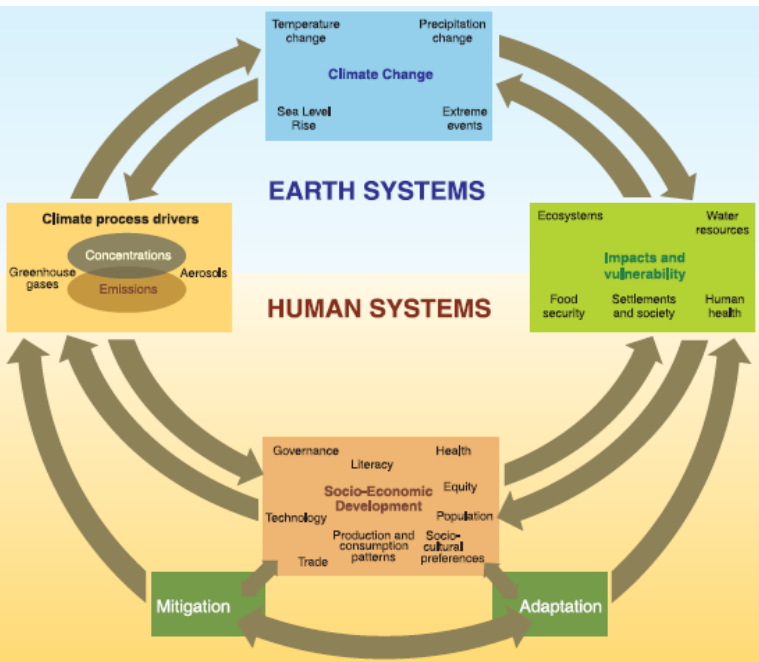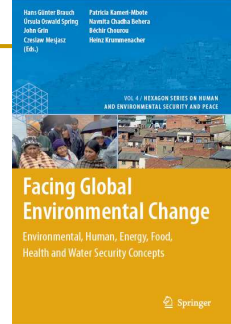   Likelihood of crossing tipping points in climate system may rise

- **2℃ world increasingly unlikely, 4°-6℃ world more probable: dangerous,catastrophic Climate Change**
    - People's movement (displacement, distress migration)
    - Domestic, regional crisis & violent conflicts may increase

- **How to analyse these changes: models?**

5.1. Addressing Linkages of Global Climate Change and Security

Objects of Security Analysis (Securitization)

- Physical Effects: e.g. temp, rise
- Impacts: Sectors & Regions
- Societal Effects (migration, crises, conflicts

Whether they pose:

- **Objective Security Dangers**
- **Subjective Security Concerns**

Four Schools

- ❑ Dramatizers: Climate wars
- ❑ Sceptics: lack of research (PRIO)
- ❑ **Empiricists: PEISOR Model & linkages**
- ❑ Trend & future scenarios

Two Approaches

- ■ **Policy & Scenario analysis (consultants)**
- ■ **Causal analysis**
  - ❑ Natural phenomena -> migration, crises, conflicts (violence)
    - ■ 2nd phase: Homer-Dixon, Bächler
    - ■ 4th phase: Oswald – Brauch - Dalby
- ■ **Discourse analysis:** climate change
  - ❑ International security
  - ❑ National security
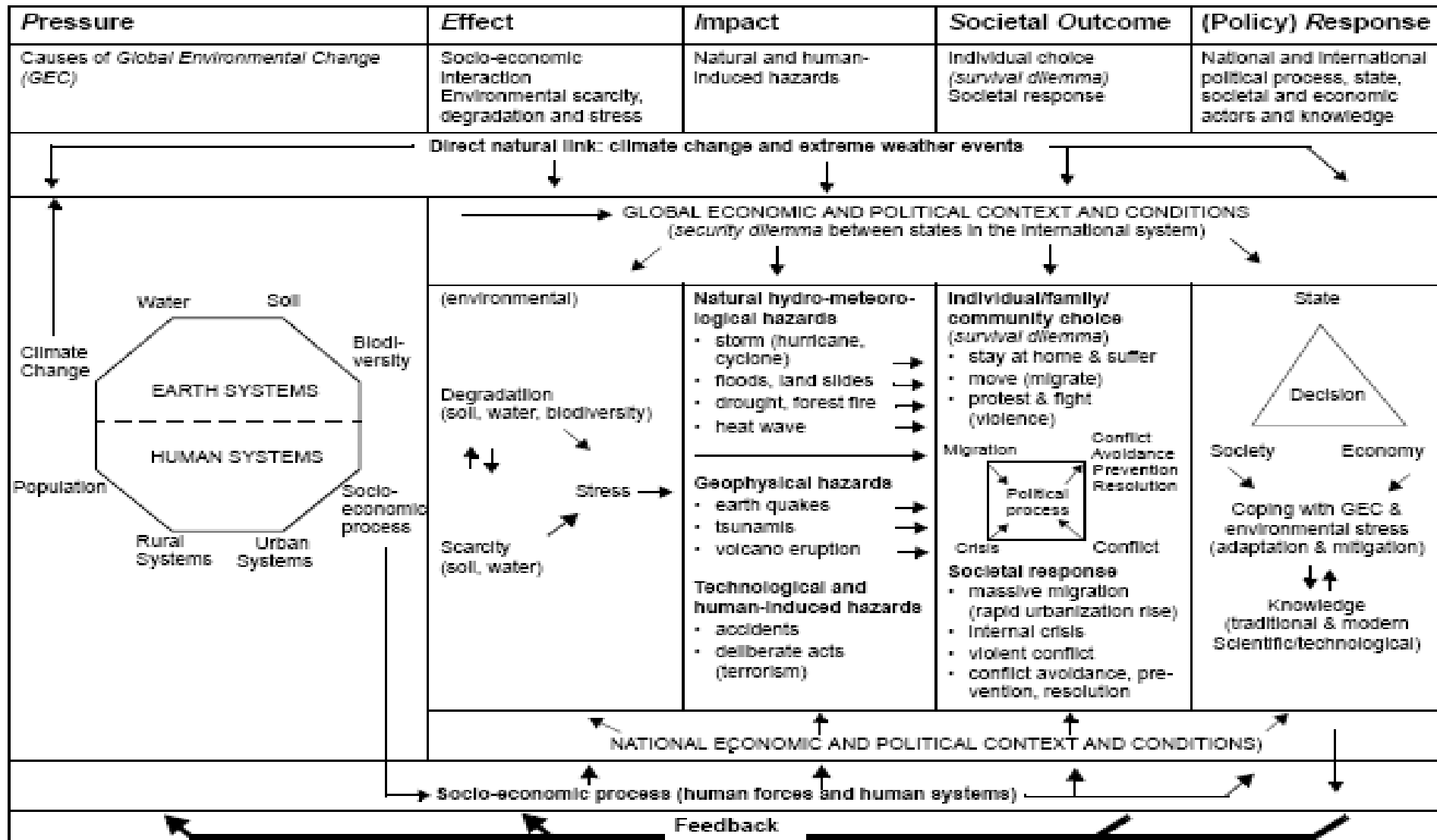 - ❑ Environmental security
  - ❑ Human security

5.2 Global Environmental Change & Impacts: PEISOR Model

Pressure	Effect	Impact	Societal Outcome	(Policy) Response
Causes of *Global Environmental Change* (GEC)	Socio-economic interaction Environmental scarcity, degradation and stress	Natural and human-induced hazards	Individual choice (*survival dilemma*) Societal response	National and international political process, state, societal and economic actors and knowledge

Direct natural link: climate change and extreme weather events

GLOBAL ECONOMIC AND POLITICAL CONTEXT AND CONDITIONS (*security dilemma between states in the international system*)

Water Soil Biodiversity EARTH SYSTEMS HUMAN SYSTEMS Rural Systems Urban Systems Climate Change Population Socio-economic process	(environmental) Degradation (soil, water, biodiversity) Stress Scarcity (soil, water)	Natural hydro-meteorological hazards · storm (hurricane, cyclone) · floods, land slides · drought, forest fire · heat wave Geophysical hazards · earth quakes · tsunamis · volcano eruption Technological and human-induced hazards · accidents · deliberate acts (terrorism)	Individual/family/community choice (*survival dilemma*) · stay at home & suffer · move (migrate) · protest & fight (violence) Migration — Conflict Avoidance Prevention Resolution Political process Crisis — Conflict Societal response · massive migration (rapid urbanization rise) · internal crisis · violent conflict · conflict avoidance, prevention, resolution	State Decision Society Economy Coping with GEC & environmental stress (adaptation & mitigation) Knowledge (traditional & modern Scientific/technological)

NATIONAL ECONOMIC AND POLITICAL CONTEXT AND CONDITIONS)

Socio-economic process (human forces and human systems)

