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Securitization of Climate Change: Impacts for the Mediterranean

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UNIVERSITY
UNU-EHS
Institute for Environment
and Human Security

AFES-PRESS

Freie Universität Berlin

Contents

1. Introduction: The Thesis

- Climate change is being perceived and has become a major new security danger and concern

- Climate Change has been killing and affected people through hydro-meteorological hazards

- Climate change poses security threats, challenges, vulnerabilities & risks for humankind and persons or for global, international, national & human security

- **Climate change is being securitized!**

- The enemy is us: our consumption of hydrocarbons and our way of life. The Military offers no solution!

- The solution requires both global multilateral coope-ration and national & local action: city, county, state

2. Reconceptualizing Security
Causes and Response:
Widening, Deepening, Sectorialization

➤ **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: Berlin Wall;
- Events of 11 September 2001;
- Process of globalization (1492, 1945, globalized in 1990)
- Shift from 'Holocene' to 'Anthropocene' (Crutzen thesis)

➤ **Which were the conceptual innovations?**

- Theoretical: social constructivism & Ulrich Beck: risk society
- Widening, deepening & sectorialization of security

2.1. Which conceptual innovations?

- **1989-1991: End of the Cold War** (East-West -Conflict)
  - **Widening**: from 2 to 5 security dimensions
  - **Deepening**: from national to global and human security
  - **Sectorialization**: energy,food,health,water &climate security
- **11 September 2001: Vulnerability of U.S.**
  - **Shrinking:** weapons of mass destruction, terrorists
- **29 August 2005: Hurricane Katrina: social vulner.**
  - **Return of hazards & environmental & human security**
- **Transatlantic dispute on security concepts**
  - **Dispute on goals: Terrorism vs. Climate Change**
- **Economic crises: econ. & social vulnerability**
  - **New wars:** humans as victims: ‚freedom from fear'
  - **Crises, Globalization & Complex Emergencies:** poverty: high economic and social vulnerability

2.2 Two New Security Challenges: Terrorism & Climate Change

CNN Exclusive

- 11 Sept. 2001
- Terrorist Aggression
- Death toll (31 October 2003): 2752
- Surpassed Pearl Harbor (Dec. 1941)
- (9/11 Comm. Report)
- Response: war on terror: Iraq
- Iraq death toll: US:3,993
  Iraq:1,191,216 (?)
- War costs: ca. $ 504,458,547,323
- Source: ICH
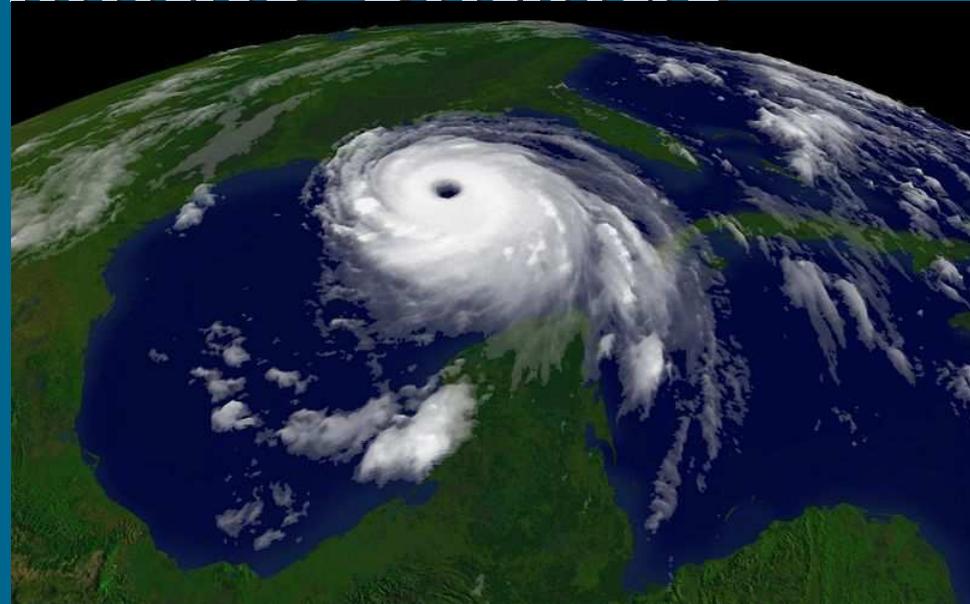
- 29 August 2005: Impact of Hurricane Katrina
- 1838 deaths (official) and
- unofficial death toll 4,081 (?)
- $81.2 billion (2005 USD) $86 billion (2007 USD)
- Policy Response: ??
- Climate Policy: ???

2.3. Global Mental Mapping of Rethinking on Security

- **What does security mean globally?**
  - Security debate influenced by North Atlantic debate
  - What are the cultural, philosophical, religious influences?
- **How has security been reconceptualized?**
  - What are object. security dangers & subjective security concerns: threats, challenges, vulnerabilities and risks?
  - Answer depends on our mindset, our perception that are in-fluenced by our governments, scientific knowledge & media

Does GEC & hazards pose new security dangers?
  - Can September 11 and August 29 be compared?
  - Did both pose security dangers and security concerns?
  - For whom? The state or the people? For national and human security?
  - Our worldviews, conceptual lenses, interpretations and scientific approaches in the study of security differ!!

2.4. Objective, Subjective and 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 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 the "survival'" against existential threats is crucial.

2.5. Copenhagen School: Securitization

- **Securitization**: discursive & political process through which an inter-subjective 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. the **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 mea-sures).

- **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 o security'.

2.6. Two Securitzing Actors

- U.S. Department of Defense

- The U.S. President
- US.National Security Strategy of 2002, 2006
- QDR 2002, 2006
- Nuclear Posture Statements

- Intergovernmental Panel on Climate Change (IPCC)
- Fourth Assessment Report of 2007
- IPCC with Al Gore Recipient of Nobel Peace Prize in 2007

Den Norske Nobelkomite har overensstemmende med reglene i det av

ALFRED NOBEL

den 27. november 1895 opprettede testamente tildelt

Intergovernmental Panel on Climate Change

Nobels Fredspris for 2007
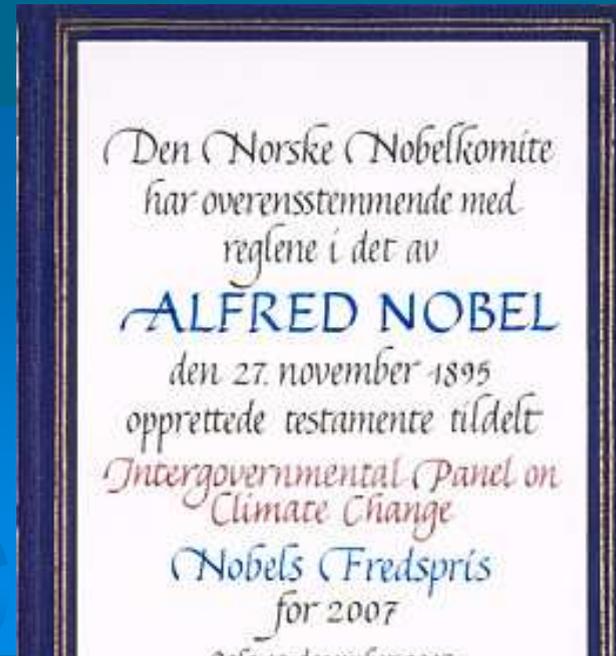
2.7. Security Perception: Worldviews and Mindsets

➤ 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: multialteralism, *cooperation* is vital.

➤ 3 ideal type perspectives in other cultures & traditions:

- Power matters: Sunzi, Thukydides, Machiavelli, Hobbes,
- Ideas matter: Immanuel Kant, Woodrow Wilson
- Cooperation matters: Confucius, Grotius: War and Peace (1625)

2.8. Concepts of security in relation with peace, environment and development

Programmes, pillars & linkage concepts within the quartet

IR research programmes	Conceptual Quartet	Conceptual Linkages
▪ **Peace Research** ▪ **Security Studies** ▪ **Development Stud.** ▪ **Environment Studies** **4 conceptual pillars** ▪ **I:** *Security dilemma* ▪ **II:***Survival dilemma* ▪ **III:** *Sustainable development* ▪ **IV:** *Sustainable peace*	**Peace** **Security** ➤ *I: Security dilemma* IV II **Development**←Environment *III: Sustainable development*	**Political use of concepts & theoretical debates on 6 linkages** ➤ **Peace & security** ➤ **Peace & development** ➤ **Peace & environment** ➤ **Development & security** ➤ **Devel. & environment** **Of interest here:** ➤ **Security & environment**

2.9. 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)
- **1990:** Widening, Deepening, Sectorialization
- **2001:** Shrinking: U.S. nat. security agenda
- **Global Security:** Steinbrunner (2000)
- **Cooperative Security:** Brookings Institution (1990's)
- **Human Security**: UNDP (1994): 4 pillars of HS

2.10. 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** (in USA since 2001: WMD and terrorists)

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 (in USA since 2001)		Energy se.	⇓⇑	Food,health
International Regional			Water security	⇓⇑	Water security
Global/Planetary ⇒				GEC	

2.11. 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	Nation. identity	Nations, migrants
Human security	Individual, humankind	Survival of humankind/people	Nature, state, globalization
Environmental sec.	Ecosystem	Sustainability	Humankind
Gender security (Oswald Spring)	Gender relations, indigenous people, minorities	Equality, identity, solidarity	Patriarchy, totalitarian institutions (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,

❖ Focus: Interactions between ecosystem & humankind, impact of global environmental change on environmental degradation, of increasing demand on environmental scarcity & environmental stress. [No Environment Security Network of States, & IGOs & NGOs]

3. 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, con-flicts, 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**: Bogardi/Brauch vision, 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 (Bogardi/Brauch 2005; Brauch 2005a, 2005b).

3.1. First Pillar of HS: "Freedom From Fear"

- **Primary Focus of the Human Security Network**
- **Requirements and objects:**
  - **Rule of Law:** ICC, International Court of Justice and national, regional and local judicial courts and mechanisms
  - **Universal Humanitarian Standards**: initiatives in international, humanitarian and human rights law, human development, human rights education,
  - **Good Governance**: capacity building of not only national, but regional and local governments or leadership authorities; fostering democracy; respect for minorities
  - **Conflict Prevention/ Post-Conflict Reconstruc-tion**: land mines, child soldiers, protection of civilian population in armed conflict, small arms and light weapons, trans-national organized crime (Ottawa Convention on Anti-personnel Landmines)
  - **Strong International Institutions**

3.2. Human Security Network Members & Goals

NATO (4)	EU (4)	Third World (6)
Canada	**N&N (3)**	Chile
Greece (chair) Slovenia	Austria Ireland	Costa Rica Jordan Mali Thailand
Norway	**Switzer-land**	South Africa (observer)

Anti-pers. Landmines, Intern. Criminal Court, pro-tection of children in armed conflict, control of small arms & light weapons, fight against transnat organized crime, human development, human rights educat., HIV/AIDS, implement. of intern. hu-manitarian & human rights law, conflict prevention

Until 2006 no environmental security issues on agenda of this HS-Network.

The Network has an interre-gional & multiple agenda perspective, strong links to civil society & acade-mia.
The Network emerged from landmines campaign at a Ministerial, Norway,1999. Conferences at Foreign Ministers level in Bergen, Norway (1999), in Lucer-ne, Switzerland (2000), Petra, Jordan (2001) Santiago de Chile (2002), Graz (2003), Bamako, Mali (May 2004), Ottawa (2005) Bangkok (2006), Ljubljana (2007): Greek Presidency: Athens (2008)

3.3. "Freedom From Want":
Human Security Commission: Human Security Now

➢ **Broad:** wider agenda, conceptually more convoluted

➢ **Goal:** reducing individual/societal vulnerabilities in the economic, health, environment, political, community, and food sphere. Create conditions that can lead to empowerment for individuals,

➢ **Japanese FM**: HS "comprehensively covers all menaces that threaten human survival, daily life, and dignity…and streng-thens efforts to confront these threats."

➢ **Threats**:
  - diseases, poverty, financial crises, hunger, unemployment, crime,
  - social conflict, political repression,
  - land degradation, deforestation, emission of GHGs, environm. hazards,
 - population growth, migration, terrorism, drug prod./trafficking

Photo by Osamu Honda 2003

3.4. Human Security Commission Report: Ogata/Sen: Human Security Now (2003)

- ➢ ***Commission on Human Security*** **(CHS)** established in January 2001 at initiative of Japan. The Commission consisted of twelve persons, chaired by Sadako Ogata (former UNHCR) Amartya Sen (1998 Nobel Economics).

- ➢ **CHS goals:** a) promote public understanding, engagement and support of human security; b) develop the concept of human security as an operational tool for policy formulation and implementation; c) propose a concrete program of action to address critical and pervasive threats to HS.

- ➢ ***Human Security Now*** (2003) proposes a **people-centered** security framework that focuses "**on shielding people** from critical and pervasive threats and **empowering them to take charge of their lives**. It demands creating genuine opportunities for **people to live in safety and dignity and earn their livelihood**. Its final report highlighted that:

- ➢ More than **800,000 people a year lose their lives to violence**. Ca. **2.8 billion suffer from poverty, ill health, illiteracy &** other maladies

in larger freedom

TOWARDS SECURITY, DEVELOPMENT AND HUMAN RIGHTS FOR ALL

Report of the Secretary-General of the United Nations
for decision by Heads of State and Government in September 2005

عربي 中文 English Français Русский Español

3.5. "Freedom to Live in Dignity"

- **Kofi Annan** – need for a human centered approach to security "human security can no longer be understood in purely military terms.

- It must encompass economic development, social justice, environmental protection, democratisation, disarmament, and respect for human rights and the rule of law."

