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Climate Change and International and Human Security Challenge and Opportunity for Multilateral Cooperation and Book Launch of Globalization and Environmental Challenges: Reconceptualizing Security in the 21st Century

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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 individuals and for global, international, national & human security
- **Since 2000 Climate change has been 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

- **What did change? Contextual factors:**
  - End of the Cold War: 9 November 1989: fall of Berlin Wall;
  - Events of 11 September 2001;
  - Process of globalization (1492, 1945, globalized in 1990)
  - Shift from 'Holocene' to 'Anthropocene' (Crutzen thesis)
- **Basic Assumption & Guiding Question:**
  - Did global and regional political contextual changes trigger a reconceptualizing of security?
- **Which were the conceptual innovations?**
  - **Theoretical:** social constructivism & Ulrich Beck: **risk society**
  - **Copenhagen School: Securitzation** (**speech act**) and **widening, deepening & sectorialization of security concepts and issues**

2.1. 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".
- 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.

2.2. Copenhagen School: Securitization

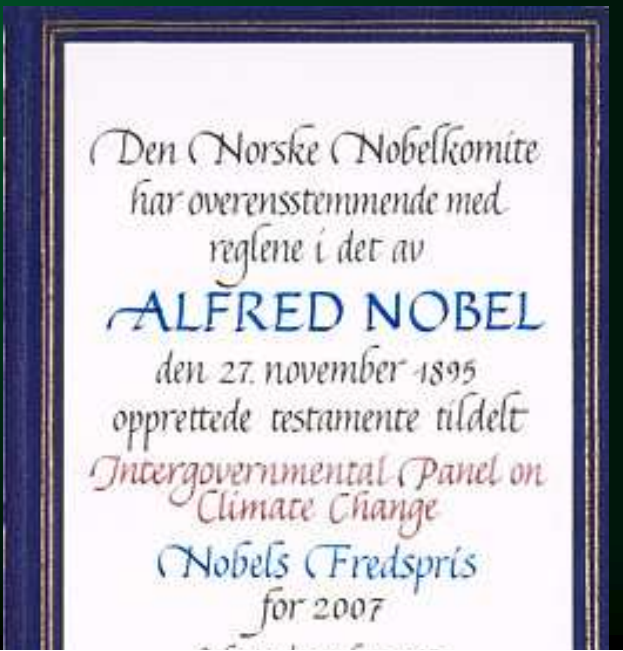
- **Securitization**: discursive & political process through which an inter-subjective understanding is constructed within a political community to treat something as an **existential threat** to a **valued referent object**, and to enable a **call for urgent and exceptional measures** to deal with the 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
- **Who manages to securitize what under what conditions & how?**
- **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.
- **'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).
- **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'.

2.3. 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



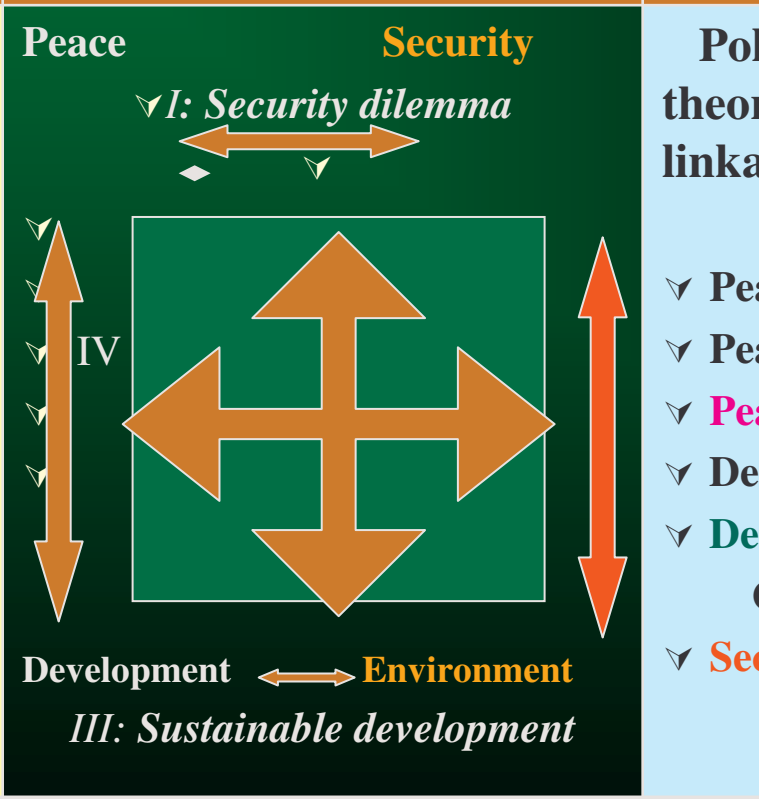
2.4. Two New Security Threats & Challenges: Terrorism and Climate Change

- 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)
- CRED: $ 125 billion (April 2008)
- Policy Response: ??
- Climate Policy: ???

2.5. 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 deve-lopment* ▪ IV: *Sustainable peace*		Political use of con-cepts & theoretical debates on 6 linkages ➢ Peace & security ➢ Peace & development ➢ Peace & environment ➢ Development & security ➢ Devel. & environment Of interest here: ➢ Security & environment

2.6. Widening of Security Concepts: Towards Environmental Security

4 trends in reconceptualisation of security since 1990:

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

2.7. Environmental & Human Security

Label	Referent 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 security	Ecosystem	Sustainability	`Us´ or Humankind
Gender security	Gender relations, indigenous people, minorities	Equality, identity, solidarity	Patriarchy, totalitarian institutions (governments, churches, elites) intolerance

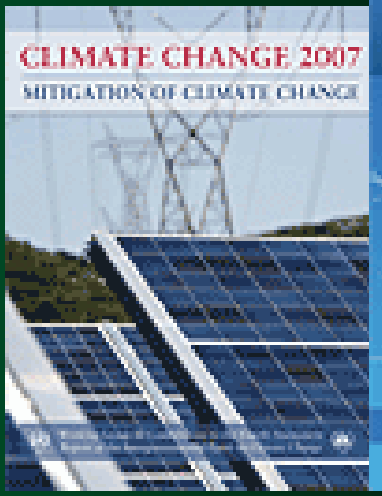
3. Global Environmental and Climate Change up to 2100

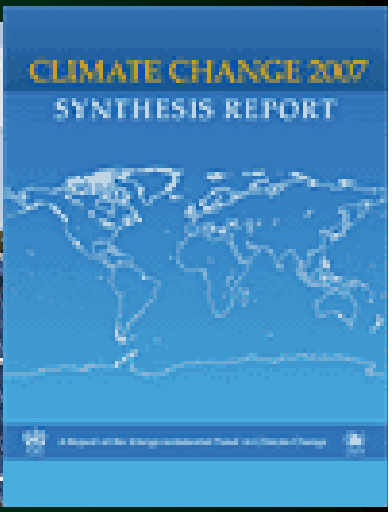
- Since 1970s & 1980s: '*global environmental change*' (GEC) became a topic in the natural & social sciences
- Since the late 1980s and 1990s policy efforts on (politicization):
  - Climate Change: 1988: issue of G7; 1990: UN GA mandate; 1992: Rio summit: UNFCC (1992) and Kyoto Protocol (1997)
  - Desertification: UNCCD (1994)
- Since 2000: both are considered as security issues (securitization)
  - Valencia: 2003: Desertification as a security issue in Medit.
  - Since 2002: climate change seen as a security threat/risk
    - **2003: Schwartz/Randall: Pentagon Study**
    - **2007: US debate on Cliamte Change as a National Security Threat**
    - **2007: Climate Change debated by UN Security Council**
    - **2007/2008: WBGU: Security Risk Climate Change**
- **2007: Turning Point for the Securitization of Climate Change**

3.1.Global Environmental Change (GEC)

GEC poses threats, challenges, vulnerabilities and risks for global & human security and survival.

3.2. Projected Global Climate Change up to 2100





- IPCC was set up in 1988 by UNEP & WMO: Assessment Reports: FAR 1990, SAR 1995, TAR 2001 and AR4 2007.
- 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)
- 2007: IPCC and Al Gore received Nobel Peace prize
- 2009-11: Post Kyoto 2012 Climate Change Regime

3.3. 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

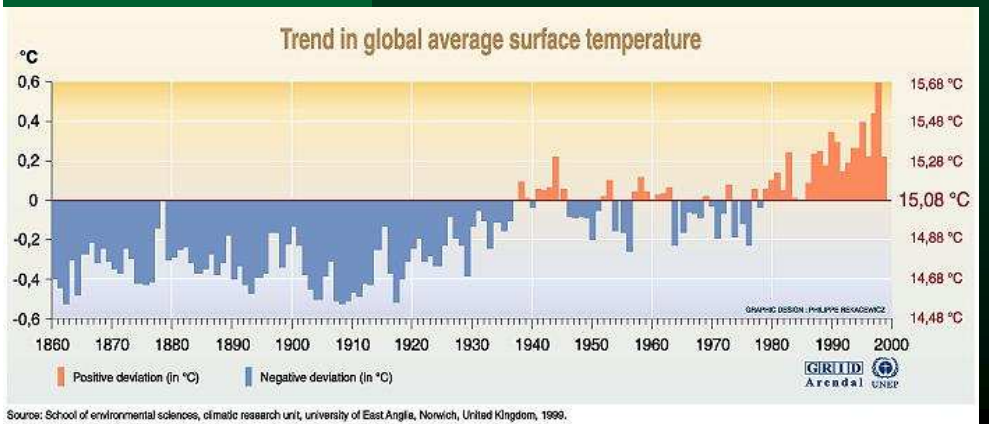
Projected temperature rise:

- AR4 (07):+1.1-6.4 (1.8-4)°C

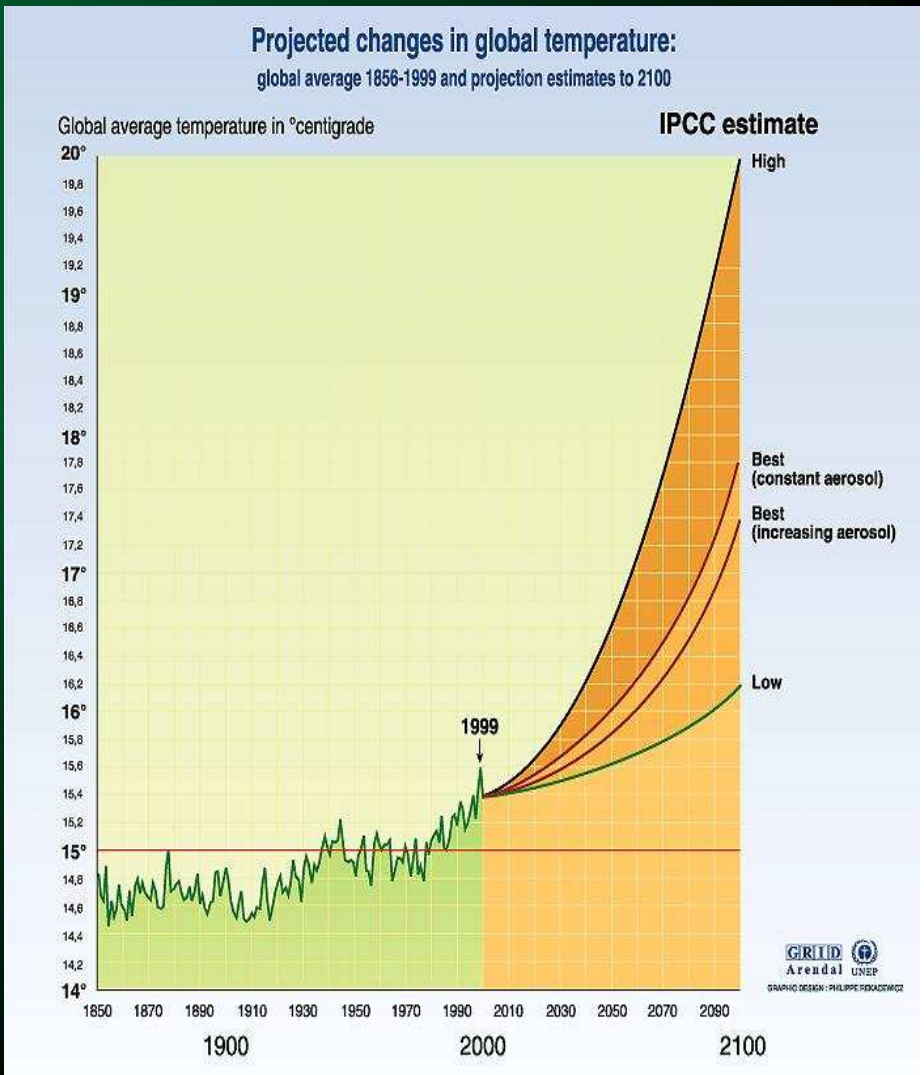
Sources: IPCC 1990,1995,2001,'07

Sea level Rise:

- 20th cent.: +0,1-0,2 metres
- AR4 (2000-2100): 18-59 cm

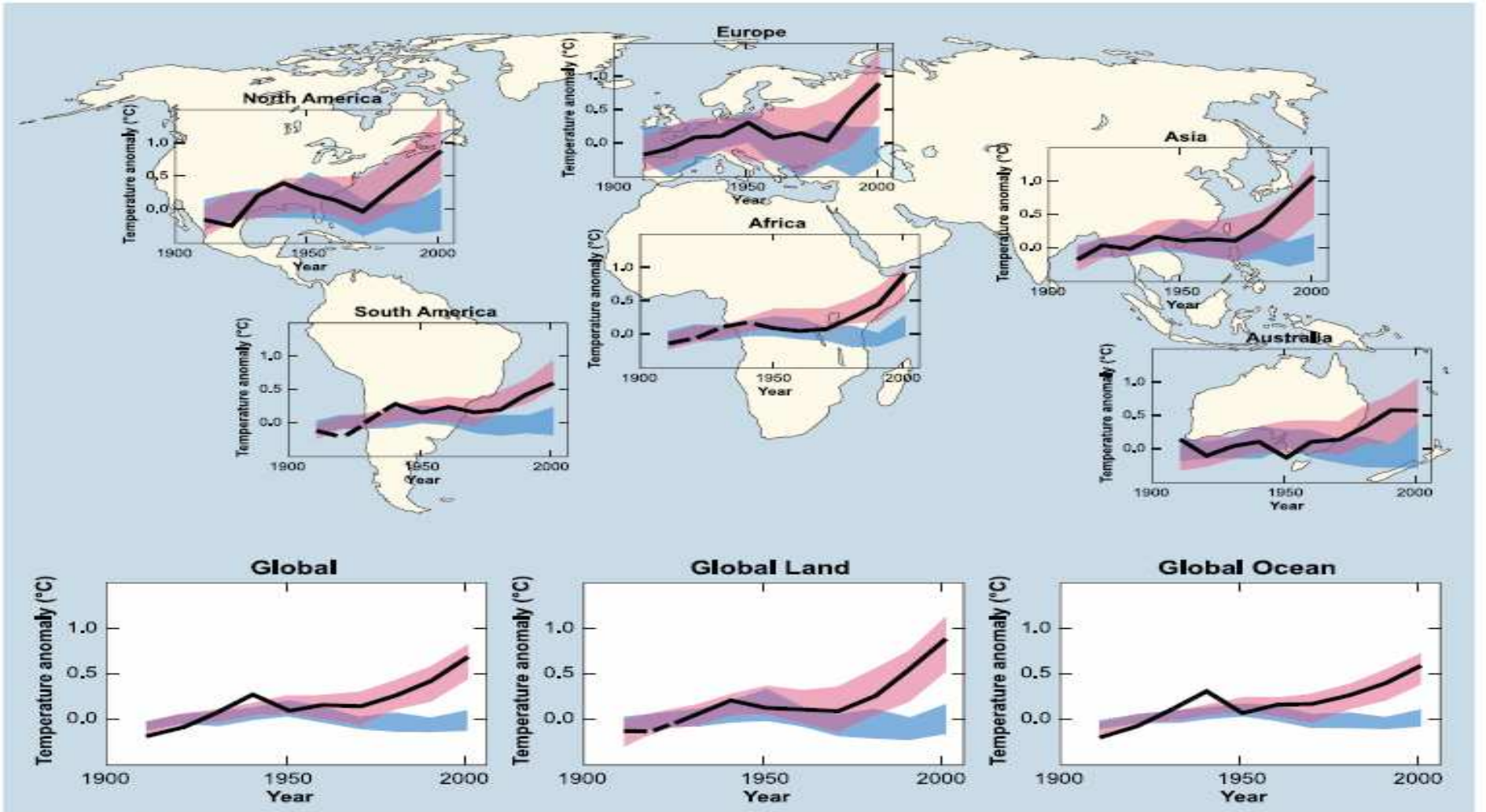


Source: School of environmental sciences, climatic research unit, university of East Anglia, Norwich, United Kingdom, 1999.

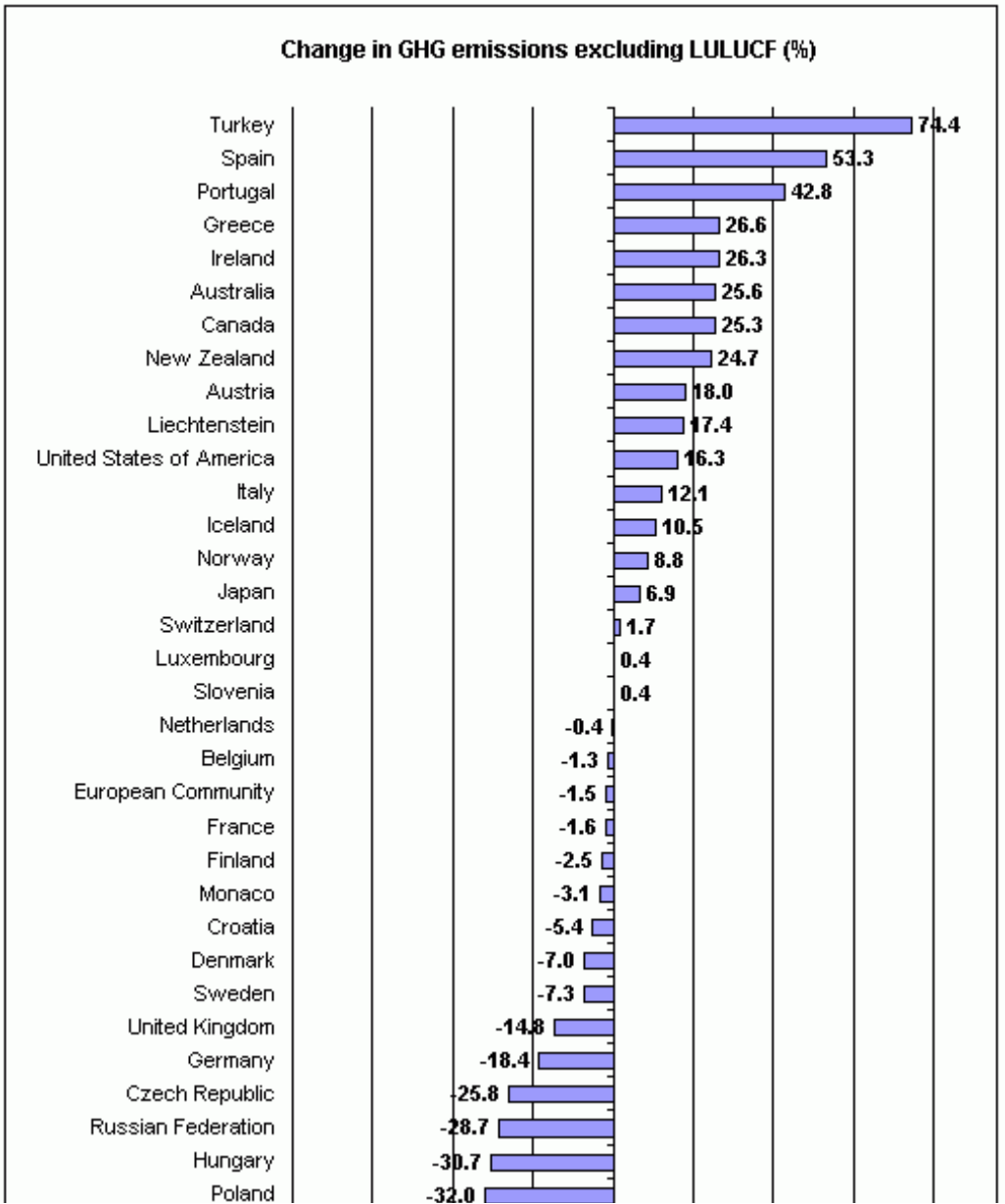


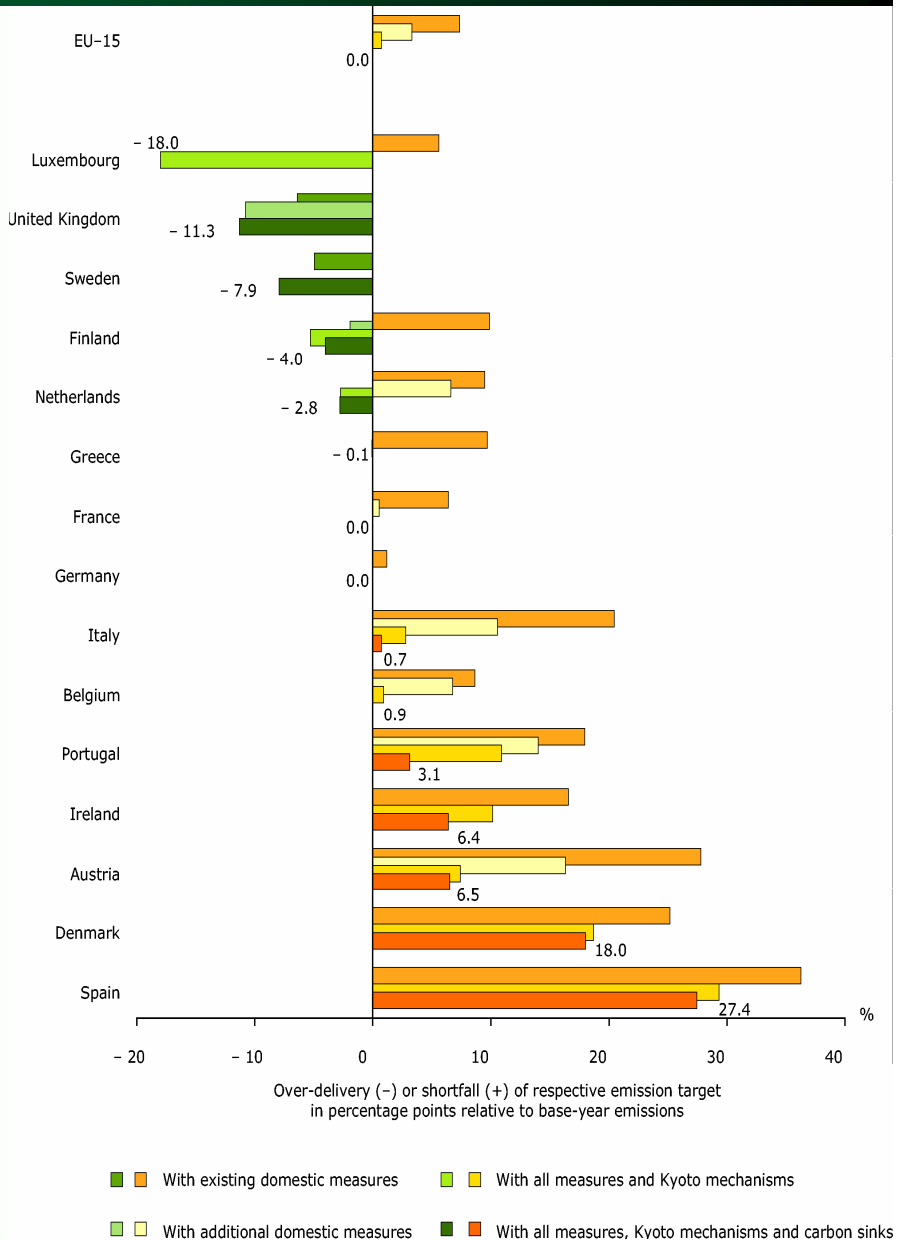
Source : Temperatures 1856 - 1999: Climatic Research Unit, University at East Anglia, Norwich UK. Projections: IPCC report 95.