Feedback

5.3 P: Pressure: Interactions of GEC
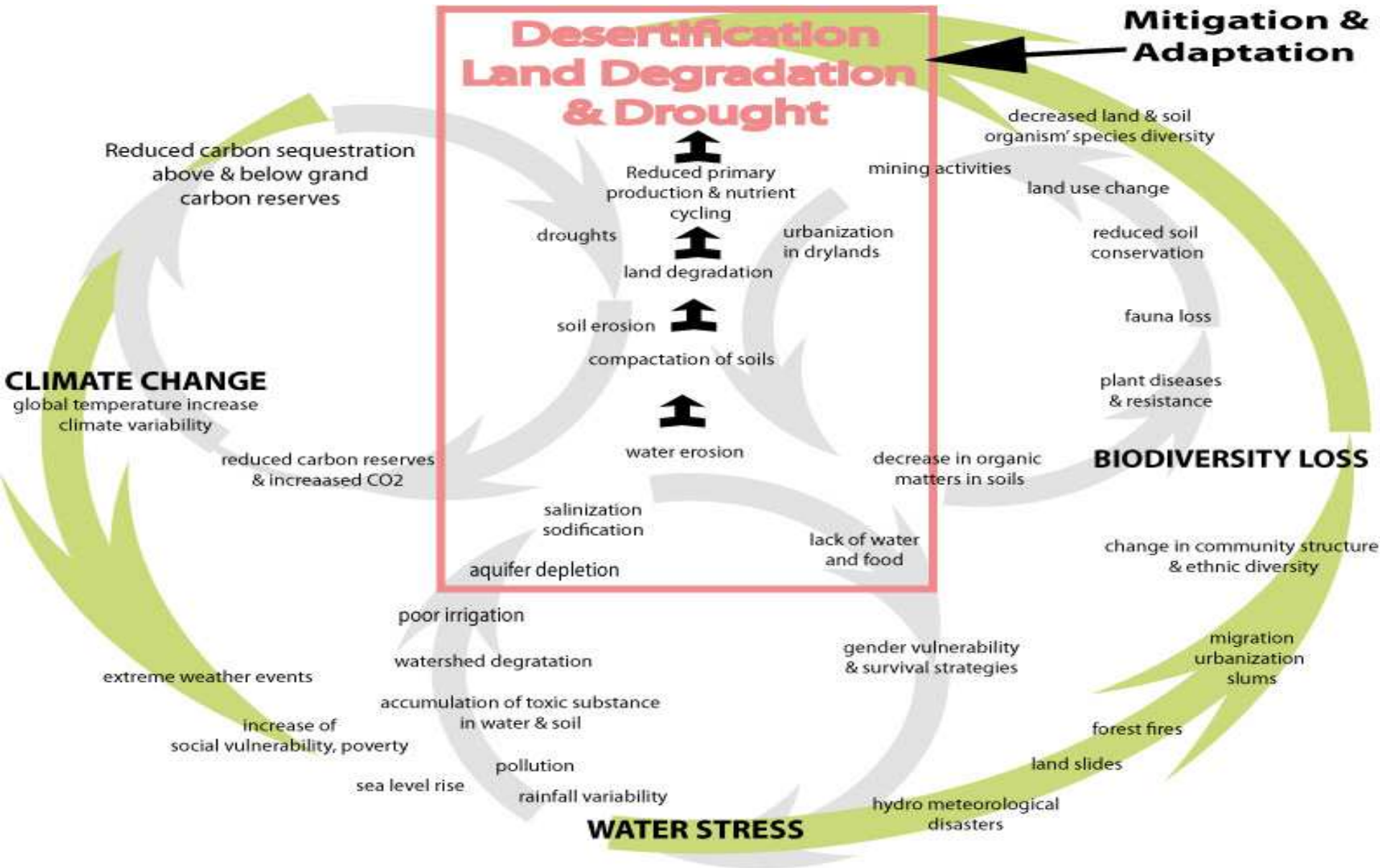
Effect	Impact
Socio-economic interaction Environmental scarcity, degradation and stress	Natural and human-induced hazards

Direct natural link: climate change and extreme weath[er]

GLOBAL ECONOMIC AND POLITI[CAL]
(*security dilemma* between stat[es])

(environmental)

Degradatiion (soil, water, biodiversity)

Stress →

Scarcity (soil, water)

Natural hydro-meteoro-logical hazards
- storm (hurricane, cyclone) →
- floods, land slides →
- drought, forest fire →
- heat wave →

Geophysical hazards
- earth quakes →
- tsunamis →
- volcano eruption →

Technological and human-induced hazards
- accidents
- deliberate acts (terrorism)

NATIONAL ECONOMIC AND POLITI[CAL]

5.4. E: Effect & I: Impact

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

Societal Outcome	(Policy) Response
Individual choice (survival dilemma) Societal response	National and international political process, state, societal and economic actors and knowledge
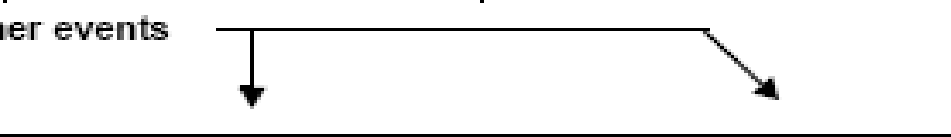
...er events

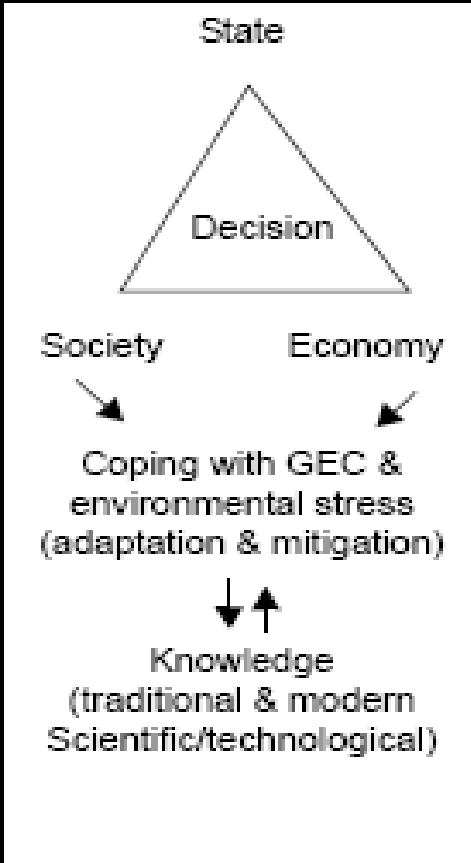CAL CONTEXT AND CONDITIONS
...tes in the international system)

Individual/family/ community choice (*survival dilemma*)
- stay at home & suffer
- move (migrate)
- protest & fight (violence)

Migration — Conflict Avoidance Prevention Resolution

Political process

Crisis — Conflict

Societal response
- massive migration (rapid urbanization rise)
- internal crisis
- violent conflict
- conflict avoidance, pre-vention, resolution

State

Decision

Society   Economy

Coping with GEC & environmental stress (adaptation & mitigation)

Knowledge (traditional & modern Scientific/technological)

5.5. SO: Societal Outcomes

- Individual level (choice)
  - Human security perspective
  - 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

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5.6 R: Policy Response to Security Dangers posed by Global Environmental Change: Object

- **How? Responsive vs. proactive action**
  - ❑ **Response:** cost of non-action (Stern Report)
  - ❑ **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**
- **Addressing Societal Outcomes:** Migration/Conflicts
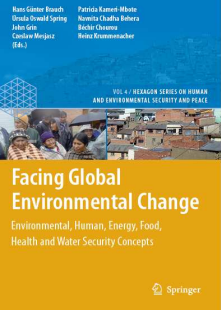
6. First Discourse: Securitization of GEC Climate Change & Security

- **Not they but „we are the threat" of global warming**
- **Intersubjective approach: Security: what actors make of it**
  - **2007 was the turning point for the securitization of climate change**
    - **February: IPCC Fourth Assessment Report**
    - **April: UN Security Council debate**
    - **June: WBGU-Report: impact on EU debate**
    - **October: Nobel peace prize for IPCC and al Gore**
- **3 fold debate & discourse on climate change:**
  - **International Security:**
    - Goal: Strategies of conflict prevention by a proactive environmental, economic and development policy
  - **National Security:**
    - 2007: new military mission for US Department of Defense
  - **Human Security:** HS Network, Greek presidency (5/ 2008)
    - GECHS Project of IHDP: Social Vulnerability of poor & marginalized population groups

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6.1. Discourse 1: Climate Change & International 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, MENA
  - OECD-Case studies: Bangladesh, Egypt, Tansania, Nepal, Fiji
- **WBGU-Report 2007-8: Security Risk Climate Change**
  - State-centred security concept
  - Physical effects of GCC may trigger 4 conflict constellations:
    - Climate-induced degradation of drinking water
    - Climate-induced reduction of food production
    - Climate-induced increase of storm and floods, drought and famine
    - Climate-induced migration

6.2. EU Paper: Climate Change & International Security (3/2008)
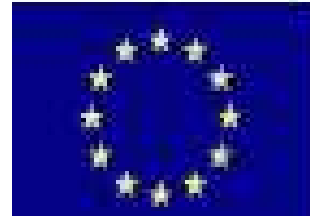
- **Climate change … as a threat multiplier of existing trends, tensions and Instability, that overburdens fragile and conflict prone states and regions**
- **Seven international security threats from climate change**:
    - 1) Resource conflicts (Water, soil, food);
    - 2) Economic damage and risks 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**
- **December 2008: Implementation paper of ESS (2003)**
- **Roadmap Process: DG External Relations not DG Environment**
- **Interregional debates: EU- ASEAN Regional Forum**

6.3. UN Debates on Climate Change and International Security

17 April 2007: UN Security Council: tabled by Ms.Beckett (UK)

- <**http://www.un.org/News/Press/docs/2007/sc9000.doc.htm**>

- <**http://www.un.org/News/Press/docs/2007/sgsm10949.doc.htm**>

3 June 2009: UN General Assembly Resolution:

- 1. *Invites* the relevant organs of the United Nations, as appropriate and within their respective mandates, to intensify their efforts in **considering and addressing** climate change, including its possible security implications;

- 2. *Requests* the Secretary-General to submit a **comprehensive report** to the General Assembly at its sixty-fourth session on the **possible security implications of climate change**, based on the views of the Member States and relevant regional and international organizations.