- "Embraces far more than the absence of violent conflict"

3.6. "Freedom From Hazard Impacts"

- **UNU-EHS**: Bogardi/Brauch (2005), Brauch (2005)
- **Goal:** reduce vulnerabilities/enhance capacity building & coping capabilities of societies faced with nat.hazards
- **Threats/Hazards:**
  - **Environmental:** floods, droughts, and other natural disasters, env. degradation, lack of water or clean water, human-induced climate change, exhaustion of fish resources, depletion of finite resources
  - **Societal:** poverty, improper housing, insufficient food and water, malfunctioning of technical systems, traffic accidents, population explosions, terrorism and organized crime
- **Develop vulnerability indicators and vulnerability mapping** to apply to operational realm by working on solutions
  - **improved early warning systems & capacity-building**
  - **disaster preparedness** (education and training, infrastructure)
  - coordinated rapid **disaster response** by local, regional and national level
  - developing clear guidelines for **post hazard reconstruction**
  - **long term strategies:** e.g. Kyoto, Montreal Protocol
  - **adaptation measures:** e.g. dams, switching to renewable energy
  - **mitigation measures:** restrict housing in hazard areas (coastal areas-flooding, mud slides), charging more for garbage disposal and energy usage, birth control measures

3.7. "Freedom from Hazard Impact":
New Issue for "People-centred Development" for HSN

➢ During **Thai Presidency** (2005-2006) at 8th Ministerial meeting in Bangkok, 1-2 June 2006, the Thai foreign minister, **Kantathi Suphamongkhon**, suggested in the chairman's conclusions:

- **The network should … broaden the scope of its focus** into non-traditional threats to human security **by addressing 'freedom from hazard impact' such as threatening diseases and natural disasters** and promoting 'freedom from exclusion' through the involvement of the public in human security dialogue in order to engage all stakeholders.

- (1) *Environment*: prevention of global environmental impact as a result of human activities, with emphasis on the cross-sectional connection between **human security & environmental impact**, the significance of humanitarian assistance, and engagement with the business sector such as the **insurance industry** in time of **natural disasters**; (2) *HIV/AIDS*: integration and measurement of human security in existing HIV/AIDS national programmes;

➢ During Greek Presidency (2007-8) at 10th Ministerial (Athens):

- **Human Security and Climate Change with a focus on the effects on vulnerable children, women and refugees.**

3.8. Environmental Dimension of Human Security

➢ **Research Project GECHS (Global environmental change & human security) of IHDP (internat. human dimension programme)**
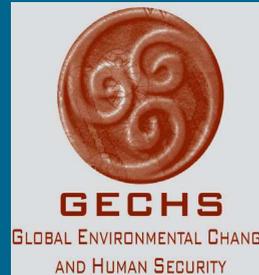
➢ GECHS considers human security to be a state that is achieved

➢ when and where individuals and communities have the options necessary to end, mitigate or adapt to threats to their human, environmental and social rights;

➢ have the capacity and freedom to exercise these options;

➢ and actively participate in pursuing these options.

➢ The focus is on security for individuals and communities, rather than on states.

UNU-EHS in Bonn

➢ Hans Günter Brauch: Environment and Human Security. Towards Freedom from Hazard Impacts. April 2005 (intersection 2/2005)

➢ Hans Günter Brauch: Security Threats, Challenges, Vulnerabilities and Risks of Environmental and Human Security, August 2005 (Source 1/2005)

➢ Order free copies at: Ilona Roberts

at: roberts@ehs.unu.edu

4. Projected Global Climate Change up to 2100

- ➢ **IPCC was set up in 1988 by UNEP & WMO: 1st AR (2000), SAR (1995), TAR (2001) and AR4 (2007)**
- ➢ **2007: IPCC was awarded the Nobel Peace Prize**
- ➢ **UNGA in 1990 set up International *Negotiating Committee on Climate Change* (INC) to negotiate the *United Nations Framework Convention on Climate Change* (UNFCCC)**
- ➢ **1997: Kyoto protocol (-5.1% 1990-2012)**
- ➢ **2009-11: Post Kyoto 2012 Climate Change Regime**

4.1. 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, University at East Anglia, Norwich UK. Projections: IPCC report 95.

4.2. Global and Regional Change in Temperature (IPCC 2007, WG 1, AR4, p. 11)
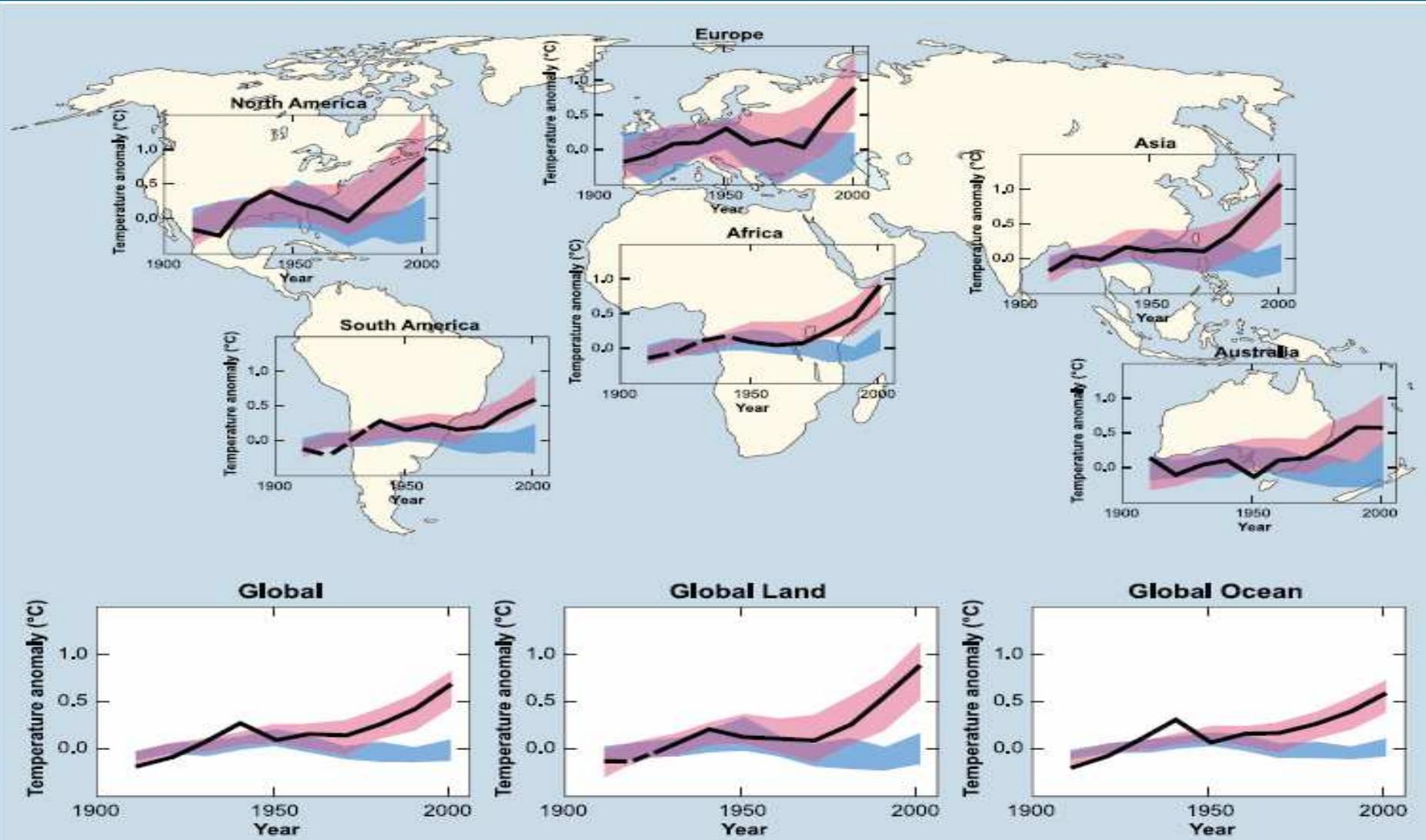
models using only natural forcings

models using both natural and anthropogenic forcings

observations

©IPCC 2007: WG1-AR4

4.3. Implementing the Kyoto Protocol: Performance: Greenhouse Gase Reductions

Change in GHG emissions excluding LULUCF (%)

Country	Change (%)
Turkey	74.4
Spain	53.3
Portugal	42.8
Greece	26.6
Ireland	26.3
Australia	25.6
Canada	25.3
New Zealand	24.7
Austria	18.0
Liechtenstein	17.4
United States of America	16.3
Italy	12.1
Iceland	10.5
Norway	8.8
Japan	6.9
Switzerland	1.7
Luxembourg	0.4
Slovenia	0.4
Netherlands	-0.4
Belgium	-1.3
European Community	-1.5
France	-1.6
Finland	-2.5
Monaco	-3.1
Croatia	-5.4
Denmark	-7.0
Sweden	-7.3
United Kingdom	-14.8
Germany	-18.4
Czech Republic	-25.8
Russian Federation	-28.7
Hungary	-30.7
Poland	-32.0

Over-delivery (−) or shortfall (+) of respective emission target in percentage points relative to base-year emissions

- With existing domestic measures
- With all measures and Kyoto mechanisms
- With additional domestic measures
- With all measures, Kyoto mechanisms and carbon sinks

4.4. Projection of Surface Temperature
(IPCC 2007, WG 1, AR4, S. 15)

MULTI-MODEL AVERAGES AND ASSESSED RANGES FOR SURFACE WARMING

©IPCC 2007: WG1-AR4

Legend:
- A2
- A1B
- B1
- Year 2000 Constant Concentrations
- 20th century
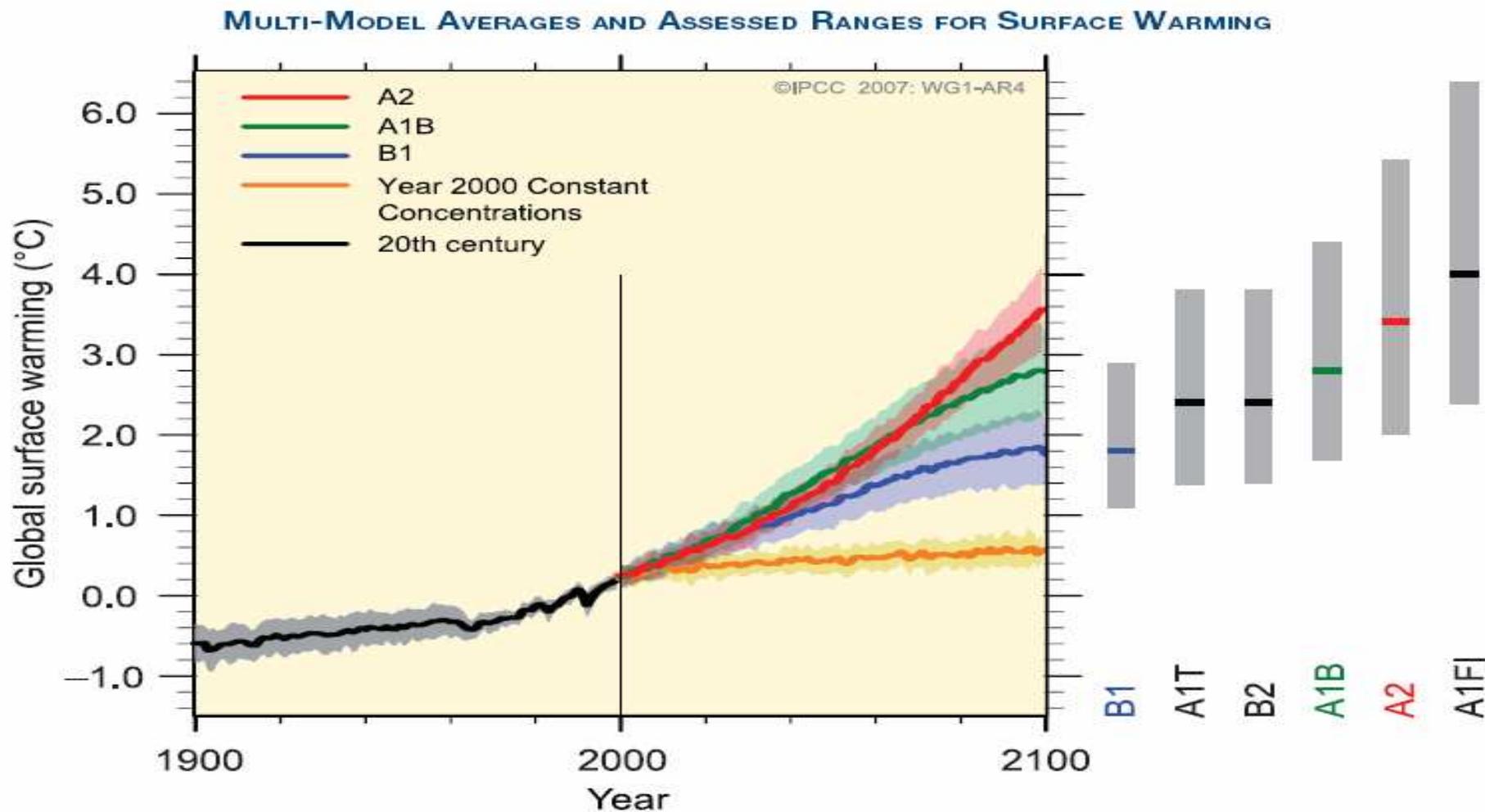
Figure SPM.5. *Solid lines are multi-model global averages of surface warming (relative to 1980–1999) for the scenarios A2, A1B and B1, shown as continuations of the 20th century simulations. Shading denotes the ±1 standard deviation range of individual model annual averages. The orange line is for the 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}*