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

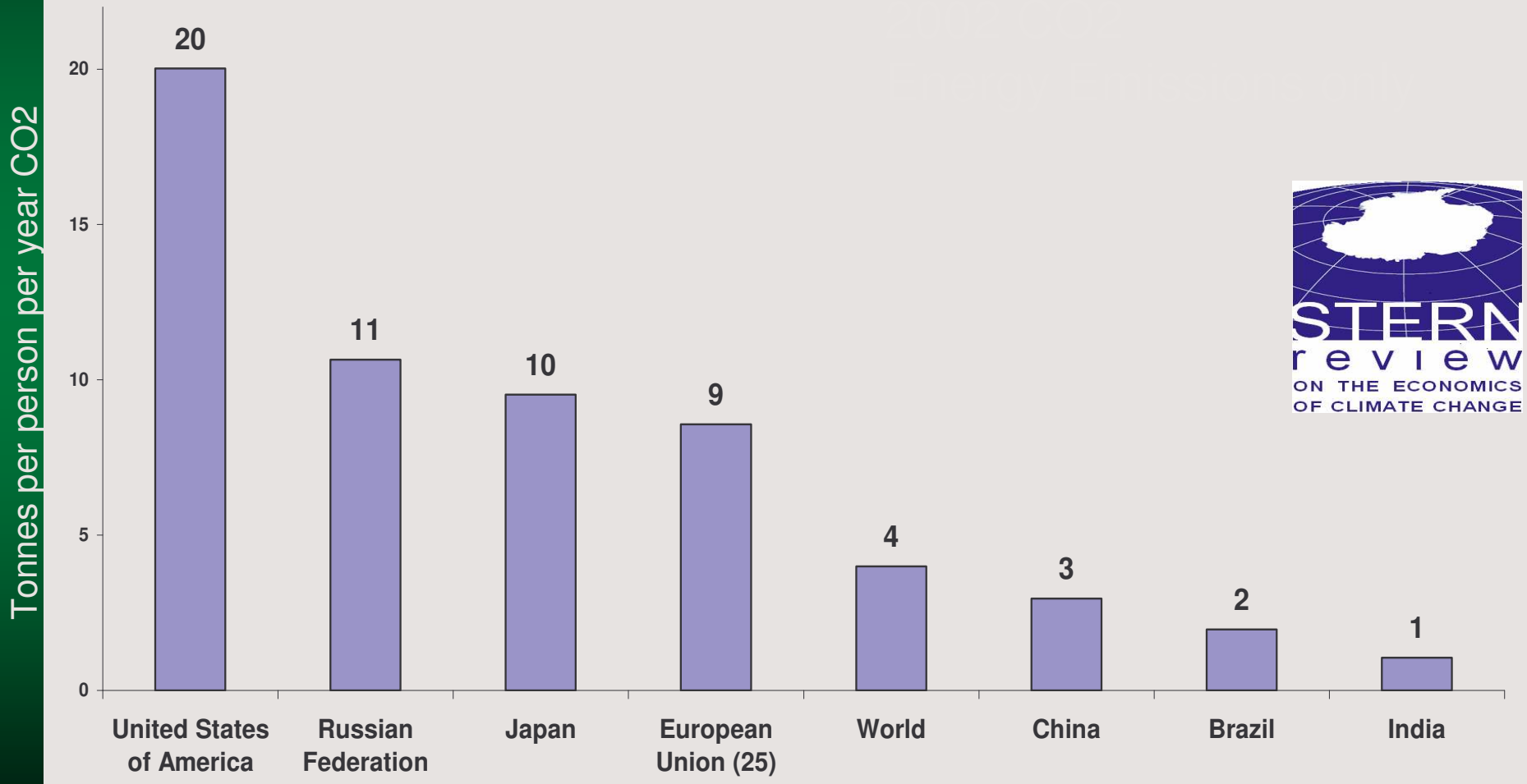


3.5. Implementing the Kyoto Protocol:
Performance: Greenhouse Gase Reductions





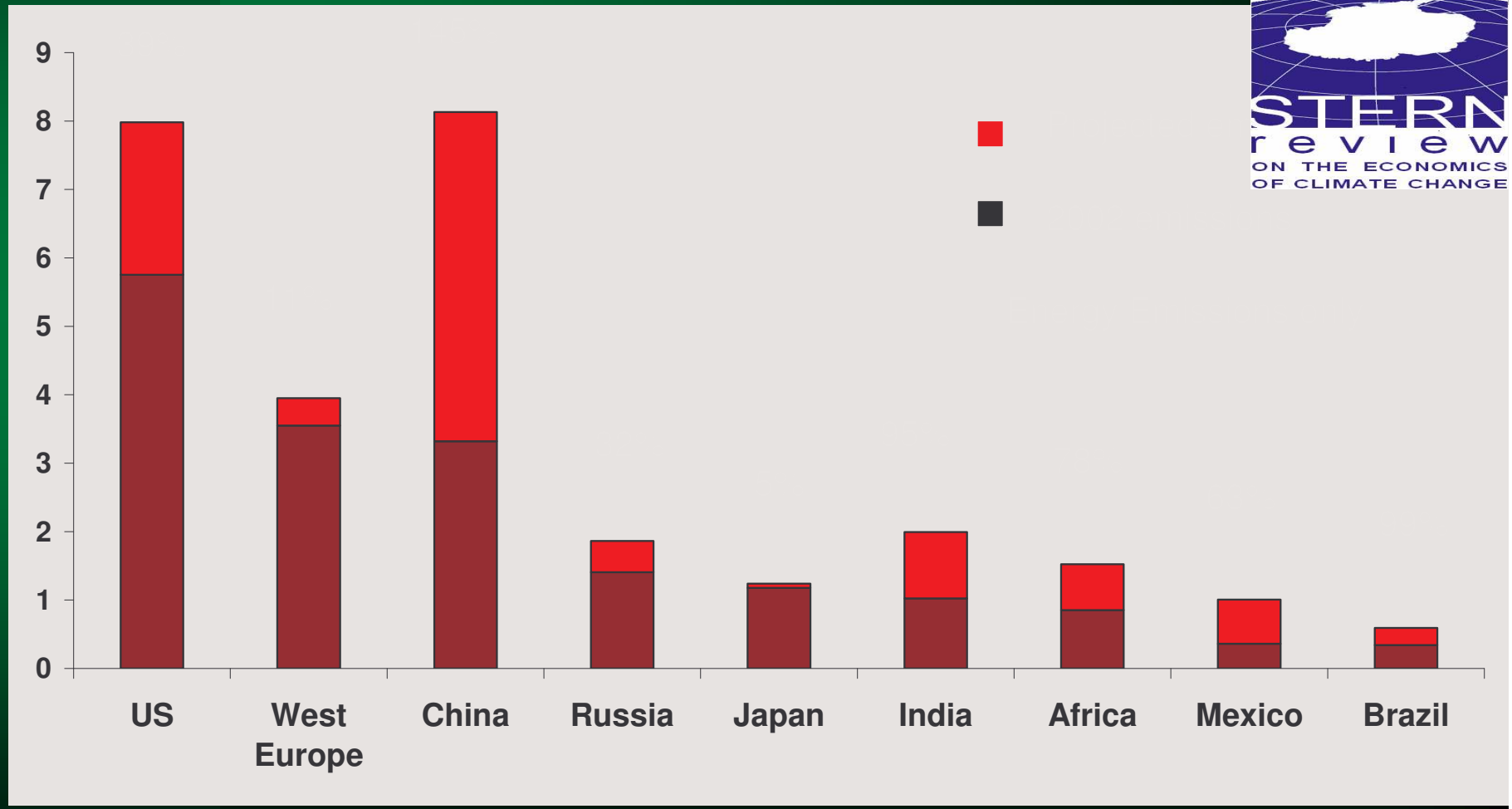
3.6. Current Emissions Per Capita are Higher in Developed Countries



STERN review
ON THE ECONOMICS OF CLIMATE CHANGE

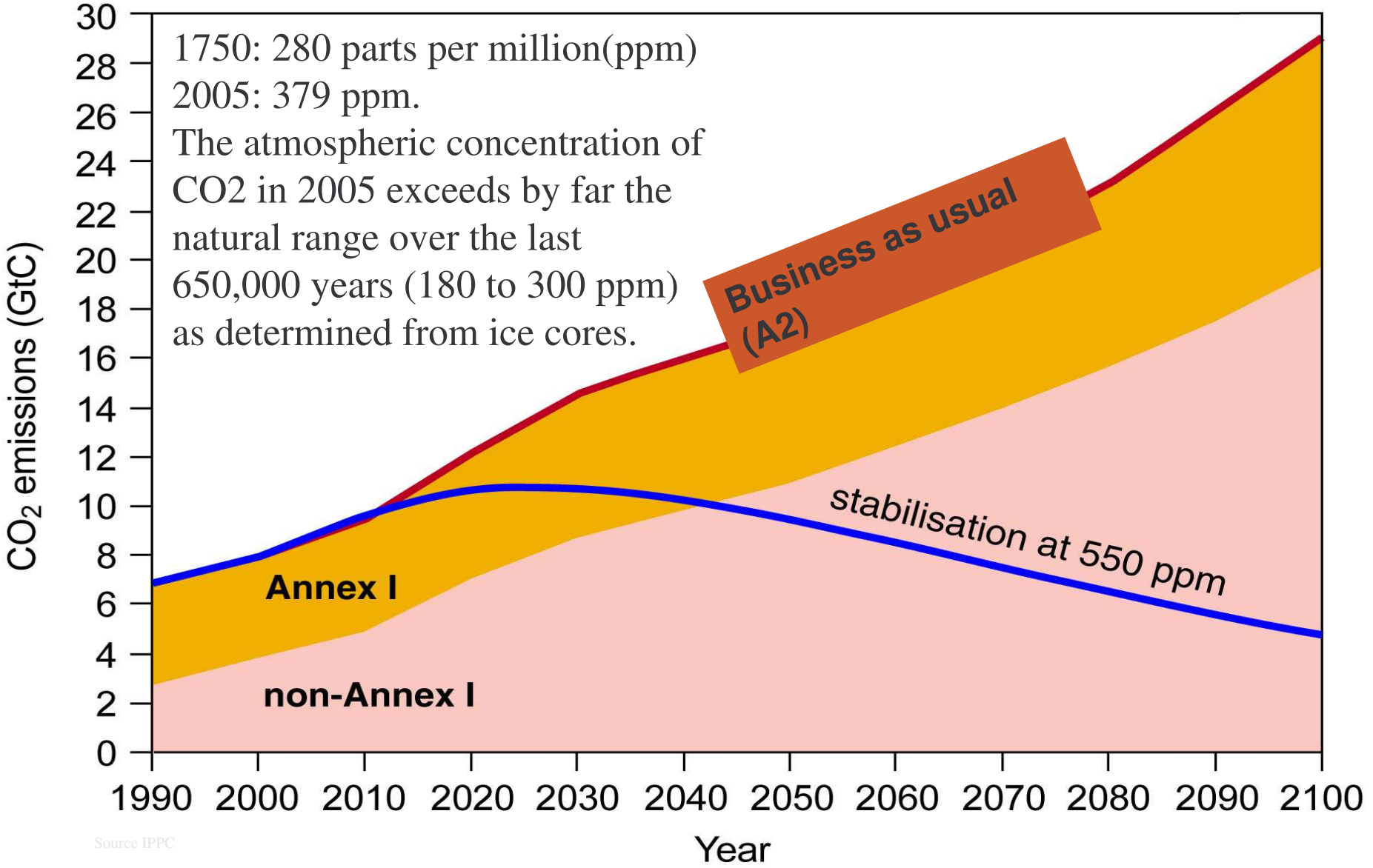
Source: World Resources Institute, UNFCCC

3.7. Larger Developing Countries Account for Much of the Forecast Rise in Emissions

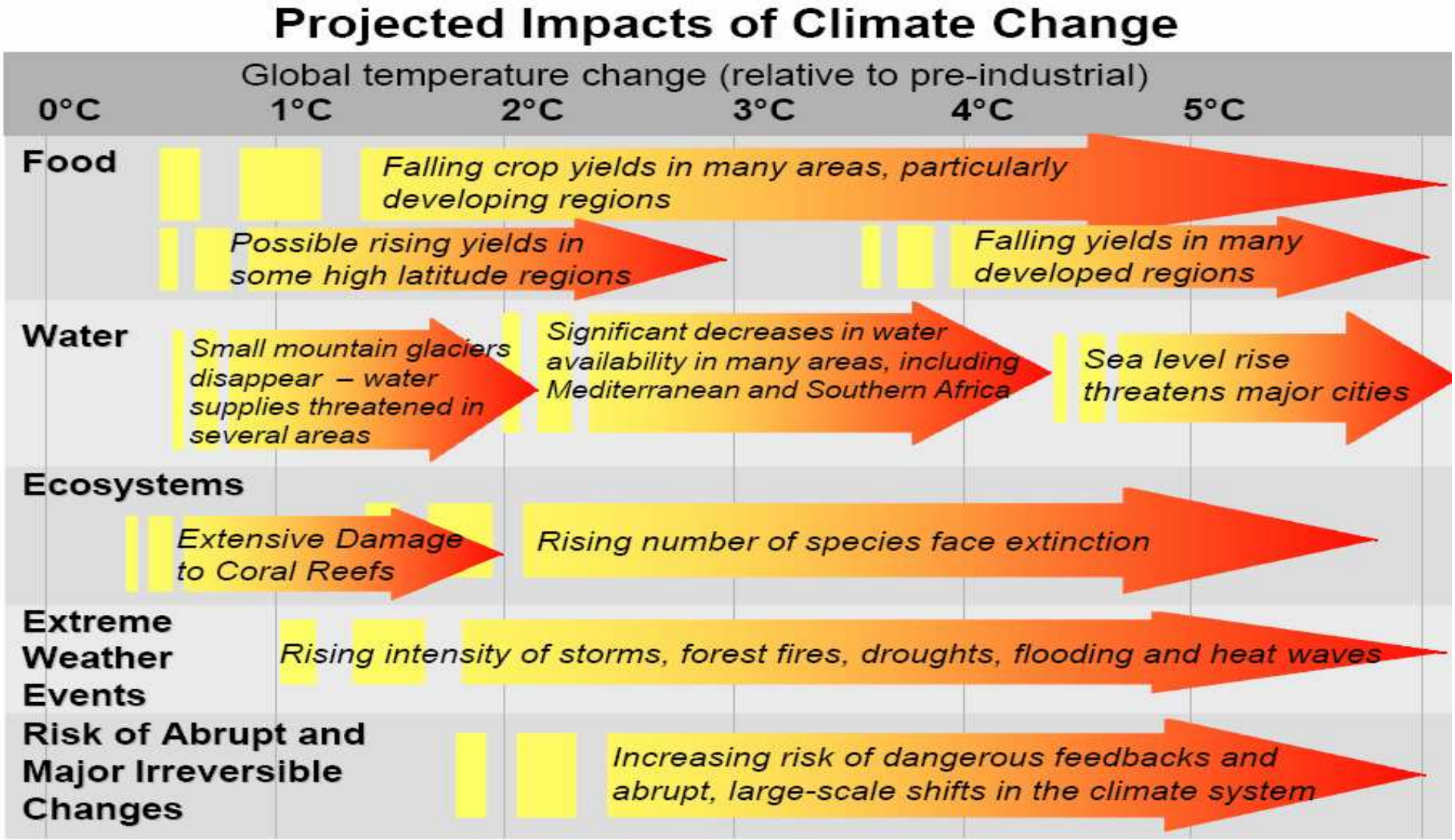


Source: World Resources Institute, CAIT Energy Information Administration Reference Scenario, Energy emissions only

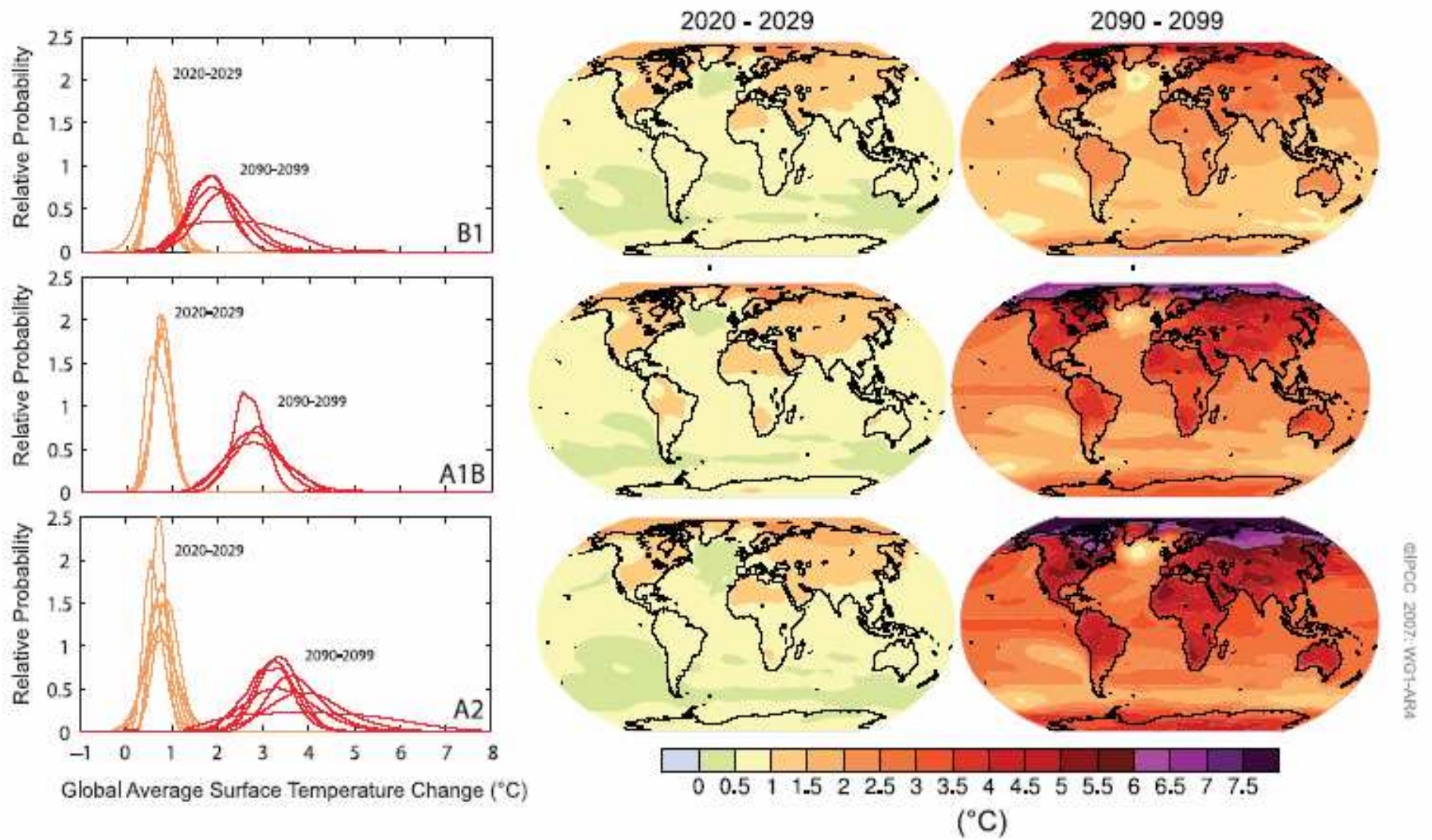
3.8. Projection: Stabilization at 550 ppm



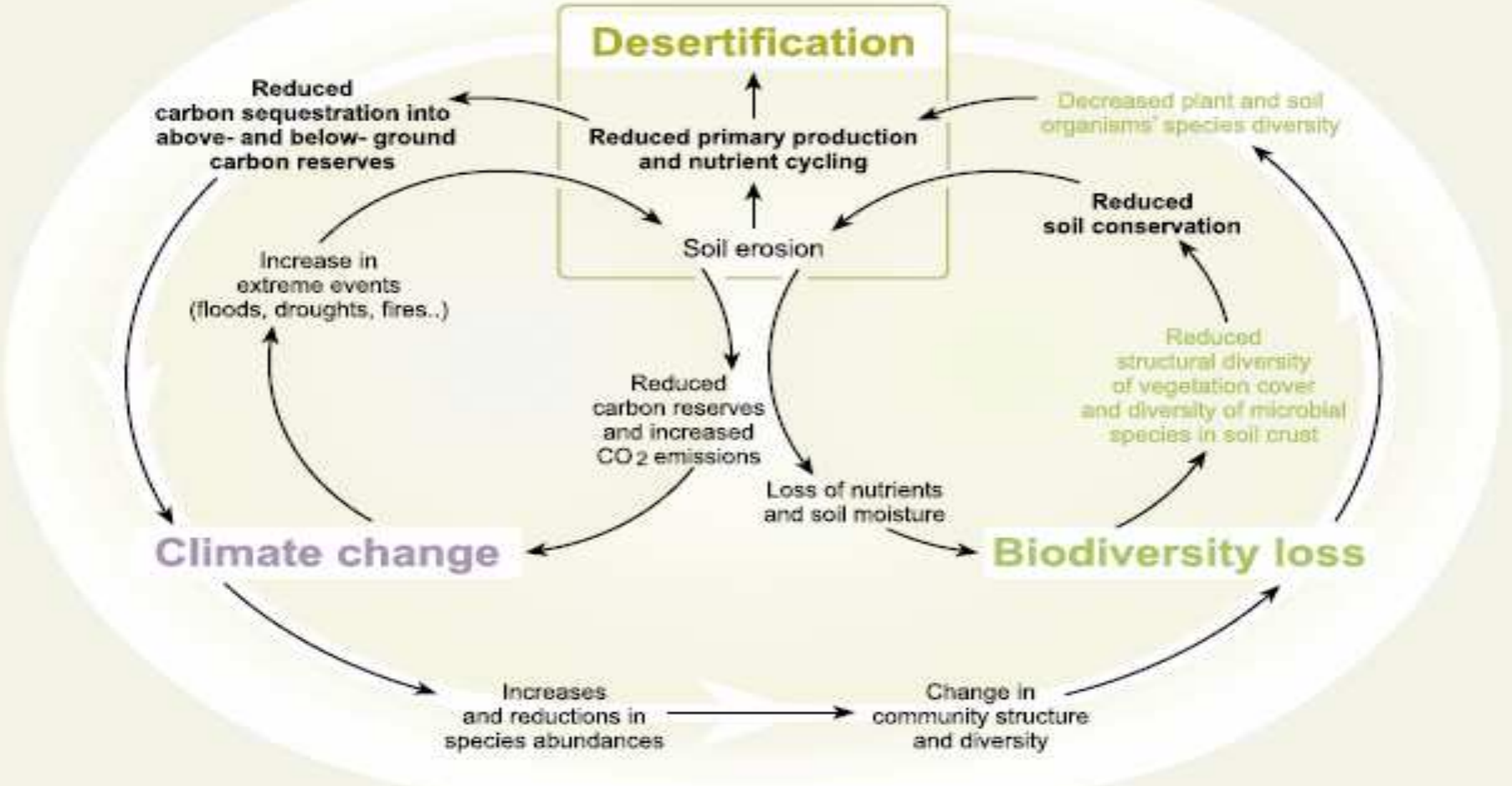
3.9. Projected Impacts of Climate Change



3.10. Projection of Surface Temperature (IPCC 2007, WG 1, AR4, p. 15)



3.11. Linkages & Feedback Loops: Desertification, Climate Change and Biodiversity Loss (MA 2005)



Source: Millennium Ecosystem Assessment

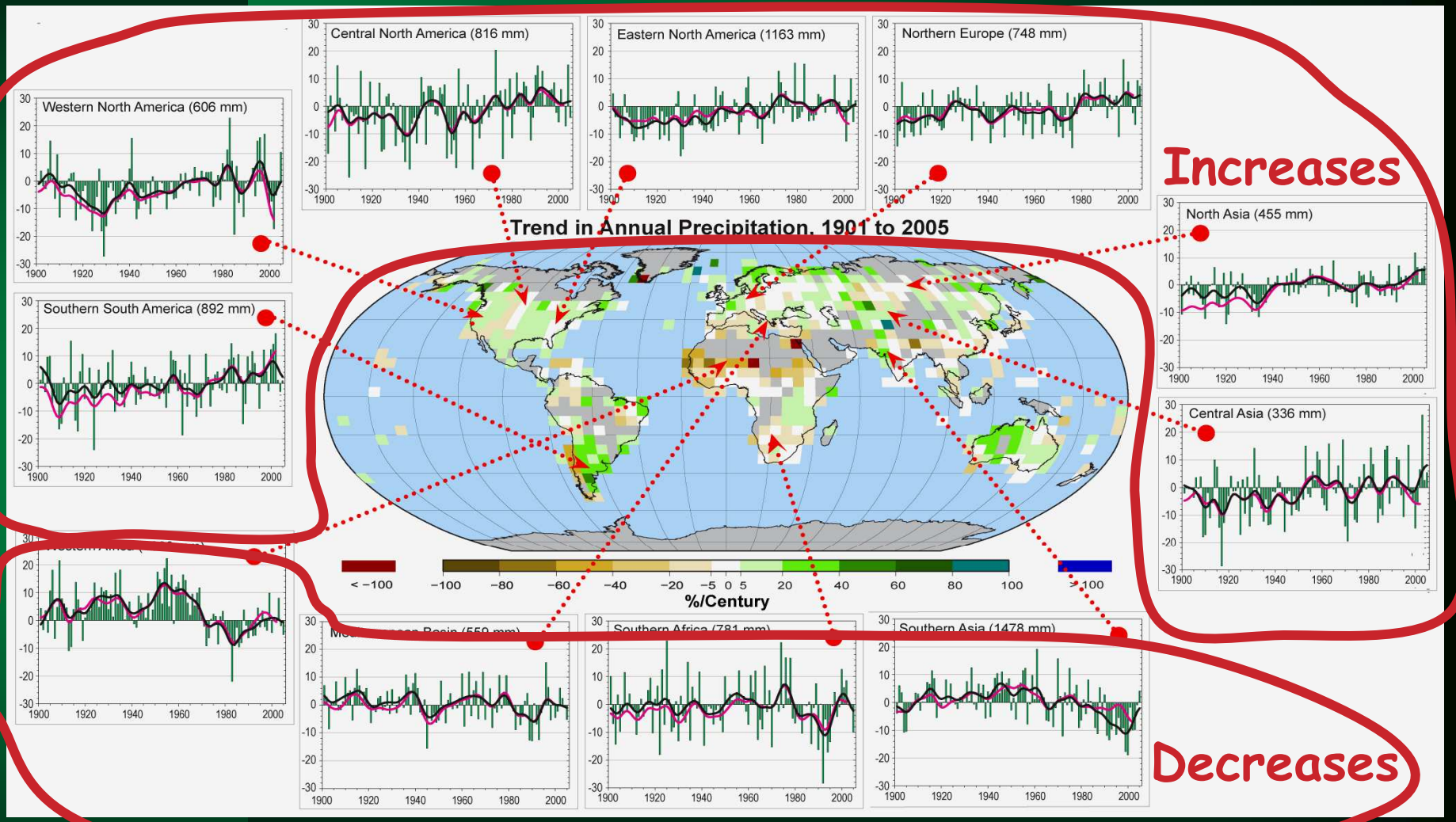
4. Projected Climate Change Impacts

- IPCC 4AR (2007, WG 2, Europe, North & West Africa)
- Martin Parry, co-chair of IPCC WG II to European Ministers for Agriculture & Environment (11.9.2005)
- WBGU maps: drought, food yield, flash floods (regional): up to 2100
  - Population density (population change: fertility, mortality, migration)
  - Drought
  - Flash floods
  - Crop yield and food security

4.1. IPCC Chair Pachauri: Projections of future climate

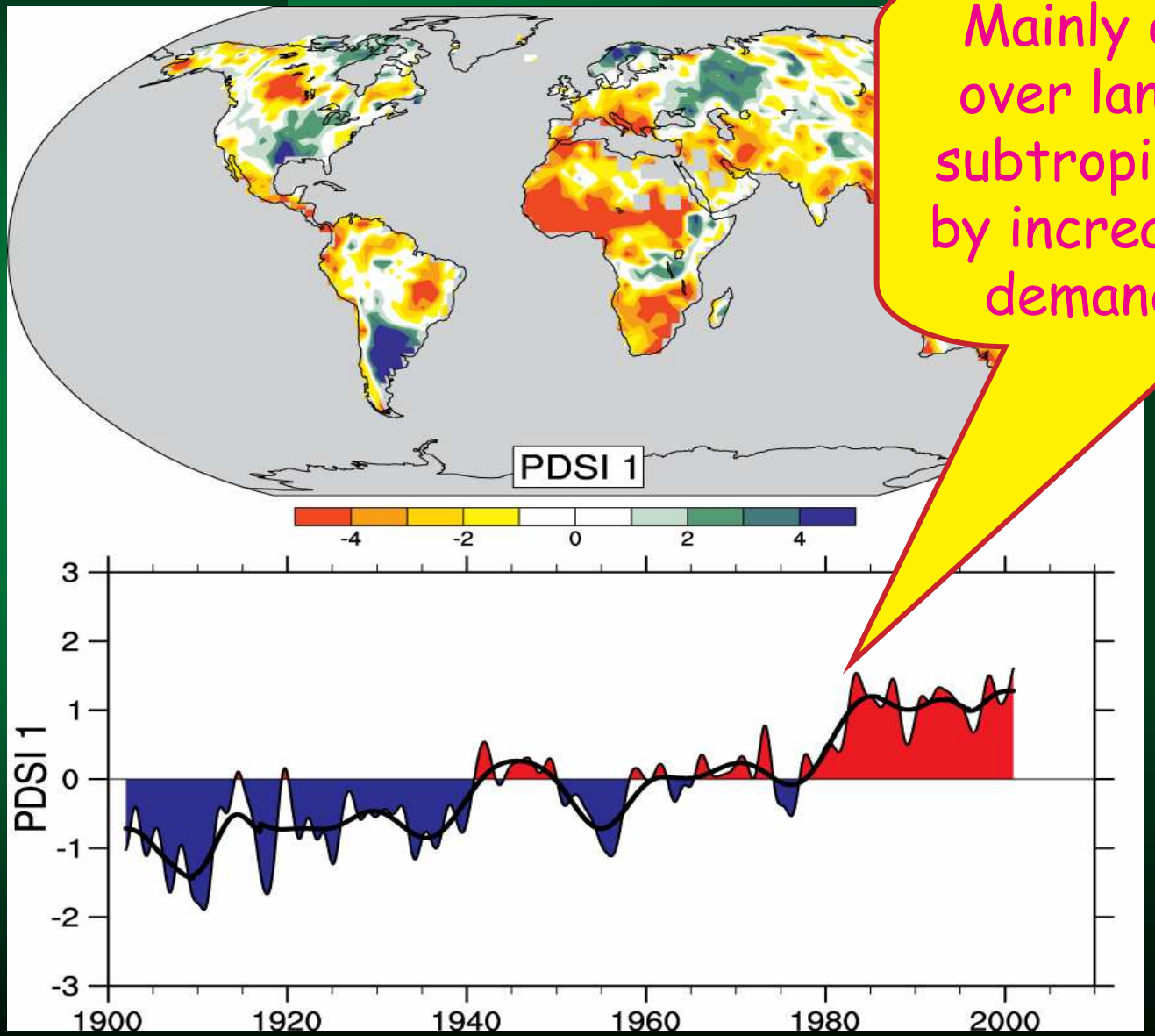
- Sea ice is projected to shrink in both the Arctic & Antarctic
- In some projections, Arctic late-summer sea ice disap-pears almost entirely by the latter part of the 21st century
- *Very likely* that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent
- *Likely* 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.