August-September 2009: submission by states (31 replies)

- <**http://www.un.org/esa/dsd/resources/res_docugaecos_64.shtml**>

11 September 2009: Report by Ban-Ki Moon

- <**http://www.un.org/ga/search/view_doc.asp?symbol=A/64/350**>

6.4. Second Debate on CC & Security in UNSC during German Presidency (20.7.2011)

- **'Concept Note' of 19 July 2011 by German Presidency** referred to "link between energy, security and climate (S/PV.5663)", to UNGA res. A/RES/63/281 (3 June 2009), and SG's 2009 report (A/64/350). 'Concept Note' suggested that the UN Secretary-General's reporting should take "the security implications of climate change and its impact of resource availability into account in conflict analysis, mission planning and mission moni-toring. The same applies to peacebuilding activities." It referred to security implications of CC caused by sea level rise and food insecurity.

- **UNSC acted in preventive mode …to prevent new emerging conflicts of this century", noting that the SC "recognizes the potential threat of climate change to international peace and security"** and that it asks the Sec.-General "to report on security implications of climate change in his re-porting", implying a "kind of **mainstreaming of the security implications of climate change in the system of the reporting of the Sec.-General**", "recognizing potential threat of climate change to intern. peace & security".

- **7 hour UNSC debate was divided:**
  - ❑ Opposition of G-77 & China: CC NO security but development & environmental issue
  - ❑ Small islands states, Central American states and EU countries differed
  - ❑ Few delegations (**EU, Slovenia, Spain, Kenya, Ghana, El Salvador, Kazakhstan, Japan**) linked climate change debate in UNSC with the human security concept, while during the specific debates in the General Assembly on Human Security on 22 May 2008. on 20 and 21 May 2010 & 14 April 2011 most countries referred to **climate change as a major threats for human security**.

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

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

- 2001 Bush opposes the Kyoto Protocol, to accept mandatory limits of GHG-Emissions
- **Pentagon study** of Schwartz/Randall: (October 2003, February 2004)
- **Gilman, Randall, Schwartz:** Effects of cliamte change: System vulnerabiltiy of possible effects up to 2050 medium scenario of temperature increase
- **March 2007: Strategic Studies Institute:** Colloquium on "global cliamte change: National Implications for Security"
- **March 2007:** Senators Durbin (D-IL)/Hagel (R-NE): Law on intelligence assesments on cliamte 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*
- 2007 Military establishment begin to perceive CC as national security issue
- **2009 President Obama takes office and declares CC as „a matter of urgency and of national security"**
- **2010: QDR (February) and National Security Strategy (May 2010)**

6.6 Main Securitizing Actors

- Administration: Clinton, Bush, Obama

- Senate/Congress

- Department of Defense (DoD)

- NIC of Central Intelligence Agency (CIA)
  - Regional studies & conference reports (2009, 2010)

- For U.S. National security is the main reference:
  - How do different conditions induced by CC represent security risks for U.S.?
  - How do they affect U.S. security interests?
  - What actions could/should be launched?

6.7. General Debate & US Congress

- Growing debate about widening security since 2007. At first on dependencies on foreign energy resources (growing support for renewables).

- Discussion on energy safety and consequences for the national economy

- Debate on military security for U.S. posed by food/water scarcity in vulnerable regions (growing risks of armed conflicts)

- Direct risk by extreme weather events

- Indirect risk for U.S. interests in strategically important countries (migration, humanitarian crisis, armed conflict)

U.S. Senate and Congress

- Studies of 2007: CSIS, CNAS, CFR on CC & US security pushed debate

- **Senators Durbin (D-IL) and Hagel (R-NE)** introduced „**Global CC Security Oversight Act**" requesting national intelligence estimate

- Similar approach by **Congressman Markey** (D-MA)

- **None was adopted**

6.8. Obama Administration: CIA & DoD

- **CIA** Ignored 2004 CC as a security threat in its projetion of the world in 2020
- Growing work on identifying regions with risks regarding likelihood of wars
- Feb 2009 announcement to open Center on CC and National Security
- Issues: rising sea level, desertification and pop. shifts as nat. security issues
- **CIA has ignored CC as an international security threat until 2007**
- CIA should pinpoint regions with high risk levels and the likelihood of wars
- **2011: Republicans in US Congress cut funding for Center on CC/National Security**

Pentagon and the Military

- **DoD should determine how CC affects US security (extreme weather events, new armed conflicts with US-military)**
- **Up to 2007 two main actors in the administration on climate policy**
  - Head of the White House Council on Environmental Quality
  - State Department, Bureau of Oceans and International Environmental and Scientific Affairs
- DoD: undersecretary dealing with security concerns posed by natural hazards
- DoD included a climate section in the Quadrennial Defense Review (Feb 2010)
- Adaptation on CC for soldiers/military bases abroad (extreme heat, rising sea level), Issue of environmental footprint of military

6.9. QDR: February 2010

- QDR 2010 referred 19 times to climate change noting that the "rising demand for resources, rapid urbanization of littoral regions, the *effects of climate change*, the emer-gence of new strains of disease, and profound cultural and demographic tensions in several regions are just some of the trends whose complex interplay may spark or exacerbate future conflicts".

- QDR 2010 announced that the DoD would craft "a strategic approach to climate and energy" where "climate change and energy will play significant roles in the future security environment" by "developing policies and plans to manage the effects of climate change on its operating environment, missions, and facilities".

- New global challenges of the "rising demand for resources, rapid urbaniza tion of littoral regions, the effects of climate change, the emergence of new strains of disease, and profound cultural and demographic tensions in several regions are just some of the trends whose complex interplay may spark or exacerbate future conflicts".

- DoD acknowledged that "climate change will shape the operating environment, roles, and missions that we undertake". According to "assessments con-duc-ted by the intelligence community indicate that climate change could have significant geopo-litical impacts around the world, contributing to poverty, environmental degradation, and the further weakening of fragile governments. Climate change will contribute to food and water scarcity, will increase the spread of disease, and may spur or exacerbate mass migration".

6.10. US National Security Strategy (May 2010)

- **The danger from climate change is real, urgent, and severe**. The change wrought by a warming planet will lead to new conflicts over refugees and resources; **new suffering from drought and famine; catastrophic natural disasters**; and the **degradation of land across the globe**. The United States will therefore confront climate change based upon clear guidance from the science, and in cooperation with all **nations—for there is no effective solution to climate change that does not depend upon all nations taking responsibility for their own actions and for the planet we will leave behind.**

- *Home***:** Our effort begins with the steps that we are taking at home. We will stimulate our energy economy at home, reinvigorate the U.S. domestic nuclear industry, increase our efficiency standards, invest in renewable energy, and provide the incentives that make clean energy the profitable kind of energy. This will allow us to make deep cuts in emissions—in the range of 17 percent by 2020 and more than 80 percent by 2050. This will depend in part upon comprehen-sive legislation and its effective implementation.

- *Abroad***:** Regionally, we will build on efforts in Asia, the Americas, and Africa to forge new **clean energy partnerships.** Globally, we will seek to implement and build on the Copenhagen Accord, and ensure a response to climate change that draws upon decisive action by all nations**. Our goal is an effective, international effort in which all major economies commit to ambitious national action to reduce their emissions**, nations meet their commitments in a transparent manner, and the **necessary financing is mobilized so that developing countries can adapt to climate change, mitigate its impacts, conserve forests, and invest in clean energy technologies**. We will pursue this global cooperation through multiple avenues, with a focus on advancing cooperation that works. We accept the principle of common but differentiated responses and respective capabilities, but will insist that any approach draws upon each nation taking responsibility for its own actions.
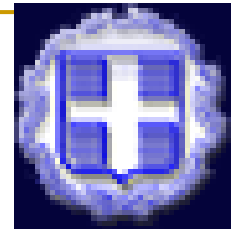
6.11. Discourse 3:
Climate Change & Human Security

- **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.
- **Debate in UN General Assembly (in debate on HS)**
  - **May 2007:** human security: climate change as a threat
  - **June 2009:** Resolution on climate migration: intern. peace & security
- **Reports of SG on Human Security (2010 and 2012)**
- **IPCC: AR 5, WG II, Chapter 12: Climate change & HS**

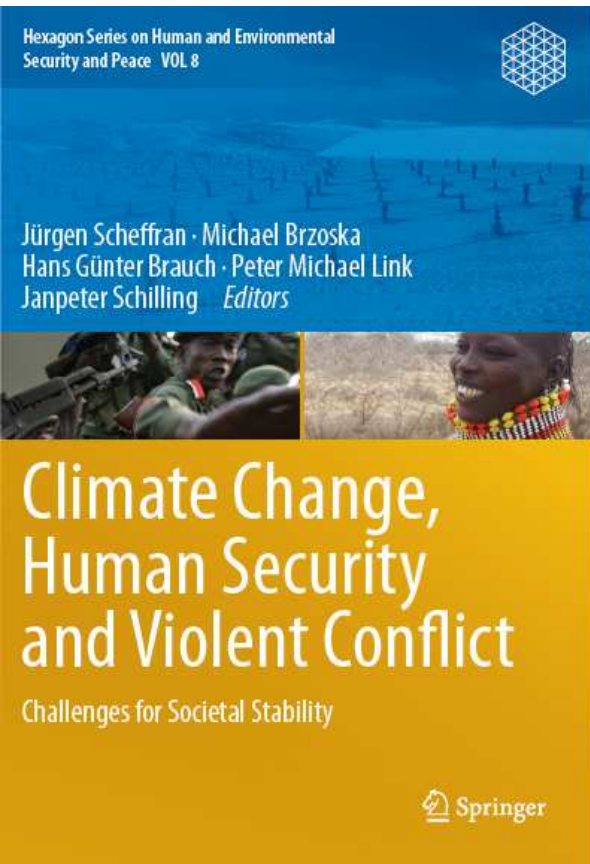# 6.12 Scientific Discourses in Europe

- **Securitizing of Climate Change: Copenhagen, 03- 2009**
  - ❏ Olaf Cory: Securtisation and Risifikation of CC: **Millennium**,1/2012
- **PRIO: Climate Change and Conflicts; June 2010: Trondheim conf,**
  - ❏ **Special Issue of Journal of Peace Research, 49/1, Janaury 2012**
  - ❏ **Guest Editor: Nils Petter Gleditsch, PRIO**
  - ❏ Quantative, macro-sociological approach
  - ❏ Ignores qualiative and policy-oriented debates
- **CLISEC (Hamburg Conf., November 2009):** Research Group Climate Change & Security conducts multidisciplinary research & education on potential security risks, social instabilities & conflicts induced by climate change & on strategies for international cooperation, conflict management & sustainable peace..
  - ❏ Scheffran, Jürgen; Brzoska, Michael; Brauch, Hans Günter; Link, Peter Michael; Schilling, Janpeter (Eds.): **Climate Change,Human Security and Violent Conflict: Challenges for Societal Stability** Hexagon Series on Human and Environmental Security and Peace, vol. 8 (Heidelberg – Dordrecht – London – New York: Springer, 30 April 2012). 900 pages