4.6. Emissions: Responsibility of Industrial States
## (Tons of CO2 Emissions/Capita in Energy Sector only, 2002)
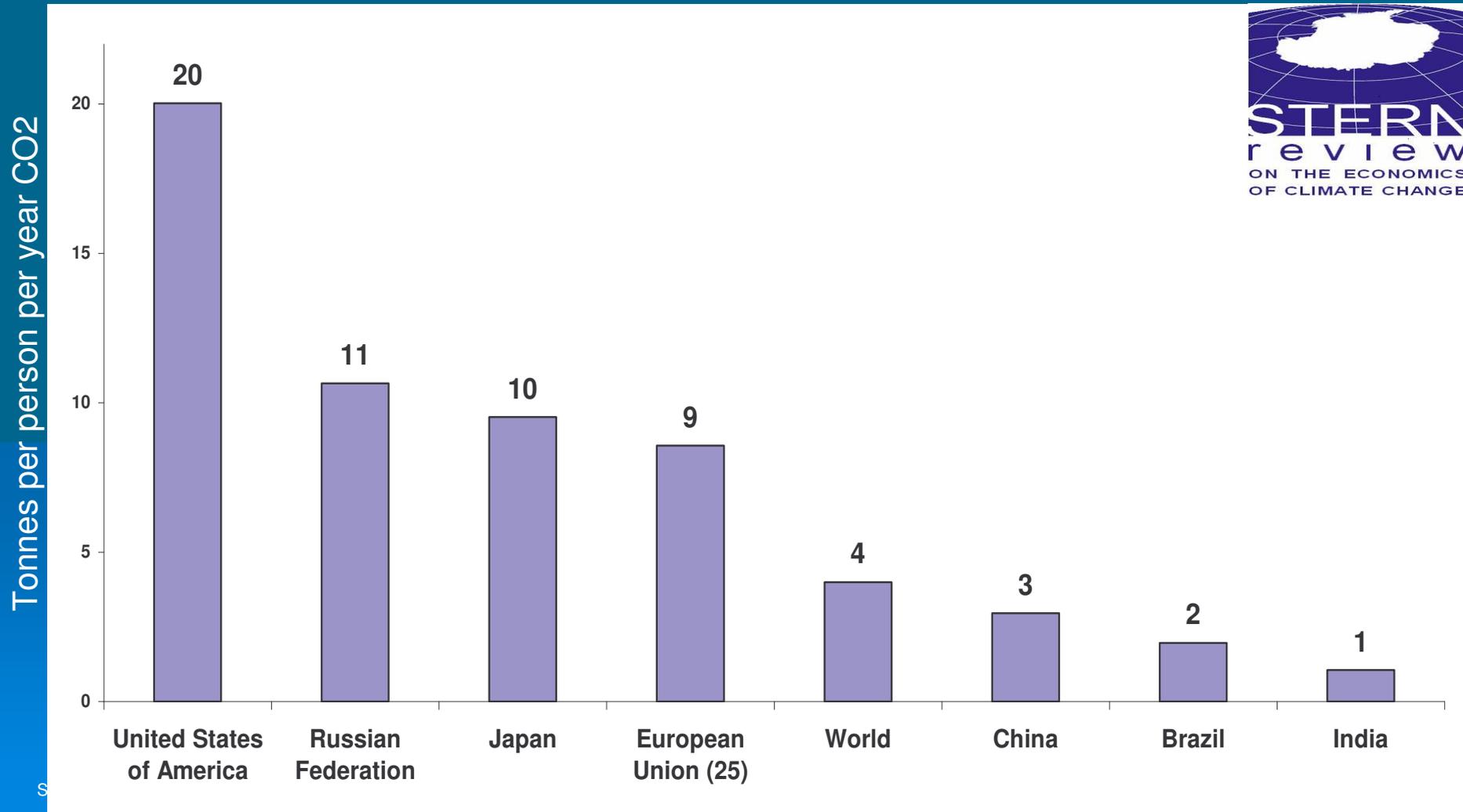
# 4.7. Projection: Greenhouse Gas Emissions 2025 (only in Energy Sector)

Gt CO2
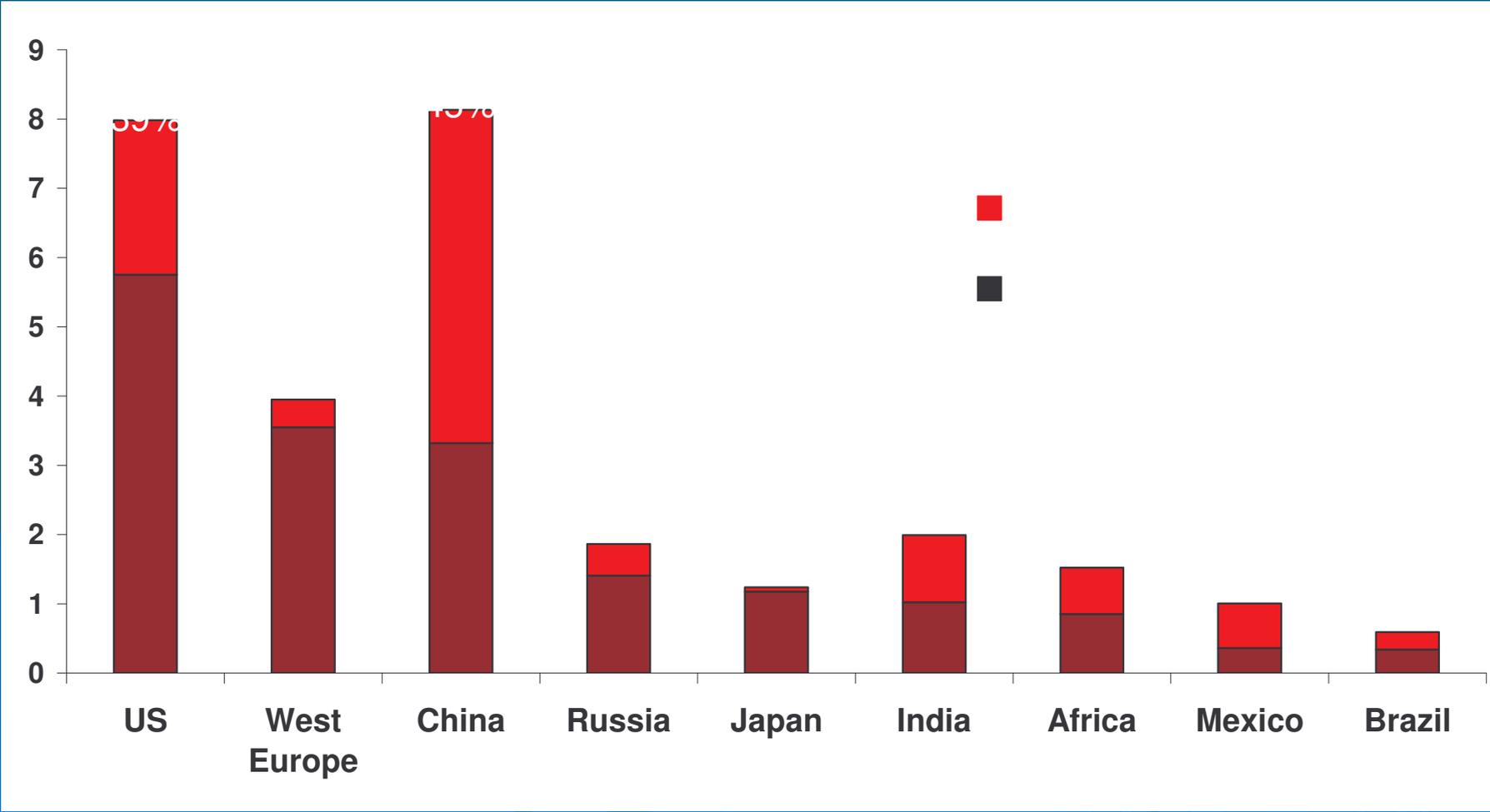
| | US | West Europe | China | Russia | Japan | India | Africa | Mexico | Brazil |

4.8. Projection: Stabilization at 550 ppm
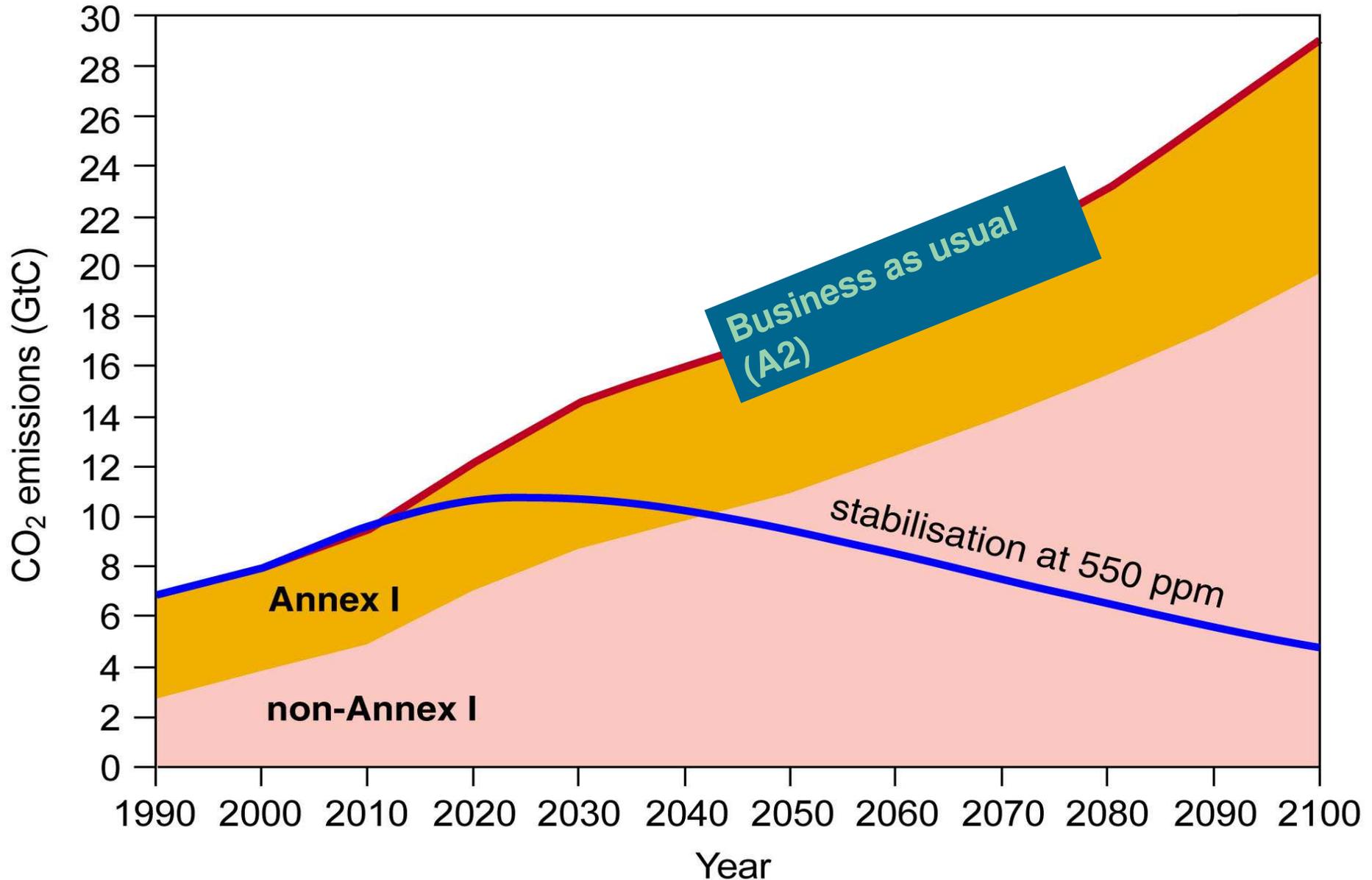
Stabilisation and Commitment to Warming
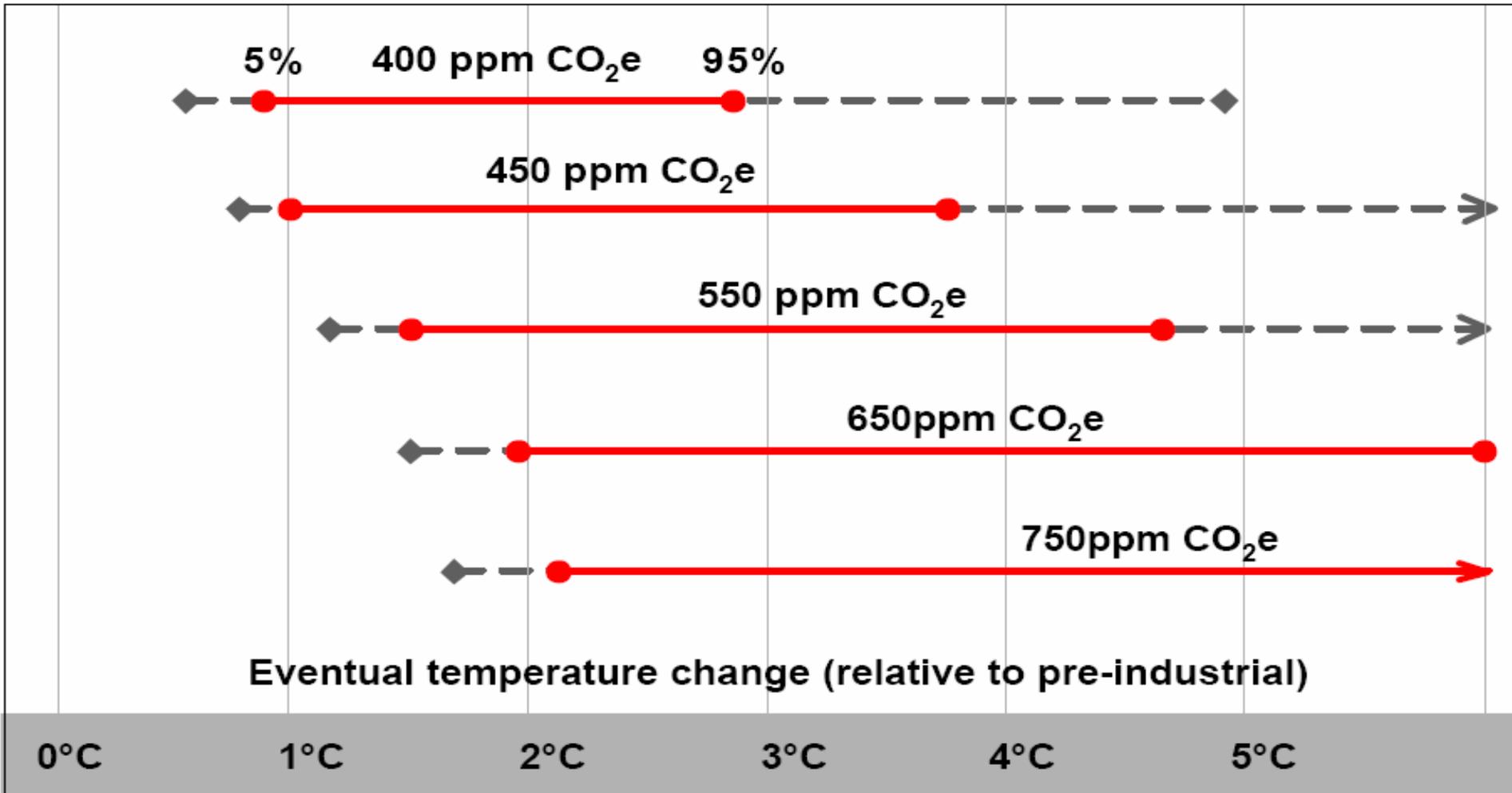
4.10. Projected Impacts of Climate Change