4.2. Land precipitation is changing significantly in broad areas



Smoothed annual anomalies for precipitation (%) over land from 1900 to 2005; other regions are dominated by variability.

4.3. IPCC Chair Pachauri: Drought is increasing most places



Mainly decrease in rain over land in tropics and subtropics, but enhanced by increased atmospheric demand with warming

Severity Index (PDSI) for 1900 to 2002.

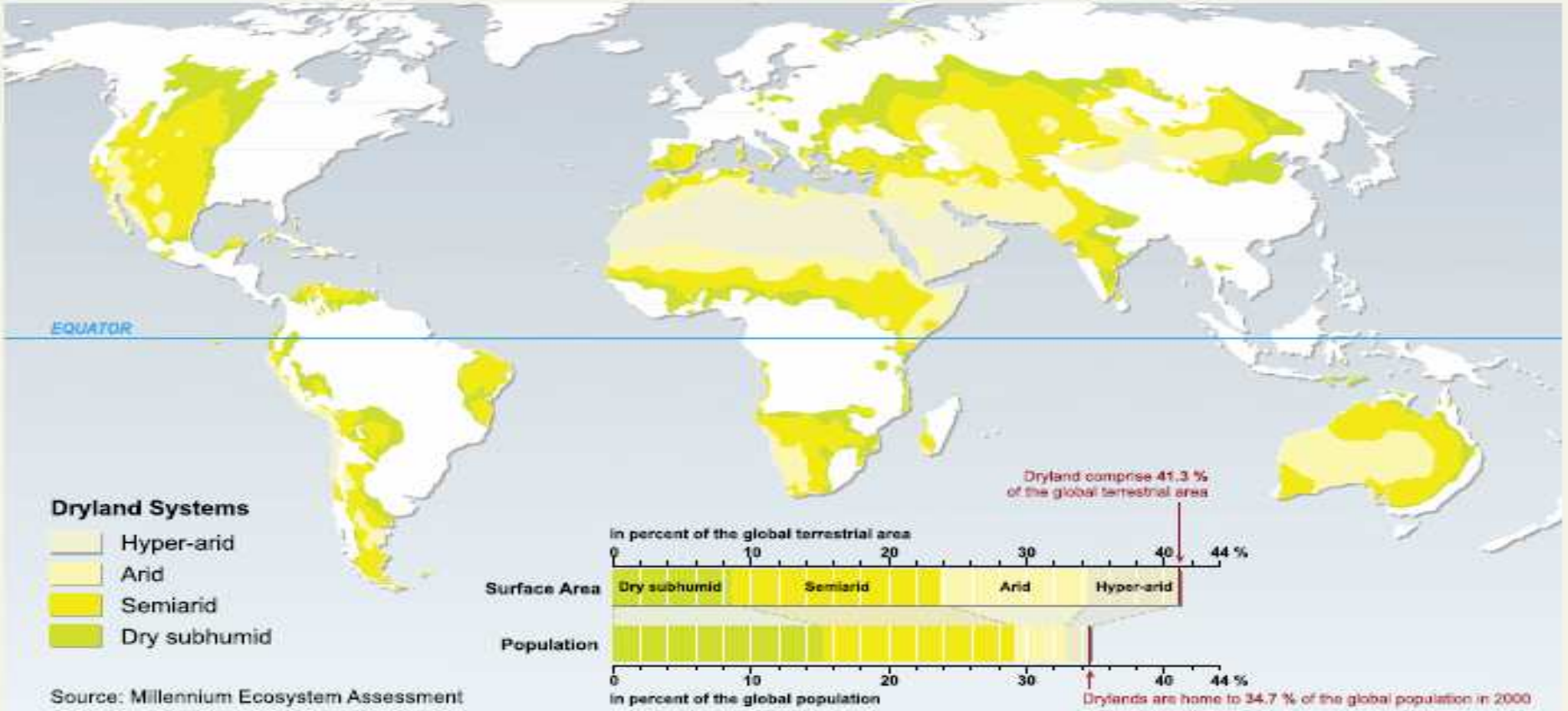
The time series (below) accounts for most of the trend in PDSI.

4.4. Human Influence on Extreme Weather Events (WG I, AR4, Februar 2007: S. 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]

4.5. GEC: Desertification and Drought
Drylands and their Categories

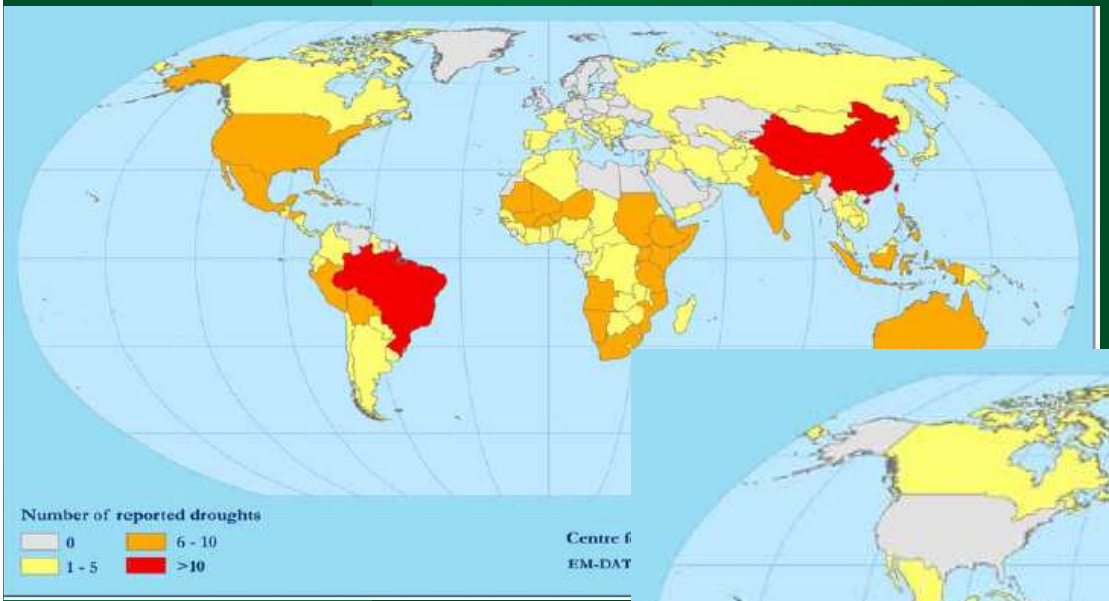
Drylands include all terrestrial regions where the production of crops, forage, wood and other ecosystem services are limited by water. Formally, the definitio encompasses all lands where the climate is classified as dry subhumid, semiarid, arid or hyper-arid. This classification is based on Aridity Index values†.

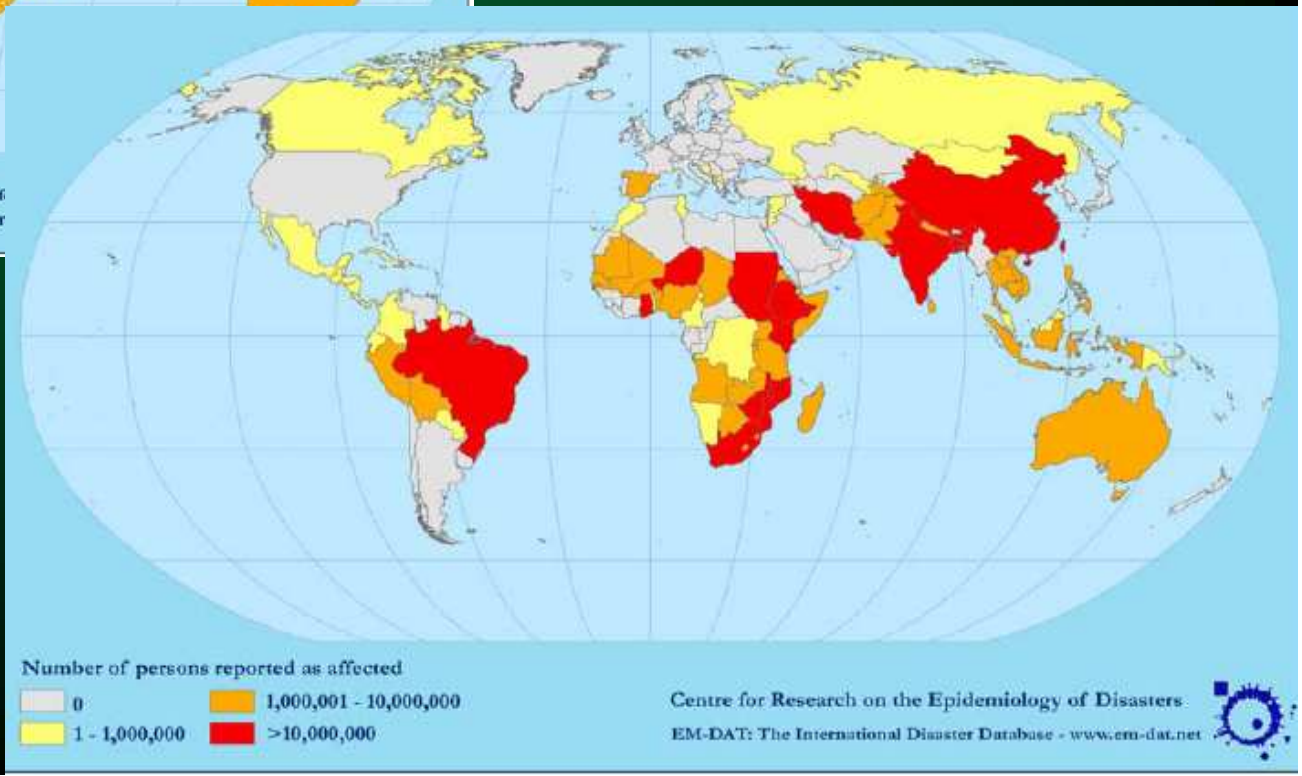


† The long-term mean of the ratio of an area's mean annual precipitation to its mean annual potential evapotranspiration is the Aridity Index (AI).

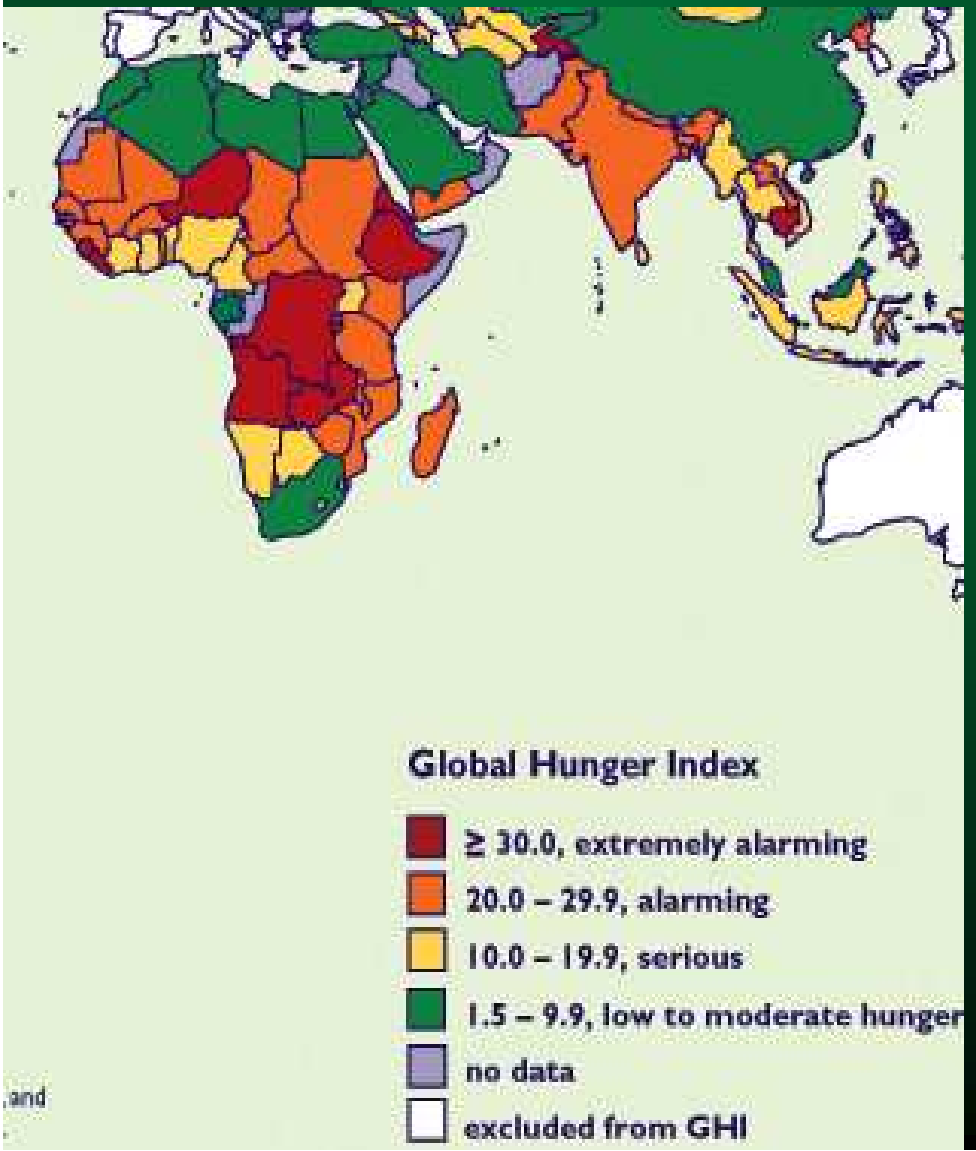
Notes: The map is based on data from UNEP Geo Data Portal (http://geodata.grid.unep.ch/). Global area based on Digital Chart of the World data (147,573,196.6 square km); Data presented in the graph are from the MA core database for the year 2000.

4.6. Number of Drought Disasters by Country & Affected Persons (1970-2006)



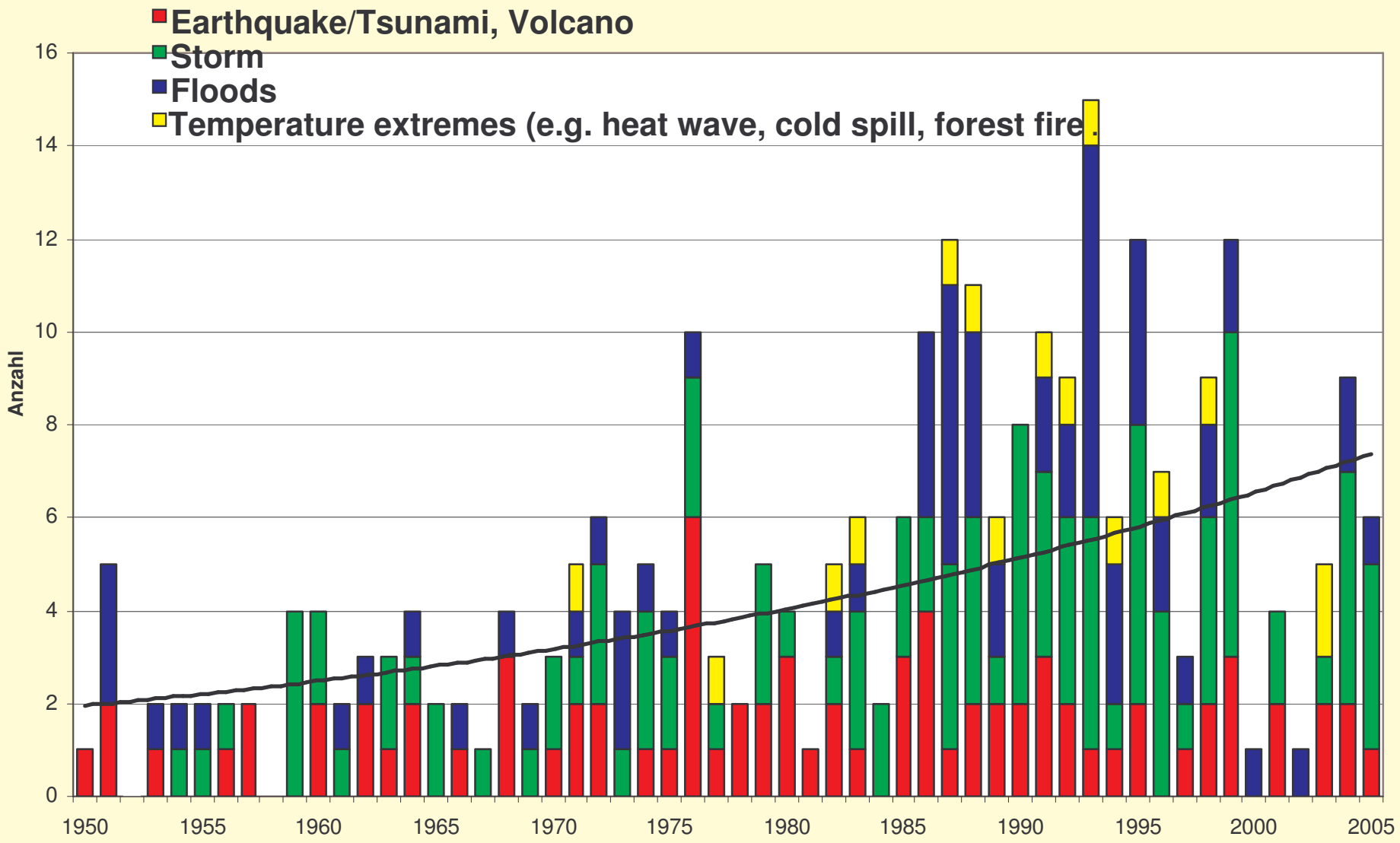


4.7. IFRI: Global Hunger Index: Oct. 2006



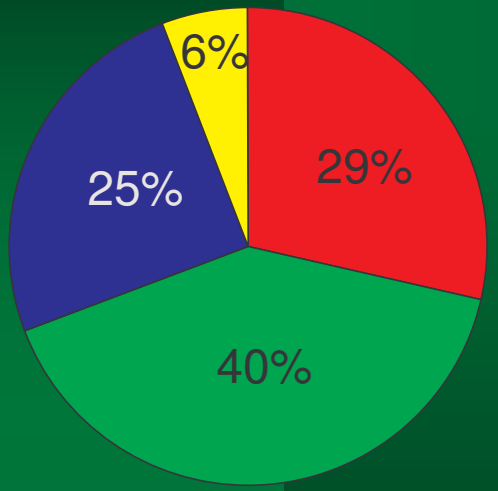
- **Global Hunger Index** of Internat. Food Policy Research Institute
- **Of 12 countries** with highest hunger levels, **nine** were affected by **civil wars or violent conflicts**.
- **The 10 worst cases are all in Sub-Saharan Africa**.
- Among **most affected** are countries in Nile Basin (**Eritrea, Ethio-pia**), in Sahel (**Niger**)
- In all other countries: **alarming**.
- **Situation may get worse:**
  - **demand increase** and
  - **supply decline** due to impects of **Global environmental change**.

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



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

267 Events



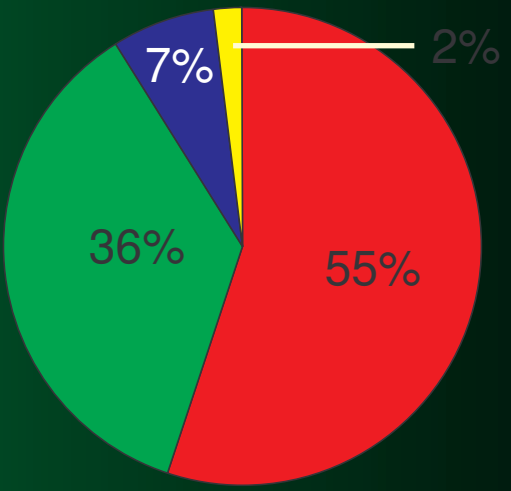
Geological events

- Earthquake/Tsunami, Volcano

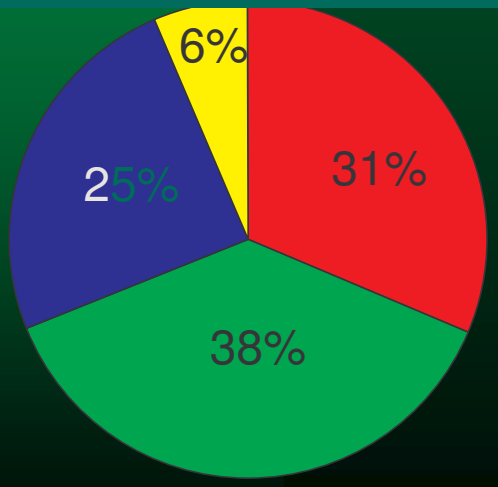
Weather-related events

- Storm
- Floods
- Extreme temperatures

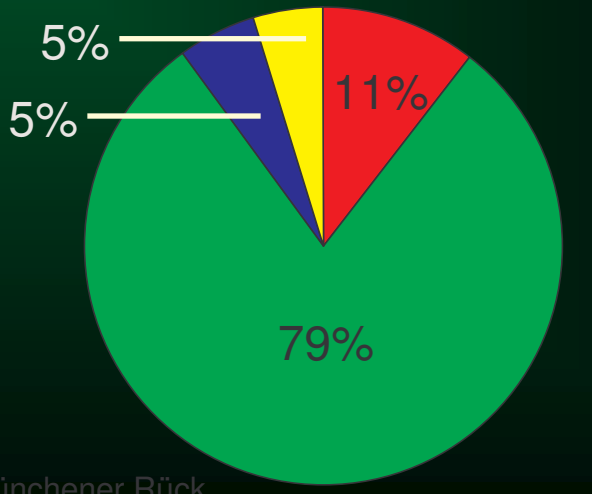
1,75 Million Dead



Economic damage: 1.400 billion US$



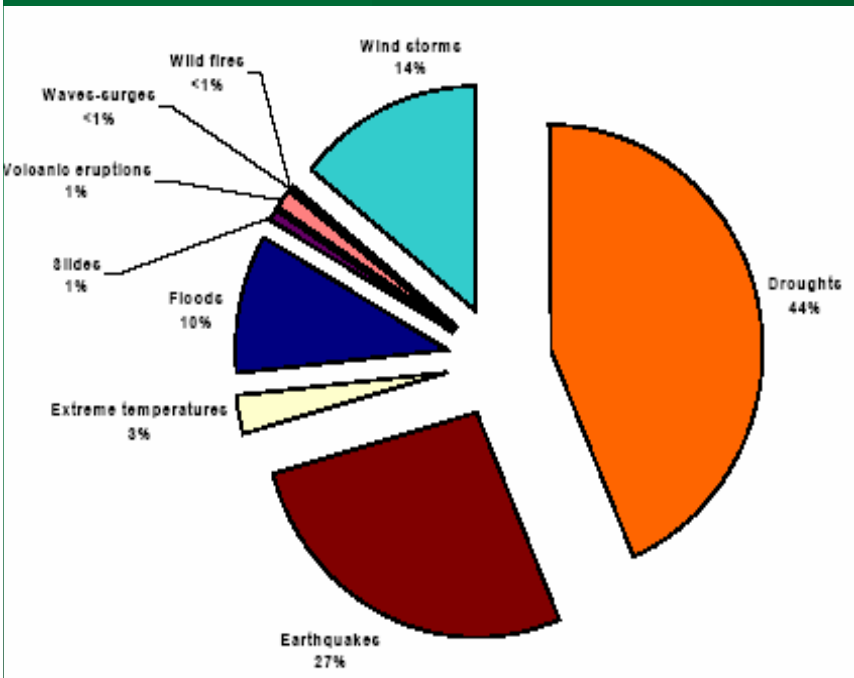
Insured damage: 340 billion US$

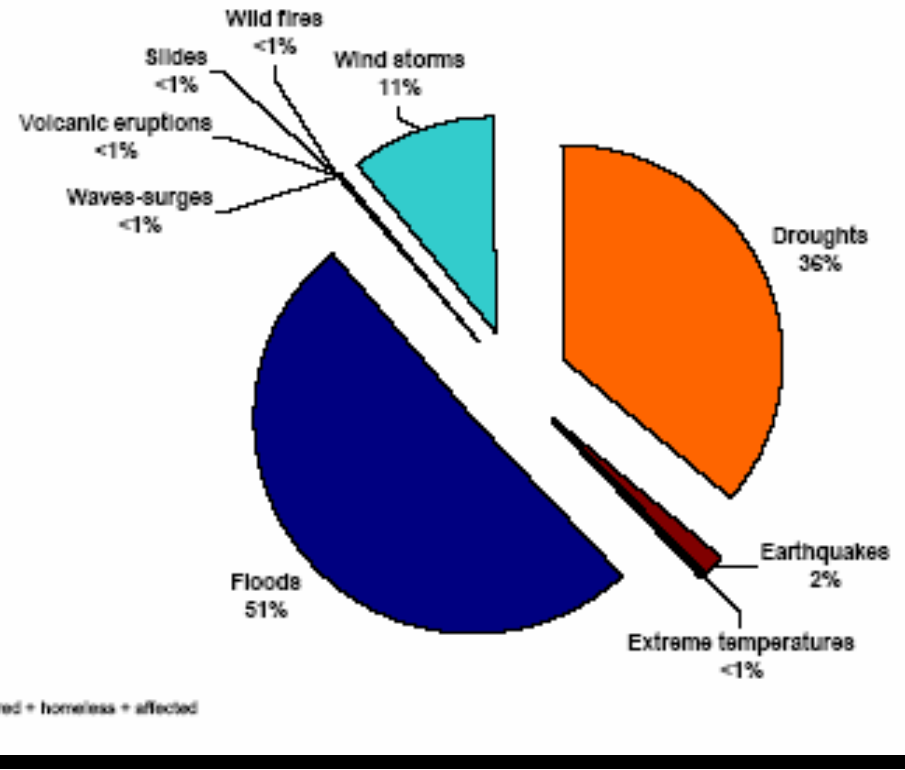


*in Werten von 2005

4.10. Impacts of Natural Hazards and especially Drought (1974-2003)

- Reported Death of Natural Hazards globally: 2.066.273 persons
- Affected persons of Natural Hazards: 5 076 494 541 .