6.13 Climate Change, Human Security & Violent Conflict: Challenges for Societal Stability
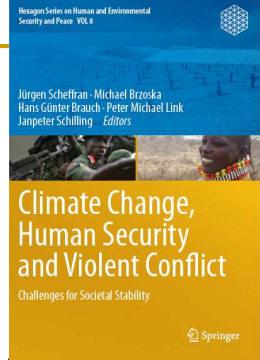
- Climate change is becoming a focal point of security and conflict research and poses challenges to the world's structures of policymaking and governance.

- This handbook explores empirical and theoretical links between climate change, environmental degradation, human security, societal stability and violent conflict that could trigger cascading events and critical tipping points in climate-society interaction.

- Based on an extensive analysis of the securitization discourse, various conflict constellations are assessed, including water scarcity, food insecurity, natural disasters and mass migration.

- The security risks of climate are discussed in detail with regard to regional climate hot spots in Africa, the Middle East, Asia and the Pacific. Constructive approaches are examined for improving climate security through capacity-building for sustainable peace and cooperative policies leading to local and global governance structures.

6.14. Climate Change, Human Security & Violent Conflict: Challenges for Societal Stability

Hexagon Series on Human and Environmental Security and Peace VOL 8

Jürgen Scheffran · Michael Brzoska
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Climate Change,
Human Security
and Violent Conflict

Challenges for Societal Stability

Springer

- **Contents**: Part 1: Introduction. –
- Part II: Climate Change, Human Security, Societal Stability, and Violent Conflict: Empirical and Theoretical Linkages. –
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7. Global Climate Change Hotspots & Conflict Constellations

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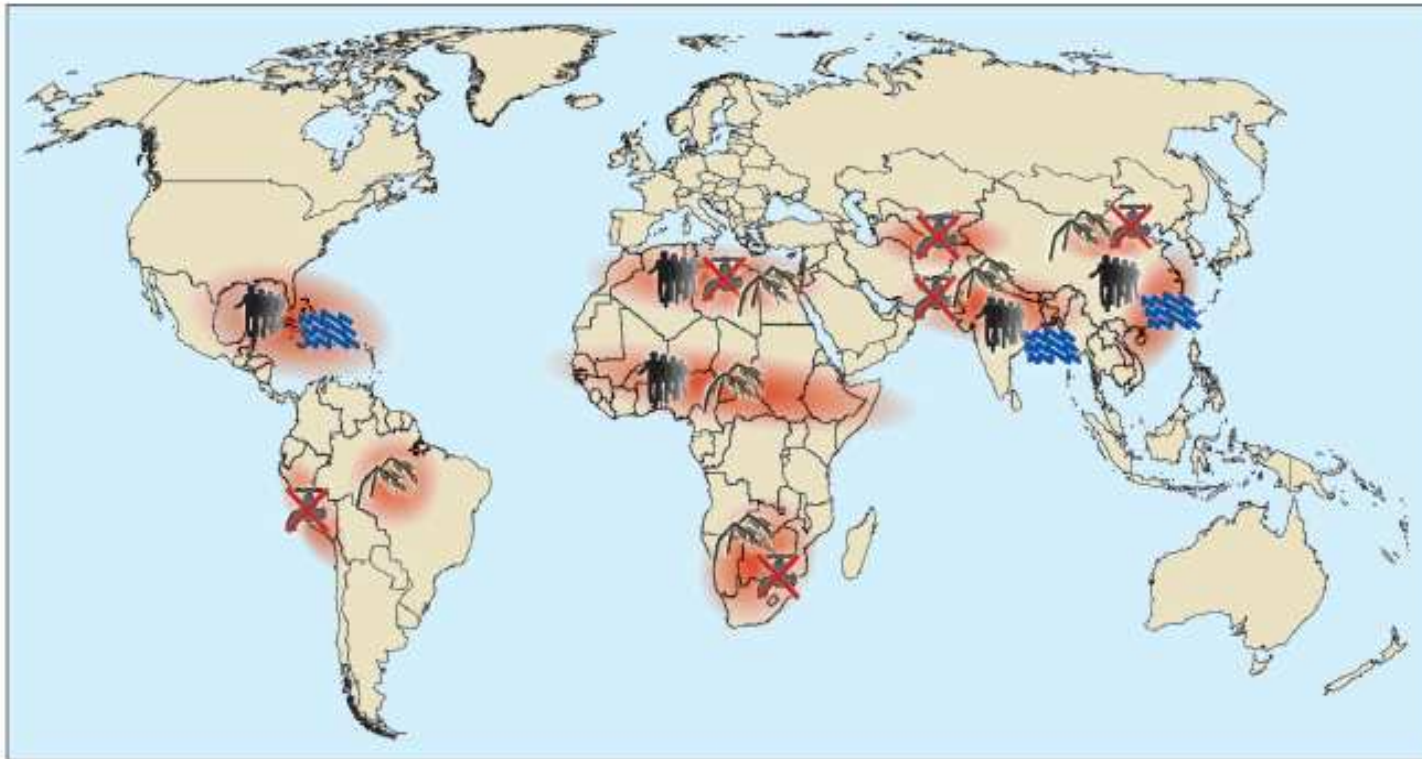
Conflict constellations in selected hotspots

Climate-induced degradation of freshwater resources

Climate-induced increase in storm and flood disasters

Climate-induced decline in food production

Environmentally-induced migration

Hotspot

Security-related challenges in MENA region: Water scarcity to rise due to demand increase and supply decline