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

4.11. Human Influence on Extreme Weather Events (WG I, AR4, Februar 2007: 8)

Phenomenon[a] and direction of trend	Likelihood that trend occurred in late 20th century (typically post 1960)	Likelihood of a human contribution to observed trend[b]	Likelihood of future trends based on projections for 21st century using SRES scenarios
Warmer and fewer cold days and nights over most land areas	Very likely[c]	Likely[d]	Virtually certain[d]
Warmer and more frequent hot days and nights over most land areas	Very likely[e]	Likely (nights)[d]	Virtually certain[d]
Warm spells/heat waves. Frequency increases over most land areas	Likely	More likely than not[f]	Very likely
Heavy precipitation events. Frequency (or proportion of total rainfall from heavy falls) increases over most areas	Likely	More likely than not[f]	Very likely
Area affected by droughts increases	Likely in many regions since 1970s	More likely than not	Likely
Intense tropical cyclone activity increases	Likely in some regions since 1970	More likely than not[f]	Likely
Increased incidence of extreme high sea level (excludes tsunamis)[g]	Likely	More likely than not[f,h]	Likely[i]

5. Projected Climate Change Impacts for the Mediterranean

- Sea ice is projected to shrink in both the Arctic & Antarctic
- In some projections, Arctic late-summer sea ice disappears almost entirely by the latter part of the 21st century
- *Very likely* that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent
- *Likely* that future tropical cyclones (hurricanes) will become more intense, with larger peak wind speeds and more heavy precipitation
- Drying in the Sahel, the Mediterranean, southern Africa and parts of southern Asia.
- More intense and longer droughts observed since the 1970s, particularly in the tropics and subtropics.
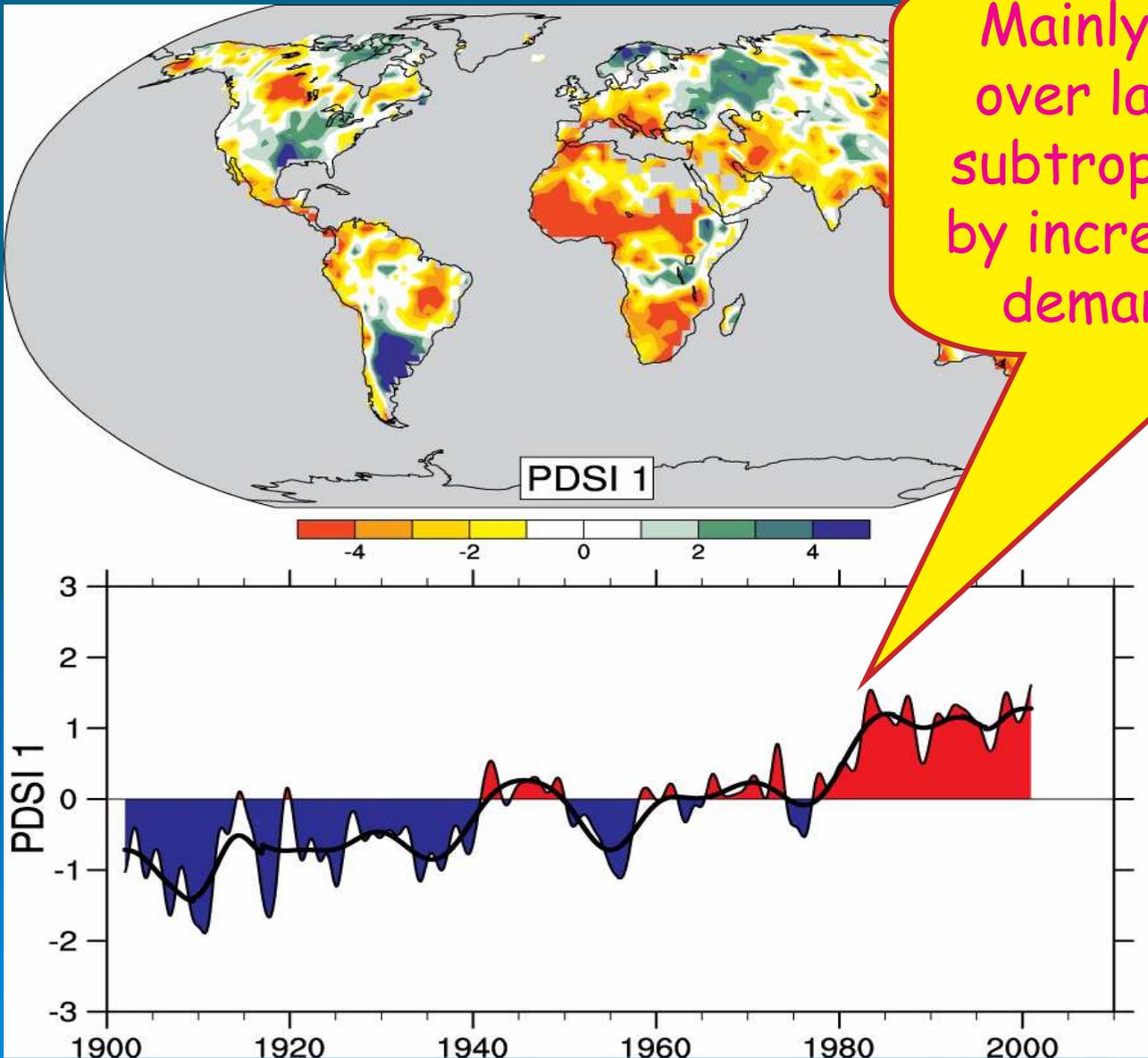
Mainly decrease in rain over land in tropics and subtropics, but enhanced by increased atmospheric demand with warming
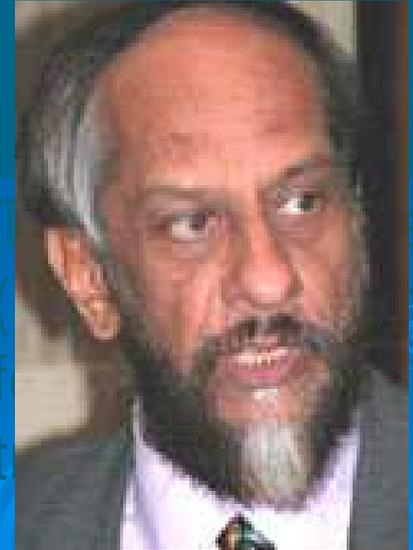
5.2. Winter Temperature (2020-2080) Winter Precipitation
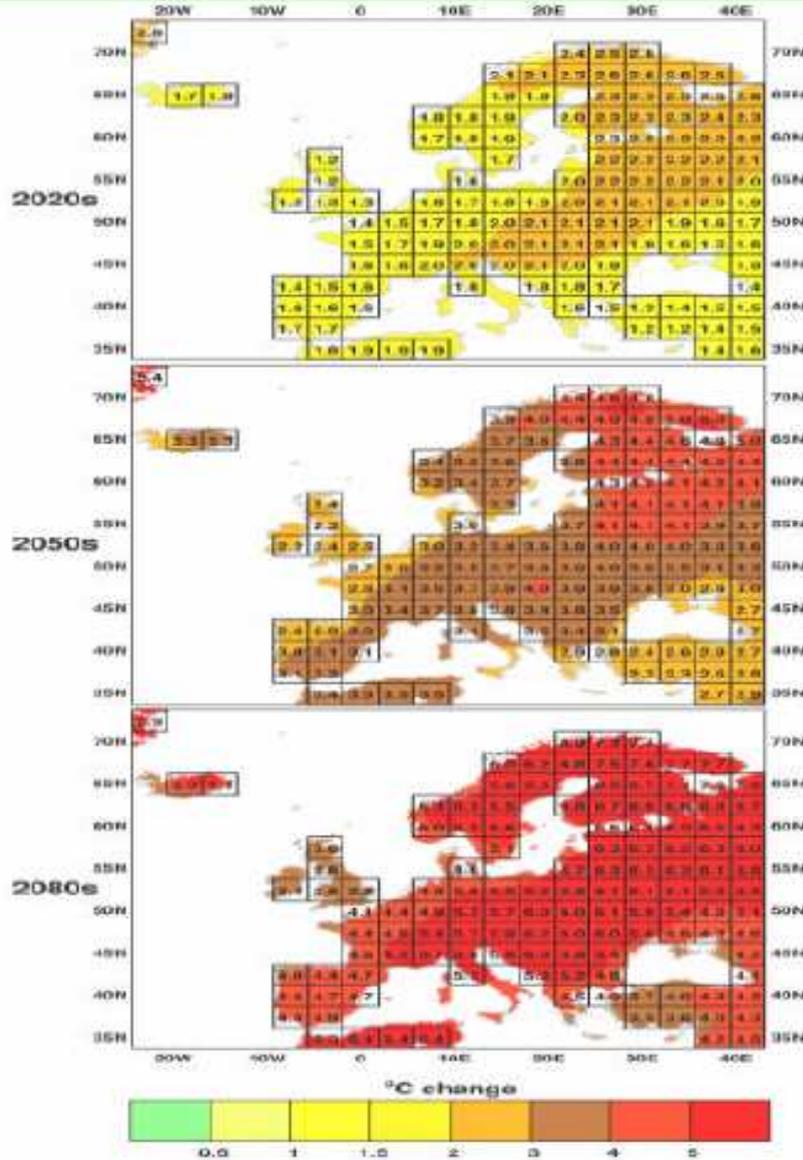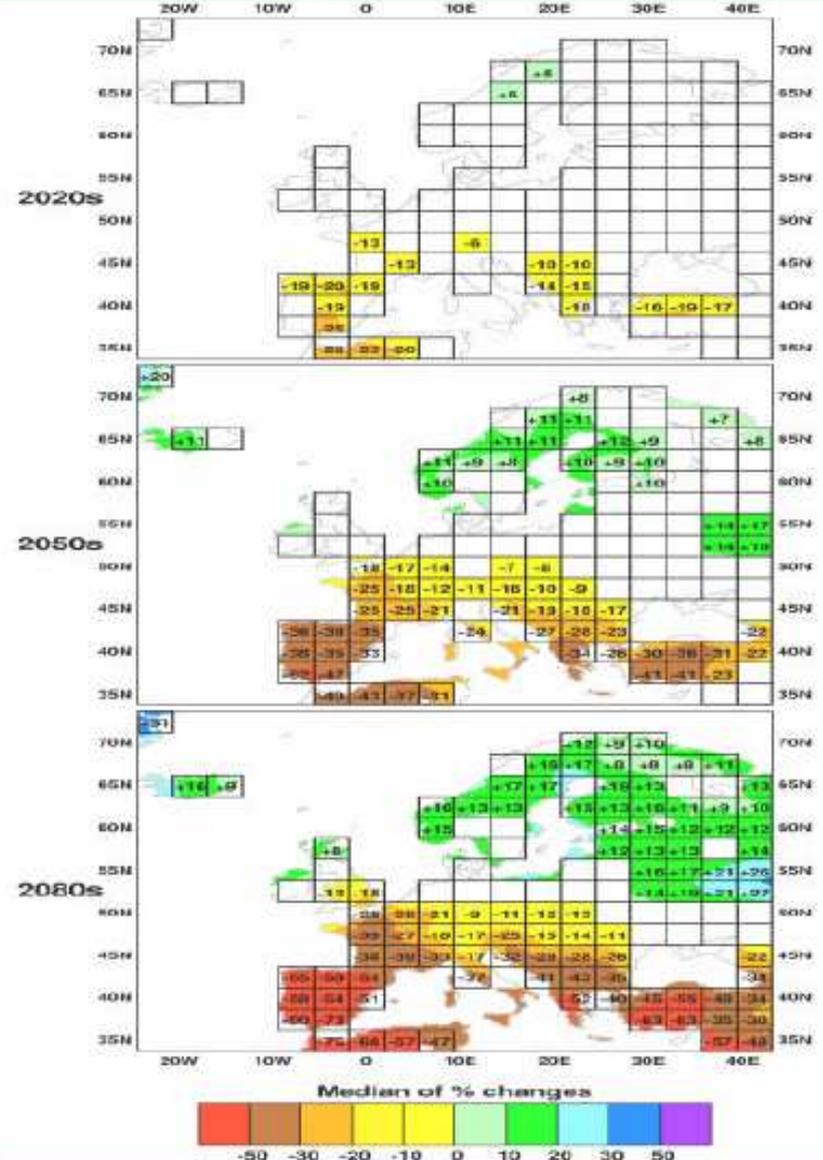
5.3. Probability of Hot Summers
(M. Parry, IPCC, London, 2005)