Source: Hoyois/Guha-Sapir (2004)

4.11. Natural Hazards in 2007 (CRED)

- In 2007, 414 natural disasters by in the EM-DAT database.
- They killed: 16.000 people, affected over 234 million others
- They caused almost 75 US$ billion in economic damages.
- Reduction in disaster mortality.
- Floods & windstorms: key source of casualties & econ. damages.
- 86% of the overall mortality
- accounted for more than 98% of total affected.

No. of people Affected (million)		Economic impact (US$ billion)	
China	120.11	Japan	13.,8
India	38,14	UK	9.6
Bangladesh	22,93	US	9.4
Zimbabwe	2,12	China	8.0
Philippines	2.02	Germany	5.5
Mexico	**1,86**	Oman	3.9
Pakistan	1,65	**Mexico**	**3.6**
Vietnam	1,65	Banglad.	2.4
Colombia	1.61	Peru	2.0
Zambia	1.55	Pakistan	1.9

4.12. Ten Natural Hazards in the USA (1900-2008)

(Source: CRED, EM-DAT: number of people killed)

Disaster	Date	People killed
Wind Storm	8 September 1900	6,000
Earth Quake	18 April 1906	2,000
Wind Storm	September 1928	1,836
WS Hurric. Katrina	29 August 2005	1,833
Extreme Temperat.	June 1980	1,260
Extreme Temperat.	July 1936	1,193
Wild Fires	15 October 1918	1,000
Wind Storm	17 March 1925	739
Flood	März 1913	732
Extreme Temperat.	14 July 1995	670

4.13. Natural Hazards in Bangladesh (1900-2008)

(Source: CRED, EM-DAT: number of people killed)

Disaster	Date	People killed
Drought	1943	1,900,000
Epidemic	1918	393,000
Wind Storm	12 November 1970	300,000
Wind Storm	29 April 1991	138,866
Wind Storm	October 1942	61,000
Wind Storm	11 May 1965	36,000
Flood	July 1974	28,700
Wind Storm	24 May 1985	15,000
Wind Storm	June 1965	12.047
Wind Storm	28 May 1963	11,500

4.14. Ten Natural Hazards in the USA (1900-2008)

(Source: CRED, EM-DAT: number of people afected)

Disaster	Date	Total Affected
Wind Storm	5 September 2004	5,000,0000
Wind Storm	13 September 1999	3,000,0000
Wind Storm	30 October 1985	1,000,0000
Wild Fire	21 October 2007	640,064
WS Hurric. Katrina	29 August 2005	500,000
Epidemic	January 1993	403,000
Wind Storm	23 September 2005	300,000
Wind Storm	24 August 1992	250,000
Wind Storm	18 September 2003	225,000
Flood	13 January 1996	200,000

4.15. Natural Hazards in Bangladesh (1900-2008)

(Source: CRED, EM-DAT: number of people affected)

Disaster	Date	People affected
Flood	June 1988	45,000,000
Flood	July 1974	38,000,000
Flood	20 June 2004	36,000,000
Flood	May 1984	30,000,000
Flood	22 July 1987	29,700,000
Drought	July 1983	20,000,000
Flood	July 1968	15,889,616
Wind Storm	11 May 1965	15,600,000
Wind Storm	29 April 1991	15,438,849
Flood	5 July 1998	15,000,050

4.16. Ten Natural Hazards in the USA (1900-2008)
(Source: CRED, EM-DAT: economic damage)

Disaster	Date	Damage $ (0,000)
WS Hurric. Katrina	29 August 2005	125,000,000
Earth Quake	17 January 1994	30,000,000
Wind Storm	24 August 1992	20,000,000
Wind Storm	15 September 2004	18,000,000
Wind Storm	23 September 2005	16,000,000
Wind Storm	13 August 2004	16,000,000
Wind Storm	24 October 2005	14,300,000
Flood	24 June 1993	12,000,000
Wind Storm	5 September 2004	11,000,000
Wind Storm	25 September 2004	8,000,000

4.17. 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

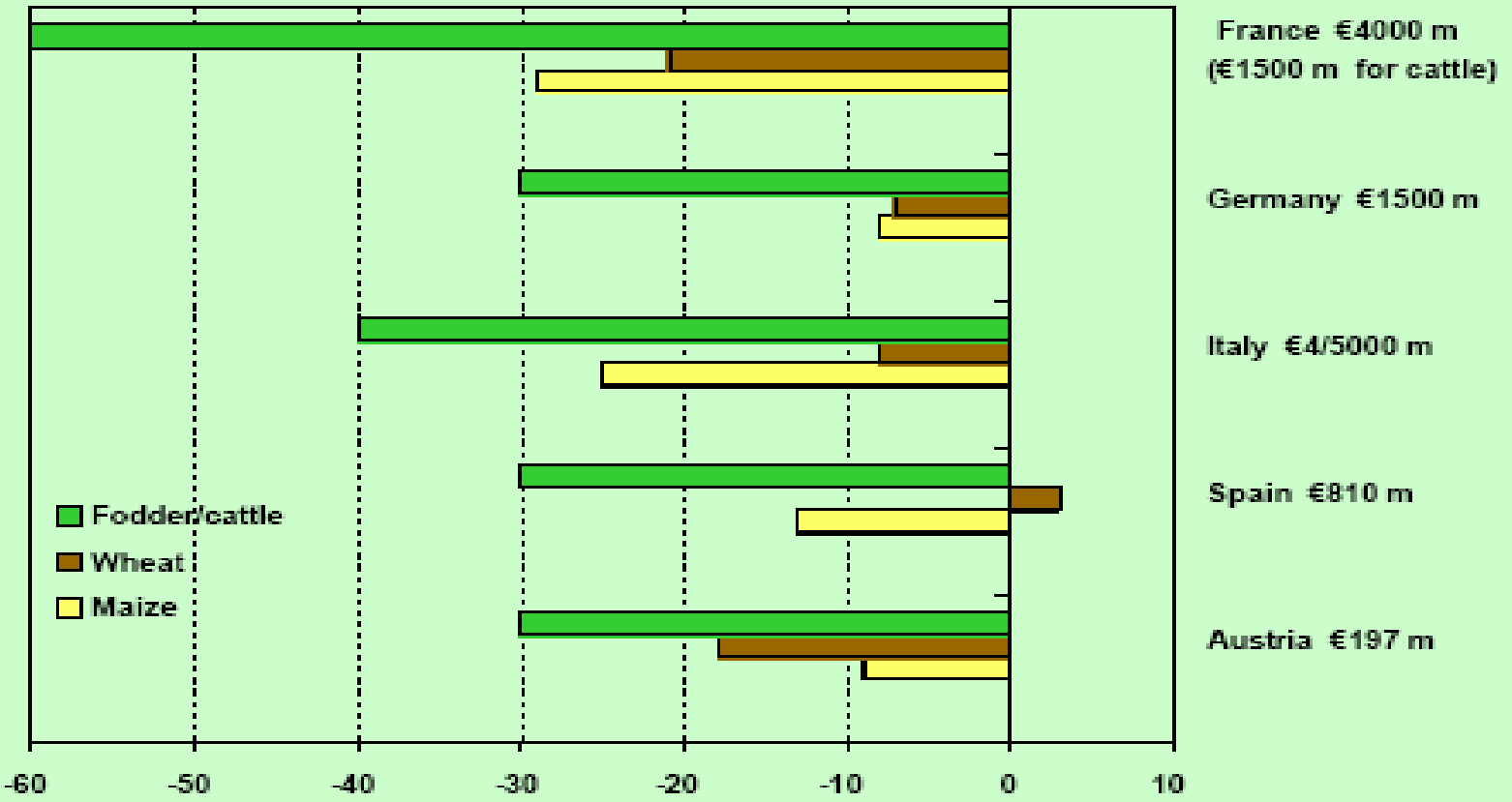
2003 heat wave mortality	
Country	Number of killed
Italy	20.089
France	19.490
Spain	15.090
Germany	9.355
Portugal	2.696
Belgium	1.175
Switzerland	1.039
Netherlands	965
Croatia	788
Czech Rep	418
Austria	345
United Kingdom	301
Slovenia	289
Luxembourg	170

4.18. Effects of 2003 summer heat wave on agricultural yield in five EU countries

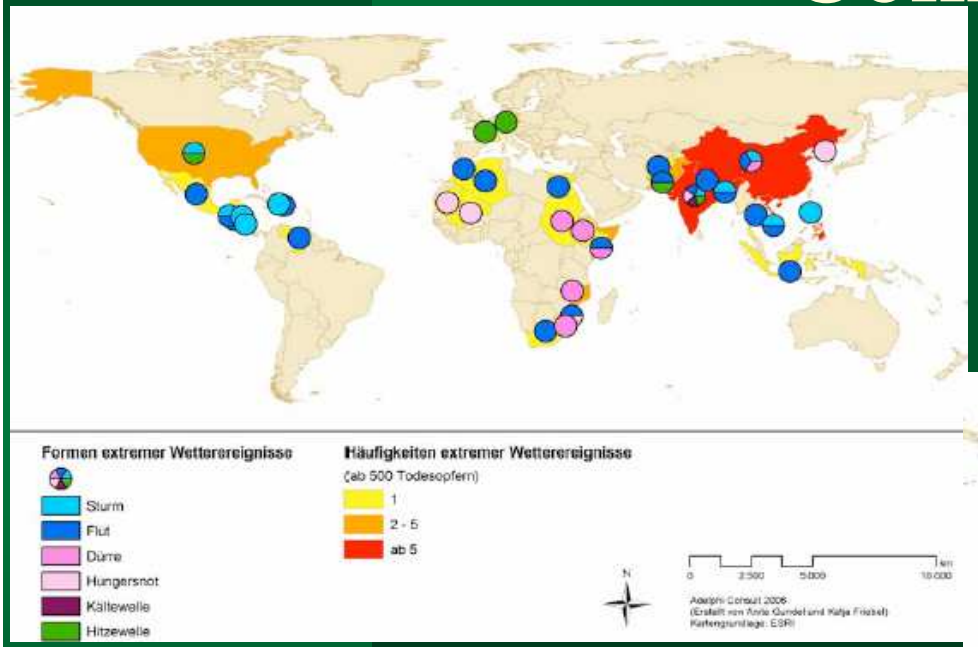
© M. Parry, Meeting of EU Agriculture/ Environment Ministers, 11.9.2005, London

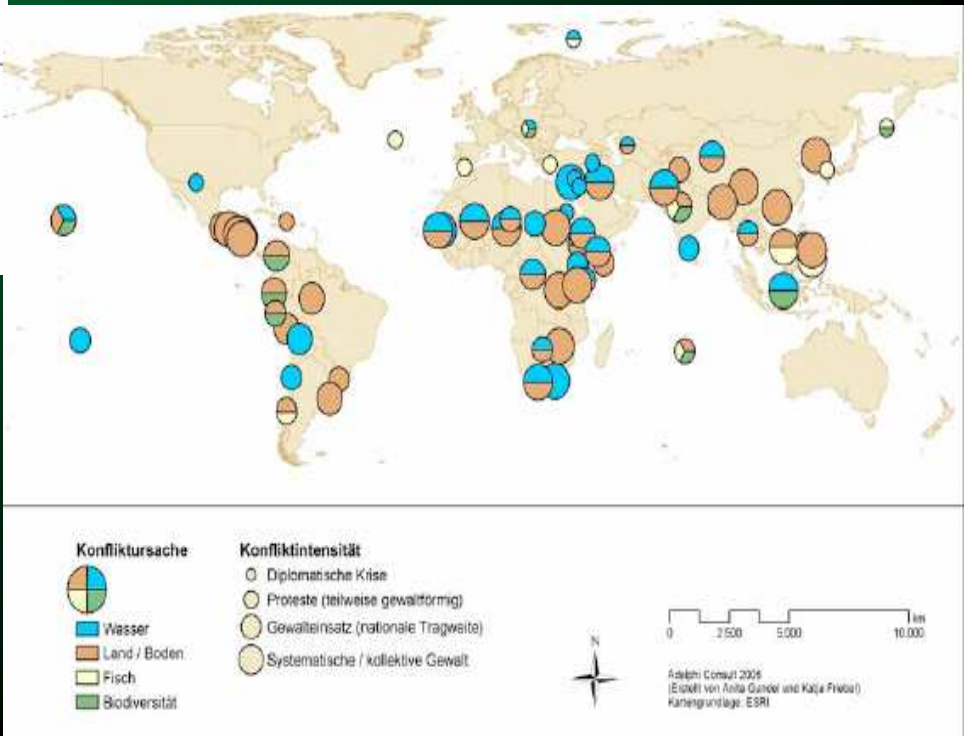
COPA

Effects of 2003 summer heat wave on EU agriculture



4.19. Intensity of Extreme Weather Events and of Environmental Conflicts

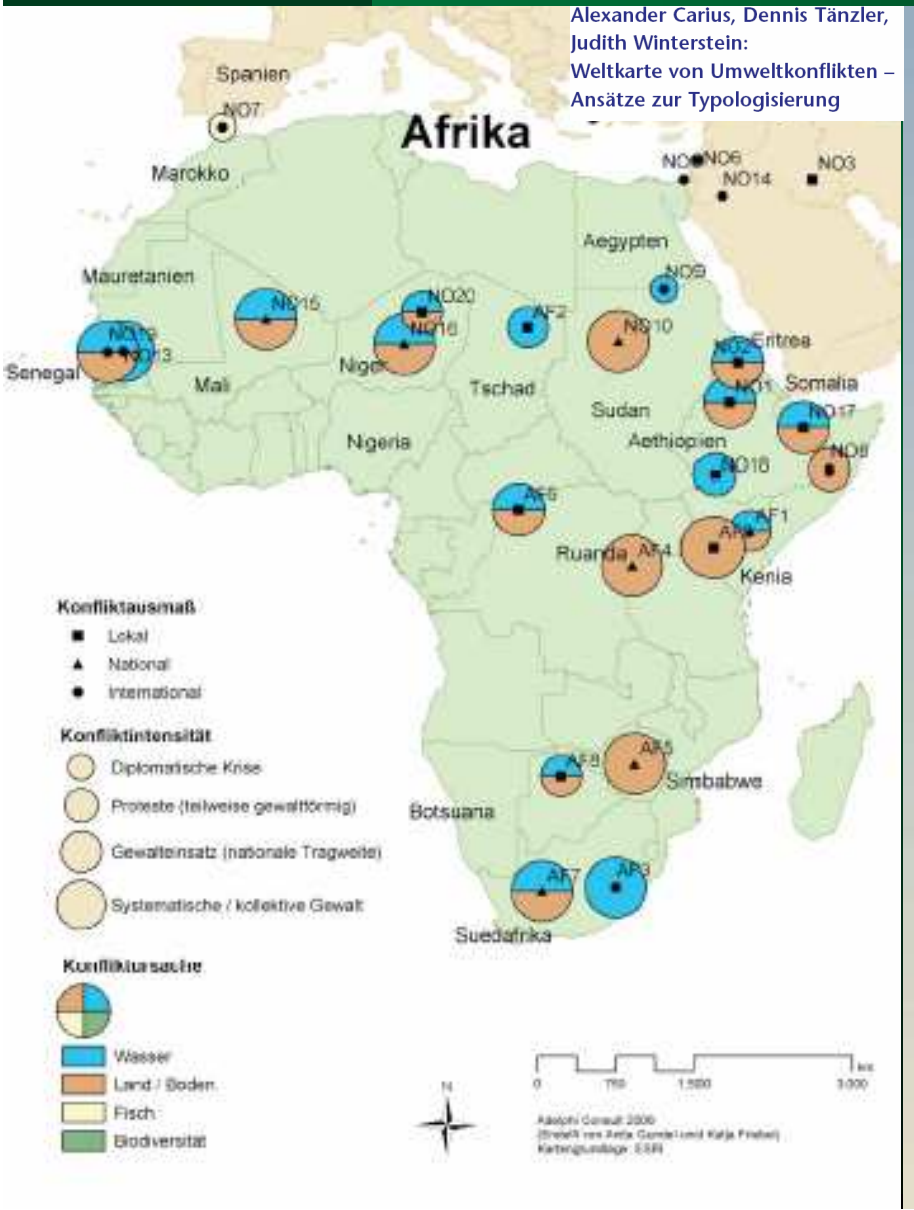


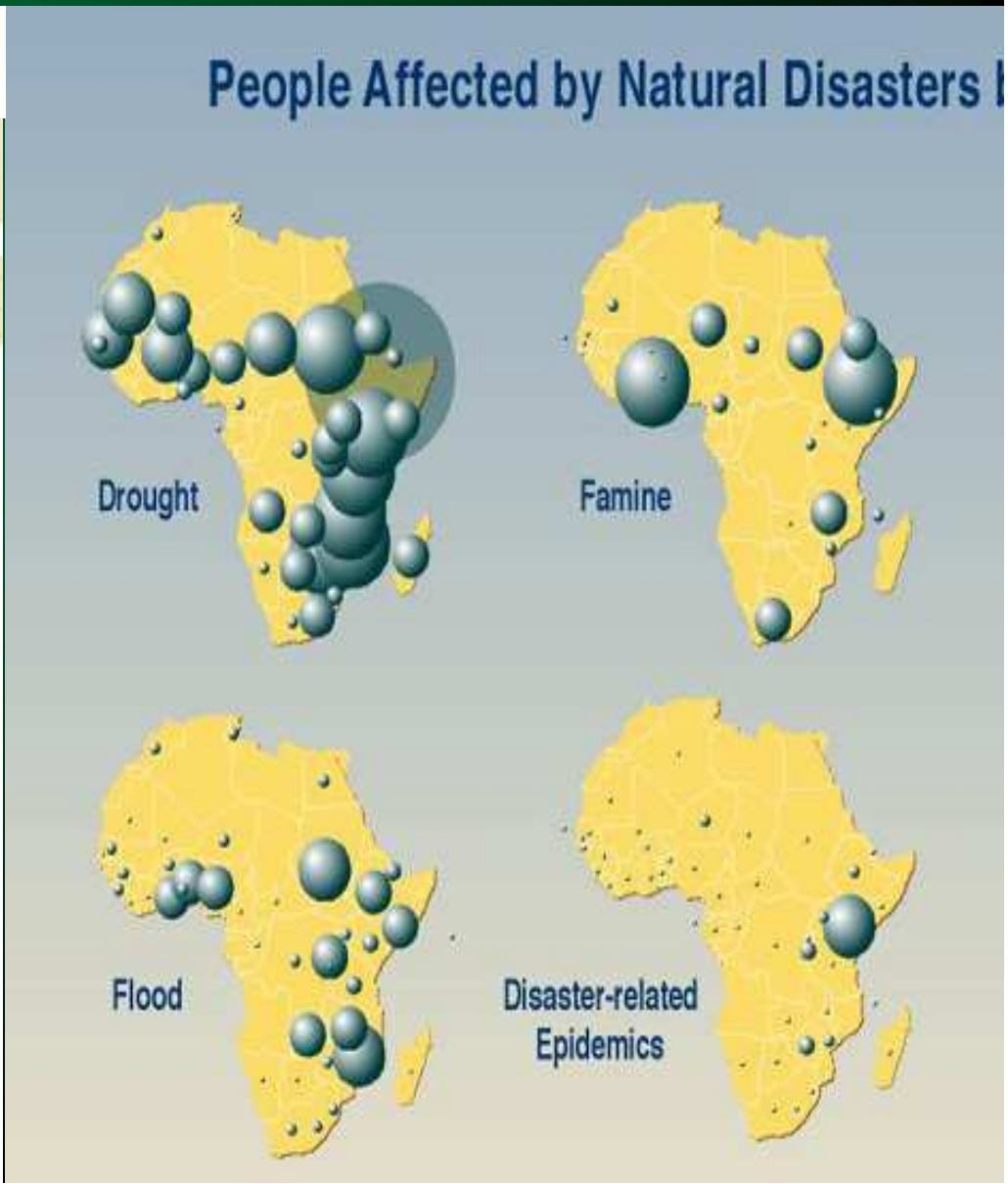


Alexander Carius, Dennis Tänzler, Judith Winterstein:
Weltkarte von Umweltkonflikten – Ansätze zur Typologisierung

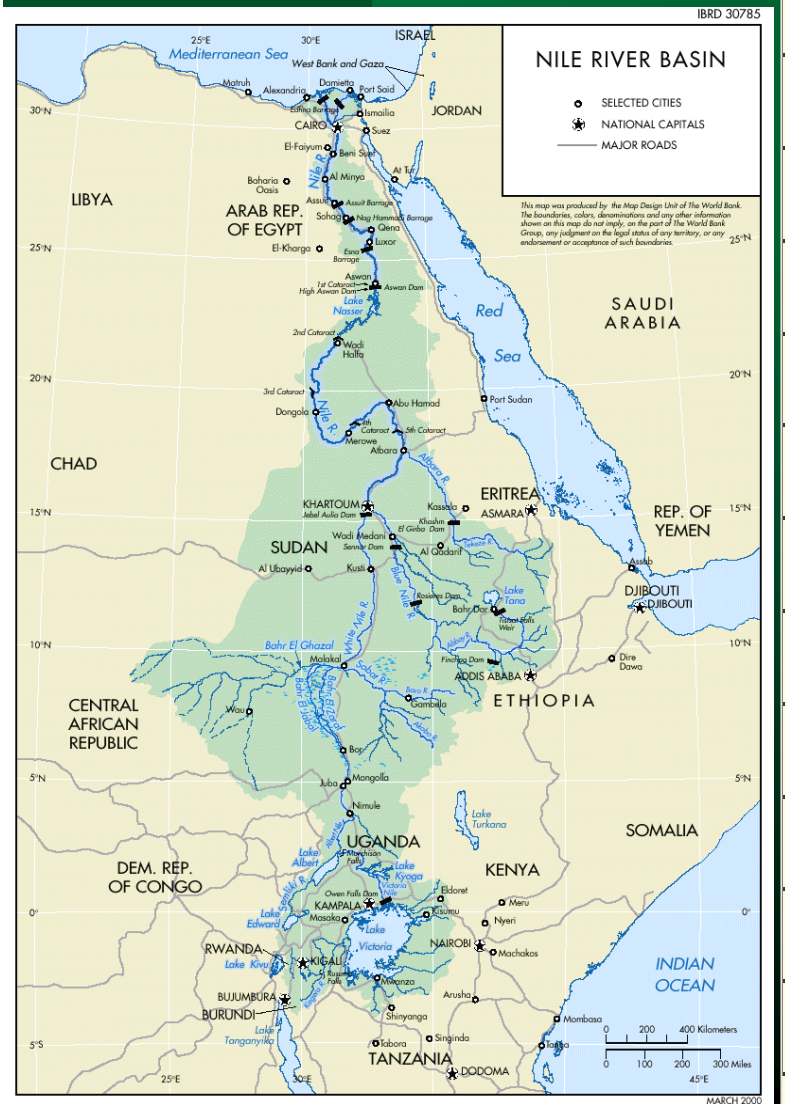
4.20. Drought, Famine and Conflicts in Africa

Alexander Carius, Dennis Tänzler, Judith Winterstein:
Weltkarte von Umweltkonflikten – Ansätze zur Typologisierung





4.21. Population Change in Nile Basin Countries



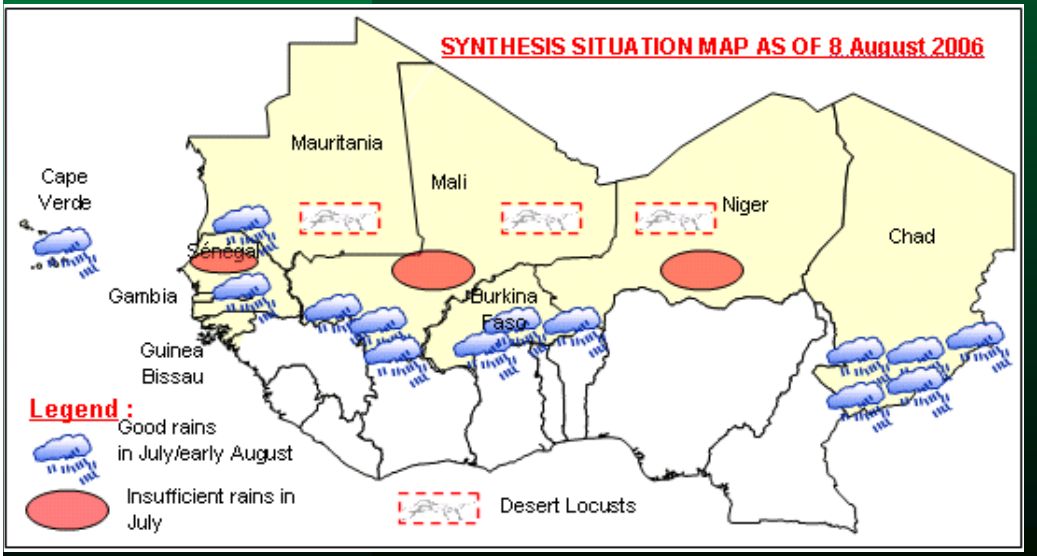
NB countr.	1950	2000	2025	2050	2005-2050
Burundi	2,5	6,4	13,9	22,9	15,1
D.R.Congo	12,2	51,0	108,0	183,2	122,4
Egypt	21,8	67,9	101,1	125,9	51,9
Eritrea	1,1	3,7	7,2	10,2	5,5
Ethiopia	18,4	62,9	118,4	170,2	92,8
Kenya	6,3	30,7	49,4	64,8	31,0
Rwanda	2,1	7,6	12,9	17,4	8,7
Sudan	9,2	31,1	61,3	84,2	44,0
Tanzania	7,9	35,1	52,6	71,4	34,9
Uganda	5,2	23,3	55,8	130,9	104,0
Total	**86,7**	**280,8**	**580,6**	**881,1**	**510,3**