Rising food deficits

Rising environmentally induced migration

65

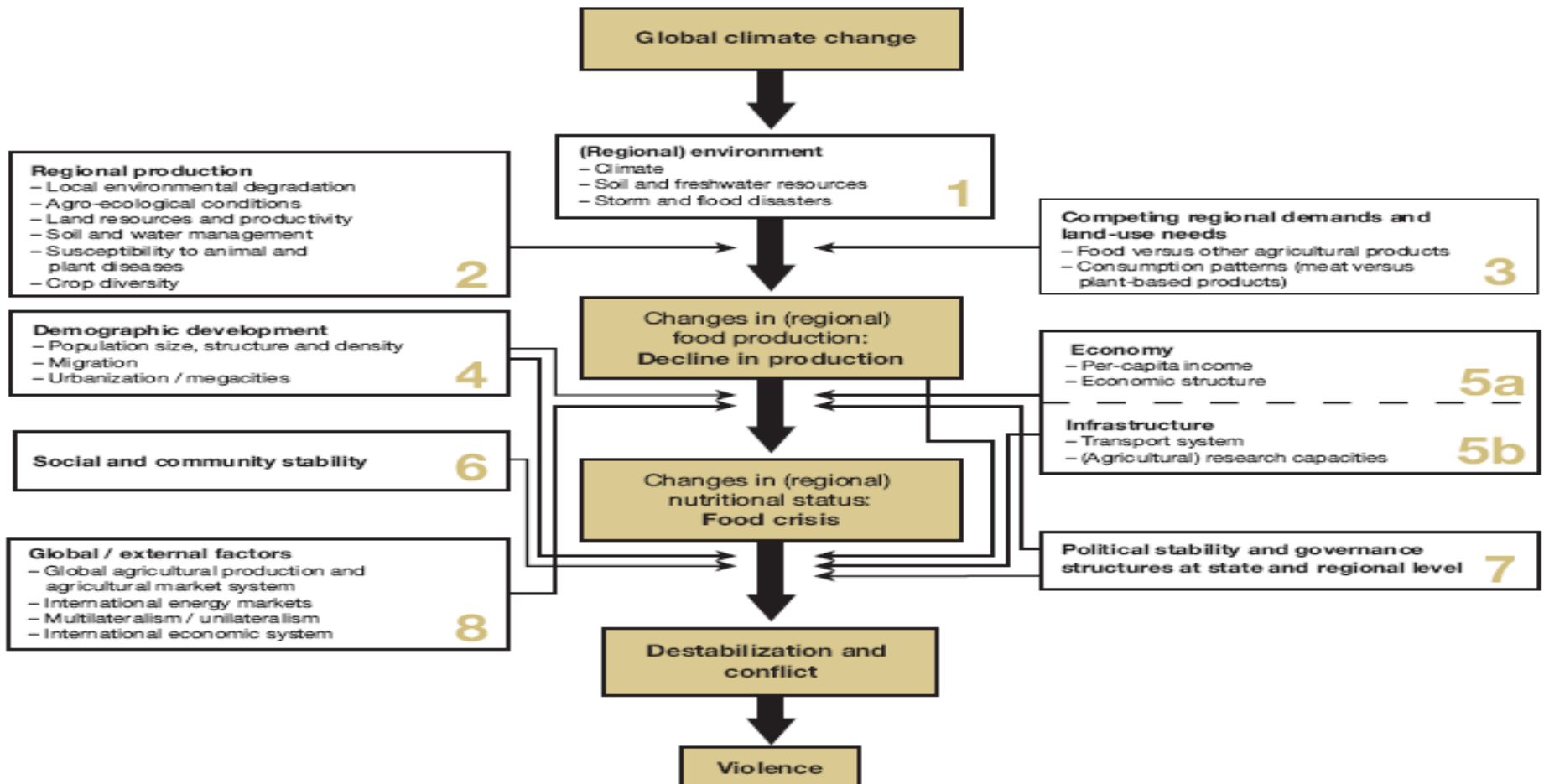# 7.1. Conflict constellation Climate-induced degradation of freshwater resources
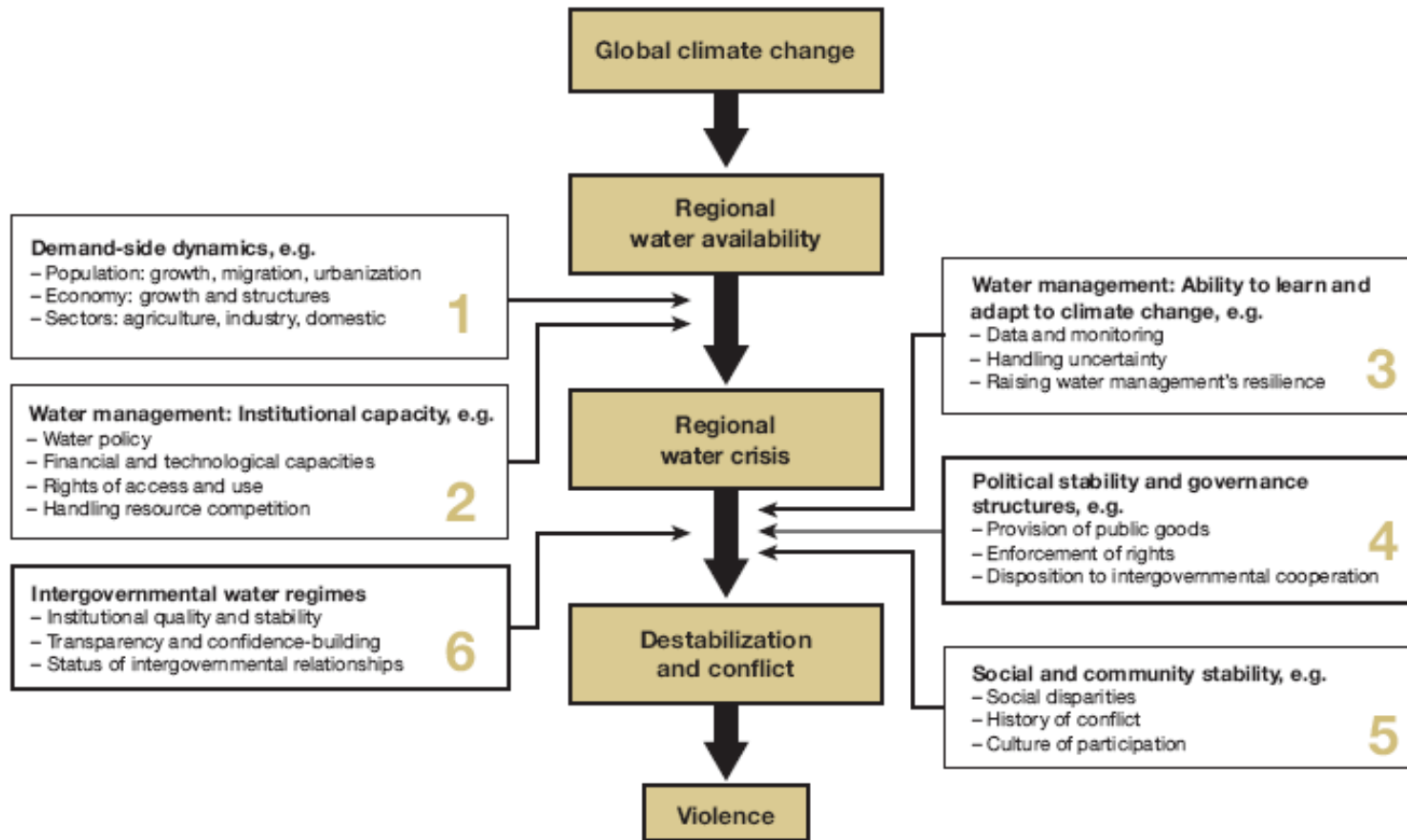
Boxes 1 – 6: Dimensions of influence with key factors