A2
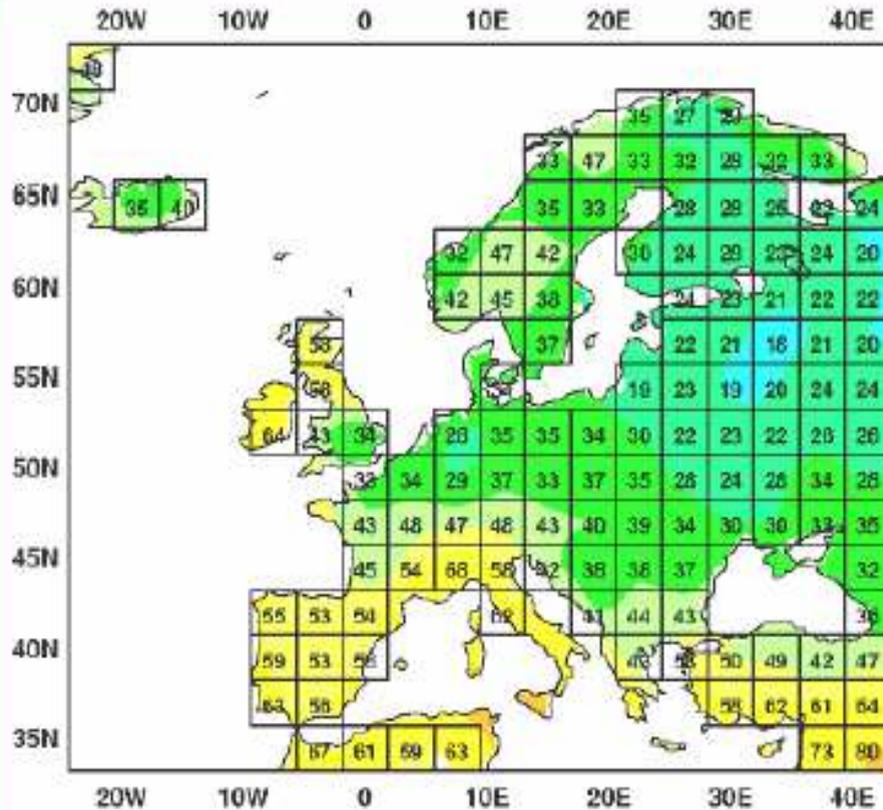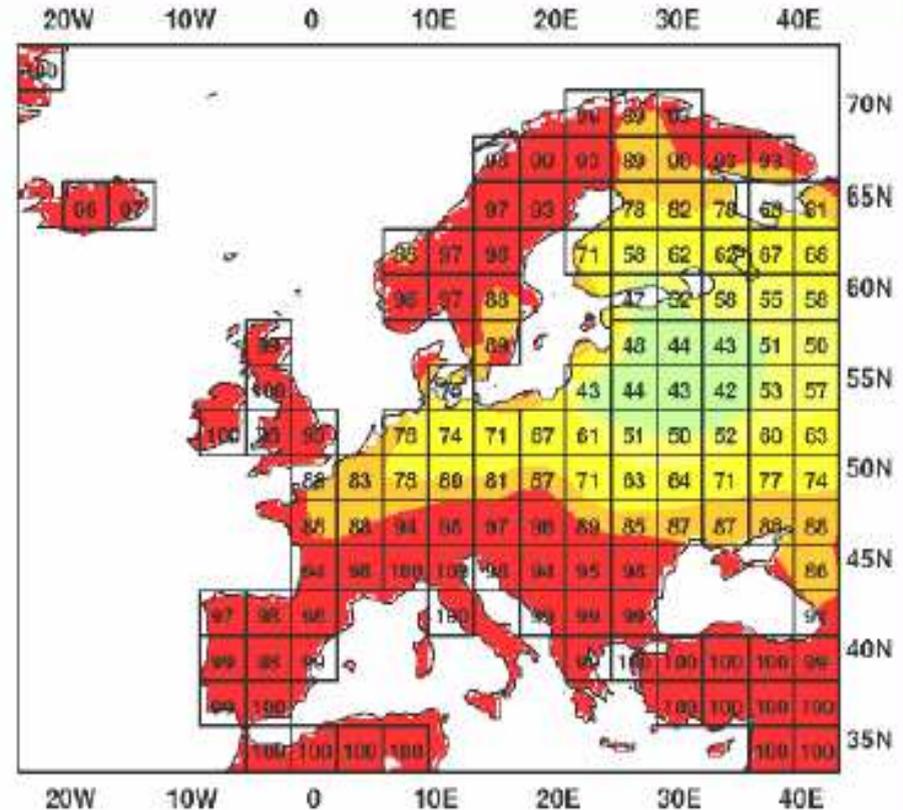
2020   2080

Probability "1 in 10 Hot Summer" (%)

0   10   20   30   40   50   60   70   80   90   100
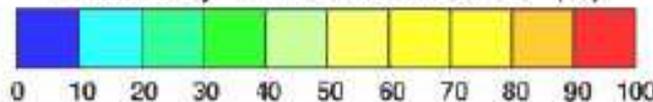
5.4. Water Availability 2050
(M. Parry, IPCC, London, 2005)

B1-low

A2-high

% change

> 50 %   10 to 25 %   -10 to 0 %   -50 to -25 %
25 to 50 %   0 to 10 %   -25 to -10 %   > -50 %

% of Years with High Risk
- No Data
- 0
- 1% - 10%
- 11% - 50%
- > 50%

GLASS 0.5, Budapest
Scenario:
a) GDP and climate 1984
b) GDP and climate 1901-1995
19.1.1999, me, Budapest.apr

Figure 4. High Potential for Food Crisis 1901-1995.
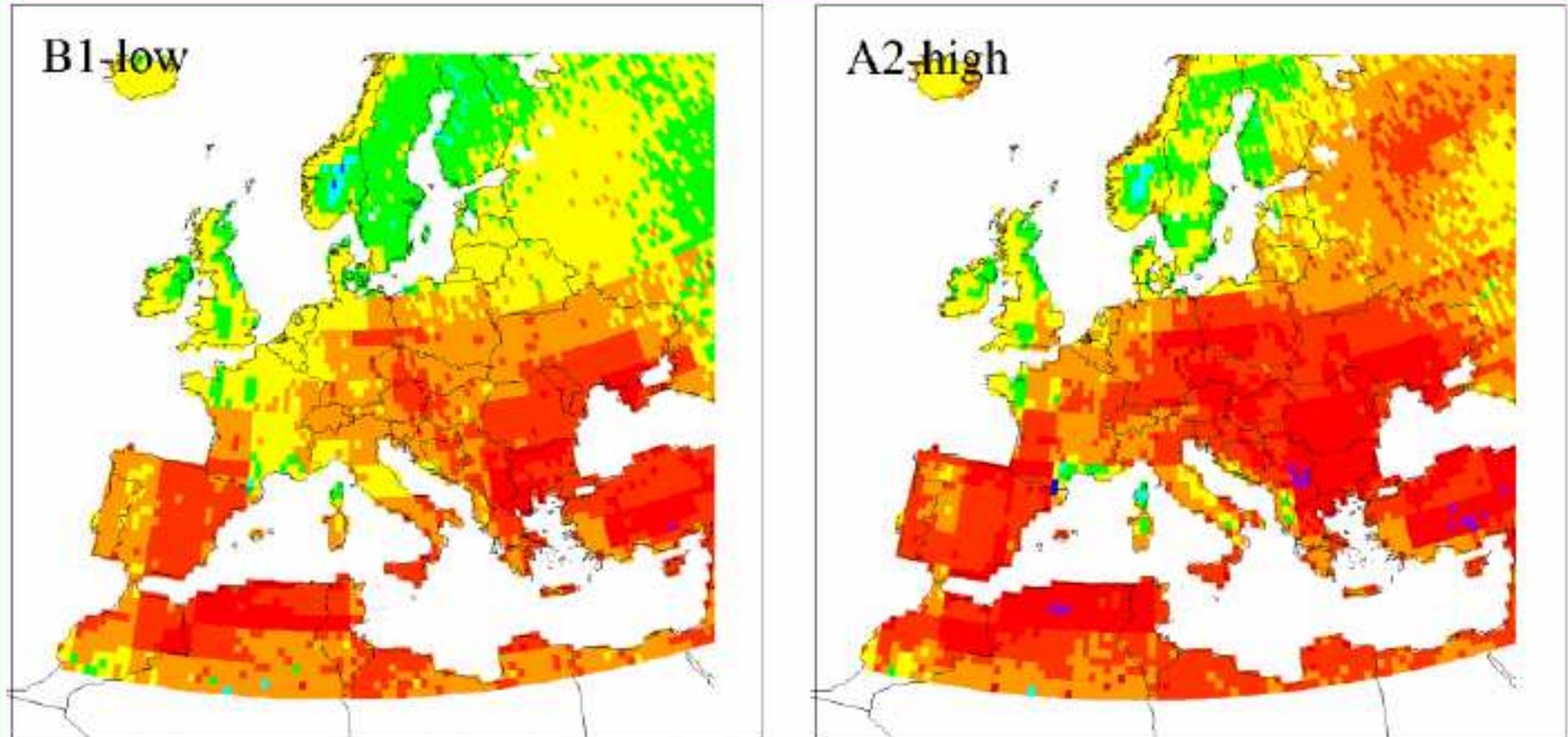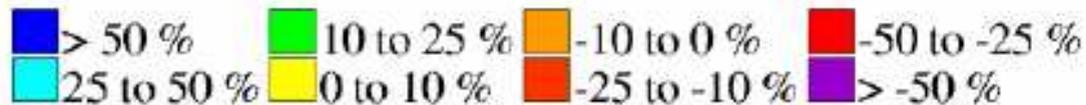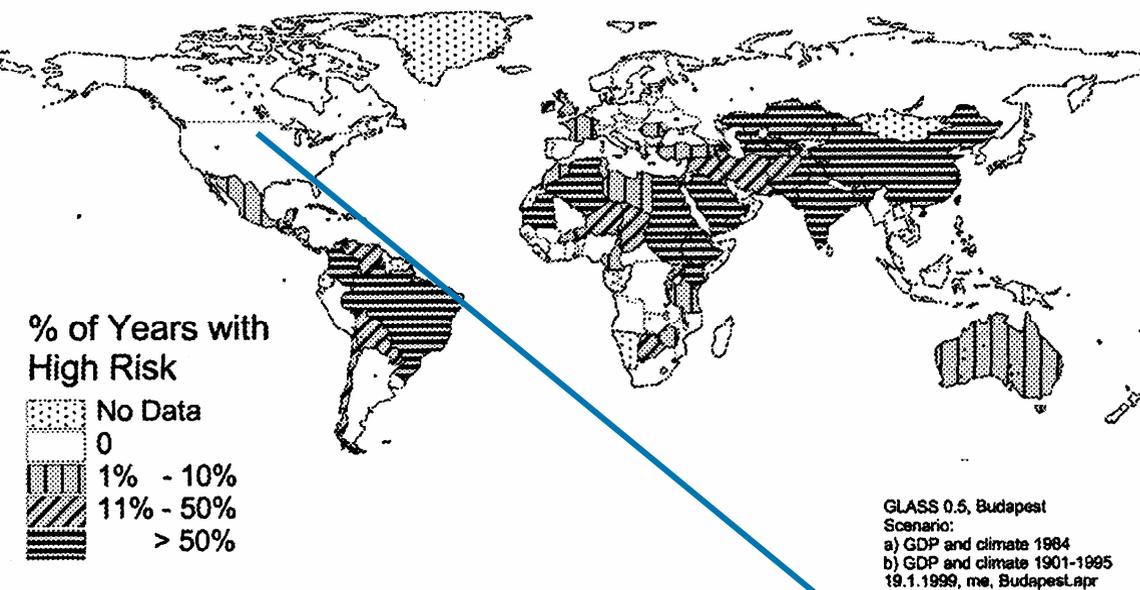
←**High Potential for Food Crisis (1901-1995)**

© **Alcamo/Endejan 2002: 143**

5.5. Food Crises

High Potential for Food Crisis (2001-2050) with GDP and Climate Change →

© **Alcamo/Endejan 2002-143**

% of Years with High Risk
- No Data
- 0
- 1% - 10%
- 11% - 50%
- > 50%

GLASS 0.5, Budapest
Scenario: GDP; 2001-2050 and
a) historical climate (1901-1950)
b) baseline A climate with historical variability (1901-1950)
19.1.1999, me, Budapest.apr
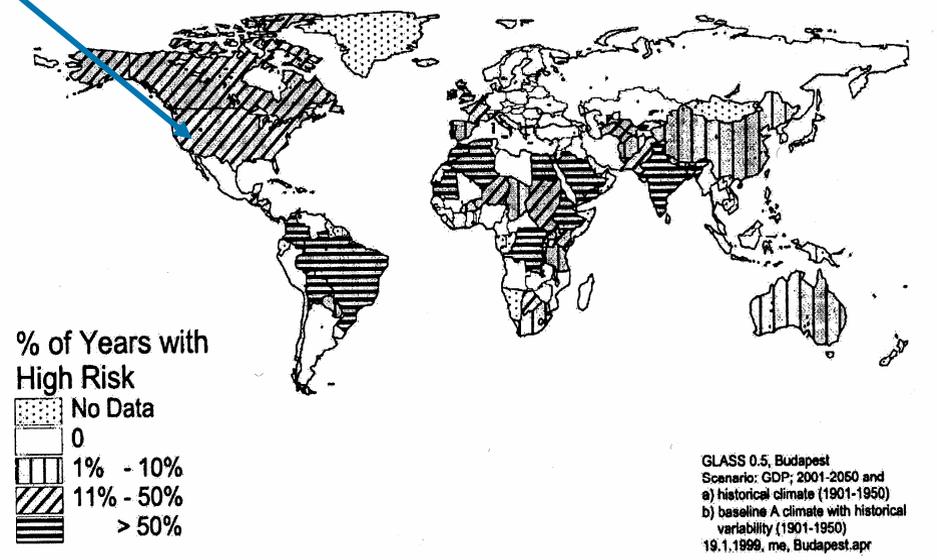
Figure 6. High Potential for Food Crisis 2001-2050 – with GDP Increase and Climate Change.