4.22. Population Change in Horn of Africa

Eastern Africa: IGAD, Horn

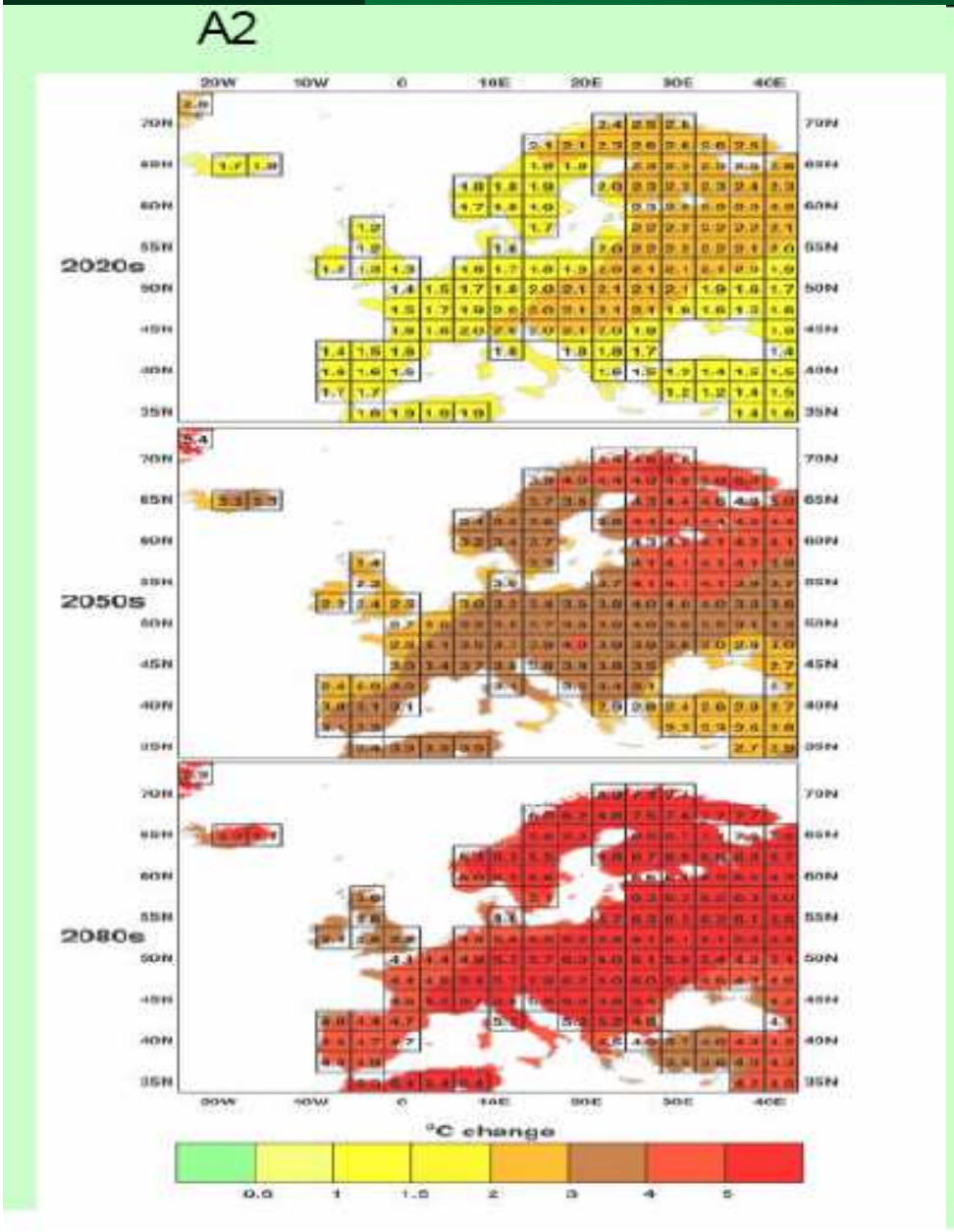
Horn of Africa.	1950	2005	2025	2050	2005-2050
Eritrea	1.1	4.7	7.2	10.2	5.5
Ethiopia	18.4	77.4	118.4	170.2	92.8
Kenya	6.3	33.8	49.4	64.8	31.0
Sudan	9.2	40.2	61.3	84.2	44.0
Uganda	5.2	26.9	55.8	130.9	104.0
Djibouti		0.8	1.1	1.5	0.7
Somalia		8.6	14.9	25.5	16.9
Total	86.7	192.9	308.1	487.3	294.9

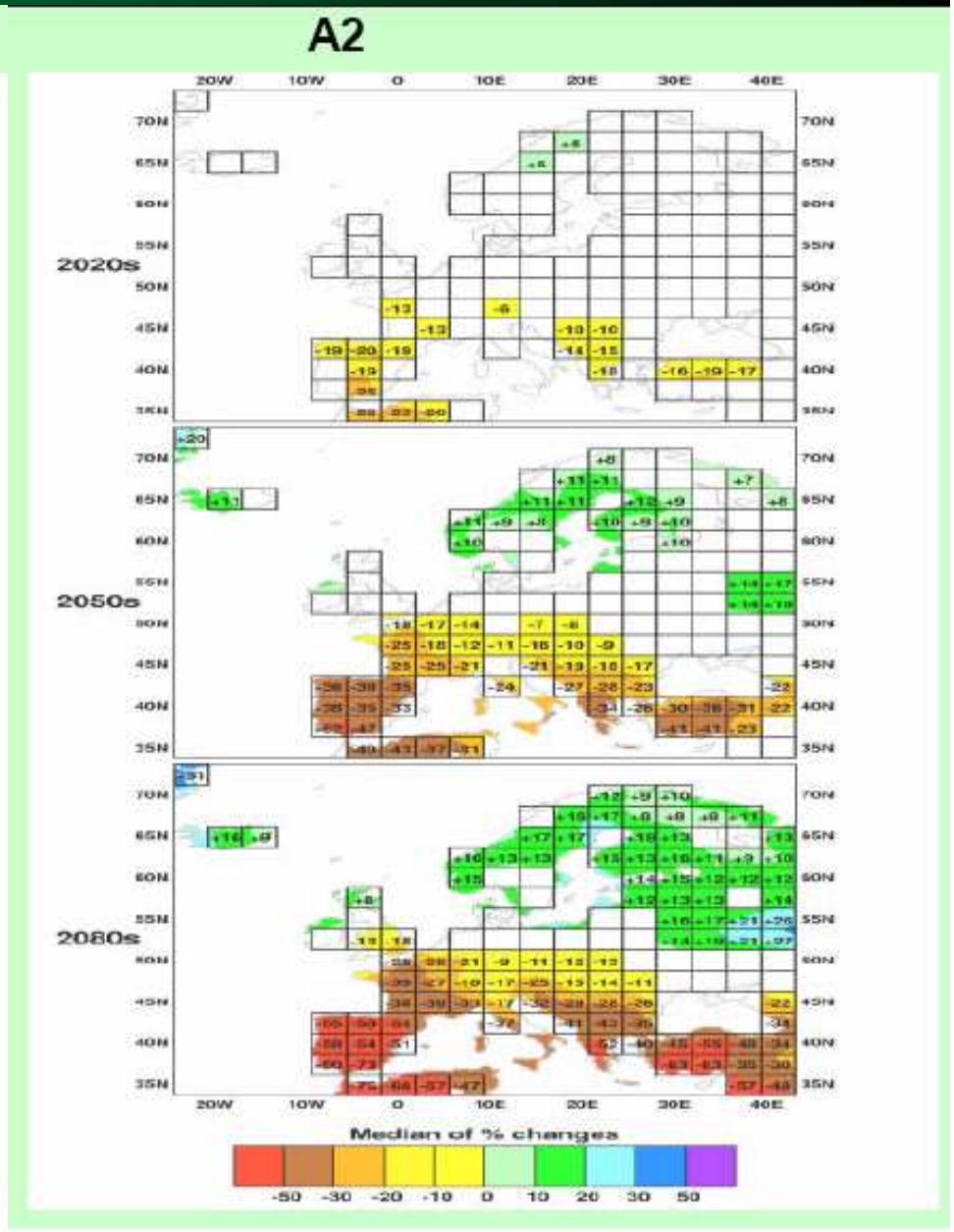
4.23. Population Change in Sahel Countries



Sahel	1950	2005	2025	2050	2005-2050
Mauretania	0,8	3,1	5,0	7,5	4,5
Mali	3,5	13,5	24,0	42,0	28,5
Niger	2,5	14,0	26,4	50,2	36,2
Chad	2,7	9,7	17,0	29,5	19,8
Senegal	2,5	11,7	17,3	23,1	11,4
Guinea	2,5	9,5	15,8	28,7	19,2
Burkina Faso	4,0	13,9	22,5	39,5	25,6
Total	**18,5**	**75.4**	128,0	220.5	145,2
Nigeria	29,8	131,5	190,3	258,1	126,6

4.24.Winter Temperature (2020-80) Winter Precipitation

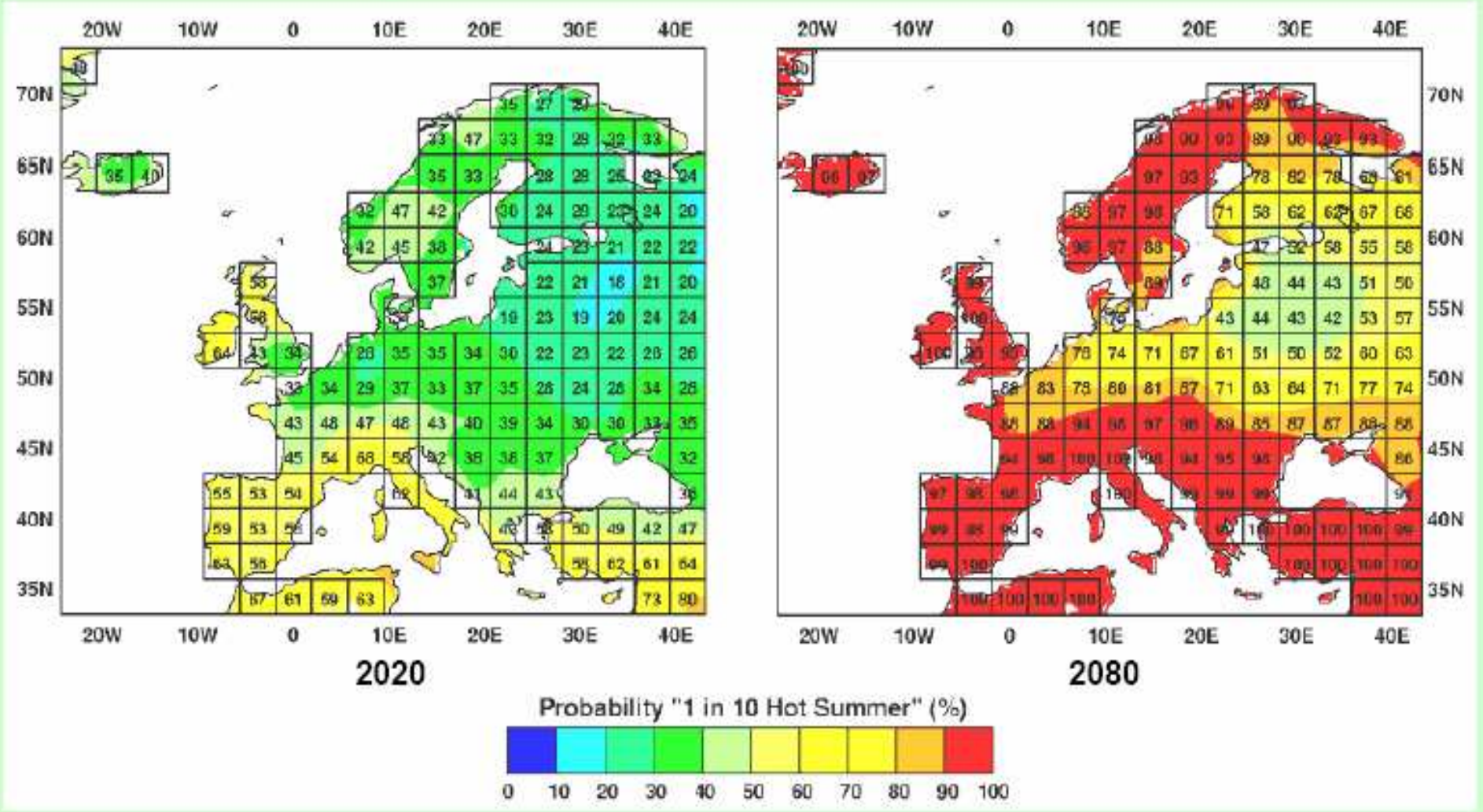




4.25. Probability of Hot Summers

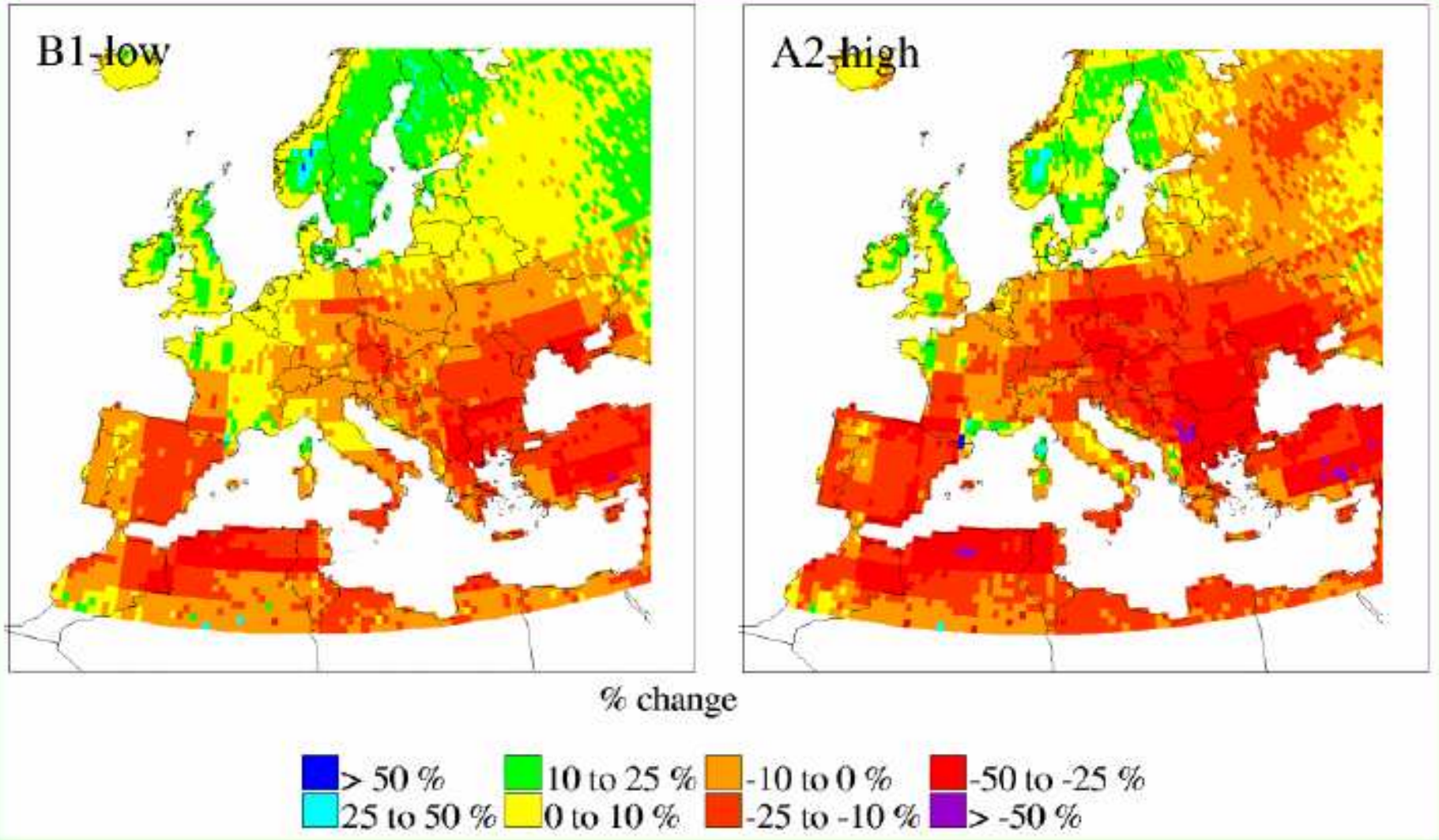
(M. Parry, IPCC, London, 2005)

A2

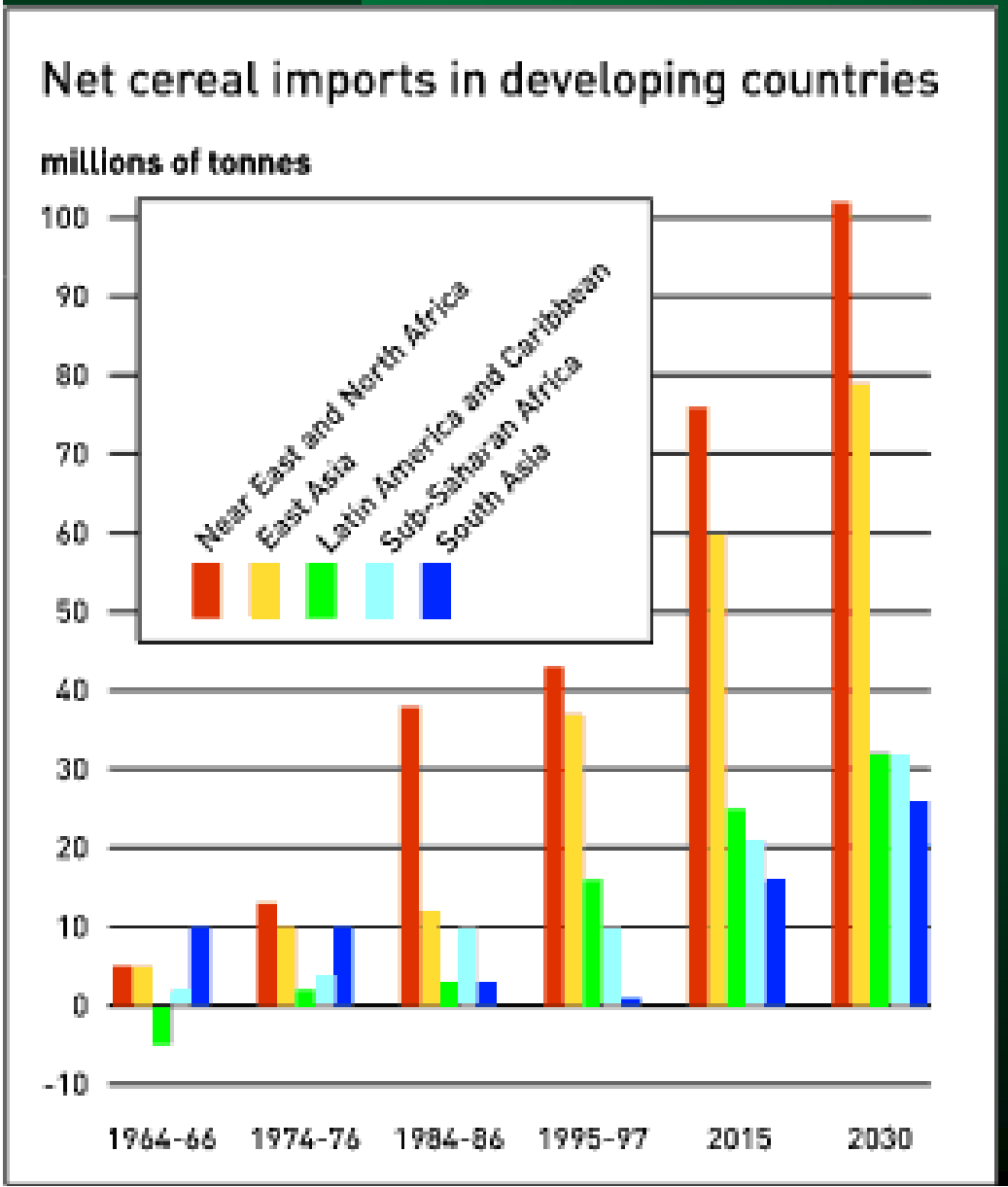


4.26. Water Availability 2050

(M. Parry, IPCC, London, 2005)



4.27. FAO (2000) Increase in Cereal Imports



- **FAO: 4 March 2003, Rome** World's population will be better fed by 2030**, but hundreds of millions of people in develo-ping countries will remain chronically hungry**.
- Number of hungry people will decline from 800 million today to 440 million in 2030.
- **The target of the World Food Summit (1996) to reduce the number of hungry by half by 2015, will not be met by 2030.**

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

←High Potential for Food Crisis (1901-1995)

4.28. Food Crises

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

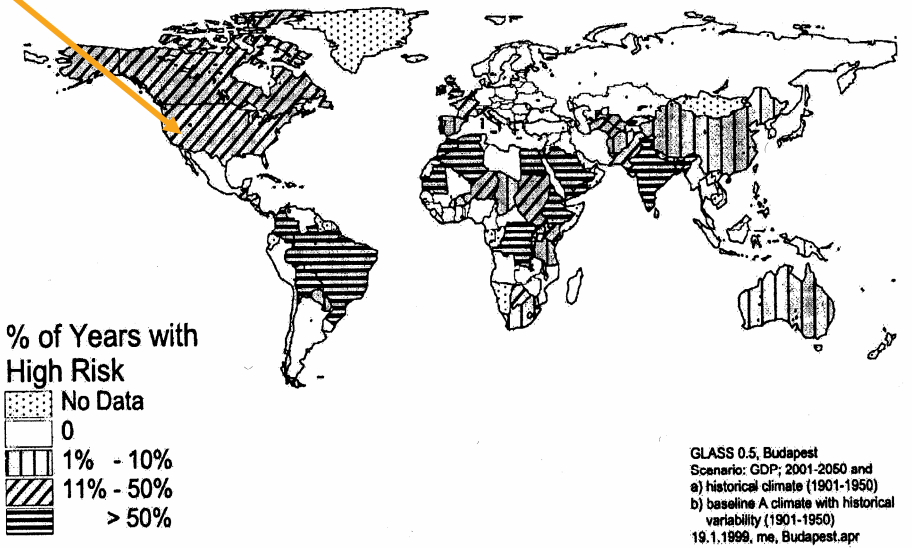
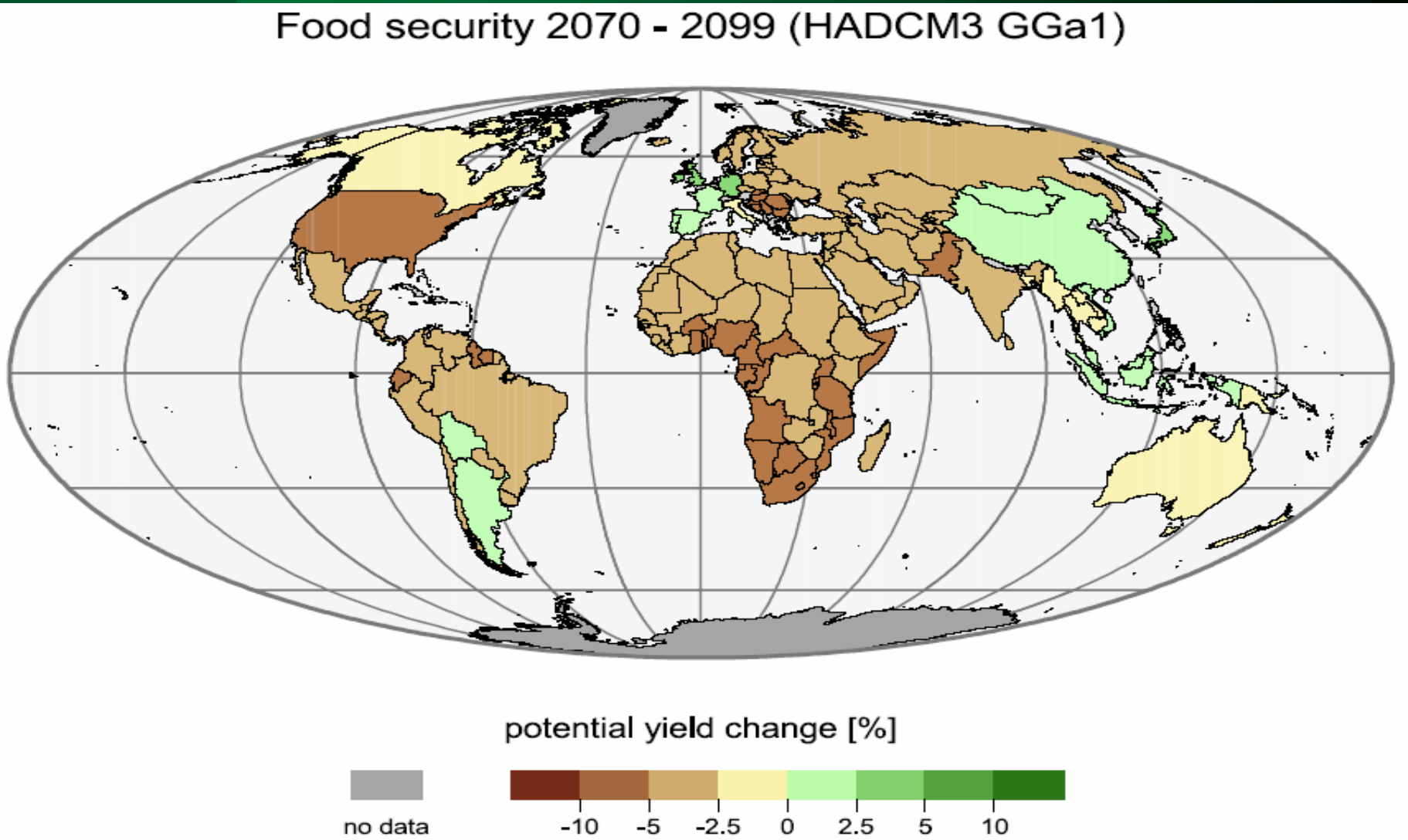


Figure 6. High Potential for Food Crisis 2001-2050 – with GDP Increase and Climate Change.