Central causal chain

Influence of key factors on the central causal chain

7.2. Conflict Constellation Climate-induced Decline in Food Production
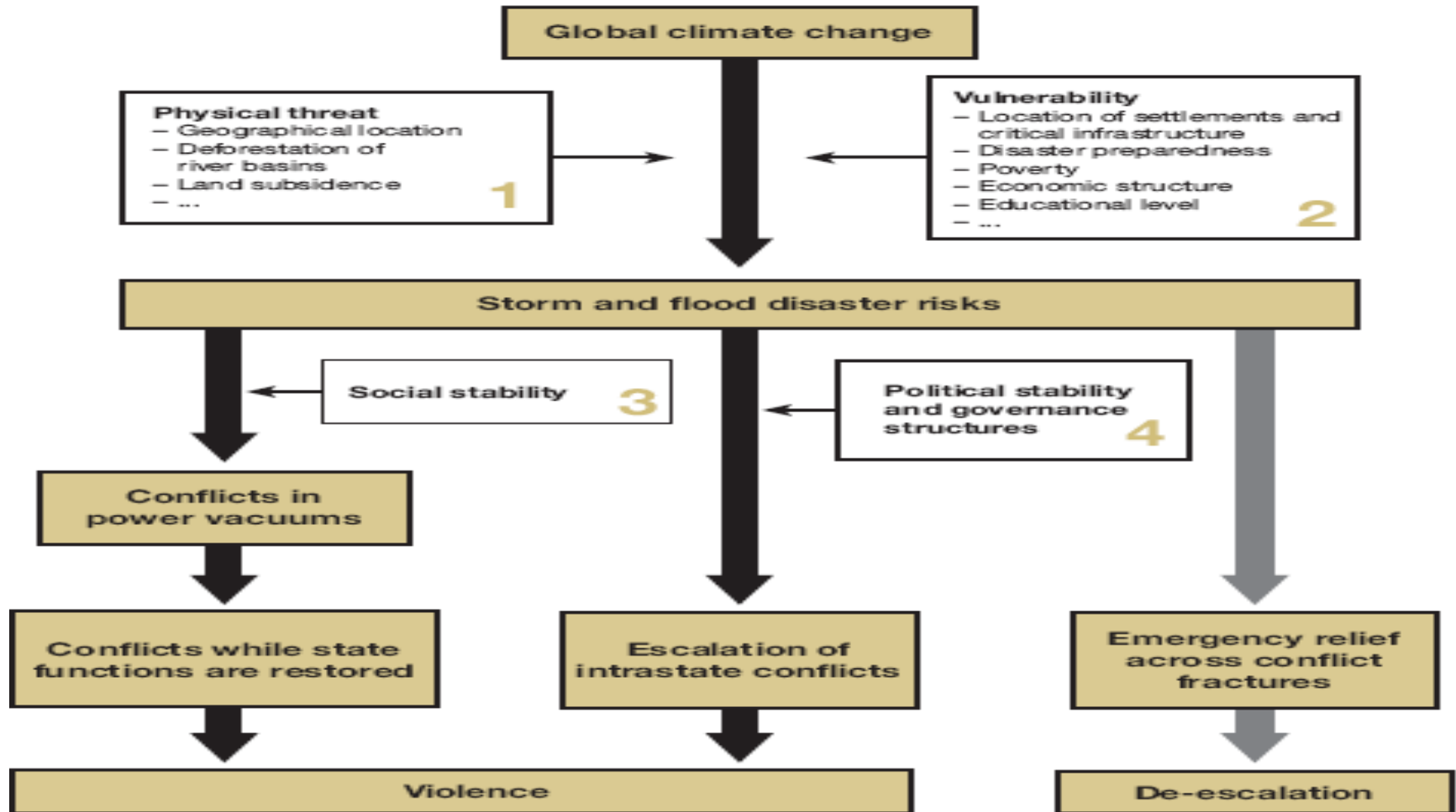

Boxes 1–8: Dimensions of influence with key factors

Central causal chain   Influence of key factors on the central causal chain

7.3. Conflict Constellation Climate-induced Increase in Storm & Flood Disasters

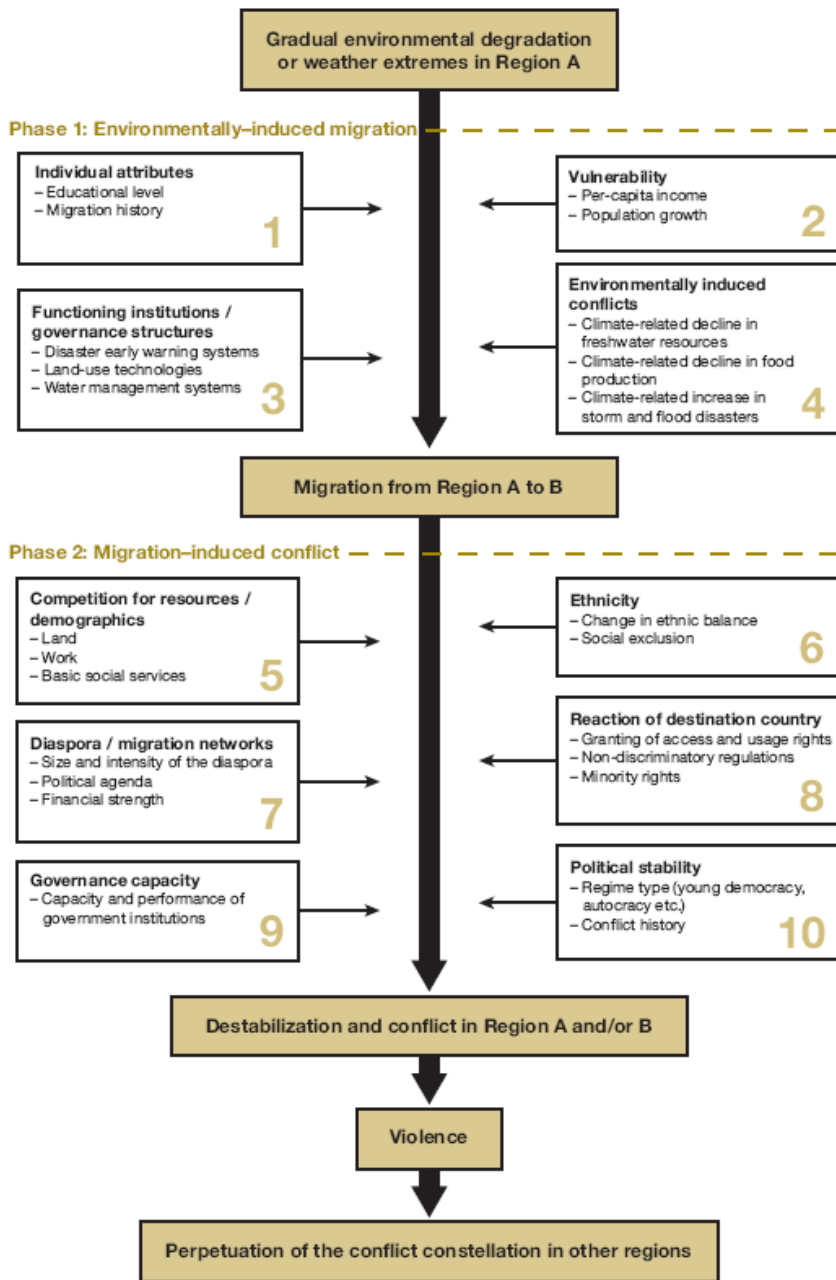
Boxes 1–4: Dimensions of influence with key factors

Central causal chain

Influence of key factors on the central causal chain

7.4 Conflict Constellation "Environmentally-induced migration"

- Experience has shown that migration can greatly increase the likelihood of conflict in transit and target regions.

- It can be assumed that the number of environmental migrants will substantially rise in future due to the impacts of climate change.

- In developing countries in particular, the increase in drought, soil degradation and growing water scarcity in combination with high population growth, unstable institutions, poverty or a high level of dependency on agriculture means that there is a particularly significant risk of environmental migration occurring and increasing in scale.

- Most environmental migration is initially likely to occur within national borders.

- Transboundary environmental migration will mainly take the form of south-south migration, but Europe and North America must also expect substantially increased migratory pressure from regions most at risk from climate change.

- The question as to which states will have to bear the costs of environmentally-induced migration in future also contains conflict potential.

Gradual environmental degradation or weather extremes in Region A

Phase 1: Environmentally–induced migration

Individual attributes
– Educational level
– Migration history
1

Vulnerability
– Per-capita income
– Population growth
2

Functioning institutions / governance structures
– Disaster early warning systems
– Land-use technologies
– Water management systems
3

Environmentally induced conflicts
– Climate-related decline in freshwater resources
– Climate-related decline in food production
– Climate-related increase in storm and flood disasters
4

Migration from Region A to B

Phase 2: Migration–induced conflict

Competition for resources / demographics
– Land
– Work
– Basic social services
5

Ethnicity
– Change in ethnic balance
– Social exclusion
6

Diaspora / migration networks
– Size and intensity of the diaspora
– Political agenda
– Financial strength
7

Reaction of destination country
– Granting of access and usage rights
– Non-discriminatory regulations
– Minority rights
8

Governance capacity
– Capacity and performance of government institutions
9

Political stability
– Regime type (young democracy, autocracy etc.)
– Conflict history
10

Destabilization and conflict in Region A and/or B

Violence

Perpetuation of the conflict constellation in other regions

Boxes 1–10: Dimensions of influence with key factors

→ Central causal chain

→ Influence of key factors on the central causal chain

7.5. Conflict constellation "Environmentally-induced migration"

- **IOM (2007): Environmental migrants are persons or groups of persons who, for compelling reasons of sud-den or progressive chan-ges in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad.**

- **Migrants as a cause of conflict: if? Where? How?**

8. Two Alternative Visions: Hobbesian Business as Usual vs. Sustainability Revolution & Decarbonization

- Humankind is at a **turning point of earth history**: in **Anthropocene** human interventions into earth system contributed to **anthropogenic global environmental** (soil, water, biodiversity) and **climate change**

  - **Linear projections of physical effects of GCC** (temperature, precipitation, SLR, natural hazards) may trigger societal impacts:migration, crises & conflicts

  - **Nonlinear (chaotic) tipping points** in the climate system are possible that may have significant impacts.

- **Two different visions & strategies:**

  - Business as usual (economic, political, military): old mindset

  - Alternative vision & strategy: change in worldview, mindset, culture and govenance

8.1. Two Opposite Visions

Anthropocene Two Ideal Type Future Visions:

- ***Business-as-usual*** where economic & strategic interests & behaviour prevail leading to a major crisis of human-kind, in inter-state relations and destroying the Earth ('security' & 'market first' scenarios, UNEP 2007)

- The need for a ***transformation*** of global cultural, environmental, economic (productive & consump-tive patterns) and political (on human and interstate) relations ('sustainability first' scenario, UNEP 2007). **Fourth Sustainability Revolution** or **Sustainability Ttransition**: Climate change as a **threat minimizer**.

8.2. Two Alternative Strategies

Both visions refer to different coping strategies :

- Vision of ***business-as-usual*** suggests primarily technical fixes (such as geo-engineering, increase in energy efficiency or renewables), defence of economic, strategic and national interests with adaptation strategies that are in the interest of and affordable for the 'top billion' of OECD countries.

- Alternative vision of **comprehensive transformation** a ***sustainable perspective*** has to be developed and implemented into effective new strategies and policies with different goals and means based on global equity and social justice.

8.3. Coping Strategies: Business-as-Usual

- **Instant Response: Discredit the message & attack the messenger: 2009: Attack on IPCC**

- **Coping with Climate Change Impacts:**

  - **Market will provide means** for coping with physical climate change effects: **Washington neoliberal consens.**

  - **Military Protection:** Adjust military strategies, mis-sions and tools to be able to operate under conditions of dangerous climate change („militarization"): **Hobbesian**

  - **Develop the technologies:** Geo-engineering schemes, strategy of energy independence: **Cornucopian** (Lomborg)

- **No Need for a Sustainability Revolution**

8.4 Business-as-Usual: Hobbesian World

- *Business-as-usual* in a **Hobbesian world** where economic and strategic interests and behaviour prevail leading to a major crisis of humankind, in inter-state relations and destroying the Earth as the habitat for humans and ecosystems putting the survival of the vulnerable at risk.

- *Cornucopian perspectives* prevail that suggest primarily technical fixes (geo-engineering, increase in energy efficiency or renewables), defence of economic, strategic and national interests with adaptation strategies that are in the interest of and affordable for the 'top billion' of OECD countries in a new geopolitical framework, possibly based on a condominium of a few major countries.

- This vision with minimal reactive adaptation and mitigation strategies will increase the probability of a '**dangerous climate** the climate system & socio-political consequences what is a high-risk approach.

9. Evolution of debate on sustainability transition
Climate Change as a Trigger

- The emerging scientific debate on 'sustainability transition' addresses the many scientific, societal, economic, political, and cultural needs to reduce GHG emissions.

- These cannot be achieved simply by legally binding *quantitative emission limitation and reduction obligations* (QELROs), as in the framework of the Kyoto Protocol (1997).

- These have failed to achieve their proclaimed stated aims during the past two decades because of a lack of political will and capability to implement these legal obligations and policy declarations.

- A continuation of the prevailing world view and 'business-as-usual' mindset may lead to 'dangerous' (+4 ℃ world) or even 'catastrophic' (4-6° world) climate changes and major huma n catastrophes during this century if the global temperature should rises by 4-6 ℃ above the pre-industrial average by end of the 21st century.