5.6. Impacts of Hazards (1974-2003)

Reported Death of Natural Hazards globally: 2.066.273 persons

➢ **Affected persons of Natural Hazards: 5 076 494 541 .**

Wind storms 14%
Wild fires <1%
Waves-surges <1%
Volcanic eruptions 1%
Slides 1%
Floods 10%
Extreme temperatures 3%
Earthquakes 27%
Droughts 44%

Wild fires <1%
Slides <1%
Volcanic eruptions <1%
Waves-surges <1%
Wind storms 11%
Droughts 36%
Earthquakes 2%
Extreme temperatures <1%
Floods 51%

(1) injured + homeless + affected
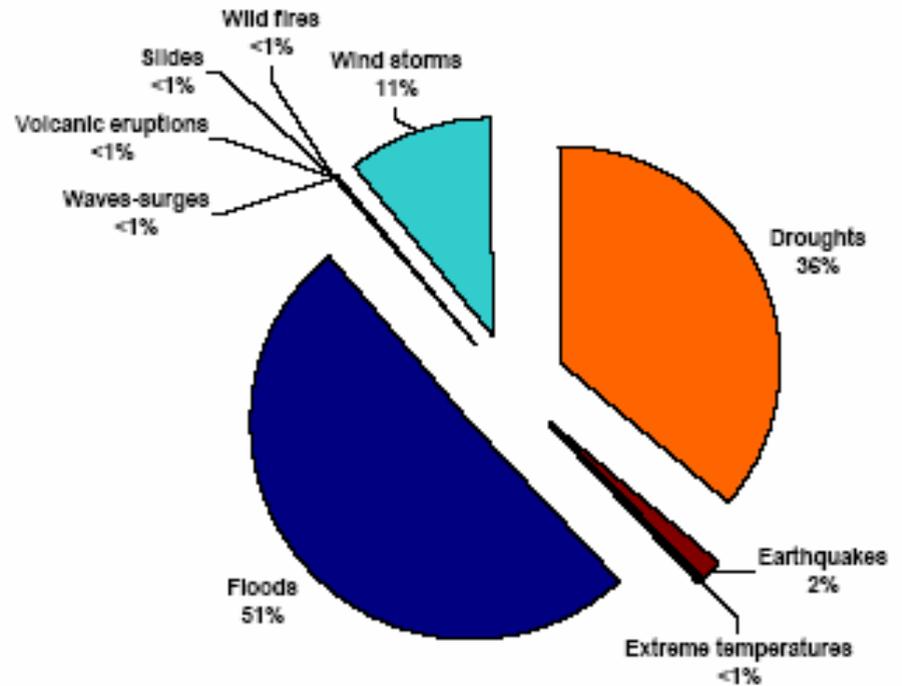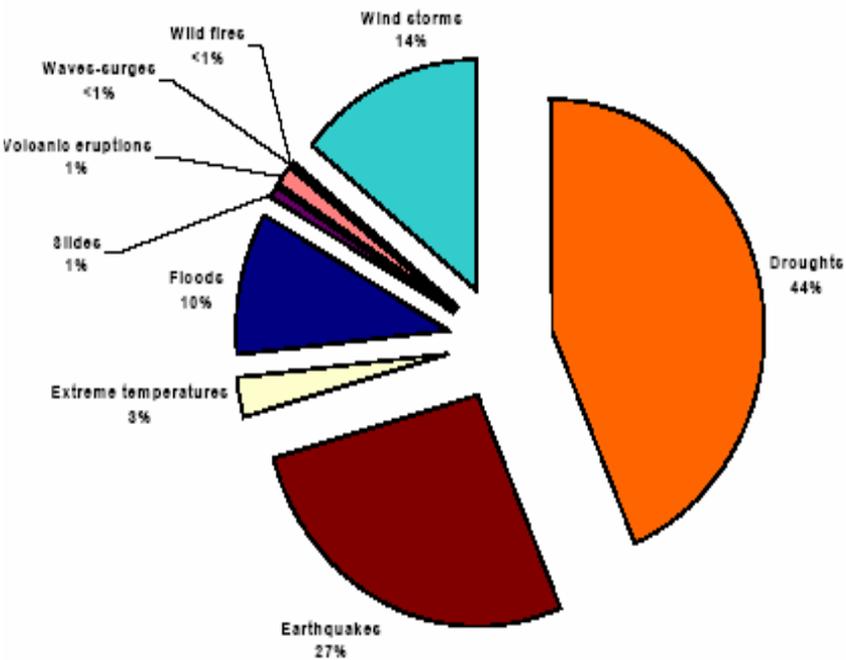
Source: Hoyois/Guha-Sapir (2004)

5.7. Heat Wave of 2003 in Europe 10 Most Deadly Disasters (1987-2006)

Year of occurrence	Disaster type	Region / Country	Number of killed
2003	Heat wave	Europe	72.210
2006	Heat wave	Western Europe	3.392
1998	Heat wave	India	2.541
2003	Heat wave	Indian Subcontinent	1.472
2005	Cold wave	Europe	1.330
2002	Heat wave	India	1.030
1987	Heat wave	Greece	1.000
2002	Cold wave	India	900
2002	Cold wave	Bangladesh	700
1995	Heat wave	United States	670

2003 heat wave mortality	
Country	Number of killed
Italy	20.089
France	19.490
Spain	15.090
Germany	9.355
Portugal	2.696
Belgium	1.175
Switzerland	1.039
Netherlands	965
Croatia	788
Czech Rep	418
Austria	345
United Kingdom	301
Slovenia	289
Luxembourg	170

5.8. Mediterranean Coastal Cities & Pollution hot spots at the coast


Figure 2.1 Mediterranean coastal cities

Mediterranean coastal cities

Population
• Above 100 000
• Less than 100 000

Source: HCMR based on UNEP/MAP/MEDPOL/WHO, 2004.
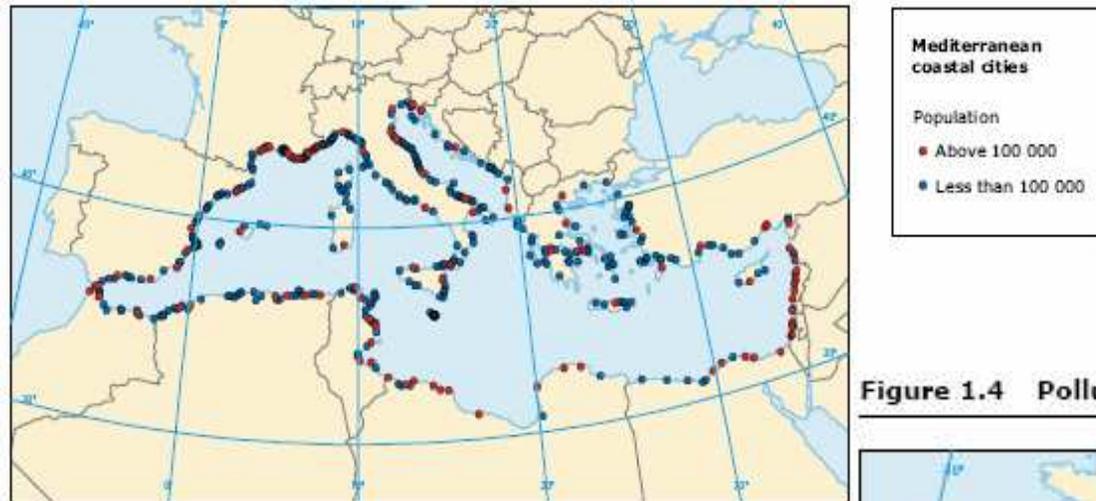
Mediterranean coast is densely populated and highly vulnerable due to many pollution hotspots. The vulnerability will increase with population growth and sea-level rise until 2100. There is time for adaptation & mitigation.

Figure 1.4 Pollution hot spots along the Mediterranean coast

A Sustainable Future for the MEDITERRANEAN

The Blue Plan's Environment & Development Outlook

Priority issues in the Mediterranean environment

5.9. Mohamed El Raey, Alexandria: Mapping Sea level Rise due to Cliamte Change in the Nile Delta Region
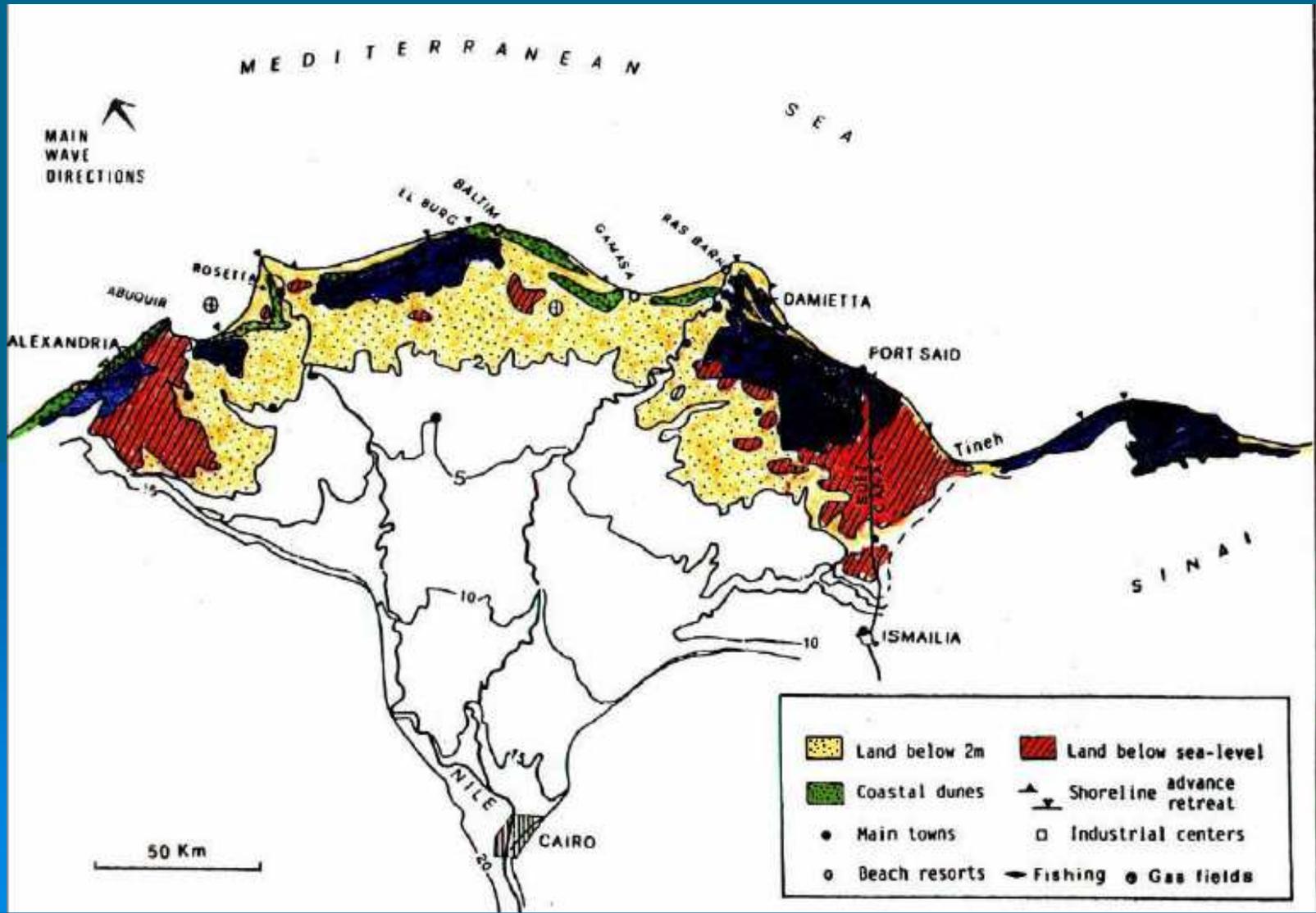
5.10 Impact of Sea Level Rise in the Nile Delta
UNEP diagram on potential Impact

Population: 3 800 000
Cropland (Km2): 1 800

Population: 6 100 000
Cropland (Km2): 4 500

6. Climate Change as a Security Danger and Concern

➢ **Since early 21st century climate change has increasingly been perceived as a threat to 'national', 'international', and 'human security'.**

➢ **Climate change is being securitized in government reports and in statements of government officials in the UK & Germany**

➢ **Since 2007 several policy-oriented studies have securitized climate change from different vantage points and concepts of security by analyzing climate change as:**

- an *international security* threat, challenge, vulnerability, risk;
- a *national security* threat for the United States and as
- a *human security* challenge that will affect the highly socially vulnerable poor population in the North (Hurricane Katrina) and South

6.1. Climate Change as an International Security Issue

- **Peter Gleick** addressed links between climate & international security since late 1980's;

- **Brauch (2002)** study for German Environment Mini-stry on Climate Change and Conflicts focused on:
  - causes of climate change and complex interactions with other GEC drivers that contribute to environmental stress that may trigger conflict; outcomes of environmental stress;
  - cases studies on small island states, Mexico, Bangladesh, Egypt and Mediterranean, conceptual conclusions for scien-tific considerations & strategies aiming at conflict prevention.