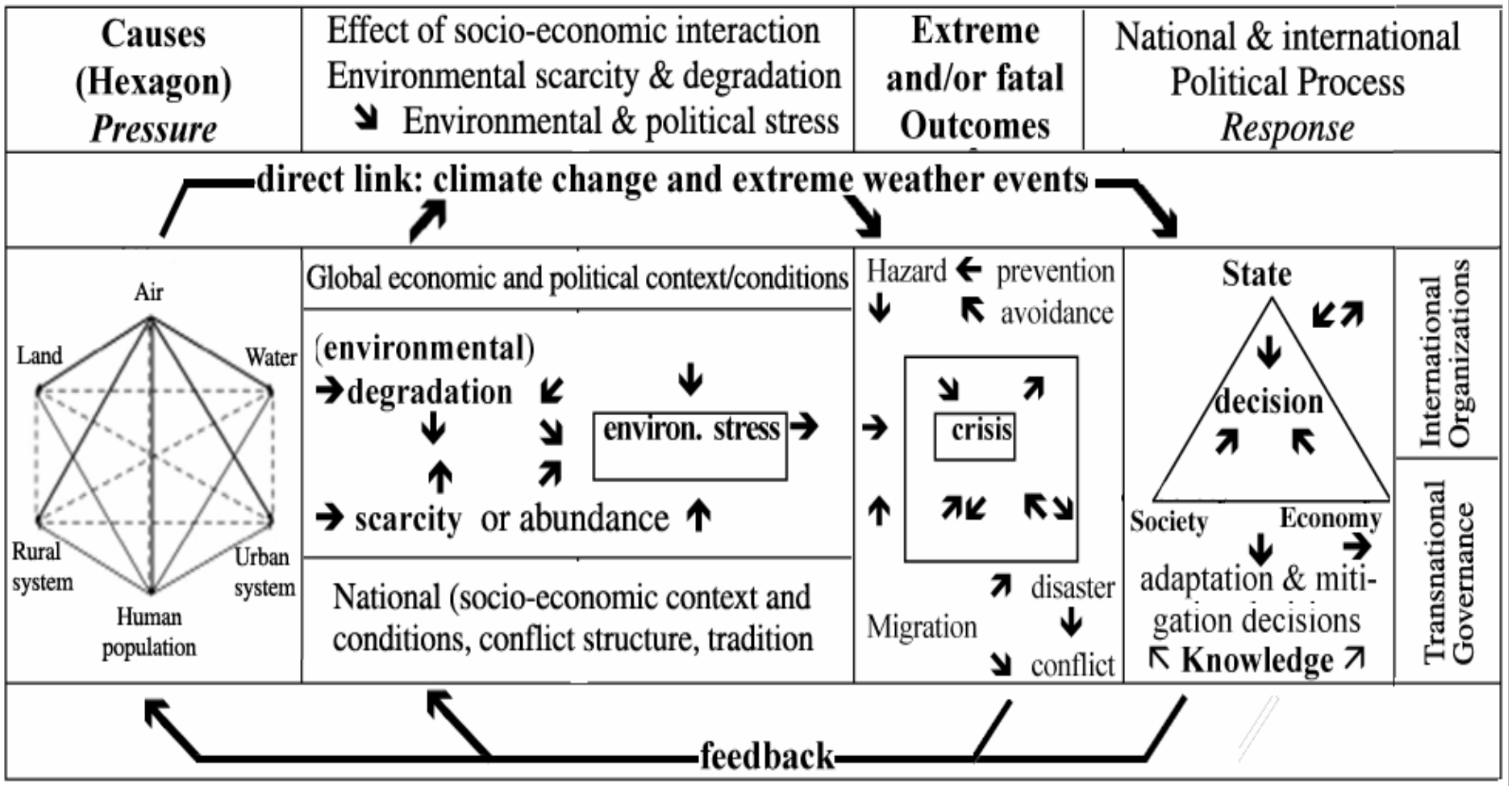
4.29. Food Security by 2080: Changes in Crop Yield



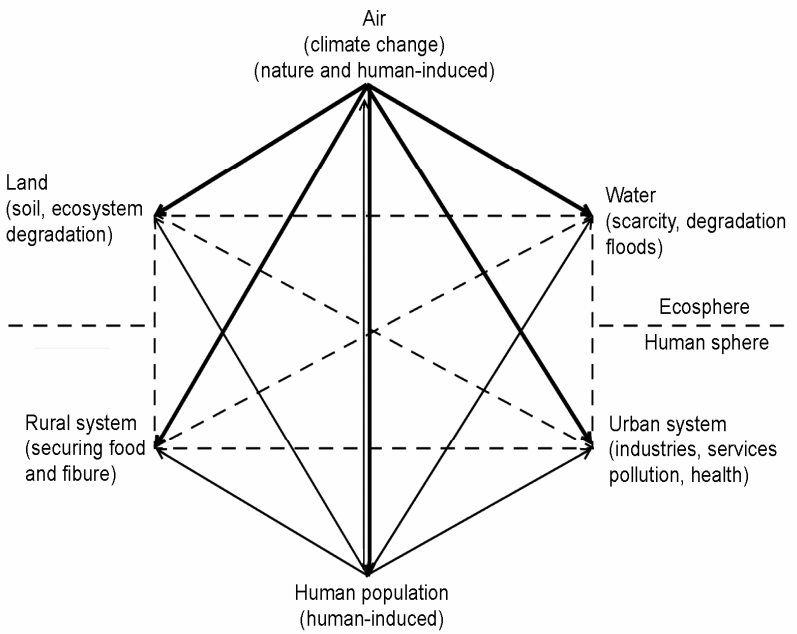
5. PEISOR Model for Analyzing GEC and Climate Change Impacts

- **Focus: environment <–> human interaction**
- **Other Models: Environment – Policy Response**
  - **OECD: PSR-Model (pressure, state of env., policy response)**
  - **UN-CSD** (Committee for Sustainable Development)
  - **EEA** (European Environment Agency)
- **PEISOR model distinguishes 5 stages:**
  - **P: Pressure: Causes of GEC : Survival hexagon**
  - **E: Effect: environm. scarcity, degradation & stress**
  - **I: Impact: Extreme or fatal outcome: hazards**
  - **SO: Societal Outcomes: disaster, migration, crisis, conflict etc.**
  - **R: Response by state, society, business and by using knowledge to enhance coping capacity and resilience**

5.1. PEISOR Model: Global Change, Environmental Stress, Impacts & Extreme Societal Outcomes



5.2. PEISOR: Pressure or Causes of GEC (Survival Hexagon)



Six causes of GEC or pressure factors

Nature & human-induced

Supply side

- **Air:** Global climate change
- **Soil** degrad., desertification
- **Water** scarcity, hydrol. cycle

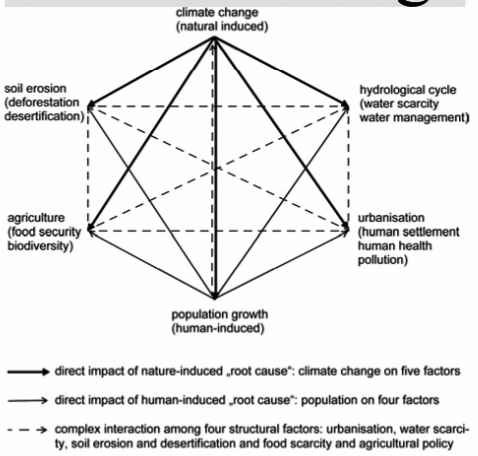
Human-induced factors

Demand Side

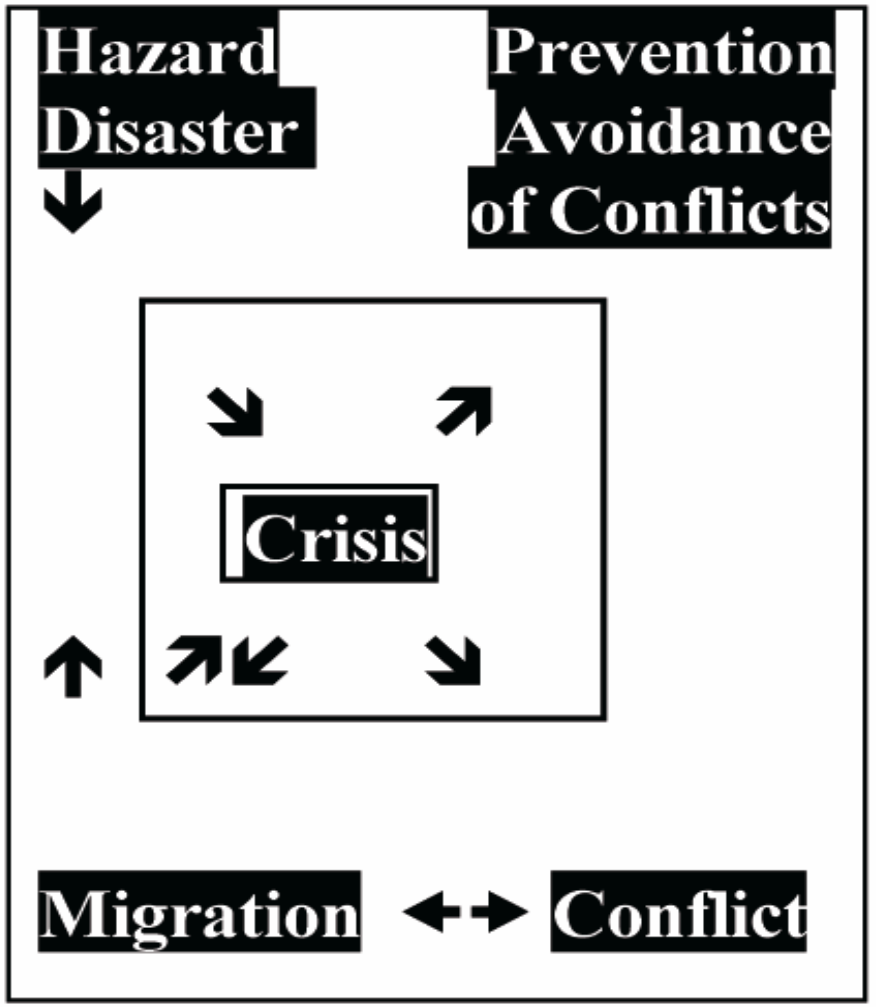
- **Population** growth
- **Urban** systems: Urbani-sation, Pollution, Health
- **Rural** systems: Agriculture: Food & Fibre

Six Contextual Factors

5.3. PEISOR: Effect: Environmental Scarcity, Degradation & Stress & Impacts

Causes (Hexagon)	Effect (Interaction)	Environmen-tal Stress	Probable Outcomes
↗→→→→Extreme Weather Events→→→↘			
Climate change 	environmental → **degradation** (soil, water) ↓↑→ → **scarcity** (water, food, housing)	global cond. ↓ Environ-mental stress ↑ nation. cond.	**disaster** conflict avoidance ↗↗ → **Crisis** ↘↘ **migration** **conflict**

5.4. PEISOR: Impact (Hazard/Disaster) & Social Outcomes (Migration, Crises & Conflicts) & Response



Lack of knowledge on linkages among extreme - fatal outcomes

- Disasters & disaster-induced migration
- Famine & environm.-induced migration
- Conflicts & conflict-induced migration
- Domestic/international crises/conflicts
- Environmentally or war-induced migra-tion as a cause or consequence of cri-ses and conflicts

Dual Scientific & Policy Goal

- Reduce Vulnerab. & Hazard Impact
- Avoid Extreme Societal Outcomes

Policy Response: Proactive Policies

- Stern (06) Price of non-acting is higher than two world wars!
- **Reactive:** postpone burden on next generations, adaptation
- **Proactive:** emissions reduction:
- Shift in consumption, **energy:** from fossil to renewable sources of energy: solar

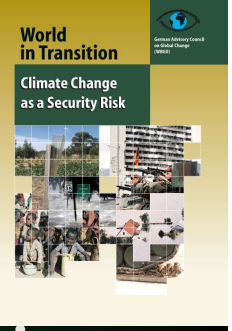
6. Climate Change as a Security Danger and Concern

- **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

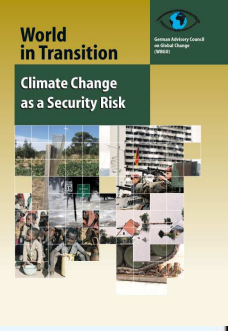
- **Peter Gleick** addressed links between climate & international security since late 1980's;
- **Brauch (2002) study for German Environment Ministry on Climate Change and Conflicts focused on:**
  - causes of climate change and complex interactions with other GEC drivers that contribute to environmental stress that may trigger conflict; outcomes of environmental stress;
  - cases studies on small island states, **Mexico, Bangladesh, Egypt and Mediterranean,** conceptual conclusions for scientific 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 & 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)**

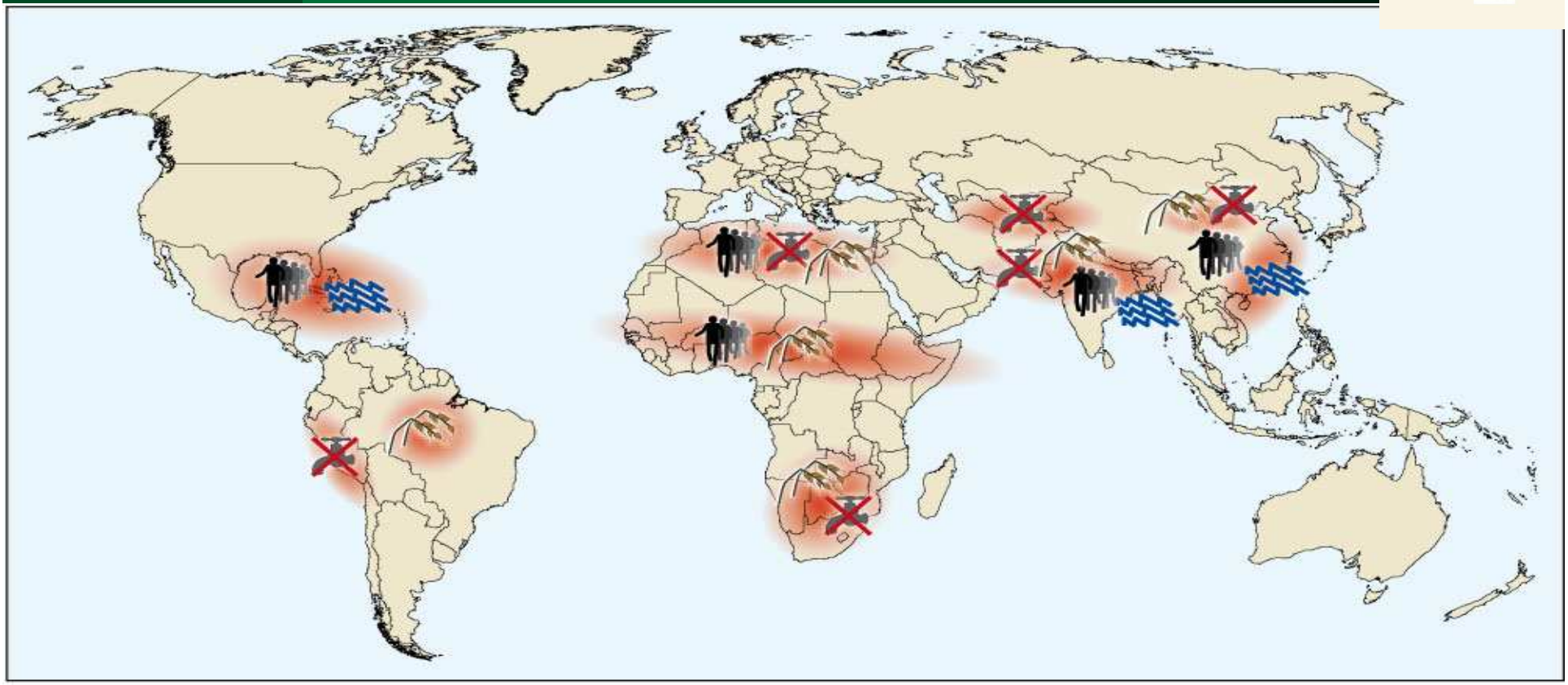
6.2. Climate change as a threat to international security



- 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",

6.3. WBGU Regional Hotspots





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 Approach 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 Environmental Change as a Problem of Human Security**
- **GECHS** - Cicero Conference in June 2005: **Climate Change and 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>

6.6. Climate Change Poses Threats, Challenges, Vulnerabilities & Risks for Human, National, Food & Health Security

- **Globally: past trends & future projections**
  - Temperature increase and change in precipitation
  - Hazard impacts depend also on social vulnerability and resilience
  - Response requires both protection & empowerment of the people
- **Climate Change Impacts on Human Security**
  - Increase in temperature (flash floods & droughts) & sea level rise poses a
  - „survival dilemma“ for affected poor people in the South:

    a) to stay at home and to protect property (women, children, old p.)

    b) to leave their home and to move to mega cities (metro poles)

    c) to fight for the access to water (nomads in Sahel countries)
- **Conceptual Response is HUGE (U. Oswald Spring, Mexico)**
  - Human, Gender and Environmental Security (HUGE)

    a) to cope with survival dilemma of the victims of Global Environmental Change

    b) to develop survival strategies by enhancing resilience

7. Need for Anticipatory Learning and Proactive Policies

- **Different nature of security threats: terrorism vs. climate 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)
- 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.

7.1. From Research to Action:
Enhancing Environmental & Human Security
Towards Environmental Conflict Avoidance

- **Primary Goal: address extreme 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.

7.2 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. … 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.
- 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.
- Al Gore has for a long time been one of the world's leading environmentalist politicians. … His strong commitment, reflected in political activity, lectures, films & books, has strengthened the struggle against climate change. He is … the single individual who has done most to create greater worldwide understanding of the measures to be adopted.
- 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.

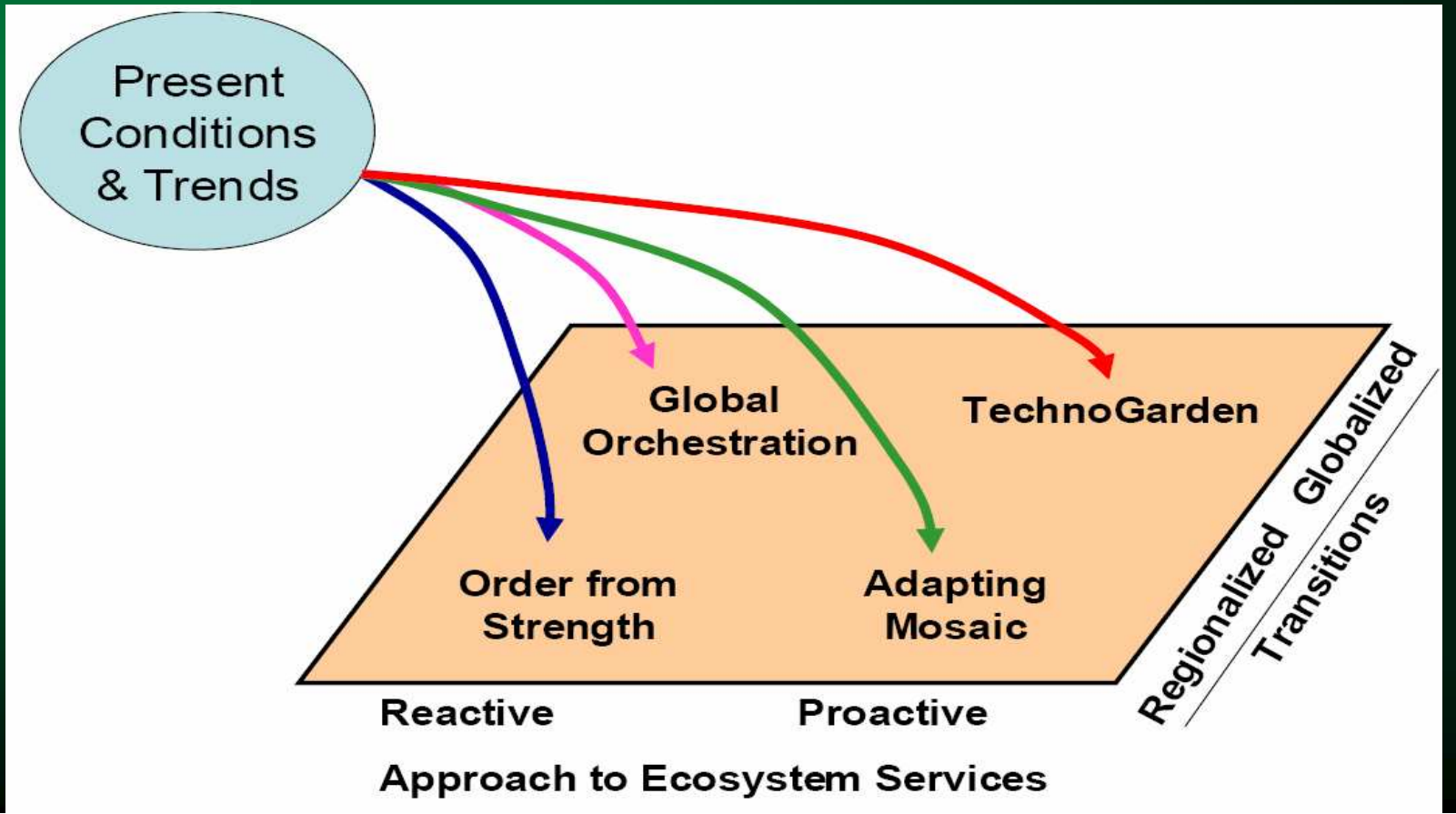
7.3. Coping with Causes and Exploring Opportunities

- **Coping with causes and impacts**
  - a) reduce emissions,
  - b) energy sufficiency, and c) shift from fossil to renewable energy
  - **Adaptation:** for vulnerable coastal cities, health, agriculture, tourism
  - **Mitigation:** unique opportunity for future Mediterranean cooperartion:
    - Declining Fossil Reserves: Tunisia, Egypt, Algéria, Lybia «après le pétrole»
    - Climate Change mitigation strategy offers unique opportunity for a long-term climate & renewable energy partnership accross the Mediterranean Coping with the Impact:
  - **Disaster preparedness & response**: A new task for Mediterranean cooperation
- **With growing energy demand & price for renewables will become competitive: wind, solar thermal & PV**
- **Biofuels in conflict with food production: Tortilla crisis**
- **Huge Renewable Energy Potential in Sahara**

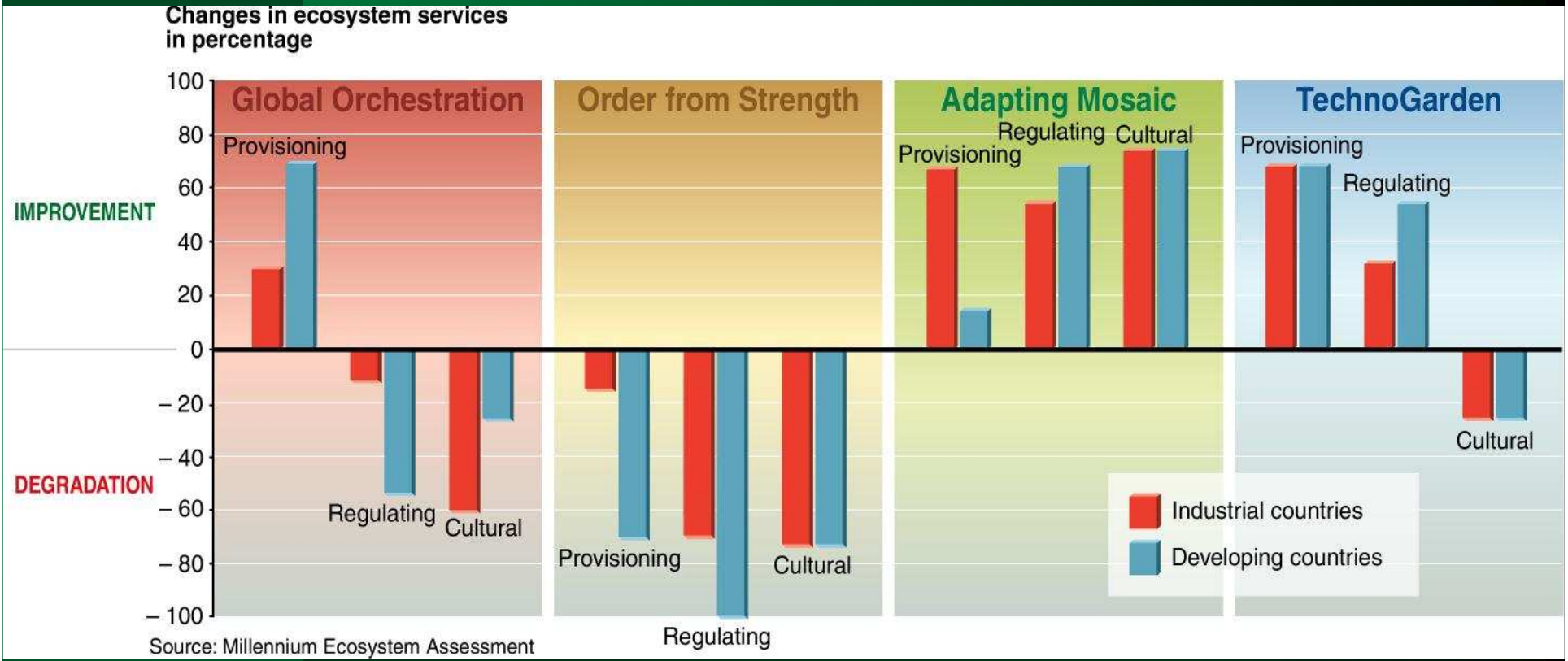
for electricity, water desalination, hydrogen for transportation

7.4. Towards Proactive Policy Responses: MEA Scenarios

- **No predictions – scenarios are plausible futures**
- Both quantitative models and qualitative analysis used in scenario development