9.1. Milestones in the Policy Debates on Sustainable Development (1987-2012)

- 1983: **UN *World Commission on Environment and Development*** (WCED), was appointed by UN SG in 1983 based on UNGA Resolution

- **1987: Brundtland Commission Report was released in October that called for an international meeting where more concrete initiatives and goals could be mapped out [that] was held in Rio de Janeiro, Brazil in June**

- **1992: UNCED:** Rio conventions (UNFCCC, UNCBD) & Agenda 21

- UNCSD set up as a commission of ECOSOC,

- **1994: Barbados Plan of Action**

- **1997: Programme for the Further Implementation of Agenda 21**

- **2000: the adoption of the MDGs**

- **2002, UNCSD** adopted the ***Johannesburg Declaration on Sustainable Develop-ment*** and a ***Plan of Implementation of the World Summit on Sustainable Development*.**

- **2005: Mauritius Strategy of Implementation**

- In **June 2012 in Rio de Janeiro** in June 2012, the conference approved an outcome document on **"The Future We Want".**

9.2. Emerging Scientific ST Discourse

- **2001: Amsterdam conference** on Earth Systems Science (ESSP)
- 2004: Clark/Crutzen/Schellnhuber provided conceptual context for the **Dahlem Workshop on "Earth Systems Science and Sustainability" (2003),** where they pointed to "the need for harnessing science and technology in support of efforts to achieve the goal of environmentally sustainable human development in the Anthropocene"
- **2005: KSI started** to work on Sustainability transition (John Grin, co-chair)
- **2009:Amsterdam Conference on Sustainability** Transition resulted in Sustainability Transition Research Network (STRN)
- **2010: Routledge Series on Sustainability Transitions** was launched
- **2011: Elsevier: Environmental Innovation and Sustainability Transition**
- **2011: Oswald Spring/Brauch: Fourth Sustainability Revolution (FSR)**
- **2011: Brauch/Dalby/Oswald Spring: A Political Geoecology for the Anthropocene**
- **2011: WBGU. Report: A Social Contract for Sustainability**
  - We are currently witnessing the emergence of a new scientific paradigm that is driven by unprecedented planetary-scale challenges, operationalized by transdisciplinary centennium-scale agendas, and delivered by multiple-scale co-production based on a new contract between science and society.
- **2012: Third STRN Conference in Copenhagen: 30-31 August 2012**
- **2013: Fourth STRN Conference in Zürich in June**

9.3 Emergence of the Scientific & Policy Debates on 'Sustainability Transition'

- Scientific discourse in natural sciences on **earth systems analysis (ESA)** or **earth systems science (ESS),** 'sustainability science' (SuS) involving natural and social sciences, and on **ST**, primarily in the social sciences.

- **Policy debate** has addressed proposals for a **global green deal** and **green growth**, that are increasingly been being addressed by inter- and suprana-tional organizations, such as the **UN, UNEP, OECD, and the EU.**

- **Since 2009**, *Sustainability Transitions Research Network* **(STRN)** has focused on "persistent sustainability problems in such sectors as **energy, transport, water and food" from the perspective of "various scientific communities" on the ways**

  - in which society could combine economic & social development with reduction of its pressure on the environment. A shared idea among these scholars is that due to the specific characteristics of the sustainability problems (ambiguous, complex) incremental change in prevailing systems will not suffice. There is a need for transformative change at the systems level, including major changes in production, consumption that were conceptualized as 'sustainability transitions

- **Routledge Series, vol. 1: „seek to understand transitions dynamics, and how and to what extent they may be influenced."** …The transition to sustainability has to compete with other developments, and it is uncertain which development will gain the upper hand. … The authors … closely address the need for transitions, as well as their dynamics and design. Thereby they concentrate on historical cases as well as on contemporary examples.

9.4 Research in Sustainability Transitions

- **Environmental Innovation and Sustainability Transitions Journal**
  - offers a platform **for reporting studies of innovations and socio-economic transitions** to enhance an environmentally sustainable economy and thus solve structural resource scarcity and environmental problems, notably related to fossil energy use and climate change.
  - **This involves attention for technological, organizational, economic, institutional & political innovations** as well as economy-wide & sector changes, such as in the areas of energy, transport, agriculture and water management.". The journal focuses on "social, economic, behavioral-psycho-gical & political barriers and opportunities as well as their complex interaction.

- **WBGU Report on a 'Social Contract for Sustainability' (2011) argued that the transformation to a low-carbon society requires <u>us</u>**
  - not just [to] **accelerate the pace of innovation**; we must also **cease to obstruct** it. … Adequate **investment dynamics towards a sustainable global economy** can only develop if subsidies for fossil energy carriers, currently in the region of high three-digit billion figures worldwide, are abolished.
  - We must also take into account the **external costs of high-carbon (fossil energy-based) economic growth** to set price signals, and thereby to provide **incentives for low-carbon enterprises**. Climate protection is, without a doubt, a vital fundamental condition for sustainable development on a global level. …
  - **Sustainable development means more than climate protection, though, as the natural life-support systems also include many other natural resources, such as fertile soil and biological diversity.**

10. Political Urgency & Research Agenda: Sustainability Transitions & Sustainable Peace Project

Glooming Prospects for Post-Kyoto Regime: Paralysis

- Prospects for Post-Kyoto climate regime at COP 17 in Durban were low
- At present it becomes increasingly unlikely to realize the 2°C world
- Probability of 'dangerous climate change' increases dramatically
- This increases the probability that thresholds in the climate system may be crossed, that tipping points may be unleashed, triggering cascading processes'

Business-as-usual paradigm prevails in politics & media

- In light of global financial crisis, the sense of urgency for proactive climate action has declined since 2009 prior to Copenhagen (COP 15)
- The US government is paralyzed due to ideological confrontation within the US Congress and between the Senate & the House
- Lack of urgency among BASIC countries to accept commitments.

10.1 Sustainability Transitions and Sustainable Peace Project (STSP)

- **Research & Dialogue Project: Sustainability Transition and Sustainable Peace (STSP)**
- *Second debate* is partly policy driven, by debate on a **green economy** that has been launched by **UNEP, OECD and by different DGs of the European Commission.**
- *Scientific discourse* on sustainability transition evolved
  - after conference in Amsterdam (2009); Lund (2011), Copenhagen (2012)
  - *Sustainability Transitions Research Network* (STRN)
  - journal on *Environmental Innovation and Sustainability Transition* (EIST)
  - *Routledge Book Series in Sustainability Transitions* (since 2010).
- **This new project tries to link this emerging debate with the experience of international relations and *environment, security, development and peace* studies by addressing possible impacts of both alternative policy trends for international peace and security.**
- **STSP was launched in September 2012 in Mexico (1st Workshop), 2nd workshop on 2 April 2013 at ISA in San Francisco)**
- **Goal: STSP Handbook by 2014 in the Hexagon Series**

10.2. Past Transitions & War/Peace

- **All three technical revolutions (longterm transformations):**
  - ❏ the first **agricultural revolution** (10.000 to 6.000 years ago),
  - ❏ the second **industrial revolution** (1750-1890/1914), and
  - ❏ the third revolution of **communication, transportation and information (CTI) technologies** (since 1890 or 1920) ('second industrial revolution') have resulted in a higher and more violent level of warfare and have thus impacted negatively on international peace and security.

This experience raises several new key research questions:

- Will the suggested fourth sustainability revolution lead to new multiple and potentially violent conflicts within and among countries? May the suggested sustainability transition in the energy sector reduce the potential of resource-related violent conflicts and wars?

- From a scientific and conceptual perspective, which strategies, policies and measures may be needed to combine the proposed process of a long-term transition of the scientific institutions and their new knowledge, of societies and the business community and economic sectors as well as new forms of governance with the goal of a sustainable peace?

10.3 Emerging Research Agendas

Strategy for Sustainable Transition Requires Changes in the Scientific System of Knowledge Production

- **Edward O. Wilson (1998)** noted a growing *consilience* (interlocking of causal explanations across disciplines) in which the "interfaces between disciplines become as important as the disciplines themselves" that would "touch the borders of the social sciences and humanities."

- **Clark, Crutzen and Schellnhuber (2004)** called for a 'second Copernican Revolution in earth systems science' & a 'new paradigm of sustainability' and new 'Contract for a Planetary Stewardship'

- **Grin, Rotmans and Schot (2010)** reviewed "Transitions to Sustainable Develop-ment: New Directions in the Study of Long Term Transformative Change"

- **Huff (2011)** discussed past "Intellectual Curiosity and the Scientific Revolution" in Western and Non-western Cultures (Confucianism, Hinduism and Islam)

- **Brauch, Dalby and Oswald Spring (2011)** suggested a new 'Political Geo-ecology for the Anthropocene" by bringing politics and security into Earth Systems Science and its key results into the social sciences

- **WBGU (2011)** proposed a new "Social Contract for a Global Transformation"

10.4. Implications for the Social Sciences

- The challenge of research on the societal impacts of global environ-mental change in the Anthropocene requires an understanding of the **observed and projected changes** within the **earth system** and its **physical and societal impacts for the human systems, i.a. an analysis of earth systems sciences.**

- This requires increased funding for multi-, inter- and transdisciplinary research to address the '**consilience**' of the sustainability paradigm.

- Research on sustainability transition may not be limited to a research agenda of the priorities, pathways & strategies towards sustainability

- For **sociology and political science** it requires to address 'cascading processes' in the 'world risk society' stimulated by the ‚principle of *precaution through prevention*' (Ulrich Beck, 2011).

- For international relations, security and peace research this requires conceptual research on the conditions and possibilities of a sustainable peace as a global political framework for a sustainable transition.