- **WBGU (2007/2008).** *German Advisory Council on Global Change* reviewed the scientific research on '*Climate Change as a Security Risk*'.

- **UK Foreign Sec. Margaret Beckett (17.4.2007) UNSC debated Climate Change**
  - Climate change is a security issue but it is **not a matter of narrow national security** - it has a new dimension… This is about our **collective security** in a fragile and increasingly interdependent world."

- **On 31 July to 2 August 2007**, UN General Assembly held an "informal thematic debate" on "climate change as a global challenge".

- **UN SG Ban Ki-moon** a high-level event on climate change (24.9.2007)

6.2. Climate change as a threat to international security

➢ **WBGU: climate change could exacerbate environmental crises: drought, water scarcity & soil degradation, intensify land-use conflicts & trigger further environmentally-indu-ced migration.**

➢ **New conflict constellations are likely to occur. Sea-level rise; storm & floods could threaten cities & industrial regions in China, India & USA.**

➢ **WBGU identified 4 conflict constellations in different world regions:**

1. **"Climate-induced degradation of freshwater resources": 1.1 billion people are currently without access to safe drinking water. The situation could worsen for hundreds of millions of people as climate change alters the variability of precipitation & quantity of available water.**

2. **"Climate-induced decline in food production": More than 850 million people worldwide are undernourished. This situation is likely to worsen in future as a result of climate change.**

3. **"Climate-induced increase in storm and flood disasters".**

4. **"Environmentally-induced migration",**
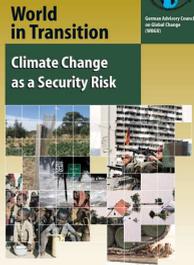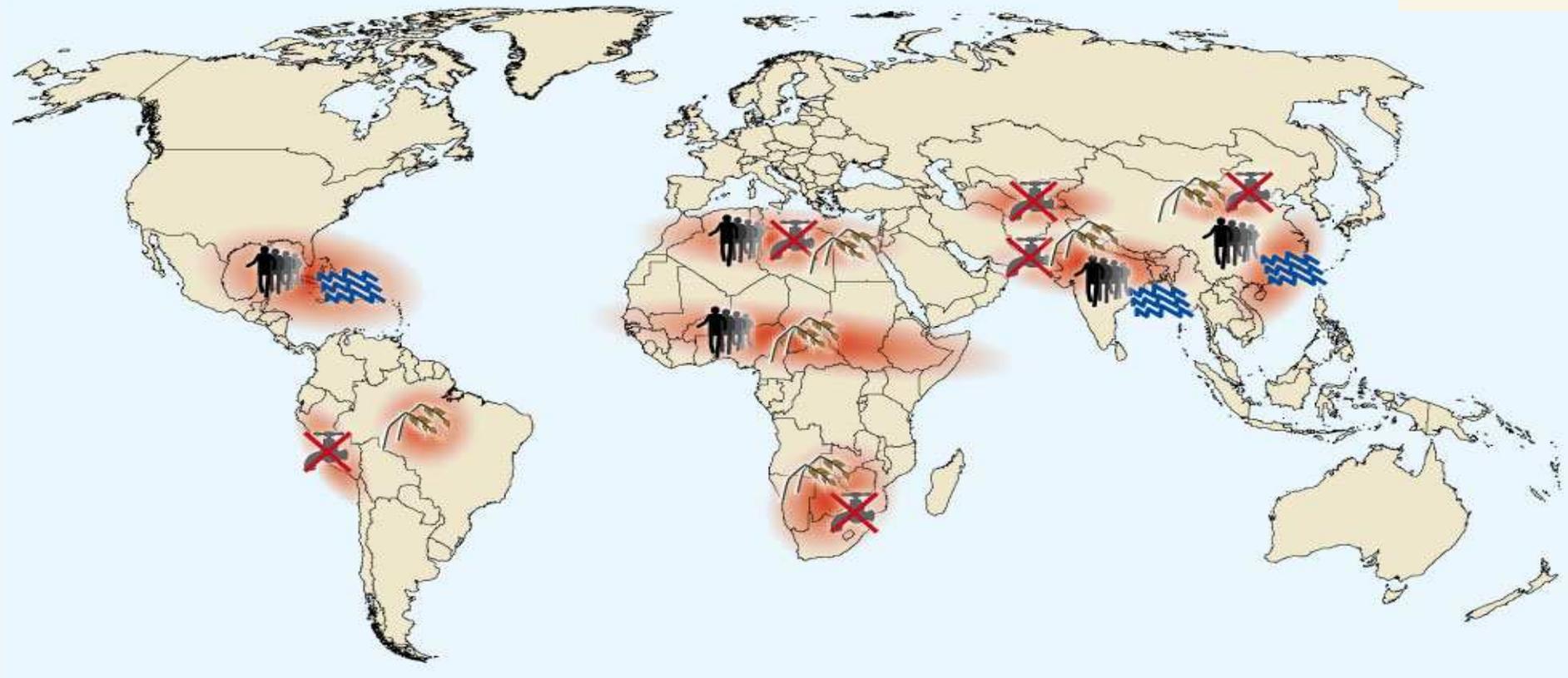
Conflict constellations in selected hotspots

Climate-induced degradation of freshwater resources

Climate-induced decline in food production

Hotspot

Climate-induced increase in storm and flood disasters

Environmentally-induced migration

6.4. Climate Change as a New U.S. National Security Threat

- **P. Schwartz/. Randall: Contract Study for DoD, Oct. 2003**
  - *Goal: "to imagine the unthinkable – to push the boundaries of current research on climate change so we may better under-stand the potential implications on United States national security."*
- **Nils Gilman, Doug Randall, Peter Schwartz:**
  - **Impacts of Climate Change: A system Vulnerabiliy Approacjh to Consider the Potential Impacts to 2050 of a Mid-Upper Greenhouse Gas Emissions scenario (Janaury 2007);**
- March 2007, the **Strategic Studies Institute** conducted a colloquium: "Global Climate Change: National Security Implications"
- March 2007, **Senators Richard J. Durbin (D-IL) and Chuck Hagel (R-NE)** submitted a bill requesting a **National Intelligence Estimate to assess whether and how climate change might pose a national security threat.**
- **CNA:** *National Security & the Threat of Climate Change* **(April 2007)**
  - **Climate change can act a s a threat multiplier for instability in some of the most volotile regions… presents national security challenge for U.S.**
- November 2007, *Center for Strategic and International Studies* **(CSIS);** the *Centre for a New American Security* **(CNAS):** *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change*
- November 2007, the ***Council on Foreign Relations*** (CFR) released a report on: *Climate Change and National Security* by Joshua W. Busby

6.5. Climate Change as a Problem of Human Security

➢ **GECHS** Science Strategy (1999): Global Environ-mental Change as a Problem of Human Security

➢ **GECHS** - Cicero Conference in June 2005: Climate Change and Human Security

➢ **UNU-EHS:** Floods and drought as a Problem of Human Security

➢ **UNU-EHS/MunichRe Foundation: Chairs on Social Vulnerability:** impact on natural hazards

➢ **Politicy Memorandum:** Climate Change and Human Security (15 April 2007) at: <http://www.afes-press.de/html/texte_presse.html>

7. Need for Anticipatory Learning and Proactive Policies

➤ Different nature of security dangers & concerns: terrorism vs. cliamte change

➤ Enemy is ‚us' and are not ‚they'

➤ Cause is our economic behaviour and way of life based on waste of fossil fuels (coal, oil, gas)

➤ Difference of securitizing actor: Pentagon: worst case human behaviour, intentions and interests of states and non-state actors (terrorists)

➤ IPCC: knowledge assessment based on GC models and on sectoral & regional impact studies

➤ Role of Scientific Research: to identify the danger and communicate it to the media to citizens & policy makers

➤ We need an anticipatory research and learning to triger proactive policies to face climate change impacts and to cope with them by adaptation and mitigation what requires knowlege and technology sharing.

➤ Knowledge is the task of universities, of research community and students

➤ German President Horst Köhler in his Berlin speech of 1 October 2007 said: We need bread & books for the Third World and not weapons!

8.0. From Research to Action:
Enhancing Environmental & Human Security

Towards Environmental Conflict Avoidance

➢ **Primary Goal:** address fatal outcomes of GEC: hazards and disasters, migration, crises & conflicts that may have been caused, triggered, induced, influenced by: a) environmental stress and b) extreme weather events,

➢ **Enhance Environmental Security:** Address human beha-viour that contributes to GEC via climate change, soil degra-dation, water pollution & scarcity: sustainable strategies

➢ **Enhance Human Security:** address factors of GEC that challenge survival of individuals, families, villages, ethnic groups

➢ **Avoid Environmentally-induced Conflicts:** address struc-tural or causal factors (of Survival Hexagon), e.g. climate policy, combat desertification, cope with water stress.

8.1 Nobel Peace Prize of 2007. IPCC & Al Gore

- Nobel Peace Prize for 2007 was shared, between the Intergovernmental Panel on Climate Change (IPCC) and Albert Arnold (Al) Gore Jr. for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.

- Indications of changes in the earth's future climate must be treated with the utmost seriousness, and with the precautionary principle uppermost in our minds. Extensive climate changes may alter and threaten the living conditions of much of mankind. They may induce large-scale migration and lead to greater competition for the earth's resources. Such changes will place particularly heavy burdens on the world's most vulnerable countries. There may be increased danger of violent conflicts and wars, within and between states.

- Through the scientific reports …, the IPCC has created an ever-broader informed consensus about the connection between human activities and global warming. … Whereas in the 1980s global warming seemed to be merely an interesting hypothesis, the 1990s produced firmer evidence in its support. In the last few years, the connections have become even clearer and the consequences still more apparent.

- By awarding the Nobel Peace Prize for 2007 to the IPCC and Al Gore, the Norwegian Nobel Committee is seeking to contribute to a sharper focus on the processes and decisions that appear to be necessary to protect the world's future climate, and thereby to reduce the threat to the security of mankind. Action is necessary now, before climate change moves beyond man's control.

8.2. Policy Response: Proactive Climate Policy: Peace Policy for the 21st Century
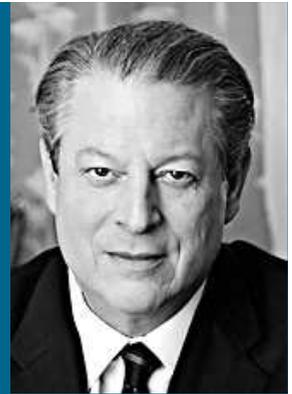
➤ **From Science to Political Strategies & Measures:**

- **Natural science: knowlege creation**
- **Social sciences: societal policy discourses**
- **Peace research: impact of these changes on extreme societal outcomes: human-induced natural hazards, migration, crises and Conflicts**

➤ **Combining: Grassroot activities & wise policies:**

- **Wangari Muta Maathai** (Kenya, 2004): "for her contribution to sustainable development, democracy and peace„
- **Albert Gore (USA, 2007):** for his role in awareness creation and agenda setting.
- Grassroots can translate knowledge to action: yes they can!

9. The Hexagon Book Series

➢ This project and book series differs from traditional approaches in international relations of primarily monodisciplinary, often Eurocentric or US-centred books that are also male dominated where authors representing the other five billion people on the globe are in most cases not represented as authors.

➢ Of the editorial team of volumes III, IV and V: 11 colleagues from 10 countries, three are women from India, Kenya and Mexico and in volume IV half come from the South.

➢ They address the key new objective security dangers and subjective security concerns primarily posed by the newly perceived security threats, challenges, vulnerabilities and risks that are developing from problems related to global environ-mental change in this new age of earth history, for which the Nobel Laureate in Chemistry, Paul Crutzen, coined the term the 'Anthropocene'.

➢ These three volumes (III, IV, V) are conceived as a major security handbook for the Anthropocene Age in the 21st century

9. Hexagon of the Book Series

Air
(climate change)
(nature and human-induced)

Land
(soil, ecosystem
degradation)

Water
(scarcity, degradation
floods)

Ecosphere
Human sphere

Rural system
(securing food
and fibure)

Urban system
(industries, services
pollution, health)

Human population
(human-induced)

→ direct impact of nature and human-induced "root cause": climate change on five factors

→ direct impact of human-induced "root cause": population on five factors

- - → complex interaction among four structural factors: land, water, urban and rural systems

6 causes of GEC or pressures human-induced supply side
- **Air: Global climate change**
- **Soil degrad., desertification**
- **Water scarcity, hydrol. cycle**
  Human-induced demand side
  Population growth
  Urbanization, Pollution, Health
  Rural systems: Agriculture & Food

➢ This book series includes monographs and edited volumes that cross scientific disciplines and develop common ground among scientists from the natural and social sciences, as well as from North and South, addressing common challenges and risks for humankind in the 21 st century.