7.5. Improvements in services possible by 2050

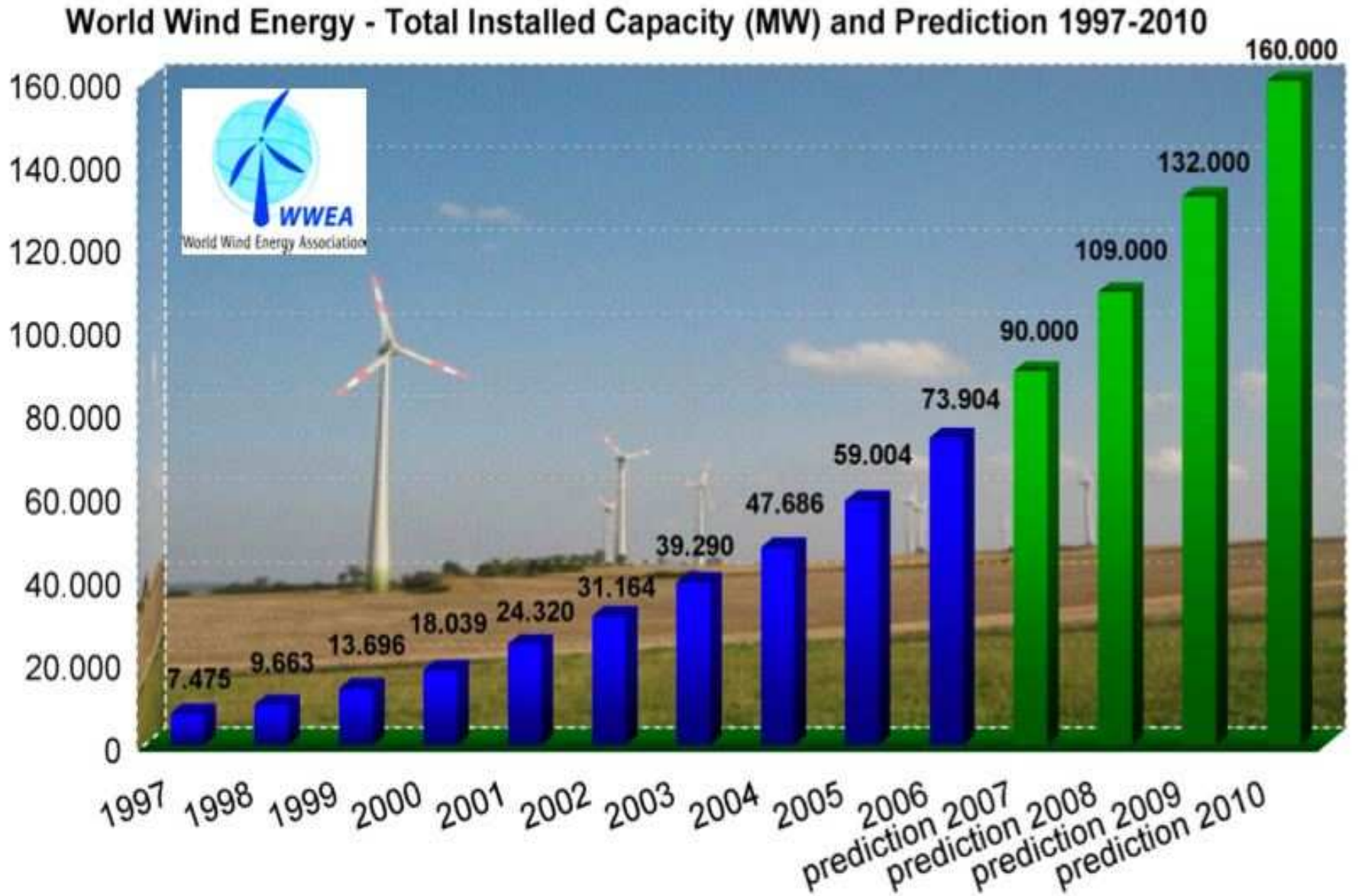


- Global Orchestration (Reactive and Global)
- Adapting Mosaic (Proactive and Regional): Best Performance
- TechnoGarden (Proactive and Global): Second Best Performance

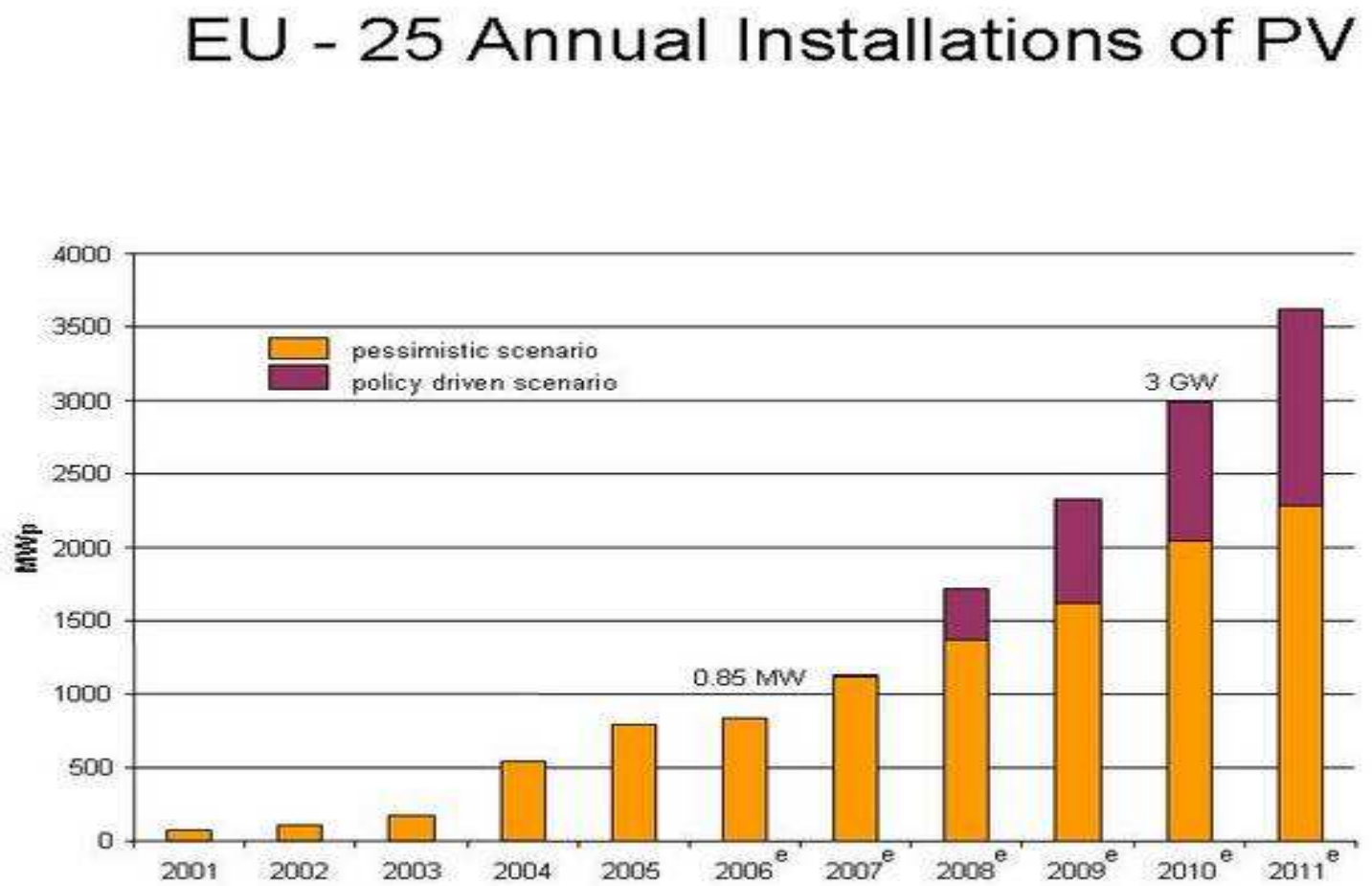
7.6. Responses: Indirect Drivers

- **Ecosystem degradation can rarely be reversed without actions that address one or more indirect drivers of change:**
  - **population change** (including growth and migration)
  - **change in economic activity** (including economic growth, disparities in wealth, and trade patterns)
  - **sociopolitical factors** (including factors ranging from the presence of conflict to public participation in decision-making)
  - **cultural factors**
  - **technological change: knowledge & technology**
    - **Promotion of technologies to increase energy efficiency and reduce greenhouse gas emissions**
- **Collectively these factors influence the level of production and consumption of ecosystem services and the sustainability of the production.**

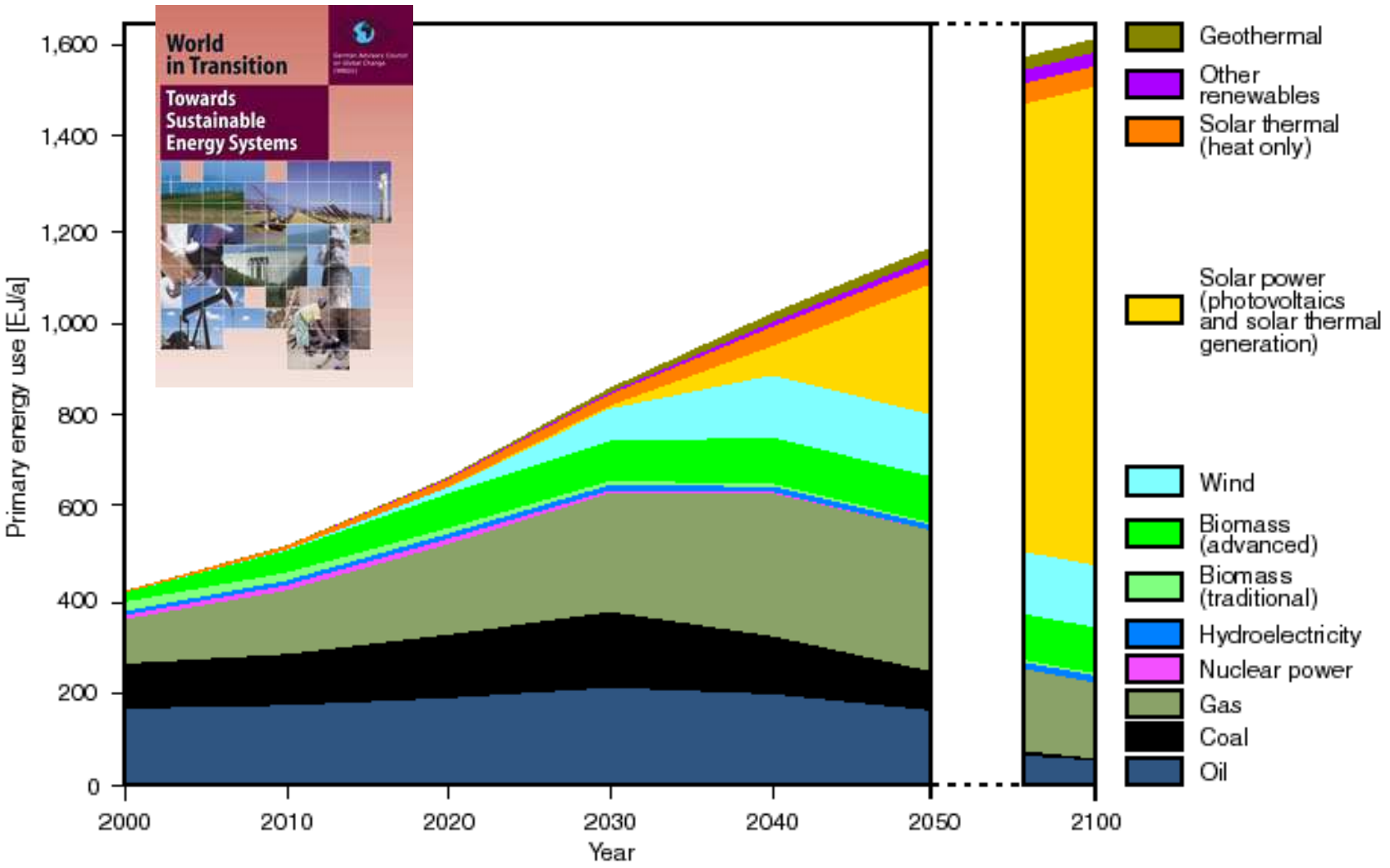
7.7. Growth in Wind Power (1997-2006)



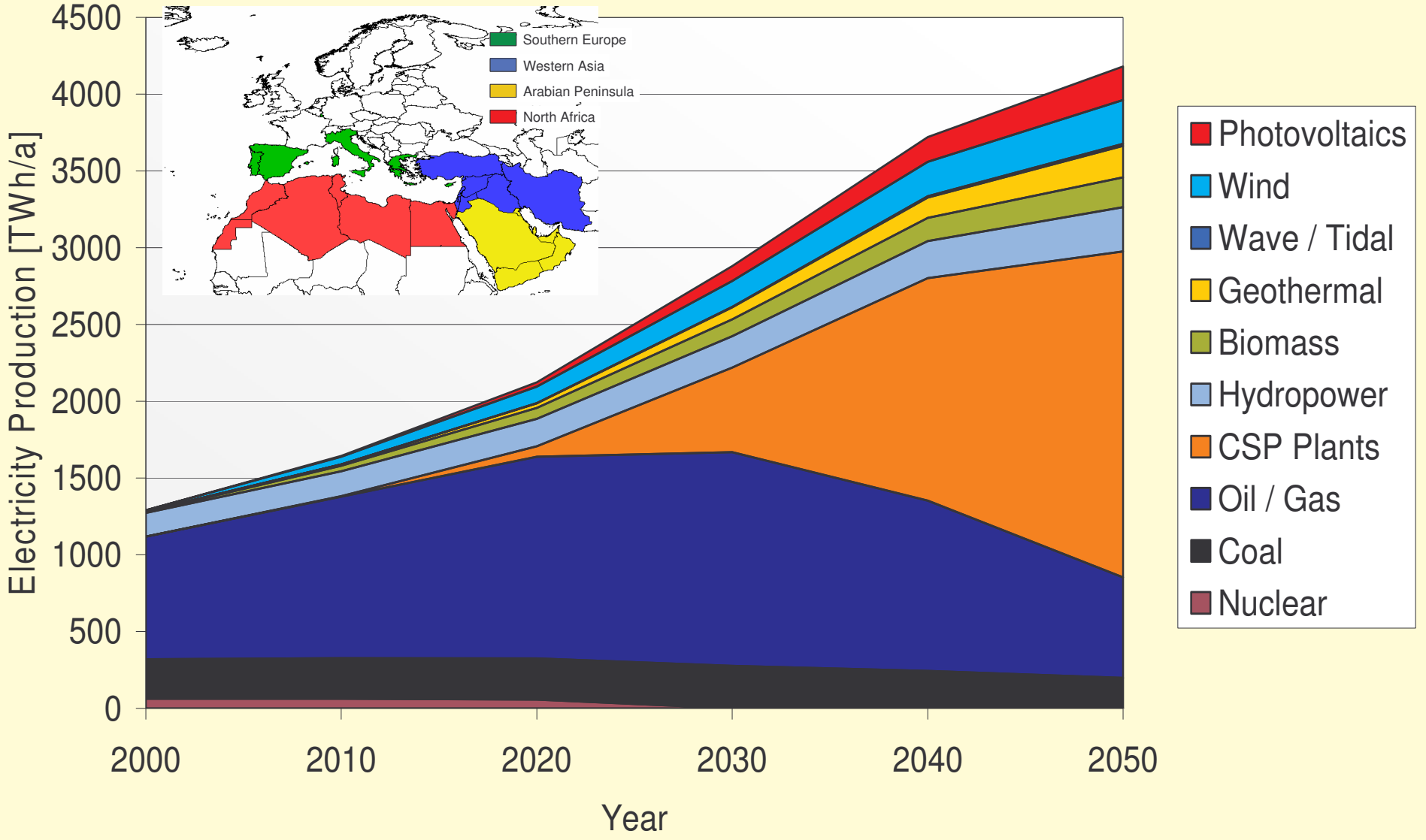
7.8. Photovoltaic Installations in EU-25



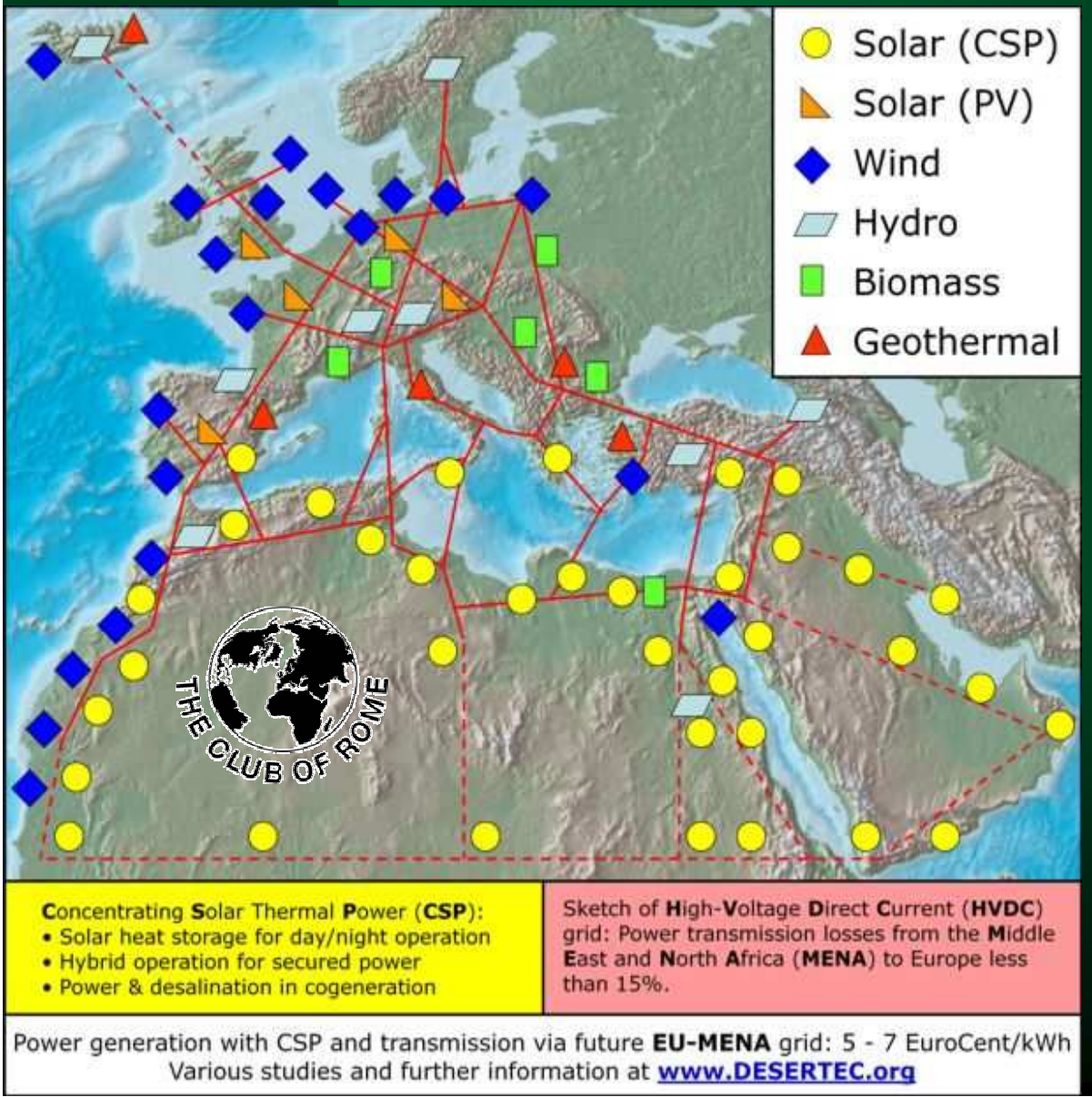
7.9. WBGU Exemplary Path: Global Energy Mix



7.10. Annual electricity demand & generation in the countries analyzed in the MED-CSP scenario



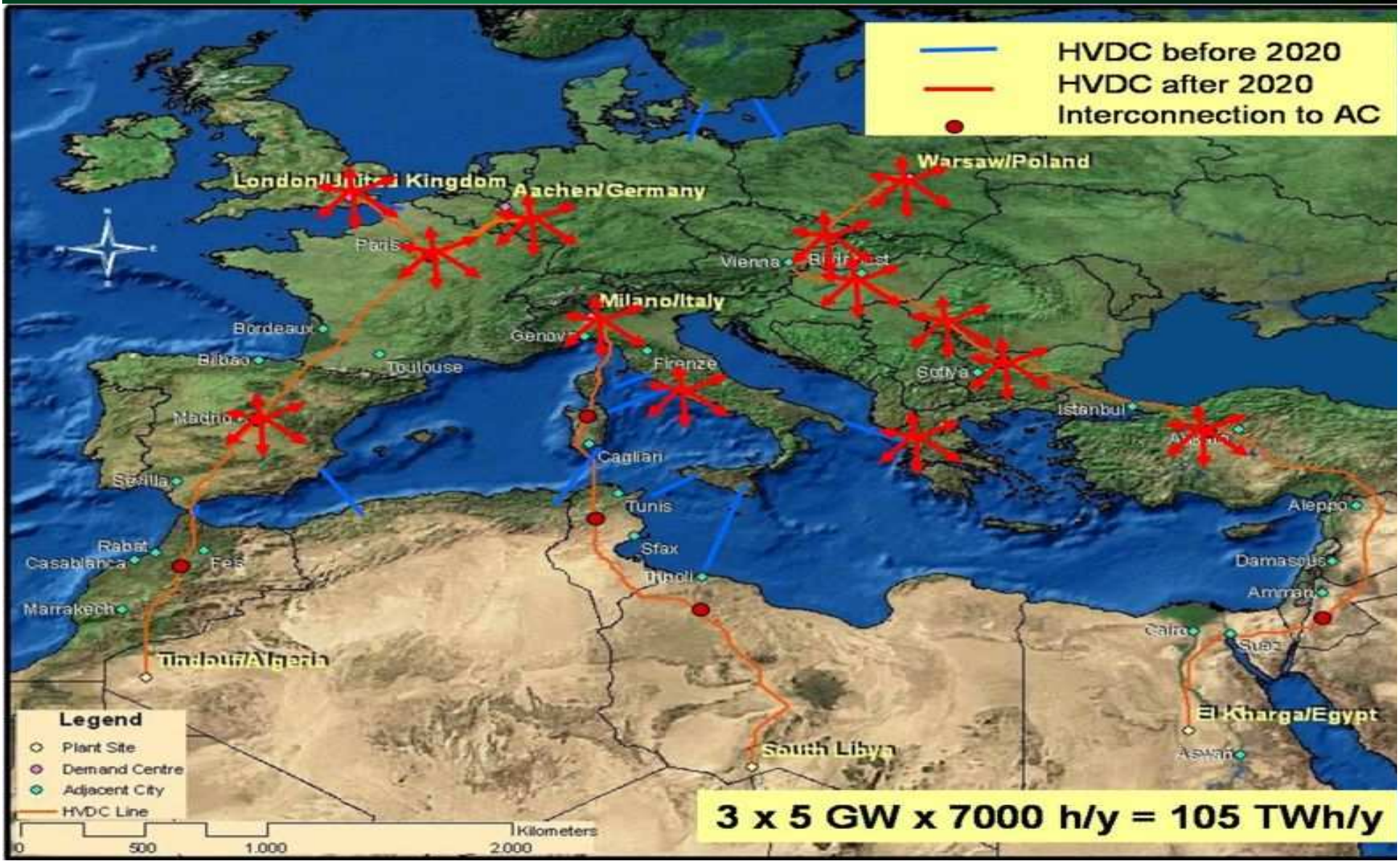
7.11. Mediterranean Renewable Energy Potential



Trans-Mediterranean **R**enewable **E**nergy **C**ooperation (**TREC**) is an initiative that campaigns for the transmission of clean power from deserts to Europe.

Since 2003 TREC has developed the **DESERTEC Concept**.

7.12. EU-MENA: existing & planned High Voltage Direct Current (HVDC) transmission lines by 2020



7.13. Solar Thermal Technologies for Electricity Generation in the Deserts

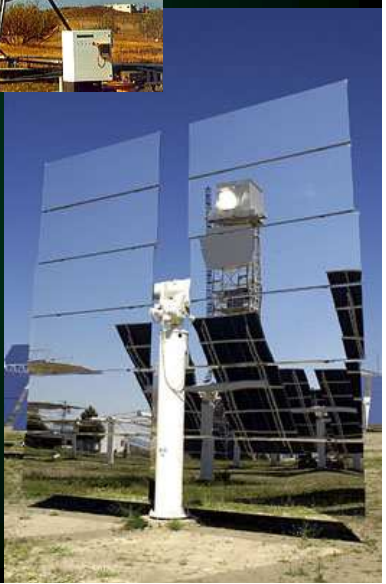
Concentrating Solar Power Technologies:

- alternatives: a) Fresnel concentrators, b) parabolic trough (400-600 ℃), c) solar tower concept with surrounding heliostat field (1200 ℃, up to 50 MW), d) solar dish (for small applications up to 50 kW).



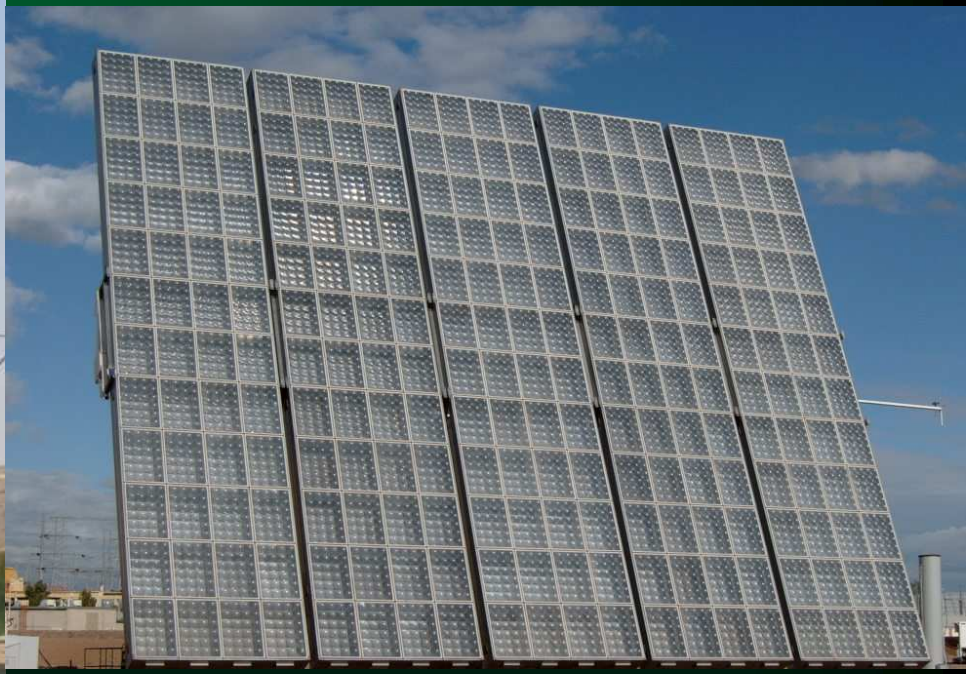




7.14. Photovoltaic Concentrator Technologies in Israel and USA

A large pre-commercial CPV system under test in Phoenix, AZ, USA, consists of 5760 plastic fresnel lenses, which each focus sunlight onto one of a similar number of individual 1 cm x 1 cm silicon CPV cells.