10.5. WBG (2011): New Social Contract for a „Global Transformation"

- **WBGU explains reasons for a 'post fossil-nuclear metabolism' concluding that the transition to sustainability is achievable.**

A New Social Contract

- **Transformation into a sustainable society requires a modern framework for nine billion people for living with each other, and with nature: a new Contrat Social.**

- **This virtual social contract relies on each individual's self-concept as a responsible global citizen. This contract is also a contract between generations.**

- **Science plays an essential role here, as for the first time in history, a profound transition is not caused by imminent necessity, but by precaution and well-founded insight. In this respect, the social contract also represents a special agreement between science and society.**

- **A new culture of democratic participation through the appointment of ombudsmen … to ensure the protection of future-oriented interests. Sustainability-oriented approach can be given a secure, firm footing through the inclusion of 'climate protection' in the constitution as a national objective, and through establishing a climate protection law.**

- **A low-carbon transformation can only be successful if it is a common goal, pursued simultaneously in many of the world's regions.**

- **Therefore, the social contract also encompasses new ways of shaping global political decision-making and cooperation beyond the nation state.**

10.6 Specific Goal of this Workshop

- **This workshop combines four scientific issue areas and scientific discourses:**

  1. **Research on *consequences of policies on GEC and climate change* that** resulted in a deficient implementation of agreements (KP of UNFCCC) and of non-binding policy declarations of the G8 what represents a 'Climate Paradox'. This will increase the probability of a dangerous and catastrophic climate change. To avoid its consequences in science, & societal, economic and political realms, major changes in science, society, the business community & politics are needed. This has inspired several scientists to call for a new **'scientific revolution towards sustainability', a new 'Social Contract for Sustainability' or a 'fourth sustainability revolution'.**

  2. **Research that address the *consequences of global environmental change and climate change* on *international peace and security*, and the linkages between climate change and security**

  3. A third emergent research field in the social sciences deals with *theoretical and empirical approaches and strategies of a long-term transformative change towards a sustainable development*.

  4. In the context of these discourses a sustainable peace will also be addressed from the perspective of *human security*.

- **Based on the discussion of these multiple complex issue linkages new research questions & research fields are to be developed for a multidisciplinary oriented & policy relevant international social sciences and also for peace research.**

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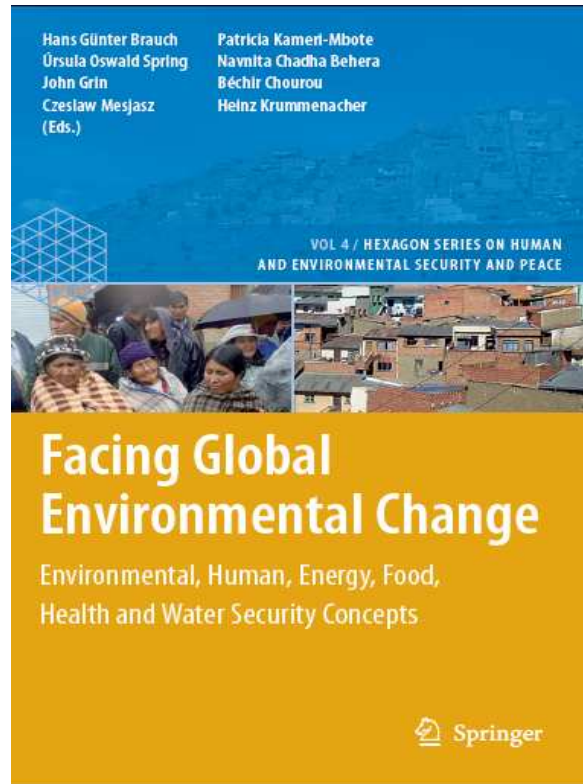
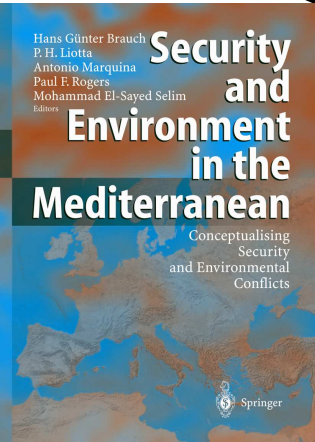## <http://www.afes-press.de/html/download_hgb.html>

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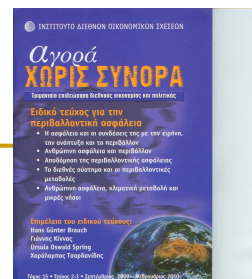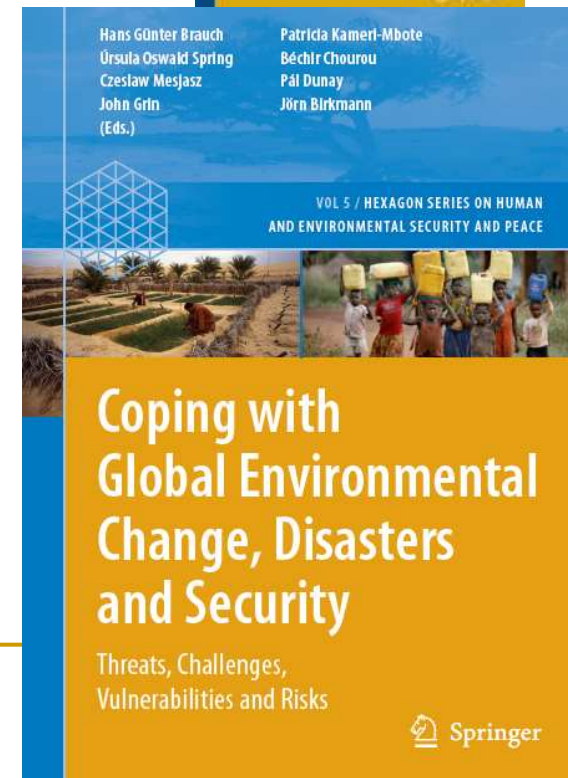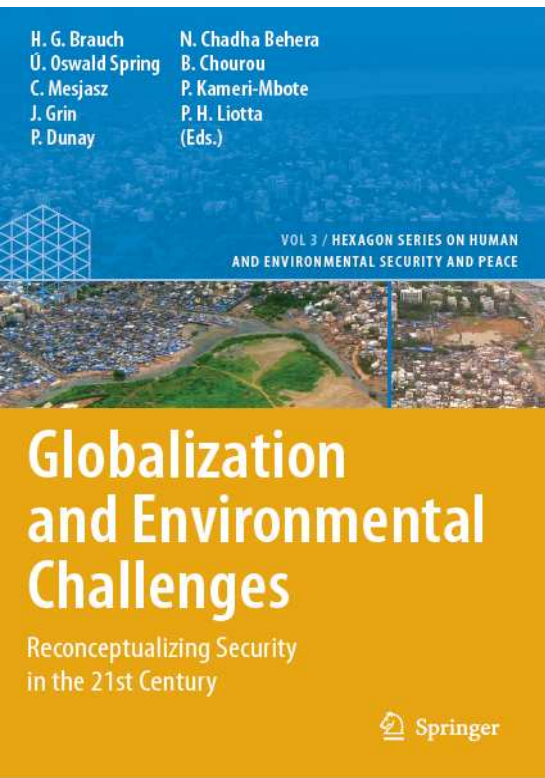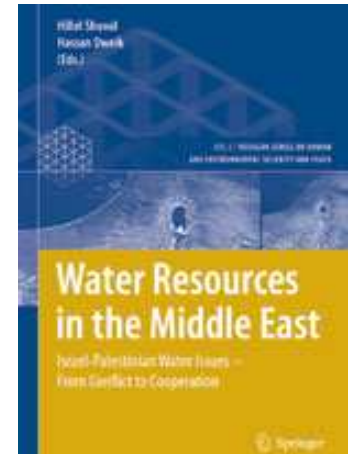
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Czeslaw Mesjasz: *Stability, Turbulence or Chaos? Systems Thinking and Theory and Policy of Security*. HEX X (Berlin – Heidelberg – New York: Springer-Verlag, 2011), in planning
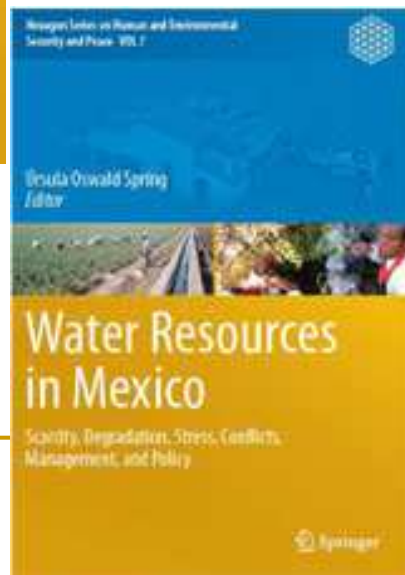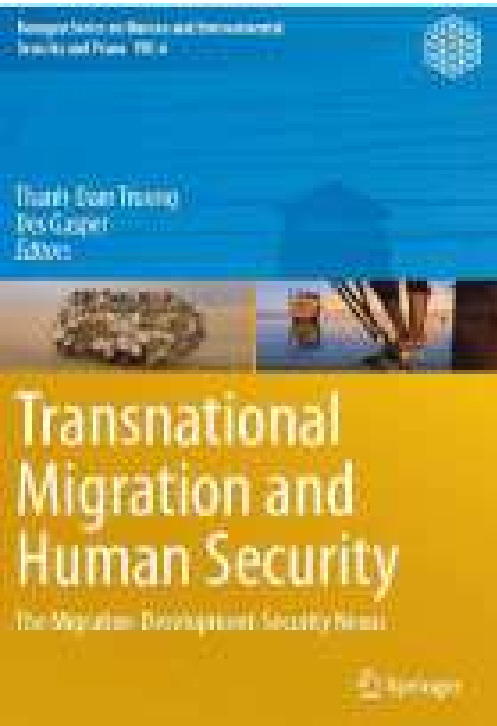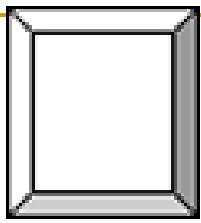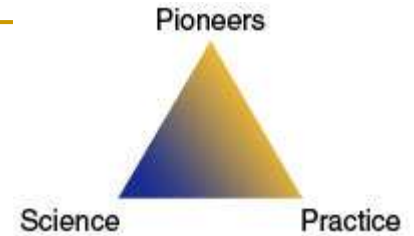
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