➢ The 'hexagon' represents six key factors contributing to global environmental change – three *nature-induced* or supply factors: *soil*, *water* and *air* (atmosphere and climate), and three *human-induced* or demand factors: *population* (growth), *urban systems* (habitat, pollution) and *rural systems* (agriculture, food). Throughout the history of the earth and of *homo sapiens* these six factors have interacted. The supply factors have created the precon-ditions for life while human behaviour and economic consumption patterns have also contributed to its challenges (increase in extreme weather events) and fatal outcomes for human beings and society. The series covers the complex interactions among these six factors and their often extreme and in a few cases fatal outcomes (hazards/disasters, internal displacement and migrations, crises and conflicts), as well as crucial social science concepts relevant for their analysis.

10. Global Security Handbook

➤ At the ISA Convention in Montreal, Canada in March 2004, Peace Research and European Security Studies (AFES-PRESS) launched a global scientific dialogue project on 'Reconceptualizing of Security' that has involved about 300 scholars from many disciplines in the social and natural sciences from all parts of the world.

➤ As a result of five workshops (Montreal 2004, Sopron 2004; The Hague 2004; Istanbul 2005, Bonn 2005)

➤ Three major reference books have emerged (175 book chapters in first two volumes) that are being published in 2008 and

➤ an approximately 100 chap. in vol. III that will follow in 2009 on linkages of security concepts with globalization, global environmental change and disasters.

10.1. Hexagon Series, Vol. III & First volume of Security Handbook

Hans Günter Brauch
Ursula Oswald Spring
Czeslaw Mesjasz
John Grin
Pál Dunay

Navnita Chadha Behera
Béchir Chourou
Patricia Kameri-Mbote
P. H. Liotta
(Eds.)

VOL 3 / HEXAGON SERIES ON HUMAN
AND ENVIRONMENTAL SECURITY AND PEACE

Globalization and Environmental Challenges

Reconceptualizing Security
in the 21st Century

⚛ Springer

H.G. Brauch, J. Grin, C. Mesjasz, P. Dunay, N. Chadha Behera, B. Chourou, U. Oswald Spring, P.H. Liotta, P. Kameri-Mbote (Eds.): *Globalization and Environmental Challenges: Reconceptualizing Security in the 21st Century* (Berlin–New York: Springer-Verl.,2008);
see at: <http://www.afes-press-books.de/html/hexagon_03.htm>.

Globalization and Environmental Challenges pose new security dangers and concerns. In this reference book on global security thinking, 92 authors from five continents and many disciplines, from science and practice, assess the global reconceptualization of security triggered by the end of the Cold War, globalization and manifold impacts of global environmental change in the early 21st century. In 10 parts, 75 chapters address the theoretical, philosophical, ethical and religious and spatial context of security; discuss the relation-ship between security, peace, development and environment; review the reconceptualization of security in philosophy, international law, economics and political science and for the political, military, economic, social and environmental security dimension and the adaptation of the institutional security concepts of the UN, EU and NATO; analyze the reconceptualization of regional security and alternative security futures and draw conclusions for future research and action.

10.2. Hexagon Series, Vol. IV & Second vol. of Security Handbook

Hans Günter Brauch
Úrsula Oswald Spring
John Grin
Czeslaw Mesjasz
(Eds.)

Patricia Kameri-Mbote
Navnita Behera Chadha
Béchir Chourou
Heinz Krummenacher

Hexagon Logo

VOL. 4/HEXAGON SERIES ON HUMAN AND ENVIROMENTAL SECURITY AND PEACE

Facing Global Environmental Change

Environmental, Human, Energy, Food, Health and Water Security Concepts

Springer

Hans Günter Brauch, Úrsula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Béchir Chourou, Heinz Krummenacher (Eds.): *Facing Global Environmental Change: Environ-men-tal, Human, Energy, Food, Health and Water Security Concepts*. Hexagon Series on Human and Envi-ronmental Security and Peace, vol. 4 (Berlin – Heidelberg – New York: Springer-Verlag, 2008), i.p .

In the second volume of this policy-focused, global and multidisciplinary security handbook on *Facing Global Environmental Change* addresses new security threats of the 21st century posed by climate change, desertification, water stress, population growth and urbanization. These security dangers and concerns lead to migration, crises and conflicts. They are on the agenda of the UN, OECD, OSCE, NATO and EU. In 100 chapters, 132 authors from 49 countries analyze the global debate on environmental, human and gender, energy, food, livelihood, health and water security concepts and policy problems. In 10 parts they discuss the context and the securitization of global environmental change and of extreme natural and societal outcomes. They suggest a new research programme to move from knowledge to action, from reactive to proactive policies and to explore the opportunities of environmental cooperation for a new peace policy.

10.3. Hexagon Series, Vol. IV & Third vol. of Security Handbook

Hans Günter Brauch, Úrsula Oswald Spring, Czeslaw Mesjasz, John Grin, Patricia Kameri-Mbote, Béchir Chou-rou, Pal Dunay, Jörn Birkmann, (Eds.):

Coping with Global Environmental Change, Disasters and Security – Threats, Challenges, Vulnerabilities and Risks

(Berlin – Heidelberg – New York: Springer-Verlag, 2009).

In the third volume approximately 100 chapters will address in part I: Introduction: Concepts of Security Threats, Challenges, Vulnerabilities and Risks; part II: Military and Political Security Threats, Challenges, Vulnerabilities and Risks; part III: Economic, Social, Environmental Security and Human Threats, Challenges, Vulnerabilities and Risks in the Near East, North and Sub-Sahara Africa and in Asia; part IV: Threats, Challenges, Vul-ne-ra-bilities and Risks for Urban Centres in Hazards and Disasters; part V: Coping with Global Environmental Change: Climate Change, Soil and Desertifi-ca-tion, Water Management, Food and Health; part VI: Coping with Hazards and Strategies for Coping with Social Vulnerability and Resilience Building; part VII: Coping with Global Environmental Change: Scientific. International and Regional Political Strategies, Policies and Measures; part VIII: A Technical Tool: Remote Sensing, Vulnerability Mapping and Indicators of Environmental Security Chal-lenges and Risks; part IX: Towards an Improved Early Warning of Conflicts and Hazards and part X: Summary and Policy Conclusions.
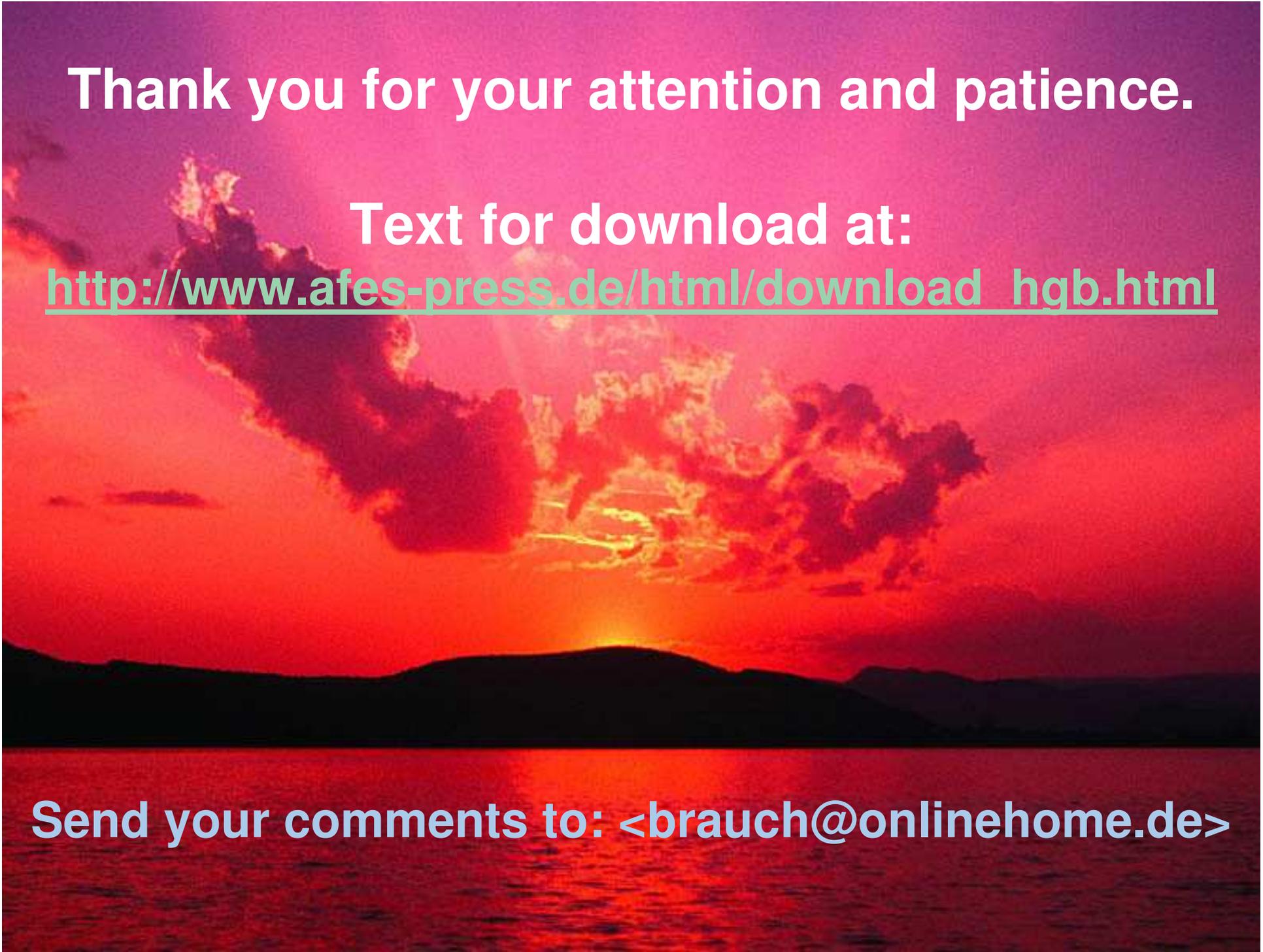
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Send your comments to: <brauch@onlinehome.de>

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C. Mesjasz   P. Kameri-Mbote
J. Grin   P. H. Liotta
P. Dunay   (Eds.)

VOL 3 / HEXAGON SERIES ON HUMAN
AND ENVIRONMENTAL SECURITY AND PEACE

Globalization and Environmental Challenges

Reconceptualizing Security in the 21st Century

Springer

World in Transition

German Advisory Council on Global Change (WBGU)

Climate Change as a Security Risk

Hans Günter Brauch   Patricia Kameri-Mbote
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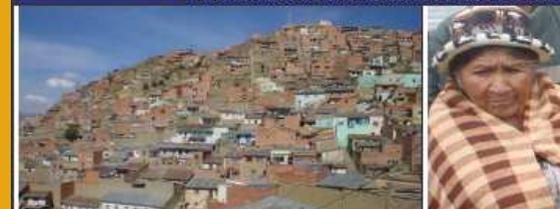
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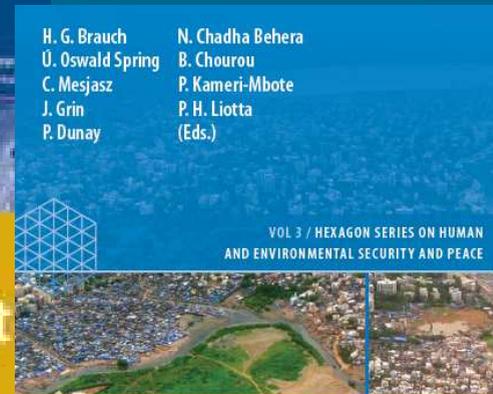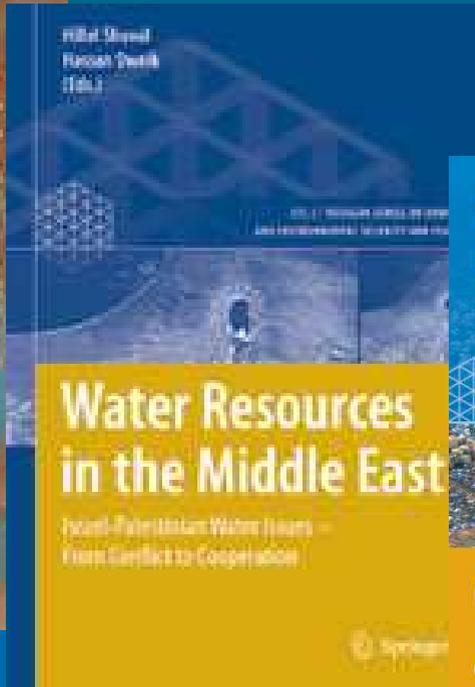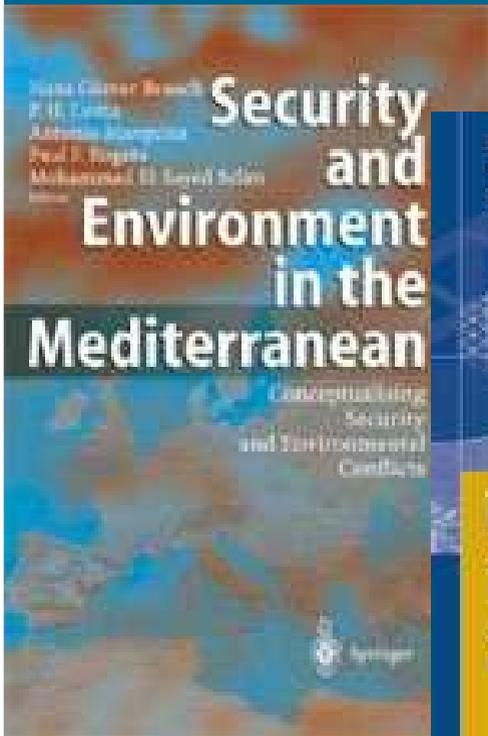
Springer

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

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