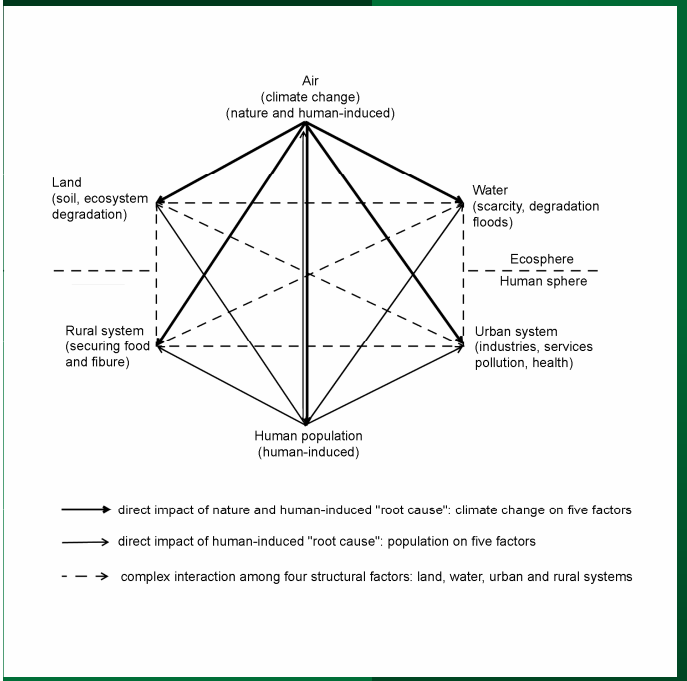


CPV cell module exposed at 1000X at the 400 m2 *PETAL* solar dish test facility in Sede Boqer, Israel.

8. Hexagon Book Series on Human and Environmental Security and Peace: Scientific Response to GEC and CC

- This project and book series differs from traditional approaches in international relations of primarily monodisciplinary, often OECD-centred books 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 of the authors 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 environmental 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**

8.1. The Hexagon Book Series



- **This book series includes 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 preconditions 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.

6 causes of GEC or pressures

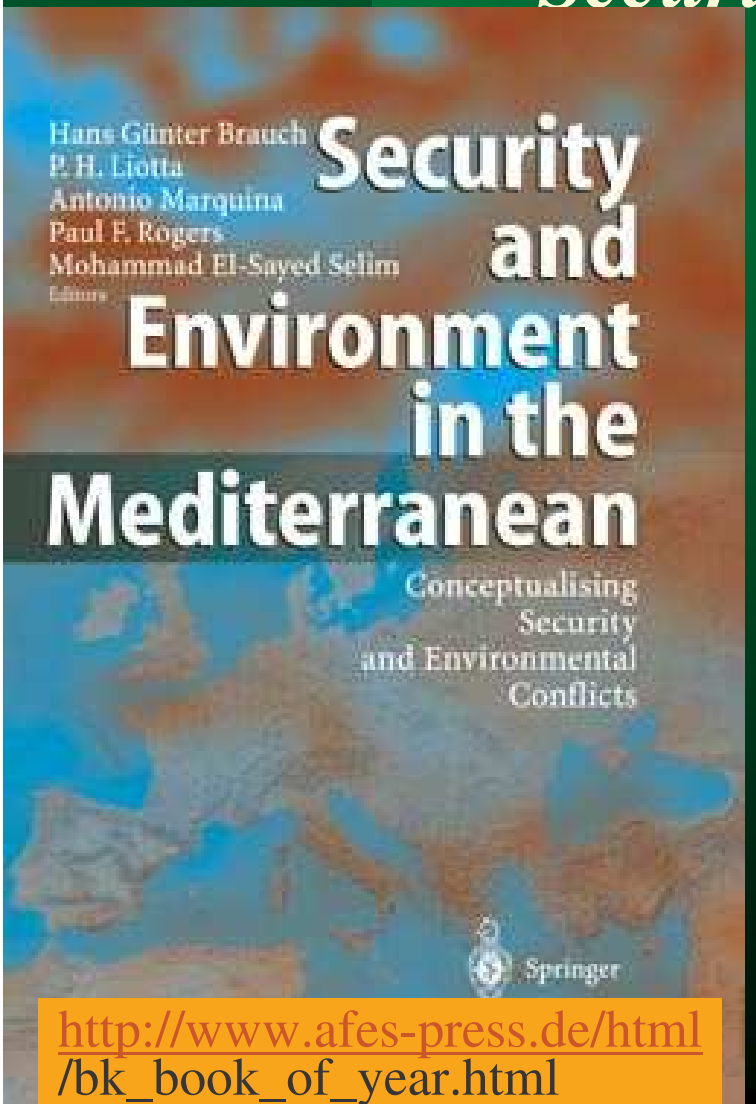
human-induced supply side

- **Air: Global climate change**
- **Soil degrad., desertification**
- **Water scarcity, hydrol. cycle**

Human-induced demand side

- **Population growth**
- **Urbanization, Pollution, Health**
- **Rural systems: Agriculture & Food**

8.2. *Security and Environment in the Mediterranean – Conceptualising Security and Environmental Conflicts*



http://www.afes-press.de/html/bk_book_of_year.html

Hans Günter Brauch, P. H. Liotta, An-to-nio Marquina, Paul Rogers, Mohammad El-Sayed Selim (Eds.): ***Security and Environment in the Mediterranean – Conceptualising Security and Environmental Conflicts***. (Berlin – Heidelberg – New York: Springer, 2003).

Security specialists, peace researchers, environmental scholars, demographers, climate, desertification, water, food and urbanisation specialists from the Middle East and North Africa, Europe and North America review security and conflict prevention in the Mediterranean, analyse NATO's Mediterranean security dialogue, offer conceptualisations of security and perceptions of security challenges as seen in North and South. The latter half analyses environmental security and conflicts in the Mediterranean and environmental consequences of World War II, the Gulf War, the Balkans wars and the Middle East conflict and examines factors of global environmental change: population growth, climate change, desertification, water scarcity, food and urbanisation issues as well as natural disasters. It draws conceptual conclusions for a fourth phase of research on human and environmental security and peace as well as policy conclusions for cooperation and partnership in the Mediterranean in the 21st century.

8.3. *Water Resources in the Middle East: Israel-Palestinian Water Issues – from Conflict to Cooperation*

http://www.afes-press-books.de/html/hexagon_02.htm

Hillel Shuval, Israel; Hassan Dweik, Palestine (Eds.): *Water Resources in the Middle East: Israel-Palestinian Water Issues – from Conflict to Cooperation.* (Berlin – Heidelberg – New York – Hong Kong – London – Milan – Paris – Tokyo: Springer-Verlag, 2007).

In Israeli-Palestinian Water Issues - From Conflict to Cooperation leading Palestinian, Israeli and international water experts document the importance of mutual understanding, respect and amity among peoples during a difficult period of stress. This book demonstrates hope, optimism and belief that people with good will can help contribute to peace and mutual cooperation in solving shared water problems essential for their mutual survival and welfare. The present water crisis facing the Middle East will become even more severe over the next twenty years, unless dealt with energetically and in good time. This situation requires urgent action by the countries of the region, the international community and civil society generally. This book provides valuable source material for water scientists, engineers, political scientists, specialists in conflict resolution, environmentalists, economists, lawyers, administrators, managers and policy makers interested in understanding, developing, managing and protecting the scarce shared water resources of the Middle East and for the promotion of "Water for Life" for the benefit of all the nations of the region.

9. Global Security Handbook for the Anthropocene

- In March 2004 Peace Research and European Security Studies (AFES-PRESS) launched a global scientific project 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:
  - Published in 2008 (vol. III, IV): 75 + 100 chapters
  - 2009 (vol. V): ca. 100 chapters
- A total of about 275 book chapters

9.1. The Hexagon Book Series & the Security Handbook

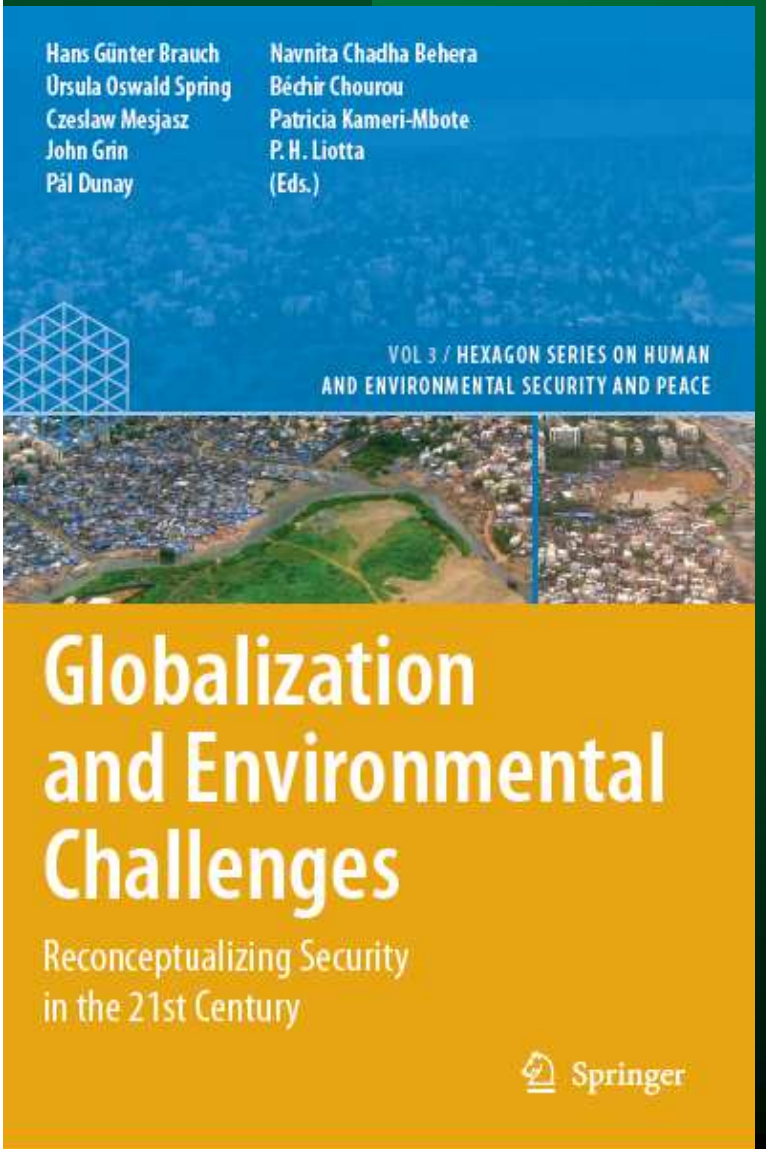
- Editorial team of volumes III, IV and V: 11 colleagues from 10 countries, three are women from India, Kenya and Mexico and in volume IV half come from the South.
- Book series differs from traditional approaches in international relations of primarily authored by colleagues form OECD.
  - Vol. III: 92 authors from 36 countries
  - Vol. IV: 132 authors from 49 countries
- 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 environmental change in this new age of the 'Anthropocene'.

9.2. Team of 11 Co-editorsfrom 10 countries

- **Hans Günter Brauch,** PD (Adj. Prof.) at the Free University of Berlin, chairman of AFES-PRESS, fellow at UNU-EHS in Bonn and editor of this series
- **Úrsula Oswald Spring,** Professor at National University, Mexi-co; UNU-EHS chair on social vulnerability; writes on sustainability, deveopment, gender, disaster, poverty.
- **Czeslaw Mesjasz** , Assoc. Professor, Vice Dean, Cracow University of Economics; publishes on systems, game theory, conflict resolution, negotiation, economics, security.
- **John Grin** , Professor, Director of Amsterdam School for Social science Research; publi-shes on societal transformations in water management, agriculture, health care.
- **Pál Dunay** is faculty member, Geneva Centre for Security Policy, was senior researcher at SIPRI (2004-2007),director of the Hunga-rian Institute of International Affairs in 2007.
- **Navnita Chadha Behera** (New Delhi), Professor at the Nelson Mandela Centre for Peace & Conflict Resolution, Jamia Millia Islamia; publishes: Kashmir, South Asian security
- **Béchir Chourou** teaches International Relations at the University of Tunis-Carthage in Tunisia,publishes on Euro-Mediterranean relations, food policy, human security.
- **Patricia Kameri-Mbote**, Associate Professor, School of Law, University of Nairobi, Chair, Dep. of Private Law, Programme Director, Intern.Environmental Law Research Centre,
- **P. H. Liotta** is Professor of Humanities and Executive Director of the Pell Center for Inter-national Relations and Public Policy, Salve Regina University, Newport, Rhode Island
- **Heinz Krummenacher is** managing Director of Swisspeace, heads its early warning program and is member of the UN staff college's Early Warning Preventive Measures training unit.
- **Joern Birkmann,** Academic officer of UNU-EHS, heads the section on vulnerability assess-ment, coordinates Working Group on “Measuring Vulnerability”.


9.3. Editors of first two volumes at work
in Scheweningen, 11 September 2004

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



H.G. Brauch, J. Grin, Ç. Mesjasz, P. Dunay, N. Chadha Behera, B. Chourou, Ú. Oswald Spring, P.H. Liotta, P. Kameri-Mbote (Eds.): *Globalization and Environmen-tal 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, philoso-phical, ethical and religious and spatial context of secu-rity; discuss the relation-ship between security, peace, development and environment; review the reconceptua lization of security in philosophy, international law, eco-nomics 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 reconceptualiza-tion of regional security and alternative security futures and draw conclusions for future research and action.

9.5. Excerpts from the Forewords

Stavros Dimas
Commissioner for the Environment of the European Union since 2004

Globalisation and Environmental Challenges: Reconceptualising Security in the 21 st Century – sums up many of the dilemmas and challenges facing policy-makers today."
"Since the end of the Cold War, the security debate has changed fundamentally.

A study which addresses the new challenges and suggests responses will therefore be a welcome addition to the policy-maker's toolkit. For this reason, I warmly welcome this volume."

Prof. Dr. Hans van Ginkel
Former Rector, UNU
United Nations University
Former UN Under-Secretary-General
(1997-2007)

- "The 'hexagon' is also the logo of the UNU system that combines under the goal of human security five research areas on peace, governance, development, science, technology and society as well as the environment.
- This unique compilation of global scholarship deserves many readers and should be available in all major university and research libraries in all parts of the world and for all scholars also on the Internet.

9.6. Preface Essays nd Introdcution

Prefaces Essays:

- *Jonathan Dean* (USA): Rethinking Security in the New Century –Return to the Grotean Pattern
- *Úrsula Oswald Spring* (Mexico): Peace, Development, Ecology and Security IPRA 40 Years alter Groningen
- *Vandana Shiva* (India) Globalization from Below: Ecofeminist Alternatives to Corporate Globalization
- *Narcís Serra* (Spain): Towards a Human Security Perspective for the Mediterranean

9.7. Structure of the Book

1. Introduction
2. Conceptual quartet
3. Philosophical, ethical and religious contexts for conceptualization of security
4. Spatial context: actors and referent objects
5. Reconceptualization of security disciplines
6. Reconceptualization of security dimensions
7. Reconceptualiziation of security in institutions
8. Reconceputalization of regional security
9. Reconceputalization Security and Alternative Security Futures
10. Summary and Conclusions

9.8. Summary and Conclusions

75 Ú. Oswald Spring – H.G. Brauch: Reconceptualizing Security in the 21st Century: Conclusions for Research & Policy-making

Summarizes the global controversial discussion on the causes of the global contextual change and on their impact on different reconceptualizations of security in thedeveloped and developing countries in North and South.

- **First Change: Towards a Post Cold War International Order**
- **Second Change: Widening of Globalization since 1990**
- **Third Change: Task is real: Coping with Global Environmental Change**

Reconceptualization Matters

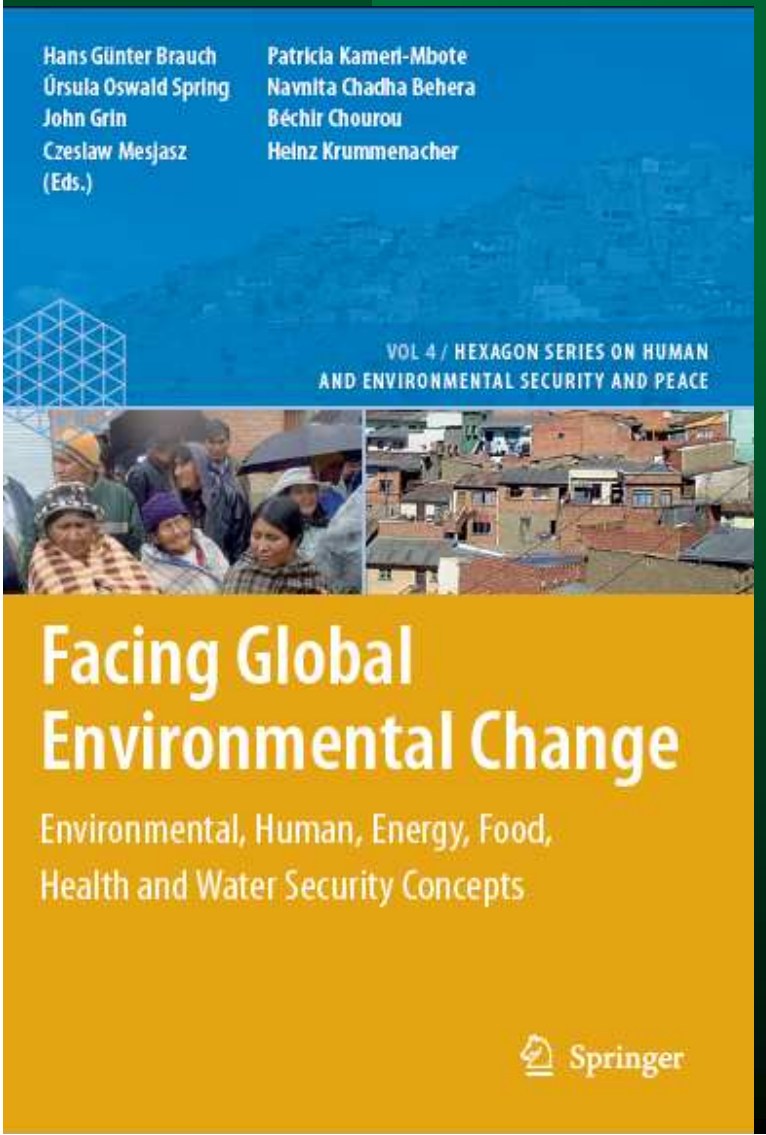
- **Unpredictable nonlinear policy changes**
- **New equity issues: contribution to climate change and victims of climate related natural hazards (North – South gap): eg US-Bangladesh**
- **Hobesian, power-based miltiary mindset offers no solution**
- **Grotian, multilateral cooperative approach and both top-down and bottom-up approaches are needed: resilience & survival strategies.**
- **Summarizes key messages of the book.**

9.9. Summary and Conclusions

Need for Scientific Research on Security

- **Scientific Relevance of New Security Concepts**
  - The widening, deepening, and sectorialization of security implies a major shift in the **securitizing actor from the nation state to international orga-nizations and regimes** as well as non-state actors, societal and business networks, and epistemic communities.
  - By securitizing global dangers and concerns, such as climate change, desertification and water, **the new actors have challenged the monopoly of the departments of defence & interior,** as well as that of the many intelligence agencies & threat industry in consulting firms.
  - While the mapping of the global reconceptualization of security is an academic effort guided by scientific criteria,
  - **use of security concepts & the securitization of major threats, challenges, vulnerabilities & risks has been a highly contested political issue.**
  - **Thus, the reconceptualization of security matters scientifically & politically.**
- **Methodological Considerations for Security Research**
  - **Increase multi- and transdisciplinary research on global env. challenges**
- **A Shift from a Security to a Survival Dilemma**
  - A major proposal of this book is to empower decision-makers and societal actors to cope with possible dilemmas in a globalized world.

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



Hans Günter Brauch, Úrsula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Nav-nita Chadha Behera, Béchir Chourou, Heinz Krum-menacher (Eds.): *Facing Global Environmental Change: Environ-men-tal, Human, Energy, Food, Health and Water Security Concepts*. Hexagon Se-ries 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, desertifi-cation, 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.

9.11. 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.

9.12. The Audience of the Security Handbook: A Reference Tool

- Contributions were anonymously peer-reviewed.
- Springer: Second largest global science publisher with a high reputation for high quality books.
- Academic Institutions: university, research institutes
- Education and policy oriented training institutions
- National government bodies: foreign affairs, defence, development, environment, hazards & disasters
- Diplomatic and military academies globally
- Diplomats and officials at international organizations
- Educators and the Media
- Non-governmental organizations & social movements
- Religious bodies globally.

10. First Bookaid Project for University Libraries in the Third World

First AFES-PRESS Book Aid Project

In 2003-2004 AFES-PRESS sent more than 250 copies of this reference book to national and university libraries in more than 90 countries in

- **Selected OSCE states,**
- **Middle Eastern countries**
- **Countries in Africa, Asia and Latin America.**

- **Launch of Bookaid in Amman, December 2003**

The book aid project was made possible by grants and subsidies by:

- Berghof Foundation for Conflict Research, Germany (120 books)
- Public Diplomacy Division of NATO (117 books)
- Sparkasse Neckartal-Odenwald, Mosbach, Germany (11 books)
- Peter Dornier Foundation, Lindau, Germany (5 books)
- Dr. H. G. Brauch, AFES-PRESS, Mosbach, Germany (19 books)

http://www.afes-press-books.de/html/book_aid_project.htm

10.1. Second Bookaid Project for University Libraries in the Third World

- **Prof. Dr. Klaus Töpfer,** Former Executive-Director, United Nations Environment Programme (1997-2006) and former Under-Secretary General of the United Nations From the foreword:
- **"This book deserves many readers in all parts of the world, especially in those countries where university and research libraries may not be able to afford such references books. It is hoped that these scientific and policy-relevant messages can again be made available with the support of private foundations and donors to the young generation in the global South that will ex-perience many of these challenges to their security and survival during this century."**

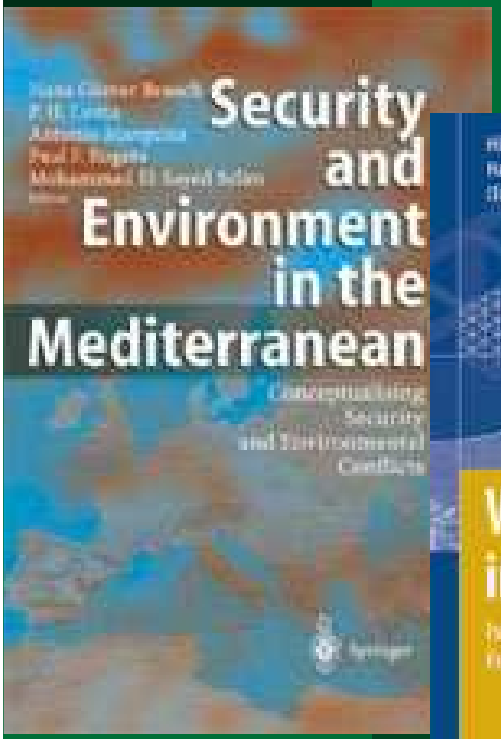
Transfer of the first book gifts to the University of Nairobi, Kenya

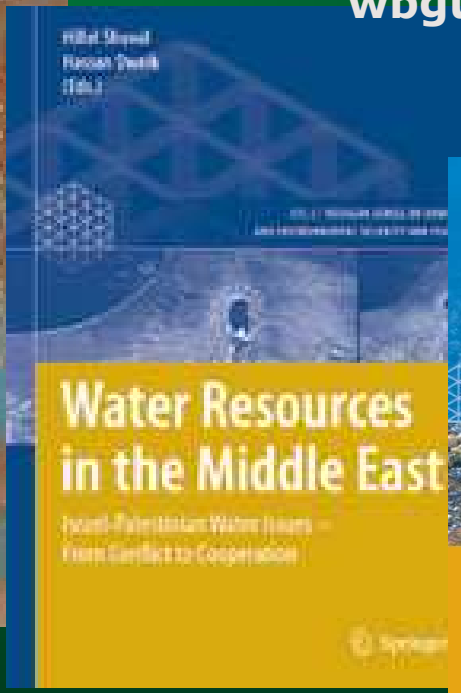
El Colegio de Mexico

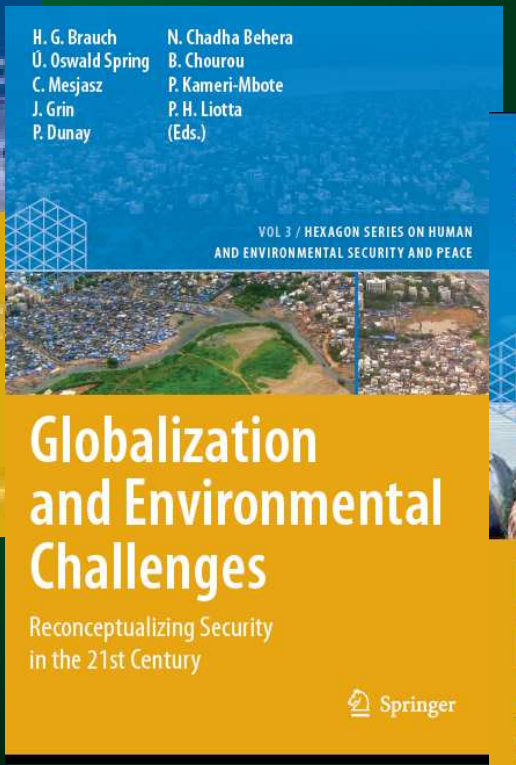
Kofi Annan Centre, Accra, Ghana

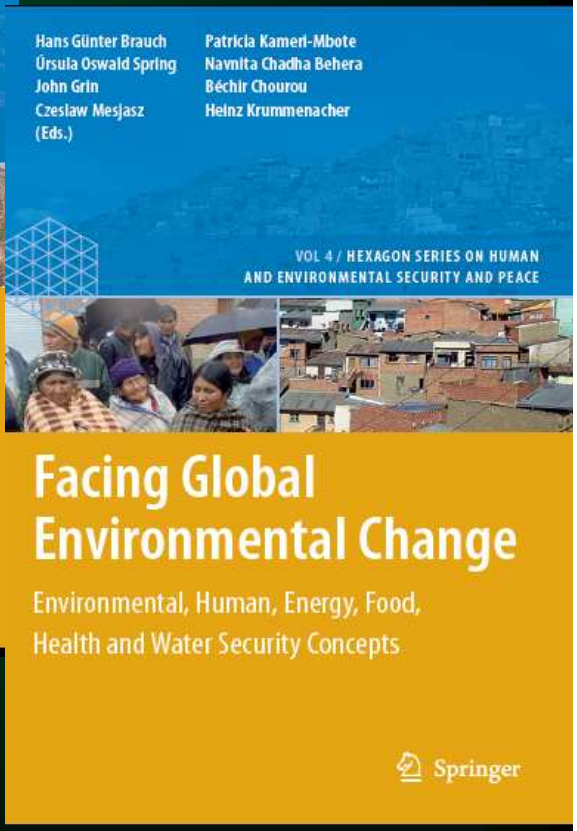
11. Bibliographic References

http://www.wbgu.de/
wbgu_jg2007_ex01.pdf









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

<http://www.afes-press-books.de/html/hexagon.htm>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http://www.afes-press.de/html/download_hgb.html
Send your comments to: <brauch@onlinehome.de>